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How do nonprofit hospitals manage earnings?

Andrew J. Leone *, R. Lawrence Van Horn

University of Rochester, William E.Simon Graduate School, Box 270100, Rochester, NY 14627, USA

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Abstract

We hypothesize that, unlike for-profit firms, nonprofit hospitals have incentives to manage earnings to a range just above zero. We consider two ways managers can achieve this. They can adjust discretionary spending [Hoerger, T.J., 1991. 'Profit' variability in for-profit and not-for-profit hospitals. Journal of Health Economics 10, 259–289.] and/or they can adjust accounting accruals using the flexibility inherent in Generally Accepted Accounting Principles (GAAP). To test our hypothesis we use regressions as well as tests of the distribution of earnings by Burgstahler and Dichev [Burgstahler, D., Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. Journal of Accounting and Economics 24, 99–126.] on a sample of 1,204 hospitals and 8,179 hospital-year observations. Our tests support the use of discretionary spending and accounting accrual management. Like Hoerger (1991), we find evidence that nonprofit hospitals adjust discretionary spending to manage earnings. However, we also find significant use of discretionary accruals (e.g., adjustments to the third-party-allowance, and allowance for doubtful accounts) to meet earnings objectives. These findings have two important implications. First, the previous evidence by Hoerger that nonprofit hospitals show less variation in income may at least partly be explained by an accounting phenomenon. Second, our findings provide guidance to users of these financial statements in predicting the direction of likely bias in reported earnings.

JEL classifications: M41; D23; L31

Keywords: Nonprofit hospital; GAAP; Earnings management

* Corresponding author. Tel.: +1 575 275 4714; fax: +1 585 442 6323.
E-mail addresses: leone@simon.rochester.edu (A.J. Leone), vanhorn@simon.rochester.edu (R.L. Van Horn).

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1. Introduction

Reported earnings in hospitals and other large nonprofit organizations serve a number of important purposes. These include credit evaluation, managerial assessments, donation decisions, contract negotiations, and even the review of tax-exempt status. For example, it is widely thought that many hospitals are currently foreclosed from credit markets in large part due to low reported earnings. Brickley and Van Horn (2002) report a negative relation between earnings and the likelihood a CEO will be terminated. Frank et al. (1990), report that donors consider the hospital's profitability when making donation decisions. Finally, as an anecdotal example of regulatory constraints, the Texas Attorney General's office sued Methodist Hospital soon after Modern Healthcare magazine listed it as the third most profitable nonprofit hospital system in 1991.[1]

There is an extensive accounting literature documenting that executives manage reported earnings for various contracting reasons (e.g., bonus contracts and debt covenants) and to influence stock prices.[2] Several systematic patterns of earnings management have been documented in for-profit organizations. Managers smooth earnings to show steadily increasing earnings patterns, and manage earnings to avoid small losses and to avoid small earnings decreases (Burgstahler and Dichev, 1997). Given the pervasive evidence in the corporate setting and the importance of earnings in the nonprofit hospital industry, a natural question is whether nonprofit hospital CEOs also manage earnings, and whether they do so in a predictable manner.

Nonprofit hospitals, by definition have different objectives, governance, and managerial incentives. These differences naturally give rise to differential predictions in financial reporting strategies. So while we expect earnings management to occur in the nonprofit hospital setting, we expect the form of the earnings management to differ in material ways. We expect that like the executives in the corporate setting, nonprofit hospital CEOs will manage earnings to avoid small losses. That is, if earnings fall just below zero in the initial earnings report, earnings will be managed through accounting adjustments so that the earnings reported to stakeholders (e.g., debtholders, the board of directors, etc.) is nonnegative. This behavior is documented by Burgstahler and Dichev (1997) and Degeorge et al. (1999) in the corporate sector.

The chief differences in earnings management that we expect to find in nonprofit hospitals are as follows. In investor-owned organizations, managers have an incentive to report a pattern of continuous increases in earnings so they engage in income smoothing to show constant growth.[3] Firms that show these patterns of growth (even by managing earnings) appear to be rewarded with a price premium in the stock market (Barth et al., 1999). In contrast, we expect that given the various stakeholders, it is optimal for nonprofit hospital CEOs to manage earnings around a fixed point just above zero profits. This prediction is consistent with Hoerger (1991), who predicts and finds that nonprofit hospitals minimize the variance in reported earnings because they attempt to achieve a target level of earnings that

[1] Modern Healthcare, January 1993.

[2] For a review of this literature, see Healy and Wahlen (1999).

[3] We contrast nonprofit hypotheses with findings from research on investor-own organizations. The majority of for-profit hospitals are investor owned.

satisfies the budget constraint. Similarly, in contrast to for-profit firms, nonprofit hospitals have no incentive to avoid reporting earnings decreases as long as current period earnings are above zero. The motivation for avoiding small losses in the for-profit sector is driven by equity markets, which does not exist in the nonprofit sector. Therefore, in contrast to evidence in the for-profit sector, we do not expect hospital executives to manage earnings in order to avoid earnings decreases.

Hospital CEOs have several ways to manage reported earnings. First, as Hoerger (1991) suggests, managers can increase or decrease discretionary spending near year end to get closer to desired profit levels. However, adjusting discretionary spending in the short-run, often (though not always) has undesirable long-run consequences. For example, cutting back (increasing) services in years where hospitals expect budget shortfalls (surpluses) can lead to inconsistent service and quality. Further, it leads to real economic losses in efficiency. Another limitation of managing real spending to influence reported earnings (the presumed budget constraint in prior research) is that it must occur prior to the end of the reporting period when the final earnings number is not yet known.

Alternatively, managers can take advantage of the subjective nature of certain accounting standards to adjust reported earnings rather than increase or decrease real spending. Consider, for example, the case of third-party settlements which is a liability on hospitals' financial statements.[4] Audits by third-party payers after a hospitals' fiscal year end can lead to denied or adjudicated claims.[5] Further, the ultimate rates paid by Medicare and other insurers are subject to retrospective adjustments. Generally Accepted Accounting Principles (GAAP) require hospitals to reserve for any anticipated adjustments to payments resulting from audits and retrospective rate adjustments by third-party insurers that occur after the year-end. This requires considerable judgment by management because it is difficult to accurately forecast subsequent adjustments, and this liability can be substantial.[6] The size of this account coupled with the substantial management judgment required to estimate the settlement amount makes this account highly susceptible to earnings management.[7] Fur-

[4] Note that the basic accounting identity is Assets (A) − Liabilities (L) = Net Assets (NA). Restating this identity in changes we have, $\Delta A - \Delta L = \Delta$NA. Making some reasonable simplifying assumptions, it is straightforward to show that $\Delta A - \Delta L =$ Net Income. This implies that hospitals can increase (decrease) reported income by increasing (decreasing) the reported value of their assets or by decreasing (increasing) the reported value of their liabilities. For example, the third-party settlement accounting is normally a liability. Because it is an estimated liability, management exercises a certain amount of judgment regarding the dollar amount of the liability. Management can increase income by decreasing the dollar value of the liability (biasing the amount down).

[5] Retrospective adjustment to settle accounts on a payer by payer basis may often take as many as 4 years, requiring the hospital to hold in reserve either credits or debits corresponding to their projection of the settlement amount. Hospitals are naturally aggressive in their practices, identifying as much collectable revenue as possible. At the same time however, upon audit incomplete documentation can result in collections being revised downwards. Excess Periodic Interim Payments (PIP) could further result in the hospital having a liability.

[6] As an example, a large nonprofit hospital in Rochester, New York, with net revenue of $438 million, reported an estimated third-party payer settlement liability of $61 million in 1998. If the CEO of this hospital wanted to increase current-period income, by $3 million in 1998, he could bias his judgment of the third-party payer settlement liability down by $3 million. This bias would be difficult, if not impossible, for auditors detect since it represents less than 5% of the total liability. See Appendix A for a complete discussion of how adjustments to the third-party allowance and balance sheet accounts in general impact reported income.

[7] Several factors suggest that these are the accounts that concern auditors most when it comes to earnings management. First, one of the authors discussed the issue with the partner of a large regional audit firm. He

thermore, the subjective nature of accounts such as the third-party allowance account makes it virtually impossible for a financial statement user to "undo" the earnings management for any individual hospital.

In this study, we examine both discretionary accounting adjustments (accruals) and discretionary spending on charity care on a set of 1204 nonprofit hospitals (8179 hospital-years) for the period 1990–2002. Using multiple measures of discretionary accruals (discretionary adjustments to earnings), we find evidence that hospital CEOs (1) manage earnings toward zero, (2) manage earnings to avoid losses and (3) do not manage earnings to avoid negative earnings changes.

In addition to examining CEOs' discretionary accrual choices, we examine whether discretionary expenditures on charity care are adjusted to report earnings close to zero. We assume that changes in charity care expenditures are discretionary and find that these changes are positively correlated with hospitals' current income excluding current year changes in charity care. This is consistent with CEOs maximizing philanthropic objectives subject to a zero profit constraint.

Our paper has important implications for both academic researchers and users of financial statements of nonprofit hospitals. Our evidence suggests that researchers should be aware that all reported financial performance embodies a measure of subjectivity that effectively shades the "real" performance of the hospital. Hospital management can use the subjective nature of accounting standards to meet certain profit objectives. Barring the use of accruals, all observed changes in profitability are presumed to be "real" in the sense that the hospital makes actual cuts or increases in spending. For example, Hoerger (1991) finds that hospitals minimize the variance in reported earnings and it is suggested that this is done by adjusting real spending. Making real changes in spending can be costly (e.g., eliminate a position to reduce costs in order to meet a budget constraint). However, our paper suggests that while, we agree with Hoerger (1991) that hospitals do attempt to minimize the variance of earnings, it is likely that at least some of this is accomplished through earnings management via accounting. Earnings management via accounting is likely much less costly than managing real activities.

For users of financial statements in nonprofit hospitals, we provide a model of when nonprofit hospitals are likely to manage earnings up or down. This model is useful for determining the likely direction of any bias in reported earnings. For example, firms with high positive (low negative) profits, likely have higher (lower) profits than those actually reported.

The remainder paper is organized as follows. Section 2 develops hypotheses for incentives to manage earnings in nonprofit organizations. Section 3 presents the empirical model and hypothesis tests. Section 4 presents the data and results, and Section 5 concludes.

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concurred with our contention that the allowance and the third party payer settlement accounts are the most susceptible to earnings management. He explained that these accounts require the most attention in an audit and that earnings management to some degree is virtually impossible to prevent. Second, we discussed this matter with several hospital CFOs and they agreed that this occurs in practice. Finally, the third-party-settlement liability account is recognized as a concern by the American Institute of Certified Public Accountants (AICPA). In fact, the AICPA has published a case titled "Do the Right Thing," that raises ethical issues surrounding the valuation of this account.

2. Incentives to manage earnings—hypothesis development

We assume that nonprofit hospitals seek to maximize their philanthropic objective function subject to a zero-profit constraint.[8] The intuition behind the zero-profit constraint is as follows. Nonprofit hospitals have a social objective, such as providing healthcare services to the community and charity (unreimbursed) care to the indigent. The hospital is expected to spend available resources to maximize its objective subject to a zero-profit constraint. In contrast to the investor-owned setting where earnings are used to evaluate a managers' ability to increase firm value, nonprofit CEOs are evaluated in part on their ability to meet a non-financial objective (e.g., improving the level and quality of care to the community) subject to a zero-profit constraint.[9] As described below, unlike the for-profit sector, there are costs to the hospital for reporting either losses or profits.

2.1. Costs associated with reporting losses

2.1.1. The market for hospital CEOs

The primary objective of nonprofit hospitals is not profit maximization, yet they must at least break even over time to continue as a going concern. Hence, while not the hospital's primary objective, profitability serves as a measure of the CEO's ability to sustain the hospital as a going concern. CEO turnover is relatively high and is related to profitability (Brickley and Van Horn, 2002). The cost to the hospital of reporting a loss, because any loss suggests that the hospital CEO violated the zero profit constraint, will increase the likelihood that a CEO is terminated.

2.1.2. Bondholders

The majority of nonprofit hospitals raise capital by issuing debt.[10] Trueman and Titman (1988) show that firms reduce the cost of debt by reducing the variance of earnings. Since hospitals in our setting have the theoretical constraint of earning zero long-run profits, hospital CEOs have an incentive to manage earnings toward zero to minimize the earnings variance. By reducing the cost of debt through earnings management, managers can use the cost savings to increase the quantity of services the hospital provides or to increase their own perquisites.

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[8] Studies examining the nature of nonprofit organizations include Newhouse (1970), Pauly and Redisch (1973), Fama and Jensen (1983a), and Fama and Jensen (1983b). For a complete review on the economics of nonprofit organizations, see Frank and Salkever (1994).

[9] The hospital CEO is responsible for the preparation of the financial statements, which are audited by a board appointed, outside auditor. We often refer to the CEO's objectives, because he/she is acting on behalf of the hospital. As discussed in this section, the financial reporting incentives are such that there is incentive compatibility between the CEO and the board of directors with respect to financial reporting. However, the CEO has private information about the accounts (e.g., the underlying value of the third-party settlement liability) and could manage earnings in ways that that are not in the best interest of the board if he/she chose to do so.

[10] Nonprofit organizations are precluded from issuing stock.

2.2. Costs associated with reporting profits

When hospitals report excessive profits, it suggests that CEOs have (1) exhausted their philanthropic activities, (2) chosen to delay these activities until a future period, or (3) not exerted sufficient effort to identify additional philanthropic projects. For example, the hospital could have spent profits on more charity care to the indigent, reduced prices for services rendered or offered more preventive care programs to the local community. Failure to allocate available resources toward philanthropic objectives and reporting large profits imposes costs on the organization from regulators and donors.

2.2.1. Regulation

Tax authorities monitor nonprofit hospitals' profitability in part to assess whether they should retain their tax-exempt status. To qualify for federal tax-exempt status [section 501(c)(3) of the Internal Revenue Code (IRC)] hospitals must be organized exclusively for "charitable purposes."[11] If hospitals report large profits they risk jeopardizing their tax-exempt status. Weissenstein (1997) writes, "Many industry observers say that as tax-exempt systems grow and compete more aggressively with investor-owned companies, they will catch the eyes of budget conscious state and federal lawmakers." The most significant challenges to hospital tax-exempt status have come from state and local tax authorities. At the state level, as discussed earlier, the Texas Attorney General's office sued Methodist Hospital soon after Modern Healthcare magazine listed it as the third most profitable nonprofit healthcare system in 1991.[12]

As another example, an opinion of the Pennsylvania Supreme Court in the case of Hospital Utilization Project v. Commonwealth resulted in local municipalities challenging the tax exempt status of 175 of the state's 220 nonprofit hospitals as of 1996. In a broad cross-sectional study, Barniv et al. (1999) report that the likelihood that hospitals will be required to pay taxes (such as local property and state income taxes) is increasing in the hospitals' profitability. Consequently, when earnings increase, regulatory costs increase from the threat of increased tax liabilities.

2.2.2. Donors

Nonprofit hospitals seek outside donations to help defray the cost of philanthropic objectives. Frank et al. (1990) report that potential donors consider the level of charity care and the hospital's profitability as important decision criteria when making donation decisions. They find an inverse relation between financial performance and the level of donations to hospitals. Donors are less likely to make donations to organizations that report high profits because donors do not view the organization as a "needy charity." Donors may also view

[11] A nonprofit hospital must satisfy both organizational and operational tests to satisfy the requirements of section 501(c)(3). The organizational test requires the organization to be limited to one or more exempt purposes as defined in the statute, limit their engagement in activities inconsistent with their exempt purposes, and dedicate their assets to the stated charitable purpose. The operational test requires that the hospital is operationally pursuing their stated purpose. If more than an insubstantial part of their activities fall outside their exempt purpose, or the organization privately inures individuals through "excess benefit" transactions they will fail the operational test. See Treas. Reg. 1.501(c)(3)-1(c)(1) (as amended in 1990).

[12] Modern Healthcare, January 1993.

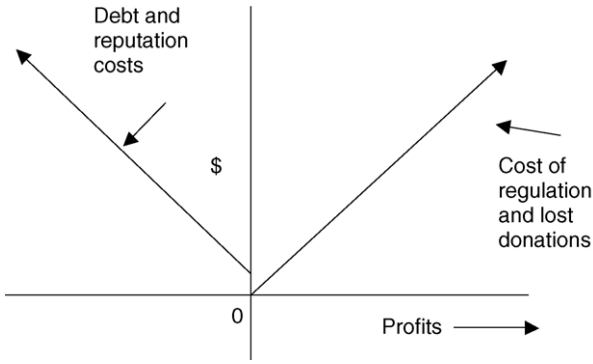

Fig. 1. Reporting costs. This figure depicts the reporting incentives of hospital CEOs. As described in Section 2 of the text, hospitals are faced with costs from reporting profits by way of regulation (taxes and nonprofit status) and lost donations. These costs are expected to increase monotonically with profit. Hospitals will incur costs related to debt (solvency) and CEO reputation as reported profit falls below zero. We assume that solvency costs are increasing monotonically as profits become increasingly negative. The cost of reporting losses on CEO reputation is expected to be significant even for small losses. Any reported loss, no matter how small, will have an adverse effect on CEO reputation and increase the likelihood that the CEO will be terminated. Consequently, CEOs minimize reporting costs by managing earnings toward zero.

the presence of profits in the organization as evidence that the philanthropic goal has either been met or is not being pursued appropriately by the organization. Okten and Weisbrod (2000), report that donations are roughly 2% of revenue. Considering that total income (income from hospital operations plus donations) for the nonprofit hospitals in our sample is roughly 2.5% of revenue, donations are an important source of income (about 80% of income).

2.2.3. Third-party payers

A final set of stakeholders with an interest in the financial performance of nonprofit hospitals is third-party payers. Third-party payers routinely review the financial performance of hospitals they contract with to assess how hard they should push for price concessions during contract renegotiation.[13] If a hospital reports relatively high earnings, they are much more likely to face price pressure from the third-party payer. If on the other hand the hospital has very little margin they are in a better position to receive price concessions. Consequently, reporting higher profits is costly in that it will likely lead to more price pressure from third-party payers.

2.3. Summary of reporting costs

As described above, there are costs to reporting either losses or profits. Fig. 1 is a diagram of the CEO's reporting problem. The asymmetry in the cost of reporting losses arises from the effect of losses on CEO's reputation. CEOs expect that reporting losses will increase

[13] We thank an anonymous manager at Excellus (Blue Cross/Blue Shield of Western New York) for raising this issue.

the likelihood that they will be terminated. Reporting even a small loss is expected to have an adverse affect on a CEO's reputation and increase the likelihood that the CEO will be terminated. Taken jointly, Fig. 1 shows that managers minimize the costs of reporting by reporting income at or close to zero.

In the absence of uncertainty, we expect CEOs to make operating decisions during the year such that year-end income is equal to zero. However, assuming uncertainty, and asymmetry in the cost of reporting, we expect managers to plan, ex ante, on earning small profits. By planning for small profits, the CEO reduces the probability of being forced to report losses as the result of an unforeseen event. This behavior will likely lead to a distribution of pre-managed income with a positive mean.

There are other factors that will likely lead to a positive mean in the distribution of earnings. For example, profits provide hospitals with resources to invest in expansion and new technology. The level of target profits likely varies from hospital to hospital. What is critical here though is that in contrast to the for-profit setting, for the reasons we outline above, there are costs to reporting "too much" income and managers are expected to take actions to avoid these costs.

While, premanaged earnings are likely to be positive on average, we expect managers to use discretionary accruals, ex post, to reduce the reporting costs that are outlined in Fig. 1.[14] We hypothesize that CEOs minimize reporting costs by making discretionary accruals that move reported profits toward zero (or some fixed point above but close to zero). When profits are below zero, CEOs make income-increasing accruals so that reported profits are nonnegative. When profits are above zero, CEOs make income-decreasing accruals to get closer to zero.[15]

Zero-profit hypothesis. Discretionary accruals are positive (negative) when pre-managed earnings are negative (positive).

As in Burgstahler and Dichev (1997) and Degeorge et al. (1999) we examine whether managers avoid reporting small losses. Given the asymmetric form of reporting costs described in Fig. 1, CEOs are expected to manage earnings to report profits that are close to zero and nonnegative. This reduces the likelihood that the CEO will be terminated and enhances the CEO's reputation. If hospital CEOs manage earnings to avoid small losses a non-normal distribution of income with unusually low frequencies just to the left of zero will be observed.

Loss-avoidance hypothesis. The distribution of earnings surrounding zero will be non-normal just below zero.

The null hypothesis in this test is a "smooth" distribution of reported earnings that is normal with a mean that is positive. As described above, managers will make operating

[14] We refer to premanaged earnings as the preliminary earnings number that hospital executives observe before they decide to make "discretionary adjustments" to the reported value of certain assets and liabilities.

[15] Because discretionary accruals are zero on average and premanaged earnings are expected to be positive on average, reported income is also expected to be positive. Discretionary accruals are expected to be used to reduce reporting costs after premanaged earnings have been observed.

decisions during the year in a way that leads to profits with an expected value that is slightly positive. Since the cost of reporting a $1 loss is greater than the cost of reporting a $1 profit, managers will take actions that lead to earnings somewhat greater than zero to reduce the likelihood of reporting a loss arising from some exogenous shock. If managers do not adjust reported earnings after observing premanaged earnings, the distribution of earnings will be normally distributed because ex post earnings will be comprised of expected earnings plus an error term (exogenous shock) that is normally distributed. Consequently, in the frequency distribution of earnings, the first interval of observations below zero will be approximately equal to the average number of observations in the intervals just to the left and just to the right, under the null hypothesis.

Finally, the nature of reporting costs suggests that reported earnings changes are relatively unimportant in this context compared to the for-profit setting. The primary explanation that Burgstahler and Dichev (1997) give for the avoidance of earnings decreases in the for-profit sector is not applicable to nonprofit hospitals. They argue that managers believe that they can positively influence stock prices by avoiding earnings decreases through earnings management. These capital-market incentives are absent in nonprofit hospitals, where there are no residual claimants. Consequently, we do *not* expect to see evidence that hospital CEOs avoid negative earnings changes.

Earnings changes hypothesis. The distribution of earnings changes surrounding zero will be normal.

The prior hypotheses examine ex post behavior, where the CEO examines pre-managed earnings at year-end and makes discretionary accruals. In this section we test whether CEOs make discretionary expenditures during the year that are consistent with the *zero-profit hypothesis*. Adjusting discretionary expenditures to affect earnings has been examined by accounting researchers in the for-profit setting. For example, Dechow and Sloan (1991) and Murphy and Zimmerman (1993) examine the level of R&D spending around CEO turnover. They hypothesize that CEOs reduce R&D spending to reduce the likelihood of being terminated.

In nonprofit hospitals, the incentives for CEO's to adjust discretionary spending are likely to be greater because profitability is a constraint rather than an objective. Available resources are spent on carrying out the organization's objective. The availability of resources is measured by profitability before discretionary adjustments are made to the level of charity care spending. We assume that any changes to the level of charity care spending are discretionary and managers adjust charity care spending after estimating current year earnings based on last year's spending on charity care (earnings plus charity care expenses this year less last year's charity care expense). Adjusting charity care spending based on earnings, assuming no change in charity care, will allow the hospital to increase (decrease) the level of charity care provided and avoid reporting large profits (losses) that will increase reporting costs. This leads to the following hypothesis.

Discretionary spending hypothesis. Spending on charity care is positively associated with the availability of resources (earnings).

3. Empirical analysis

3.1. Measures of discretionary accruals

To test the zero-profit hypothesis, we analyze specific accounts that are most susceptible to earnings management in the spirit of Guidry et al. (1999), Leone and Rock (2002), and McNichols and Wilson (1988). Based on discussions with the financial officers at numerous nonprofit hospitals, we identified two accounts that are both large in magnitude and require substantial judgment in determining proper balances. These account characteristics afford the greatest opportunity for earnings management.

The first account relates to third-party settlements. These third parties include, managed care organizations, Blue Cross/Blue Shield plans, other commercial insurers, Medicare, and Medicaid. Payments for inpatient services are frequently determined through a prospective payment system known as Diagnostic Related Groups (DRGs) that relies upon the patient's discharge diagnosis. The classification by the hospital is subject to subsequent audit and review by the insurer, which can lead to denied or adjudicated claims. Further, the ultimate rates paid by Medicare and other insurers are subject to retrospective adjustments. GAAP requires hospitals to reserve for any anticipated adjustments to payments resulting from audits and retrospective rate adjustments by third-party insurers that occur after the year-end. This liability can be substantial. As an example, a large nonprofit hospital in Rochester, New York, with net revenue of $438 million, reported an estimated third-party payer settlement liability of $61 million in 1998. This represents almost half of total liabilities, excluding long-term debt. The size of this account coupled with the substantial management judgment required to estimate the settlement amount makes this account highly susceptible to earnings management.

The third-party payer settlement liability account is not reported as a separate line item in our database, which requires us to rely on the third-party allowance contra-revenue account to estimate the related discretionary accruals.[16] The contra revenue account reflects the income effect of any adjustments to the liability account in addition to any discounts. Assuming that the negotiated discounts remain similar from year to year, the normal third-party allowance account should be equal to the prior year plus an adjustment for the change in undiscounted gross revenue.[17] We also include the change in Medicare Revenue and the change in Medicaid Revenue to control for likely differences in discounts and other adjustments for Medicare and Medicaid. Our measure of discretionary third-party allowance accruals is the residual from the following model estimated cross-sectionally

[16] A contra revenue account is an account that is "netted out" against another account. For example a hospital might have a "Gross Patient Revenue" account that records the gross charges during the year. They offset this account with "Third-Party-Allowances," which are discounts given to insurers, etc. This account is subtracted from Gross Patient Revenue to get to Net Revenue. The Third-Party-Allowance is considered a contra revenue account to Gross Patient Revenue.

[17] See Appendix A for a numeric example of the activity in the third-party payer settlement liability and the third-party allowance contra revenue accounts.

by year:

$$\frac{\Delta\text{THD\_PTY\_ALLOW}_{it}}{\text{TA}_{it-1}} = \frac{\alpha_{0t}}{\text{TA}_{it-1}} + \frac{\alpha_{1t}\Delta\text{GROSS\_REVENUE}_{it}}{\text{TA}_{it-1}} + \frac{\alpha_{2t}\Delta\text{MEDICARE\_REV}_{it}}{\text{TA}_{it-1}} + \frac{\alpha_{3t}\Delta\text{MEDICAID\_REV}_{it}}{\text{TA}_{it-1}} + \varepsilon_{it} \quad (1)$$

where $\Delta\text{THD\_PTY\_ALLOW}_{it}$ is the change in the third-party allowance for hospital i in period t, $\Delta\text{GROSS\_REVENUE}_{it}$ is the change in gross revenue (excluding third-party discounts), $\Delta\text{MEDICARE\_REV}_{it}$ is the change in Medicare revenue, $\Delta\text{MEDICAID\_REV}_{it}$ is the change in Medicaid revenue, and TA_{it-1} is total assets in $t-1$.[18] We refer to the residual (ε_{it}) multiplied by -1 as DA_THD_PTY, which is our measure of discretionary accruals in the third-party allowance account. We multiply by -1 so that the interpretation of this discretionary accrual measure is consistent with the discretionary accrual from the Jones model, which we describe below. To the extent that we have omitted variables that explain nondiscretionary changes in the third-party allowance account, our measure of discretionary accruals is measured with error. However, limiting our analysis to specific accounts and applying separate predictive models for each of these accounts is likely to lead to less measurement error than using an aggregate approach, such as the Jones (1991) model.

The second account susceptible to earnings management is the allowance for doubtful accounts.[19] Like the third-party settlement account, the allowance account requires forecasts of future events and requires considerable management discretion. Similarly, we include the change in Medicare and Medicaid revenue to control for differences in the relative likelihood of payment. Our measure of discretionary accruals is the residual from the following regression equation estimated separately for each year:

$$\frac{\Delta\text{BADDEBT\_EXP}_{it}}{\text{TA}_{it-1}} = \frac{\beta_{0t}}{\text{TA}_{it-1}} + \frac{\beta_{1t}\Delta\text{NET\_REVENUE}_{it}}{\text{TA}_{it-1+1}} + \frac{\beta_{2t}\Delta\text{MEDICARE\_REV}_{it}}{\text{TA}_{it-1}} + \frac{\beta_{3t}\Delta\text{MEDICAID\_REV}_{it}}{\text{TA}_{it-1\mu_{it}}} \quad (2)$$

[18] In the database of financial information we use, the values for Medicare and Medicaid revenue are missing. This causes a significant loss of observations. When we estimate the model without Medicare and Medicaid variables, which allows for a much larger sample, the results are similar to those reported in the paper.

[19] The allowance for doubtful accounts is considered a contra asset account. It is used to adjust the expected value of accounts receivable. Suppose, for example, the hospital has accounts receivable totalling $1 million. However, it only expects to collect $800 thousand. Since the expected value of accounts receivable is $800 thousand, the hospital creates an allowance for doubtful accounts in the amount of $200 thousand so that net accounts receivable is $800 thousand (gross accounts receivable of $1 million minus the allowance for doubtful accounts of $200 thousand). Bad debt expense, reflects the impact that an adjustment to the allowance account has on earnings.

where ΔBADDEBT_EXP$_{it}$, is the change in bad debt expense in year t, ΔNET_REVENUE$_{it}$, is the change in net revenue in year t, and TA$_{it-1}$ is total assets in year $t-1$. We use net revenue rather than gross revenue for our estimate of bad debt expense because accounts receivable is net of discounts. The residual, μ_{it}, from model (2) multiplied by -1 is referred to as DA_BADDEBT.

As a robustness check, we also estimate discretionary accruals using the Jones model (1991), which is the most commonly used methodology in the accounting literature. The Jones model is estimated as follows:

$$\frac{\text{ACC}_{it}}{\text{TA}_{it-1}} = \frac{\delta_{0t}}{\text{TA}_{it-1}} + \frac{\delta_{1t}\Delta\text{NET\_REVENUE}_{it}}{\text{TA}_{it-1}} + \frac{\delta_{2t}\text{PPE}_{it}}{\text{TA}_{it-1}} + \omega_{it} \tag{3}$$

where ACC$_{it}$ is firm i's total accruals calculated as the change in non-cash current assets minus the change in current liabilities from year $t-1$ to year t minus depreciation expense for year t; ΔNET_REVENUE$_{it}$ is firm i's change in net revenue from year $t-1$ to year t; PPE$_{it}$ is firm i's net property, plant and equipment as of the end of year t; and TA$_{it-1}$ is hospital i's total assets in year $t-1$. The residuals from this model, which we refer to as DA_JONES, are used as our third measure of discretionary accruals.

4. Data and results

4.1. Data

The financial data, including balance sheet, income statement, and operating information were obtained from Van Kampen Merritt.[20] The database includes only hospitals that issue public debt. We obtain financial data on a set of 8179 nonprofit US hospitals for the period 1990–2002. The Van Kampen Merritt database includes approximately 50% of all nonprofit hospitals in existence for the study period and the original data sources are the audited financial statements of the hospitals. The Van Kampen Merritt database contains 36,367 hospital-year observations for 3177 hospitals. We eliminate hospital systems (financial statements that reflect the consolidated results of multiple hospitals controlled by the same board of directors) and observations with insufficient data to estimate the Jones model and our bad debt model, which reduces the sample to 1204 hospitals and 8179 hospital-year observations. The number of hospitals in our sample in any given year ranges from 371 in 2002 to 1035 in 1996. Because reporting requirements for hospitals changed in 1990, many firms do not report the total of third-party allowances (they report only net revenue). For tests related to the third-party allowance account, we are restricted to a sample of 3186 hospital-year observations.

An examination of the bed size and total assets of the hospitals in this sample with the population of nonprofit hospitals from the Medicare Cost Reports suggests that the hospitals included in our sample are comparable. Since hospitals in our sample sought and obtained public debt financing, they tend to carry more debt than the population of nonprofit hospitals. The debt is about 37% of total assets for firms in the Merritt database compared to 30% for

[20] Van Kampen Merritt is a Wall Street bond-rating firm.

Table 1
Descriptive statistics 1990–2002

Variable	Description	*N*	Mean	Standard deviation	Minimum	Median	Maximum
REVENUE	Net revenue (000's)	8,179	110,051	100,358	3,613	79,794	854,083
TA	Total assets (000's)	8,179	135,155	130,809	3,056	90,727	799,315
INCOME	Operating income	8,179	0.022	0.065	−1.473	0.026	0.569
DA_THD_PTY	Discretionary accruals third-party allowance	3,186	−0.004	0.046	−0.171	−0.002	0.150
DA_BADDEBT	Discretionary accruals bad debt	8,179	0.001	0.014	−0.050	0.001	0.058
DA_JONES	Discretionary accruals—Jones model	8,179	0.000	0.035	−0.101	0.001	0.098

We obtain all financial data from the Van Kampen Merritt Database. DA_THD_PTY is the residual from Eq. (1). The sample is smaller for DA_THD_PTY because reporting of the third-party allowance on the income statement is voluntary, which limits the number of usable observations to 3186. DA_BADDEBT is the residual from Eq. (2). DA_JONES is the residual from the Jones model (Eq. (3)). INCOME, which is operating income scaled by lagged total assets, does not include any tax support received by a governmental hospital nor does it include extraordinary items. Net Revenue (REVENUE) is a hospital's net patient billings.

all US nonprofit hospitals over the same sample period. Other characteristics on population data are obtained from Medicare Costs Reports. We cannot be certain that the firms in our sample are representative of the population. For example, we know that our firms have more debt. Therefore, while we see no obvious reason our results are not generalizeable to the population of all hospitals, it is possible that our results would be different for the excluded hospitals.

4.2. Descriptive statistics

Table 1 reports the descriptive statistics for all hospitals in the sample. The mean (median) net revenue reported in thousands is $110,051 ($79,794). The skewness is driven by a small number of very large hospitals. Total Assets (TA) is similarly skewed with a mean (median) of $135,155 ($90,727). Income (scaled by total assets at $t-1$) has a mean and median of 2.2% and 2.6%, respectively.[21] The positive mean operating income is consistent with hospitals setting operating targets to exceed zero to reduce the likelihood of reporting losses that could arise from unexpected events.

We report three estimates of discretionary accruals (DA_THD_PTY, DA_BADDEBT, DA_JONES). We use the residuals from a first-stage equation for all measures of discre-

[21] For our empirical analysis, we use the hospital's reported operating income as a measure of income. This excludes various nonoperating adjustments and is most reflective of the hospital's economic performance from operations. We believe it is the metric most widely watched but stakeholders. Nonetheless, a case could be made for using "bottom line" income after nonoperating adjustments. We replicated all of our tests using income after nonoperating adjustments and all of our results are qualitatively similar.

tionary accruals, and, therefore by construction, mean discretionary accruals are approximately zero. The mean adjusted R^2 for the Jones model across all years is 0.03, while the mean adjusted R^2 for the bad debt and third-party allowance models are 0.13 and 0.59, respectively. The account specific models appear to remove a larger portion of the non-discretionary component of accruals and are, therefore, more reliable.

4.3. Tests of the zero profit hypotheses

We pool our data and estimate the following OLS regression for our multivariate tests of the zero profit hypotheses.[22]

$$\mathrm{DA}_{it} = \lambda_0 + \lambda_1 \mathrm{EBDA}_{it} + \lambda_2 \mathrm{INCOME}_{it-1} + \lambda_3 \mathrm{DA}_{it-1} + \varepsilon \quad (4)$$

where DA_{it} is the discretionary accruals of hospital i in period t scaled by total assets at period $t-1$ (We report the results using all measures of discretionary accruals including DA_BADDEBT, DA_THD_PTY, and DA_JONES); EBDA_{it} = earnings before discretionary accruals for hospital i in period t scaled by total assets in period $t-1$ (EBDA_{it} is computed as operating income minus discretionary accruals); INCOME_{it-1} = operating income in period $t-1$ scaled by total assets in $t-2$.

EBDA takes on a different value for each discretionary accrual measure, and is equal to operating income minus the particular discretionary accrual being used as the dependent variable. For example, when DA_JONES is the dependent variable, EBDA is equal to operating income minus DA_JONES. Under the zero-profit hypothesis, we predict that hospital CEOs use discretionary accruals to move earnings toward zero. Consequently, we expect an inverse contemporaneous relation between DA_{it} and EBDA_{it} with a corresponding negative sign on λ_1. We include INCOME_{it-1} as an independent variable because past performance has been shown to be positively related to current-period discretionary accruals (Kothari et al., 2005). The sign on λ_2 is expected to be positive. Finally, we include lagged discretionary accruals (DA_{it-1}) to control for likely autocorrelation in discretionary accruals.

Table 2, reports the results of our OLS estimation of Eq. (3), using all three measures of discretionary accruals. As predicted by the zero-profit hypothesis, the coefficient on EBDA is negative and highly significant for all three measures of discretionary accruals ($\lambda_1 = -0.444$, -0.081 and -0.588 with DA_JONES, DA_BADDEBT and DA_THD_PTY as the dependent variable, respectively). The coefficient on operating income in $t-1$ is positive and significant for all three models. The coefficient on lagged discretionary accruals is negative and significant for models (a) and (b) but positive and marginally significant for model (c).

4.4. Sensitivity tests

The interpretation of λ_1, the coefficient on EBDA, should be made with the following caveat. Discretionary accruals are estimated in a first-stage regression and are likely to

[22] As a robustness check, we also include leverage to control for the effect of efforts by management to avoid debt covenant violations. The coefficient on leverage is not significant and has no impact on the magnitude or direction of the coefficients of interest reported in Tables 2 and 3.

Table 2
Discretionary accruals and hospital performance

Variable	Description	Predicted sign	(a) Jones model parameter estimates coefficient (*t*-statistic)	(b) Bad-debt coefficient (*t*-statistic)	(c) Third-party-allowance coefficient (*t*-statistic)
INTERCEPT	Intercept		0.005***	0.002***	0.008***
			(15.263)	(11.461)	(12.452)
$EBDA_t$	Earnings before discretionary accruals at time *t*	−	−0.444***	−0.081***	−0.588***
			(−70.864)	(−20.431)	(−53.79)
$INCOME_{t-1}$	Operating income at $t-1$	+	0.236***	0.036***	0.254***
			(43.019)	(12.047)	(27.048)
DA_{t-1}	Discretionary accruals at $t-1$	?	−0.090***	−0.140***	0.030***
			(−10.354)	(−13.267)	(2.761)
	Adjusted R^2		0.39	0.07	0.48
	Number of observations		8179	8179	3186

The full sample consists of 8179 hospital-year observations from 1989 to 1998. We obtained all data from the Van Kampen Merritt Database. The sample is smaller for model (c) because reporting of the third-party allowance on the income statement is voluntary, which limits the number of usable observations to 3186. $EBDA_{it}$ is operating income less estimated discretionary accruals. $INCOME_{it}$, which is operating income scaled by lagged total assets, does not include any tax support received by a governmental hospital nor does it include extraordinary items. DA_{it-1} is firm *i*'s discretionary accruals at $t-1$. The estimate of DA_{it} corresponds with each model used. For example, in model (a), $DA_{it-1} = DA\_JONES_{it-1}$.

*** $p < 0.01$ (1-tailed test for $EBDA_{it}$ and 2-tailed test for all others).

contain measurement error. Because, we compute EBDA by subtracting discretionary accruals from operating income (as in DeFond and Park (1997) and Gaver et al. (1995)), this measurement error will also be present in EBDA leading to a mechanical relation between discretionary accruals and EBDA. The mechanical relation between discretionary accruals and EBDA potentially biases our results in favor of the zero-profit hypothesis. We believe that focusing on specific accounts (bad debts and third-party allowance) where more of the non-discretionary accruals can be explained in the first stage model mitigates this problem. However, we conduct additional sensitivity tests in an attempt to overcome this problem more directly.

To mitigate a possible mechanical relation between discretionary accruals and EBDA, we substitute EBDA with the variable EBAE (earnings before accrual expense). This variable is constructed by adding back the expense related to the specific accrual account to operating income. For example, EBAE is equal to operating income plus bad debt expense in the regression when DA_BADDEBT is the dependent variable. Since operating income is obtained by subtracting bad debt expense from revenue (as well as all other operating expenses), we avoid any induced correlation between EBAE and DA_BADDEBT by adding back bad debt expense to operating income. EBAE is a noisy proxy for earnings before discretionary accruals but it does eliminate the mechanical relation.[23] When DA_THD_PTY is the dependent variable, EBAE is computed by adding back the third-party-allowance contra-revenue account to operating income.

Table 3 reports results using EBAE as our proxy for earnings before discretionary accruals. The sign and significance of the coefficient on EBAE for each measure of discretionary accruals is negative and significant at the 0.01 level, consistent with the results in Table 2. However, the *t*-statistics and adjusted R^2s are much smaller than those in Table 2. This suggests that while the inferences remain the same, the large *t*-statistics reported in Table 2 are likely overstated as the result of the mechanical relation between the dependent and independent variable of interest. We do not conduct a similar sensitivity test for our Jones Model measure because the Jones Model relates to all expense accounts. An equivalently computed independent variable for the Jones Model regression would be equal to Revenue, which is a poor proxy for earnings before discretionary accruals.

We also consider whether our results are significantly influenced by district hospitals that receive tax support from the local community. These hospitals were established in locations where communities had a need for a hospital but the economic opportunities were such that hospitals did not naturally emerge. Since, these hospitals are governed by locally elected officials and receive a tax subsidy to survive, the incentives to manage earnings in these

[23] The key to eliminating the mechanical relation between our proxy for EBDA and discretionary accruals is the way we measure EBDA. Abstracting from our setting for a moment, if we have three variables, *X*, *Y* and *Z*, and regress *Y* on $Z - Y$ we would expect there to be a mechanical correlation by construction. However, if *Z* is actually equal to $X + Y$, then we would not expect a mechanical relation between *Y* and $Z - Y$ since we would essentially be regressing *Y* on *X*. In the context of earnings management, *Z* is reported earnings and *Y* is discretionary accruals. If we could determine *Y* without error, then a regression of discretionary accruals (*Y*) on EBDA ($Z - Y$) would not induce a mechanical relation since we would essentially have a regression of *Y* on *X* ($X + Y - Y$). The problem arises when our estimate of *Y* contains measurement error $\hat{Y} = Y + \mathrm{e}$. When this occurs, we are then regressing $Y + \mathrm{e}$ on $X - \mathrm{e}$, which induces a mechanical relation between our measure of discretionary accruals and EBDA. This problem is increasing in the measurement error in the proxy for discretionary accruals.

Table 3
Regressions substituting earnings before discretionary accrual-expense for earnings before discretionary accruals

Variable	Description	Predicted sign	(d) Bad-debt coefficient (*t*-statistic)	(e) Third-party-allowance coefficient (*t*-statistic)
INTERCEPT	Intercept		0.003***	0.019***
			(10.499)	(11.985)
$EBAE_{it}$	Income before accrual expense	−	−0.026***	−0.049***
			(−8.767)	(−16.344)
$INCOME_{it-1}$	Operating income at $t-1$	+	0.008***	0.012
			(3.037)	(1.087)
DA_{it-1}	Discretionary accruals at $t-1$	?	−0.167***	0.006
			(−15.642)	(0.34)
	Adjusted R^2		0.03	0.09
	Number of observations		8179	3186

The full sample consists of 8179 hospital-year observations from 1989 to 1998. We obtained all data from the Van Kampen Merritt Database. The sample is smaller for model (d) because reporting of the third-party allowance on the income statement is voluntary, which limits the number of usable observations to 3186. $EBAE_{it}$ is operating income plus the specific expense account related to our estimate of discretionary accruals. For model (d), $EBAE_{it}$ is equal to operating income plus bad debt expense. For model (e), $EBDA_{it}$ is equal to operating income plus the third-party allowance. $INCOME_{it-1}$, which the prior year's operating income scaled by lagged total assets, does not include any tax support received by a governmental hospital nor does it include extraordinary items. DA_{it-1} is firm *i*'s discretionary accruals at $t-1$. The estimate of DA_{it} corresponds with each model used. For model (d), $DA_{it-1} = DA\_BADDEBT_{it-1}$, and for model (e), $DA_{it-1} = DA\_THD\_PTY_{it-1}$.
*** $p < 0.01$ (1-tailed test for $EBAE_{it}$ and 2-tailed test for all others).

organizations may be different. We include a dummy variable for district hospitals in all models reported in Tables 2 and 3. The coefficient on the district hospital dummy is negative and significant in all cases and the sign and significance of the other coefficients remain unchanged.

4.5. Tests of the loss-avoidance hypothesis

We conduct tests of the *loss-avoidance hypothesis*, and the *earnings changes hypothesis* by plotting histograms of performance and evaluating the normality of the distributions around zero. Fig. 2 displays two histograms of EBDA (earnings minus estimated discretionary accruals, DA_JONES, from model 1) and earnings scaled by total assets at intervals of 0.5%. Panel A is the distribution of EBDA and Panel B is the distribution of INCOME.

The white line in both charts in Fig. 2 indicates the interval just below zero. There is a noticeable drop in the number of observations in the distribution of operating income around zero in panel B. This drop is similar to that reported by Burgstahler and Dichev (1997) who plot the distribution of net income scaled by market value. Burgstahler and Dichev interpret this discontinuity as evidence that managers with small losses make income *increasing* discretionary accruals to avoid losses. In comparing the distribution of EBDA in Fig. 2, Panel A, to Panel B, it appears that many of our CEOs move earnings in the direction of zero but slightly positive. The mean (median) of EBDA is 2.4% (2.7%) and the mean (median)

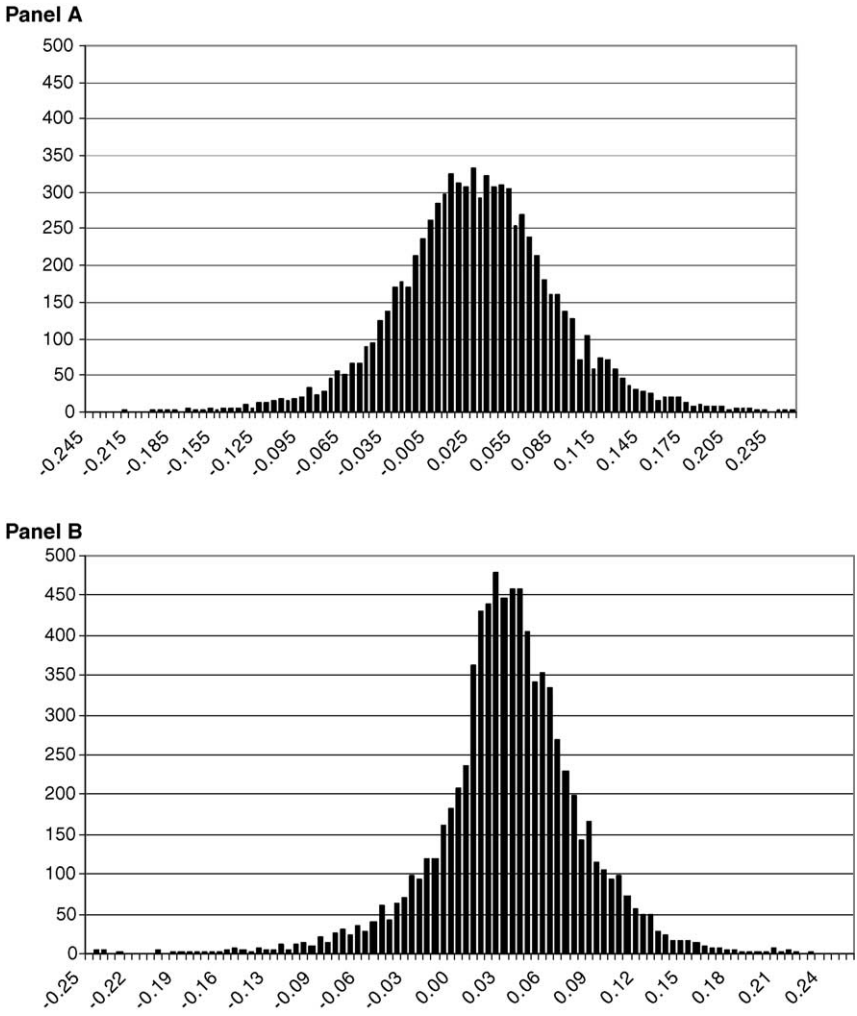

Fig. 2. Comparison of earnings distributions. Panel A—earnings before discretionary accruals. Panel B—operating income. This histogram of operating income scaled by lagged total assets includes a total of 8185 observations (excludes observations with income exceeding 0.26 in absolute value). The length for each interval in the histograms is 0.005. The dotted line separates the interval just to the left of zero [−0.005, 0] from the interval starting at zero [0, 0.005].

for operating income is also 2.4% (2.7%) suggesting that overall, discretionary accruals do not change the mean and medians but reduce the variance. The standard deviation is reduced from 0.075 for EBDA to 0.067 for operating income. A one-tailed *F*-test for differences in variances rejects the null that the variances of these two distributions are the same at $p < 0.001$. This is consistent with managers using discretionary accruals to reduce more extreme values of operating income.

We infer that the CEOs generally manage earnings to be close to zero and nonnegative. Hence, when they are close to but below zero, CEOs make income-increasing accruals to report slightly positive operating income. It is unlikely that this discontinuity is related to operating activity since we do not see a similar discontinuity in Panel A, where we plot earnings before discretionary accruals.

We conduct statistical tests similar to those performed by Burgstahler and Dichev (1997), and assume that under the null hypothesis the distribution of operating income is smooth. The definition of smoothness used is that the number of observations in a given interval (i) is expected to be the average of the intervals $i-1$ and $i+1$. The test statistic for smoothness is the difference between the expected and actual number of observations in an interval divided by the estimated standard deviation. The variance of the difference between observed and expected is approximately $Np_i(1-p_i)+(1/4)N(p_{i-1}+p_{i+1})(1-p_{i-1}-p_{i+1})$, where N is the number of observations and p_i is the probability that an observation will fall into interval i. The standardized differences will be normally distributed with mean 0 and standard deviation 1 under the null hypothesis.

The standardized difference to the left of zero in panel A is 1.00, which is not significantly different from 0. The standardized difference in the interval left of zero in panel B is −3.40, which is significantly different from zero and in the predicted direction. That is, consistent with the loss avoidance hypothesis, there are far fewer observations than expected assuming smoothness in the interval to the left of zero.

We also examine the distribution of INCOME changes as a test of the *earnings changes hypothesis*. The distribution of operating income changes is reported in Fig. 3. Consistent with the *earnings changes hypothesis*, the distribution is symmetric, centered on zero, and

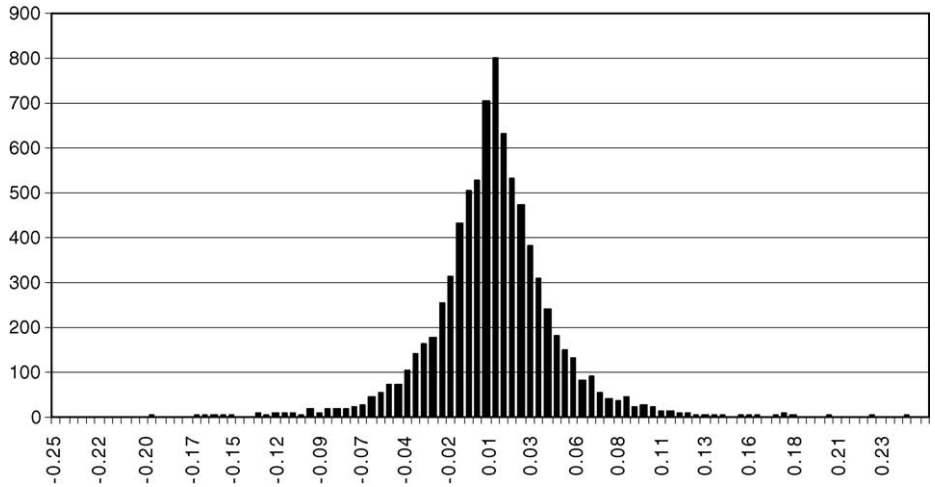

Fig. 3. Distribution of change in operating income scaled by assets. This histogram of the change in operating income scaled by lagged total assets includes a total of 7645 observations (excludes observations with income exceeding 0.26 in absolute value) observations. The length for each interval in the histograms is 0.005. The dotted line separates the interval just to the left of zero [−0.005, 0] from the interval starting at zero [0, 0.005].

contains no obvious discontinuity below zero. This distribution is in contrast to that found by Burgstahler and Dichev (1997) in the for-profit setting, where they report a clear drop in frequencies just below zero. This is consistent with CEOs in nonprofit hospitals having different incentives from those in the for-profit setting with respect to reported earnings growth.

4.6. Discretionary spending results

As a test of the *discretionary spending hypothesis*, we examine whether charity care expenditures are an increasing function of income before discretionary adjustments to charity care spending. Hospitals are required to have a policy that outlines the criteria for determining whether a patient is qualified for charity care. The decision is typically made at the time of admission. Charity care is defined as the revenue (based on the charge master file) the hospital would have received had the services been paid for and is disclosed in the footnotes of the financial statements. This does not include bad debt expense, where certain revenues are later determined to be uncollectible (i.e., at the time of admission, it was expected that the patient would pay but patient's economic circumstances later changed and he/she could not pay). The sample for this analysis is restricted to firms that report charity care expenditures in at least two consecutive years.[24] Prior to 1990, hospitals included charity care in gross revenue (based on the rates in the charge master file) and then showed a reduction in gross revenue either as a separate line item or as part of bad debt expense to arrive at net revenue. After 1990, hospitals completely excluded charity care from revenue and reported the revenue value of charity care in the footnotes to the financial statements. Our data provider (Van Kampen Merritt) did not begin to systematically collect data on charity care until about 1995. Therefore, our analysis relates primarily to 1995–2002 fiscal year ends.

Charity care expenditures are reported 5454 hospital-years. It is important to note that, given disclosure requirements, our best proxy for charity care expenditures is the value of gross charges. It is likely that the actual cost of providing charity care is much less. However, we expect that charges and expenses will be highly correlated and the use of this proxy should not bias our results. ADJINC is income based on the previous year's charity care expense scaled by lagged total assets. We compute ADJINC by adding back current year charity care expense and subtracting the prior year's charity care expense. The dependent variable, ΔCHARITY, is the change in charity care expense scaled by total assets.

Table 4 reports the results of an OLS regression of ΔCHARITY on ADJINC. Model (b) includes ΔREVENUE to capture increases in charity care resulting from overall increases overall volume. The coefficient on ADJINC is positive and significant in both models (a) and (b), with $p < 0.01$. The positive and significant coefficient on ADJINC is consistent with H5, that hospitals adjust discretionary expenditures on charity care based on available profits. This is consistent with hospital managers viewing profitability as a constraint. The more resources that are available for carrying out the hospitals philanthropic mission, the

[24] After 1990 hospitals were no longer required to report charity care expenditures as a separate line item in the financial statements.

Table 4
Charity care regression dependent variable is change in charity care expense

Variable	Description	(a) Coefficient (*t*-statistic)	(b) Coefficient (*t*-statistic)
INTERCEPT	Intercept	-0.001^{***}	0.000^{***}
		(−5.551)	(−6.125)
$ADJINC_t$	Income before charity	0.107^{***}	0.100^{***}
		(31.927)	(29.94)
$\Delta REVENUE_t$	Change in revenue	–	0.010
			$(2.588)^{***}$
	Adjusted R^2	0.16	0.16
	Number of observations	5454	5454

The sample for this analysis is restricted to firms that voluntarily report charity care expenditures in at least two consecutive years. Of the 8179 observations in our sample, 5454 observations had sufficient data on charity care to estimate our charity care regressions. Because this analysis is based on the change in charity care, there are 138 usable observations. ADJINC is operating income in period *t* based on charity care expenditures at $t-1$ (operating income + charity care expense − charity care expense in the prior year) scaled by lagged total assets. ΔREVENUE is the change in net revenue scaled by lagged total assets. The dependent variable, ΔCHARITY, is the change in charity care expense scaled by total assets.

more they spend. On the other hand, if the hospital is in jeopardy of reporting loses; the level of charity care expenditures is reduced.

5. Conclusion

This paper examines the important nonprofit sector of the U.S. economy. In particular, we study the role of earnings in nonprofit hospitals and test whether earnings management occurs in this setting. We find that even though nonprofit hospitals do not have a profit-making objective, earnings play an important role. Various stakeholders including bondholders, the community, regulators and potential donors, as well as the market for CEOs use earnings to evaluate hospital performance. These constituencies create a situation in which reporting costs are increasing in both reported losses and reported profits. Consequently, CEOs minimize reporting costs by managing earnings toward zero after premanaged earnings are observed. Our evidence is consistent with this zero-profit hypothesis with respect discretionary accruals. These results suggest that the findings of Hoerger (1991), the nonprofit hospitals have smaller variances in earnings, are at least partially explained by an accounting phenomenon.

In addition to the zero-profit hypothesis, we find evidence in support of the loss-avoidance hypothesis. Managers with earnings just below zero manage earnings to just above zero to avoid losses. This result is consistent with the cost of reporting even small losses being greater than reporting small profits of similar magnitudes. We argue that this asymmetric cost arises because CEOs expect reported losses to increase the likelihood that they will be terminated. Reporting a loss suggests that the CEO is unable to carry out the hospital's objective subject to the zero-profit constraint. We find no evidence that managers attempt to avoid small earnings decreases, which is inconsistent with evidence on for-profit firms. This is most likely attributable to nonprofit hospitals' inability to report continuous earnings growth because of the threat of losing their tax-exempt status as profit increases. Further,

the primary motivation to avoid earnings decreases in the for-profit setting, as articulated by Burgstahler and Dichev (1997), is to influence equity valuations in the capital markets. This incentive does not arise in nonprofit organizations because there are no residual claimants.

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Appendix A. Numerical example of the third-party-payer settlement accounts

Assume that a Medicare patient has surgery to repair a fractured femur. The undiscounted rate for this DRG service is $10,000. Under tentative agreement with the Healthcare Financing Administration (HCFA) the expected reimbursement under Medicare is $8000. This will have the following impact on the hospital's financial statements:

Increase in asset on the balance sheet – accounts receivable – of	8,000
Increase in gross revenue on the income statement of	10,000
Decrease in gross revenue on income statement (third-party allowance) of	2,000

During the year, HCFA pays the hospital the billed amount of $8000 which has the following impact on the hospital's financial statements.

Increase in balance sheet asset – cash – of	8,000
Decrease in balance sheet asset—accounts receivable	8,000

At year end, the hospital estimates that HCFA is likely to retrospectively adjust the reimbursement down to $7500 based on its best estimate. The hospital then makes the following adjustment to the financial statements:

Decrease in gross revenue on the income statement (third-party allowance)	500
Increase in balance sheet liability—third-party payer settlement liability	500

After this adjustment, the third-party allowance is 25% of the undiscounted rate. Assuming that the true underlying percentage remains constant, any observed difference in this percentage can be attributed to earnings management. Because we estimate the model cross-sectionally, industry-wide changes in discounts should not end up in the residual (our estimate of discretionary accruals). However, if firm-specific changes occur because of product mix, etc., this unexpected component will lead to measurement error.

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