

THE AUDIT COMMITTEES, INTERNAL CONTROLS, AND FINANCIAL
DISTRESS OF U.S. PUBLIC HOSPITALS

By
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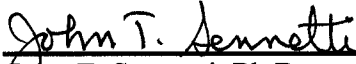
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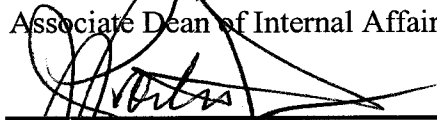
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ABSTRACT

THE AUDIT COMMITTEES, INTERNAL CONTROLS, AND FINANCIAL DISTRESS OF U.S. PUBLIC HOSPITALS

by

Wen-wen Chien

Using OMB Circular A-133 audit reports on internal controls over financial reporting and Federal grants for 180 individual hospitals and 700 clinics operating in the United States, we find relationships among the presence of quality audit committees, internal control quality, and corresponding financial distress. The audit committee characteristics of independence, financial expertise, and increased activity level (meeting frequency) positively correlate with reduced frequencies of control problems and financial distress. Consistent with prior research on audit committees for publicly traded companies, these results suggest ways to improve public hospital financial controls, to reduce misappropriation of assets and the wasteful spending for supplies and services, to change the poorly managed collections, and to reduce the corresponding increases in public debt.

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CHAPTER I

INTRODUCTION

This study examines the impact that the presence, absence, and quality of audit committees have on the internal controls and on the financial survival of public hospitals in the United States. These hospitals indirectly provide a significant degree of universal health coverage to 43 million individuals living in the United States who lack medical insurance (Cosman, 2005), many of whom are illegal aliens.

Public hospitals have an unsustainable financial model (Croghan, Lim, & Honess-Morreale, 2005). In 2002, while non government acute care hospitals reported profit margins of 4.5 percent in the U.S., the average margin for 61 public (safety net) hospitals and hospital networks enrolled as members of the National Association of Public Hospitals and Health Systems (NAPH) was negative 0.3 percent (Regenstein & Huang, 2005). This study finds the average margin to be negative 6.1 percent with over 35 percent of public hospitals near bankruptcy, even with Federal governmental support.

The Federal government recognizes the financial burden that indigent and uninsured care has on public hospitals. Beginning in 1981, Congress established the disproportionate share hospital program (DSH) to give hospitals providing charity care additional Medicaid reimbursement (Office of Management and Budget [OMB], 1981). DSH has brought public hospitals billions of dollars (National Association of Public Hospitals and Health Systems [NAPH], 2006) and represents a critical source of funding

represents about two-thirds of the \$22.3 billion in uncompensated care costs reported by hospitals in 2002 (Mechanic, 2004).

As an additional revenue source, the Federal government provides grant revenue for programs primarily targeting high acuity uninsured patients. All hospital institutions that receive Federal grants in excess of \$500,000 must complete the Office of Management and Budget (OMB) Circular A-133 audit at least nine months after the close of the fiscal year (OMB, 2003). If a hospital's internal controls are not sufficient, a hospital risks losing the Federal grant funding. Typical problems identified in an OMB Circular A-133 audit include misappropriation of assets, wasteful spending for supplies and services, and poorly managed collections.

However, patient care revenue and Federal funding is not sufficient to prevent financial disaster. The burden to cover the gap between revenue and operating costs falls on state and local governments. Many local governments have established sales and property taxes specifically designated to support these hospitals. Local and state tax revenue subsidizes 38 percent of uninsured costs (Regenstein & Huang, 2005).

To control for these events, most public hospitals have board members including publicly elected officials who form committees directly responsible for the hospitals financial activities, not unlike audit committees for public corporations. Unfortunately, members of these committees, as those in public corporations, may seek private benefits, such as personal compensation from suppliers. Public entities attempt to prevent this self-serving conflict by requiring a signed "Conflict of Interest Statement" (for example, the Florida Statute 112.3144 requirement for conflict of interest). This attestation to prevent self-serving activities is not always successful (Cenziper, 2006). In addition,

these committees may not have sufficient size, financial expertise, or scheduled meetings to influence positively the financial reporting of the hospital's operations. Consequently, the likelihood of material misstatement, fraud, and restatement may increase as in the case of corporations (e.g., Abbott, Parker, & Peters, 2004, find that the corporate audit committee characteristics of independence, financial expertise, and meeting frequency decrease the likelihood of restatements).

The identification of these potential misstatements with "more than remote" likelihoods are part of the Federal grant reporting requirements for OMB Circular A-133 audit, similar to those reporting requirements of Sarbanes-Oxley Act of 2002 (SOX) (U.S. Congress, 2002) for publicly traded companies: the external auditor identifies control deficiencies over financial and major Federally sponsored programs reporting. Currently for financial reporting, the external auditor reports significant deficiencies to the audit committee (Statement on Auditing Standards [SAS] No. 112, American Institute of Certified Public Accountants [AICPA], 2006). The earlier Federal OMB Circular A-123 for Federal reporting contains additional requirements similar to SOX including assessing, documenting, and reporting on the effectiveness of controls over financial reporting (OMB, 2004). However, public hospitals are generally extensions of local or county governments and not Federal agencies, so a study of public hospitals with control deficiencies must be limited to those with OMB Circular A-133 audits.

Empirical research on the role of audit committees in the public sector, such as public hospitals, is extremely limited. Prior empirical research related to the role of audit committees in improving governance focuses on publicly traded companies (DeZoort, Hermanson, Archambeault, & Reed, 2002), which has been more heavily researched.

Therefore, DeZoort et al. (2002) suggest that future studies on audit committee effectiveness and the role of audit committees extend beyond publicly traded companies to other organizations such as public entities and not-for-profit organizations. Hermalin and Weisbach (2003, p7) in their governance literature also call for “studies of boards of organization other than large publicly traded corporations.” Moreover, Vermeer, Raghunandan, and Forgione (2006, p.88) recommend future study to examine the “differences in governance structures across different types of nonprofits and the possible reasons for such differences.” Audit committees represent an important monitoring mechanism in corporate governance. While for-profit business entities are the primary focus of governance studies, other corporate entities benefit from the same governance structure. This is especially true in the public sector. Preventing unethical behavior in the corporate sector benefits companies’ shareholders (Gorge, 2005). However, preventing unethical behavior in the public sector benefits all taxpayers and citizens (Gorge, 2005).

Moreover, while there is a higher frequency of audit committee in the private sector as compare to the public sector, the importance and number of audit committee in the public sector continues to increase (Hardiman, 2006). Furthermore, the role of the audit committee is to monitor the entity’s internal controls. Internal control quality begins with audit committees and continues through an organization’s day-to-day operations.

This study extends research to the public sector conducted by others on publicly traded companies (Krishnan, 2005) and non-for-profit organizations (Vermeer et al., 2006). In addition, this study is the first to use OMB Circular A-133 reports to examine

the impact that the presence, absence, and quality (size, independence, financial expertise, and meeting frequency) of audit committees on the internal controls and on the financial survival of public hospitals. Using OMB Circular A-133 audit reports on internal controls over financial reporting and Federal grants and supporting (questionnaire) documentation from 75 public hospitals and health system representing over 180 individual hospitals and 700 clinics operating in the United States, I find relationships among the presence of quality audit committees, control quality, and corresponding financial distress. The presence of the audit committee and the audit committee characteristics of independence, financial expertise, and increased activity level (meeting frequency) are positively related to the reduced frequencies of control problems. Moreover, an audit committee that includes at least one member with financial expertise is positively associated with the reduced incidence of financial distress.

This study contributes to the extent literature by adding to the body of knowledge about the role of audit committees over internal control quality and financial distress in the public health care sector. This is especially important given the recent public interest in the role and effectiveness of audit committees both in private (e.g., Lavelle, 2002; Verschoor, Barrier, & Rittenberg, 2002) and public sectors (e.g., Deloitte & Touche, 2005; Gorge, 2005; Hardiman, 2006), in the quality of internal controls (e.g., Securities Exchange Commission [SEC], 2003a; U.S. Congress, 2002), and in the financial survival of public hospitals (NAPH, 2004). In addition, I also provide additional support for the recent SOX, and similar laws affecting federal agencies including the OMB Circular A-123 (Mandel, 2006; The White House, 2004), regarding the importance of internal controls. Furthermore, consistent with prior research on audit committees for publicly

traded companies (e.g., Krishnan, 2005), the findings of this study suggest ways to improve public hospital internal controls to reduce the corresponding increases in public debt.

I organize the remainder of this research as follows. Chapter II describes the literature review. It begins by discussing the background of public hospitals in the United States, including the role and importance of public hospitals in providing critical health care services to nation's poor and uninsured patients. I also discuss public hospital financial resources and public hospitals under financial distress in this chapter. Chapter III describes methodology and includes the development of research hypotheses. Also included is a discussion of sample selection and data collection procedure and statistical methodology. Chapter IV presents and analyzes the findings of this research. The final chapter summarizes and concludes this study. It also discusses the limitations of the study and provides recommendations for future research.

CHAPTER II

LITERATURE REVIEW

Introduction

Public hospitals in the United States have a special commitment to provide health care to the uninsured and low-income populations (Phelp, 2001; Zaman, Lukens, & Cummings, 2004) and play a significant role in communities. However, public hospitals have an unsustainable financial model and have their share of governance-related scandals (Hiaasen, 2005).

Internal controls are critical in reducing the risk of fraud and other activities that could jeopardize an institution's assets and financial position. Audit committees play an important role in the oversight of an entity's internal controls by setting the tone of the control environment. Audit committees have specific duties related to financial reporting, reviewing of major projects, and approving the fiscal budget. While SOX rules related to audit committees do not apply to public hospitals, these rules provide a benchmark for the activities that public hospitals engage in that impact the control environment of the hospital.

The remainder of this chapter is organized as follows. First section describes the public hospitals in the United States. I also introduce public hospitals background and their revenue sources. Since public hospitals have unsustainable financial model, I discuss the financial distress of public hospitals. The next section describes the

importance, role, responsibilities, and composition of audit committees. This section also includes a review of empirical studies on the presence and absence of audit committees and audit committee composition (including size, independence, financial expertise, and meeting frequency). The final section introduces internal controls. It also includes the background of internal controls and the relationship between internal controls and audit committees.

Public Hospitals in the United States

Background

Every year, more than 10 million people in the U.S. receive health care from public hospitals (Regenstein & Huang, 2005). More than 80% of public hospitals provide many essential community-wide services, such as primary care, trauma care, and neonatal intensive care to uninsured patients (Zaman et al., 2004). These hospitals play a significant role in communities. In addition, public hospitals also educate a substantial amount of American's doctors and nurses as well as students (Zaman et al.).

Many public hospitals are part of a health network or health system. A *Health Network* is "multi-hospital delivery entities in which affiliated hospitals are tied together through alliances or contractual affiliations" (Bazzoli, Manheim, & Waters, 2003, p.6-7). A *Health System* is "multi-hospital arrangements in which affiliated hospitals are all owned and operated by a single parent organization" (Bazzoli et al., 2003, p.7).

Public hospitals in the United States emerged from public or charitable institutions, such as the almshouses, that provided care and custody for the poor and ailing people (NAPH, 2006). Public hospitals provide critical access points for the uninsured population (Regenstein & Huang, 2005). The NAPH (2006) explains the importance of public hospital as follow:

In a health care environment in which upwards of 46 million Americans are uninsured, public hospitals can point to a higher standard of care, a deeper reach into the communities they serve, and a continuing commitment to serving all in need (p.10).

Public hospitals generally are located in urban areas where the greatest numbers of uninsured patients reside (Andrulis & Duchon, 2005). Because of their special commitment to serving the uninsured (Bazzoli et al., 2003) and their role in providing disproportionate amounts of care to low-income populations, public hospitals have become “safety net” hospitals/institutions (Baxter & Mechanic, 1997; Fishman & Bentley, 1997). The term “safety net hospital” refers to the public hospital that is a safety net for every one, including the insured and uninsured (but, especially, for the uninsured). Those public (safety net) hospitals also implies that they “will always be there when other institutions cannot, are not, or do not want to be there” (Stolzenberg, 2000, p.347).

Public hospitals are extensions of state and local governments. Thus, they are exempt from the State and Federal corporate income tax. While public hospitals are charitable in nature, they generally do not fit the definition of Section 501(c)(3) of the Internal Revenue Code for a charitable organization. To accommodate the tax regulations regarding the tax status of donations, many public hospitals establish charitable foundations that meet the Internal Revenue Service (IRS) requirements so that

those desiring to donate to the hospital may receive the tax benefit associated with charitable contributions such as the Jackson Memorial Foundation in Miami, Florida.

Public Hospital Revenue Sources

Public hospitals receive revenue and funding from at least four different sources including: (1) patient care revenue, (2) Federal funding to teaching hospitals, (3) DSH payments, (4) Federal, State, and corporate Grants (Fishman & Bentley, 1997). Revenue sources for patient care revenues include: (1) Medicare, (2) Medicaid, (3) commercial payers, and (4) private payers (Fishman & Bentley, 1997). Medicare, a Federal program, provides hospital benefits to retirees and others who contributed to the program through payroll deductions. While the Federal Government is the primary funding source for Medicaid funds, each individual State distribute these funds. Beneficiaries of Medicaid funding include low-income citizens who meet certain financial requirements. Survey evidence from 89 hospitals in the United States, Zaman et al. (2004) documented that Medicaid remained the most important revenue source for public hospital in 2004. Commercial payers include Health Maintenance Organizations (HMO) and private insurance companies. Private payers are those who pay for the patient care out of their pocket.

Many public hospitals have an affiliation with medical schools and thus classified as teaching hospitals. These teaching hospitals receive federal funding to subsidize the expenses associated with teaching residents and interns (Fishman & Bentley, 1997). Moreover, because public hospitals provide a significant amount of health care to the

indigent, those hospitals get funding from Federal government under the DSH program (OMB, 1981).

An additional revenue source, grants, includes Federal, State, and corporate grants. These grants generally fund programs that provide care to indigent and underserved patient populations. The Catalog of Federal Domestic Assistance lists Federal grants available to hospitals and healthcare providers (U.S. General Services Administration, n.d.). One of the largest Federal grants, the 'Ryan White Comprehensive AIDS Resources Emergency Care Act,' provides comprehensive resources for people living with HIV/AIDS (U.S. Department of Health and Human Service, n.d.a). Pharmaceutical companies sponsor programs targeting hospitals providing care for the indigent. The 340(b) program provides free and reduced fee prescription medications to low income and indigent patients (U.S. Department of Health and Human Service, n.d.b). The U.S. Department of Health and Human Service (n.d.b) describes the 340B Drug Pricing Program as follows:

The 340B Drug Pricing Program resulted from enactment of Public Law 102-585, the Veterans Health Care Act of 1992, which is codified as Section 340B of the Public Health Service Act. Section 340B limits the cost of covered outpatient drugs to certain federal grantees, federally-qualified health center look-alikes and qualified disproportionate share hospitals. Significant savings on pharmaceuticals may be seen by those entities that participate in this program (para. Introduction to 340B Drug Pricing Program).

Although public hospitals have payments from those four sources mentioned above, these revenues still may not cover operating expenses. In 2004, 21 percent of public hospital costs are uncompensated, compared to 5.6 percent of uncompensated costs for hospital nationally in the United States (Bazzoli et al., 2003). Therefore, public hospitals have another important source of support for uncompensated care - direct

appropriation of State and local tax revenue (Fishman & Bentley, 1997). State and local taxes make up for the gap between operation revenues and expenses. However, because of the increasing uninsured patients, declining reimbursement (Rubino & French, 2004), and inefficient operation in public hospitals, the gap between operating revenue and expenses may be too great a burden for State and local governments.

Financial Distress of U.S. Public Hospitals

While debates continue on universal health coverage and illegal aliens, 43 individuals living in the United States lack medical insurance (Cosman, 2005). The lack of health coverage, however, does not mean that the uninsured lack of medical care. The Emergency Medical Treatment and Active Labor Act (EMTALA), often called the Federal "Anti-dumping Act," requires every emergency department to treat any individual who enters with an "emergency," whether or not the patient presents proper documentation and whether or not able to pay (Furrow, 1995). Because the definition of "emergency" includes "almost any condition," hospitals must provide a broad range of unreimbursed services.

The major burden for uninsured medical care falls on public hospitals (Andrulis & Duchon, 2005; Croghan et al., 2005). For example, the Los Angeles County-University of Southern California (LAC+USC) Medical Center "is one of the largest public hospitals in the United States. Each year, it treats about 200,000 patients in its emergency room, and most of them do not have insurance to cover the cost of their treatment" (The Economist, 2002, p.49).

Public hospitals are the foundation of our nation's healthcare systems. Because the mission of public hospitals is to provide healthcare to patients without regard to the ability to pay (Zaman et al., 2004), collected patient revenue rarely covers operating expenses.

Public hospitals have an unsustainable financial model (Croghan et al., 2005) because of an increasing uninsured population of patients, a rapidly declining reimbursement, and the dynamic changes in healthcare delivery (Rubino & French, 2004; Zaman et al., 2004). In 2002, while non-government acute care hospitals reported profit margins of 4.5 percent in the U.S., the average margin for 61 public (safety net) hospitals and hospital networks enrolled as members of the NAPH was negative 0.3 percent (Regenstein & Huang, 2005). Additionally, another indication of the financial distress is that more public hospitals closed between 1996 and 2002 than for-profit and non-for-profit hospitals (Andrulis & Duchon, 2005).

Public hospitals, especially in high poverty urban areas and suburbs, generally have a higher degree of financial distress (Andrulis & Duchon, 2005). The Federal government recognizes the financial burden that indigent and uninsured care has on public hospitals. Beginning in 1981, Congress established the DSH program to give hospitals providing charity care additional Medicaid reimbursement (OMB, 1981). These payments represent about two-thirds of the \$22.3 billion in uncompensated care costs reported by hospitals in 2002 (Mechanic, 2004). These funds are at risk. The recent Federal budget proposal from the Bush administration includes a significant decrease in DSH payments. The Bush budget, as currently proposed, will cut an additional \$75 billion or more from Medicare over the next five years (Dorschner, 2007). Most at risk

are public facilities. For example, Jackson Memorial Hospital, a large public hospital in Miami, Florida, stands to lose \$125 million annually (Dorschner, 2007).

Federal funding is not sufficient to prevent financial disaster. Key to the sustainability of safety net hospitals is State and local tax revenue. Local and State taxes revenue subsidizes 38 percent of uninsured costs (Regenstein & Huang 2005). In addition, many local governments have established sales and *ad valorem* property taxes specifically designated to support these hospitals.

The prime objective of a public (safety net) hospital is to provide healthcare to the uninsured without an undue burden on local and state taxpayers. To accomplish this, public hospitals must maintain efficient operations. Because of the political nature of state and local funding, there are no guarantees of sustained funding. In addition, economic conditions may force local governments to reduce funding. Communities ultimately may allow a public hospital to fail if the financial burden becomes too great on the community (Almwajeh, 2004). Moreover, maintaining good financial condition is important to ensure the public hospitals' "continuing ability to offer services and support mission-driven activities" (Bazzoli et al., 2003, p.7).

Audit Committees

Audit committee has become increasingly important mechanism in corporate governance (Deloitte & Touche, 2005; Gorge, 2005; Hardiman, 2006; Pincus, Rusbarsky, & Wong, 1989). Academic scholars and policy makers also recognize the importance of audit committees (Beasley, 1996; Bradbury, 1990; Gorge, 2005; Hardiman, 2006; Klein, 1998; Petra, 2005; Pincus et al., 1989). The SEC (1999a) indicates that audit committees

“play a critical role in the financial reporting system by overseeing and monitoring management’s and the independent auditors’ participation in the financial reporting process...Audit committees can, and should, be the corporate participant best able to perform that oversight function” (p.1). However, recent high-profile corporate failures at Enron Corp., WorldCom Inc., and numerous other companies, the structure and the functioning of audit committees has come under intense scrutiny (e.g., Deloitte & Touche, 2005; Gorge, 2005; Levitt, 1998; Rezaee, Olibe, & Mimmier, 2003). The enactment of SOX was a particularly important regulatory response to the recent flurry of highly publicized corporate failures.

The SOX incorporated many reforms that include many practices already present in the business world for protecting organizations and its stakeholders (Deloitte & Touche, 2005). While many provisions of SOX related to audit committees do not apply to the public sector, the SOX has spurred the public to refocus on the role of audit committees to promote and improve sound governance in public sector (Deloitte & Touche, 2005; Gorge, 2005; Hardiman, 2006). Additionally, both the Government Finance Officers Association (2002) and the OMB encourage and recommend the establishment of an audit committee or its equivalent (Deloitte & Touche, 2005).

The responsibility of an audit committee can be diverse and be as broad or deep as the board of directors wish to delegate. Typically, the responsibilities of audit committees include three broad areas: (1) the oversight of the process of financial reporting, (2) the oversight of the adequacy of internal control, and (3) the oversight of auditor activity (Braiotta, 1999; BRC, 1999; Burke, Guy, & Tatum, 2001; Deloitte &

Touche, 2005; KPMG, 1999; National Association of Corporate Directors, 1999; Rittenberg & Nair, 1993; SEC, 1999a; The Business Roundtable, 2005; AICPA, 2003).

A number of prior empirical studies on the audit committees generally falls into two categories: (1) studies which examine the differences between firms with and without audit committees (Beasley, 1996; Dechow, Sloan, & Sweeney, 1996; DeFond & Jiambalvo, 1991; McMullen, 1996); and (2) those concerned with testing the particular composition of audit committees (Abbott & Parker, 2000; Abbott et al., 2004; Abbott, Parker, Peters, & Raghunandan, 2003; Agrawal & Chadha, 2005; Beasley, Carcello, Hermanson, & Lapides, 2000; Bedard, Chtourou, & Courteau, 2004; Felo Krishnamurthy, & Solieri, 2003; Krishnan, 2005).

The findings of prior empirical researches that studied differences between firms with and without audit committees yielded mixed results. DeFond and Jiambalvo (1991) examine the incidence of accounting errors (overstated or understated earnings errors) revealed by prior period adjustments for 41 firms compared with a control group of another 41 firms. They find that firms that have audit committees are less likely to have overstatements error. Dechow et al. (1996) examine whether the incidence of earnings manipulation in the sample of firms subject to accounting enforcement actions by the SEC for alleged violations of Generally Accepted Accounting Principles is systematically related to weaknesses in the firms' governance structures. They find that firms manipulating earnings are less likely to have an audit committee. McMullen (1996) examines whether audit committees are associated with a reduced incidence of errors, irregularities and other indicators of unreliable financial reporting, and finds that firms

with reliable financial reporting (e.g., the absence of errors, irregularities, and illegal acts) are more likely to have audit committees.

Contrary findings appear in Beasley (1996) study. Beasley (1996) investigates the relation between the board of director composition and the likelihood of financial statement fraud and finds that the presence of an audit committee does not significantly affect the occurrence of financial statement fraud.

The next section reviews results of studies examining the particular composition of audit committees.

The Composition of Audit Committees

An effective audit committee is one of the most important governance mechanisms to oversee the organization's financial statements and internal control (e.g., Deloitte & Touche, 2005; George, 2005; U.S. Congress, 2002). Arthur Levitt, the former chairman of the SEC, in a speech stated that "Effective oversight of the financial reporting process depends to a very large extent on strong audit committee; qualified, committed, and tough-minded audit committees represent the most reliable guardians of the public interest" (Levitt, 1998, Strengthening the Audit Committee Process).

Many recent regulatory and legislative efforts aim at improving the effectiveness of audit committees to help to ensure the quality of financial reporting and internal controls by focusing on the committee composition (Blue Ribbon Committee [BRC], 1999; SEC, 1999a, 2003a; U.S. Congress, 2002). The SEC rules on audit committees especially significantly affect the structure and composition of audit committees (Rezaee et al., 2003). Prior empirical research has shown that the composition of audit

committees critically impacts the audit committee's ability to perform its duties and activities (e.g., Abbott, Park, & Parker, 2000; Abbott et al., 2004; Lee, Mande, & Ortman, 2004; Uzun, Szewczyk, & Varma, 2004). In addition, various prior studies on the composition of audit committees in public traded companies focus on four issues: size, independence, financial expertise, and/or meeting frequency (Abbott et al., 2004; Abbott & Raghunandan et al., 2003; Bedard et al., 2004; Carcello & Neal, 2000, 2003; Chen, Moroney, & Houghton, 2005; Felo et al., 2003; Klein, 2002; Krishnan, 2005; McMullen & Raghunandan, 1996; Raghunandan, Read, & Rama, 2001; Scarbrough, Rama, & Raghunandan, 1998; Xie, Davidson III, & Dadalt, 2003).

Size

The BRC's third recommendation requires that all listed companies (except for small companies) have a minimum of three financially literate members on the audit committee (BRC, 1999). The Business Roundtable (2005) also suggests that audit committees typically consist of three to five members. Moreover, the major stock exchanges (American Stock Exchange, New York Stock Exchange [NYSE], and NASDAQ) also require all listed companies to have audit committees of at least three members (e.g., SEC, 1999b, 1999c). These audit committee size recommendation, suggestion, and requirement are consistent with the intention of elevating the organizational status of the audit committee (Braiotta, 1999).

The findings on the association of the size of the audit committee and the financial reporting quality in the publicly traded companies yield mixed results. Felo et al. (2003) examine whether the size of audit committee is associated with the quality of financial reporting. They collected data on the size of the audit committee from the

proxy statements filed by the sample firms with SEC for 1992 and 1993 and for 1995 and 1996. They find that audit committee size is positive related to financial reporting quality. However, Abbott et al. (2004) investigate the impact of certain audit committee characteristic identified by the BRC on the incidence of financial statements and find that an audit committee of at least three members is not significantly related to the likelihood of financial restatements.

Independence

Independence is crucial to ensure that the audit committees fulfill effectively their oversight role (BRC, 1999; Committee of Sponsoring Organizations of the Treadway Commission [COSO], 1992; U.S. Congress, 2002). The BRC (1999) recommendation one and two address the definition and requirements of independence among the members of audit committees. Recommendation one defines independence as audit committee members who “have no relationship to the corporation that may interfere with exercise of their independence from management and the corporation” (BRC, 1999, p.10). Such relationships include (BRC, 1999):

- (1) a director being employed by the corporation or any of its affiliates for the current year or any of the past five years (p.10);
- (2) a director accepting any compensation from the corporation or any of its affiliates other than compensation for board service or benefits under a tax-qualified retirement plan (p.10);

- (3) a director being a member of the immediate family of an individual who is, or has been in any of the past five years, employed by the corporation or any of its affiliates as an executive officer (p.10);
- (4) a director being a partner in, or a controlling shareholder or an executive officer of, any for-profit business organization to which the corporation made, or from which the corporation received, payments that are or have been significant [where “significance” is defined according to section 1.34(a)(4) of the American Law Institute Principles of Corporate Governance] to the corporation or business organization in any of the past five years (p.11);
- (5) a director being employed as an executive of another company where any of the corporation’s executives serves that company’s compensation committee (p.11).

In the second recommendation, the BRC (1999) suggests that all listed companies with market capitalizations of more than \$200 million should have an audit committee comprised entirely of independent directors.

In addition to BRC recommendation, the New York Stock Exchange (NYSE) and the National Association of Securities Dealers (NASD) require all listed companies have audit committee composed solely of members independent from management (SEC, 1999b, 1999c). However, both the NYSE and NASDAQ allow listed firms to have non-independent directors on their audit committee under restricted circumstances (Klein, 2003; SEC, 1999b, 1999c).

Section 301 of SOX (U.S. Congress, 2002) requires all members of public company audit committees to be independent of management and sets forth specific

criteria for independence. In addition, the Treadway Commission recommends that audit committees have solely independent directors (McMullen & Raghunandan, 1996) and stresses the benefits of independent audit committees (COSO, 1992).

Prior literature suggests that the independence of audit committee directors provides greater monitoring for several reasons. Baysinger and Bultler (1985) and Carcello and Neal (2000, 2003) indicate that independent directors without having economic or psychological ties to management would be more likely to question management. Abbott et al. (2004, p.72) argue that: “reputational capital preservation/development provides motivation for better monitoring unique to independent audit committee members.” Similarly, the BRC (1999) notes, “... common sense dictates that a director without any financial, family, or other material personal ties to management is more likely to be able to evaluate objectively the propriety of management’s accounting, internal control and reporting practices” (supra note 9, at 22).

Various empirical studies in publicly traded companies find that companies with independent audit committees are related to quality financial reporting outcomes. Carcello and Neal (2000) study a sample of 223 manufacturing firms experiencing financially distress in 1994 and find a negative relation between the percentages of affiliated directors on the audit committee and the probability of that firm receiving going-concern audit report. Beasley et al. (2000) study the corporate governance difference between fraud companies and no-fraud benchmarks on an industry-by-industry basis within three volatile industries – technology, health care, and financial services during the late 1980s through the 1990s. They find that firms committing fraudulent financial reporting have less independent audit committees than a no-fraud industry

benchmark. Similarly, Persons (2005) finds that an audit committee consists solely of independent directors is less likely to have financial statement fraud. Furthermore, Abbott et al. (2004) investigate the relationship between certain audit committee characteristics recommended by BRC and the likelihood of financial restatement. They examine 88 firms that restated annual financial statements (without an allegation of fraud by the SEC) in the period 1991–1999, together with a matched pairs control group, and find that firms with audit committees comprised entirely of independent members are negatively associated with the incidence of financial restatement.

Chtourou, Bedard, and Courteau (2001) examine the relationship between audit committee characteristics and the extent of corporate earnings management as measure by the level of positive and negative discretionary accruals. They find that income increasing earnings management is negatively associated with an audit committee composed entirely of independent directors that meet more than twice a year. In line with Chtourou et al. (2001), Bedard et al. (2004) find that firms with independent audit committees are less likely to have aggressive earnings management (income-increasing or income-decreasing management). Additionally, Klein (2002) finds that the presence of a majority of independent members on the committee has a significant effect on the level of abnormal accruals. She also finds that an audit committee with a majority of independent members makes firm deter earnings management. However, the study by Felo et al. (2003) shows no evidence that audit committee independence is related to financial reporting quality.

In addition to the impact of audit committee independence on the quality financial reporting outcomes, prior research finds that independence relates to corporate fraud,

auditor resignation, audit fees, and internal auditing. Uzun et al. (2004) examine how the audit committee features affected the occurrence of U.S. corporate fraud in the 1978 – 2001 period. They find that the audit committee independence is significantly related to the occurrence of corporate fraud. Lee et al. (2004) examine the relationship between audit committee and board independence and auditor resignations. They compare audit committee and board independence between two types of auditor switches: 190 auditor-initiated switches versus 190 matched client-initiated switches during the time period 1996 to 2000. They find that audit committee independence is negatively associated with the likelihood of an auditor resignation.

Abbott et al. (2003) examine the association between certain audit committee characteristics and audit fees. They use data from a sample of 492 non-regulated, Big 5-audited firms that filed proxy statements with SEC between February 5, 2001 and June 30, 2001, and find that an audit committee comprised solely of independent directors is significantly, positively associated with audit fees paid to the external auditor. Similarly, Lee and Mande (2005) find that the audit committee independence is positively associated with audit fees.

Scarbrough et al. (1998) examine the association between audit committee composition and the committee's interaction with internal auditing. They use data from a survey of chief internal auditors of Canadian manufacturing companies and find that audit committees composed of solely non-employee directors are more likely to (1) have frequent meeting with the chief internal auditor, and (2) review the internal auditing program and results of internal auditing. Consistent with Scarbrough et al., Raghunandan et al. (2001) find that public companies' audit committees comprised entirely of

independent directors are more likely to (1) have longer meetings with the chief auditor; (2) provide private access to the chief internal control auditor; and (3) review internal audit proposals and results of internal auditing.

Financial Expertise

While audit committees increasingly face complex accounting and auditing issues, audit committees members need to have sufficient understanding of the language of accounting or finance to act as effective monitors of the integrity of the company's financial reporting process and its financial statements (BRC, 1999; Emmerich, Racz, & Unger, 2005). The Public Oversight Board (1994, p.15) states that the "effectiveness of the audit committee is affected, first and foremost, by the expertise of members of audit committees in the areas of accounting and financial reporting, internal controls and auditing." Therefore, in order to have ability (expertise) to fulfill their responsibilities, audit committee members should have financial experience or knowledge needed for effectively monitoring internal control and financial reporting.

Recently, legislators have imposed a number of rules related to the audit committee financial expert on public companies (e.g., SEC, 2003b). The BRC (1999) also recommends that each member of the audit committee should be financial literate and that at least one member has accounting or related financial management expertise, where "expertise" is defined as:

past employment experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience or background which results in the individual's financial sophistication, including being or having been a CEO or other senior officer with financial oversight responsibilities (p.25).

The NYSE and NASDAQ adopted BRC's recommendation to require all listed companies to appoint audit committees with at least one financial expert (SEC, 1999b, 1999c). Under NASDAQ Rule 4350(b)(2)(A), a financial expert is defined as someone who "has past experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience" (Harrast & Mason-Olsen, 2007, p.27). The NYSE is less explicate in defining a financial expert. The financial expert is someone who possesses "accounting or related financial management expertise as determined by the board in business judgment" (Emmerich et al., 2005, p.68).

In addition to the definition of financial expert defined by BRC, NYSE, and NASDAQ, the SEC regulations (S-K Item 401(h)(2)(i)-(v)) also define an 'audit committee financial expert' as a person who possesses all of the following attributes (Emmerich et al., 2005, p.69):

- (1) an understanding of GAAP and financial statements;
- (2) the ability to assess the general application of GAAP in connection with accounting for estimates, accruals and reserves;
- (3) experience preparing, auditing, analyzing or evaluating financial statements that present a breadth and level of complexity of accounting issues that can reasonably be expected to be raised by the company's financial statements, or experience actively supervising persons engaged in such activities;
- (4) an understanding of internal controls and procedures for financial reporting;
and
- (5) an understanding of audit committee functions.

Section 407 of SOX (U.S. Congress, 2002) also requires SEC registrants to disclose in its annual report or annual proxy statement whether or not the audit committee is comprised of at least one 'financial expert', as determined by the board in its business judgment. If the audit committee has no financial expert, then the company must disclose the absence and state the reasons for such absence (U.S. Congress, 2002).

Prior empirical research studies the impact of audit committee financial expert on various areas. Felo et al. (2003) find that the percentage of audit committee members having expertise in accounting or financial management is positively associated with financial reporting quality after controlling for other corporate governance variables. In line with Felo, et al., Xie et al. (2003) show that board and audit committee members with corporate or financial backgrounds are associated with firms that have smaller discretionary current accruals. Similarly, Bedard et al. (2004) find that an audit committee whose members have more financial expertise is more effective in constraining earnings management and the presence of at least one member with financial expertise is associated with a lower likelihood of aggressive earnings management.

Abbott et al. (2004) find that an audit committee with at least one member with financial expertise reduces the likelihood of financial restatement. Using survey responses from the audit committee chairperson, a non-executive director and the internal audit manager of a sample of Australian publicly traded companies, Buckby, Dunstan, and Savage (1996) find that the knowledge and experience of audit committee members are related to audit committee effectiveness.

DeZoort (1998) uses data from a sample of 87 audit committee members who completed an internal control oversight task to examine whether experience affects audit

committee members' oversight judgments. DeZoort (1998) find that audit committees with financial experience made internal judgments more like auditors than did members without experience. The results also suggest that relevant expertise can make a significant difference in audit committee member oversight of internal controls. Furthermore, the results of Krishnan (2005) study document a significant negative relation between independent audit committees with financial expertise and the incidence of internal control problems.

While there is no explicit requirement for an audit committee in public hospitals to include a member having some level of financial expertise, the AICPA (2004b) provides attributes considered typical components of financial expertise for government audit committees:

- (1) An understanding of generally accepted accounting principles (GAAP), including those relevant standards for state and local government accounting and financial reporting issued by the Government Accounting Standards Board (GASB); an understanding of financial statements, generally accepted auditing standards (GAAS), and generally accepted government auditing standards (GAGAS, also known as Yellow Book). Depending on the circumstances at the government organization in question, knowledge of the Single Audit Act of 1984, as amended, and the U.S. Office of Management and Budget Circular A-133 might also be appropriate;
- (2) The ability to assess the general application of the foregoing principles and standards in connection with the accounting for estimates, accruals, and reserves;

- (3) Experience preparing, auditing, analyzing, or evaluating financial statements that present a breadth and level of complexity of accounting issues that can reasonably be expected to be raised by the organization's financial operations, or experience actively supervising (that is, direct involvement with) one or more persons engaged in such activities;
- (4) An understanding of internal controls and procedures for financial reporting;
- (5) An understanding of audit committee functions;
- (6) A general understanding of the government environment and specific knowledge of the government sector operations (for example, local government, municipal services and finance, labor relations, public health, education, transit, etc.) in which the organization participates (p.1).

Meeting Frequency

The accounting literature contains calls for audit committee diligence (e.g., BRC, 1999; DeZoort et al., 2002). Menon and Williams (1994) indicate that meeting frequency is considered as a signal about an audit committee diligent oversight effort. A Coopers & Lybrand 1994 study of audit committees, *Audit Committee Guide*, suggested that to be effective, audit committees should meet at least three or four times a year (as cited in McMullen & Raghunandan, 1996). In addition, audit committees that meet frequently ensure that financial reporting process is functioning properly (McMullen & Raghunandan, 1996). Moreover, the audit committee will remain informed and knowledgeable about relevant accounting issues when meeting frequently with internal auditor (Raghunandan, Rama, & Scarbrough, 1998). Similarity, Braiotta (1999) indicates that audit committees that meet several times during the year with management, internal

audit, and the independent external auditors enable them to discuss and understand audit activities, internal controls, and financial reporting matters. Furthermore, the audit committee can maintain direct line of communication between the board, management, the independent accountant, and the internal audit by way of regularly scheduled meetings (Braiotta, 1999; KPMG, 1999).

Although SOX does not address audit committee meetings or impose any rules related to meeting frequency of audit committees, the NYSE issued a proposed rule that stated that the duties of the audit committee have to separately, periodically meeting with internal audit (or other personnel responsible for the internal audit function) and independent auditors (SEC, 2003d). Moreover, the National Commission on Fraudulent Financial Reporting (1987) issued a report and recommended that:

The audit committee's oversight responsibilities undertaken on behalf of the board of directors extend to the quarterly reporting process. The audit committee should review the controls that management has established to protect the integrity of the quarterly reporting process. This review should be ongoing. Timely communication between the board of directors or the audit committee and senior management, the chief internal auditor, and the independent public accountant is an important element of this ongoing process. Such discussions would normally take place during regular meetings of the audit committee or board of directors (p.48).

Prior empirical research studies the impact of audit committee meeting frequency on various areas. Using a survey of 51 companies with one or both of two types of financial reporting problems from SEC enforcement actions and material restatements of quarterly earnings, McMullen and Raghunandan (1996) find that audit committees of firms having SEC enforcement actions or material restatements of quarterly earnings are less likely to have frequent meetings. Beasley et al. (2000) find that audit committees of fraud firms meets less than audit committees of a non-fraud industry benchmark. Abbott

and Parker (2000) find that audit committees that meet at least twice per year are less likely to be sanctioned for fraudulent or misleading financial reporting. Abbott et al. (2004) also find that firms with audit committees meeting at least four times annually have low occurrence of financial restatement. Xie et al. (2003) report that audit committee meeting frequency is associated with low levels of earnings management. Additionally, Lee and Mande (2005) find that the audit committee diligence (the number of meetings held by the audit committee) is positively associated with audit fees.

Internal Controls

Background

The importance of internal control and the need for effective internal controls in helping to ensure that an entity's operational and financial goals are met are long-standing (e.g., Kinney, 2001; Kinney, Maher, & Wright, 1990; Stachowski, 1994). In public corporations, prior to the enactment of SOX, there were very limited internal control standards in scope (Ge & McVay, 2005). The Foreign Corrupt Practices Act of 1977 (FCPA) was the sole statutory regulation of the establishment and maintenance of internal accounting control over all SEC registrants (Kinney et al., 1990; SEC, 2006). The FCPA required all SEC registrants to have public disclosure of significant internal control deficiencies in their 8-Ks when disclosing a change in external auditors (Ge & McVay, 2005; Geiger & Taylor, 2003; Krishnan, 2005; SEC, 1988).

In the 1980s, the existence of fraud and unexpected business failures led a number of Congress members to question the adequacy of financial reporting system, and specially the adequacy of internal control of public companies. This concern resulted in the creation of Treadway Commission and its call for additional internal control standards and guidance (Kinney et al., 1990).

An organization's internal controls help ensure an entity's success by providing assurances that the "enterprise complies with laws and regulations, avoiding damage to its reputation and other consequences" (COSO, 1992, p.5). In 1992, Committee of Sponsoring Organizations of the Treadway Commission (COSO) (1992) issued a report specifically addressing the role of internal controls in securing improved corporate governance. It contains an analysis of features of internal controls and a framework for establishing and evaluating controls. The COSO report and the OMB define internal controls as:

A process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories:

- Effectiveness and efficiency of operations.
- Reliability of financial reporting.
- Compliance with applicable laws and regulations (COSO, 1992, p.13; OMB, 2003).

COSO (1992) specifies five interrelated components of internal controls that work to establish the foundation for sound internal controls within the organizations. These components include (COSO,1992):

(1) Control environment: The core of any business is its people – their individual attributes including integrity, ethical values and competence – and the environment in which they operate. They are the engine that drives the entity and the foundation on which everything rests (p.16).

(2) Risk assessment: The entity must be aware of and deal with the risks it faces. It must set objectives, integrated with the sales, production, marketing, financial and other activities so that the organization is operating in concert. It also must establish mechanisms to identify, analyze and manage the related risks (p.16).

(3) Control activities: Control policies and procedures must be established and executed to help ensure that the actions identified by management as necessary to address risks to achievement of the entity's objectives are effectively carried out (p.18).

(4) Information and communication: Surrounding these activities are information and communication systems. These enable the entity's people to capture and exchange the information needed to conduct, manage and control its operations (p.18).

(5) Monitoring: The entire process must be monitored, and modifications made as necessary. In this way, the system can react dynamically, changing as conditions warrant (p.18).

The Treadway Commission also recommends that all public companies should include reports covering internal control, written by management, in their annual report (COSO, 1992). Section 404 of SOX adopted this recommendation.

Sections 302 and 404 of SOX (U.S. Congress, 2002) emphasize the importance of internal control for a company and mandate disclosures regarding the effectiveness of internal control and changes in internal control. Section 302 requires a company's signing officers to be responsible for establishing and maintaining internal controls, to evaluate the effectiveness of their internal controls, to present a conclusion of the evaluation, and to report any significant changes in internal controls, including any corrective actions related to significant deficiencies and material weaknesses (SEC, 2002). Section 404 directed the SEC to prescribe rules that require each annual report that a company files pursuant to section 13 (a) or 15 (d) of the Securities Exchange Act of 1934 to contain an internal control report: (1) stating managements' responsibility for establishing and maintaining an adequate internal control structure and procedures for financial reporting; and (2) contain an assessment by management, as of the end of the company's most recent fiscal year, of the effectiveness of the company's internal control structure and procedures for financial reporting (SEC, 2003a; SEC, 2006). Section 404 also requires independent auditor, on an annual basis, to issue an "attestation report on management's assessment of the company's internal control over financial reporting" (SEC, 2003a, para. 1).

SOX includes several provisions regarding internal controls, but these requirements do not apply to public hospitals. There is, however, a movement expanding SOX related controls to other public sector such as Federal agencies (Mandel, 2006). In 2004, the OMB revised OMB Circular A-123, which is effective in FY 2006 and contains requirements related to internal control over financial reporting (The White House,

2004). Under the revised OMB Circular A-123 (The White House, 2004; Berkowitz, 2005, p.43), federal agencies must:

- Assess and document their internal control over financial reporting;
- Document their assessment of the effectiveness and reliability of those internal controls; and
- Provide a separate assurance statement as part of the annual Federal Managers Financial Integrity Act (FMFIA) Section 2 assurances asserting whether the internal controls over financial reporting are effective.

Therefore, the OMB Circular A-123 requirements applying to Federal agencies are an indication that SOX requirements related to internal control are extending to government agencies. Public hospitals are the generally extensions of local or county government, thus, the SOX or OMB Circular A-123 requirements do not apply. However, the operating and financial environment of public hospitals exemplifies the value of a formal establishment of controls and a control environment.

Internal Controls and Audit Committees

Weaknesses in internal controls have been causing many problems, including fraudulent activities, errors, and noncompliance with laws and regulations (Deloitte & Touche, 2005). In the example of Enron, the lack of internal controls was a “major cause of its troubles” (Verschoor et al., 2002, p.31). Therefore, maintaining internal control adequacy should be the major concern of the governing bodies and audit committees.

The Treadway Commission describes the control environment as an “atmosphere in which people conduct their activities and carry out their control responsibilities” (COSO, 1992, p.17). Furthermore, the “control environment and ‘tone at the top’ are influenced significantly by the entity’s board of directors and audit committee” (COSO, 1992, p.26). Although Section 404 does not impose any specific additional responsibilities to a company’s board of directors, a good internal control system starts with the board of directors. “The board, at the apex of the internal control system, has the final responsibility for the functioning of the firm” (Jensen, 1993, p.862).

The “tone at the top” or ‘control environment’ defines the quality of internal controls (Verschoor et al., 2002). Audit committees are an important element of a firm’s control environment (DeFond & Jiambalvo, 1991). COSO (1992, p.130) notes: “the key aspects of the control environment are the composition of the board and its audit committee.” Professional organizations and policy makers also indicate that the audit committee, which is a part of the control environment, has as their primary responsibility the internal control systems (BRC, 1999; New York Stock Exchange [NYSE], 2002). One recommendation for audit committees from the BRC is to ensure “that management properly develops and adheres to a sound system of internal controls” (BRC, 1999, p.38). The NYSE restated this recommendation in 2002 that “the audit committee should understand and be familiar with the corporation’s system of internal controls and on a periodic basis should review with both internal and outside auditors the adequacy of this system” (NYSE, 2002, A41). Moreover, the AICPA (2004a, p.5) emphasizes that the audit committee is “the board’s first line of defense with respect to the system of internal control over financial reporting.”

Academic research suggests that audit committees view monitoring of internal controls as one of their primary functions. Carcello, Hermanson, and Neal (2002) determine that 91 percent of a sample of 150 audit committees of publicly traded companies includes the review of internal controls as part of the audit committee charter. Moreover, audit committee members view internal control evaluation as the most important audit committee oversight responsibility, after the review of financial statements (DeZoort, 1997). Furthermore, using data obtained through a questionnaire survey of 76 hospitals, Urbancic (1991) reports that 72.4 percent of audit (or similar function) committees review the adequacy of internal control policies and procedures. Additionally, Deloitte & Touche (2005) issues a "Resource Guide", *Public Sector Audit Committees*, which indicates that overseeing the adequacy of the entity's internal control is one of audit committee responsibilities and principal activities.

Audit committee effectiveness and internal control are the major focuses of recent regulatory changes in the business sector (e.g., U.S. Congress, 2002). However, empirical work on the association between audit committees and internal control is extremely limited. Evidence based on experience in an individual company, Allison (1994) illustrates the audit committee that has become an integral element in the internal control system of an enterprise in a case. Rezaee and Farmer (1994, p.18) analyze 11 audit committee reports, for the U.S. fiscal year 1990, and find that "all the companies reported that their audit committees review and monitor internal controls." DeZoort (1997) uses data from a survey of 118 audit committee members and finds that internal control evaluation was by far the most important oversight objective for audit committees. Furthermore, Krishnan (2005) finds the most direct evidence that audit

committee quality (independence and financial expertise) is positively associated with internal control quality.

Chapter Summary

This chapter begins by discussing the background of U.S. public hospitals including their roles and special commitment to the community, their revenue sources, and the challenges associated with financial distress. The following sections describe the importance, role, and composition (size, independence, financial expertise, and meeting frequency) of audit committees that impact the effectiveness on the oversight of the quality of financial reporting and internal controls. I also describe the background of internal controls and the relationship between audit committees and internal controls.

A number of research studies find that the audit committee characteristics have a positive impact on quality financial reporting outcomes and internal controls. However, these studies focus on publicly traded companies. Therefore, the research described in this dissertation seeks to examine the impact that the presence, absence, and quality of audit committees have on the internal controls and on the financial survival of U.S. public hospitals. I predict that the presence and quality of audit committees will have positive impact on the reduced frequencies of internal control problems and on the reduced likelihood of financial distress.

CHAPTER III

METHODOLOGY

Introduction

Public hospitals are tax-exempt organizations and are extensions of government entities, and receive significant Federal and State awards to care for indigent and at-risk patients. However, public hospital financial structures are still not stable and sustainable. In addition to revenue shortfalls, public hospitals compared to for-profit hospitals have a higher cost structure and more debt, are more susceptible to fraud. In addition, public hospitals have their share of governance-related scandals. For example, the Miami Herald recently reported on a scandal of \$15 million of over billing to Jackson Memorial Hospital, a public hospital, by Cardinal Health (Hiaasen, 2005).

Because public hospitals serve so many recipients, public hospitals require many large financial contracts and other transactions involving physicians, nurses, service workers, vendors, health insurance companies, and even collection agencies. To control for the accounting of these transactions, public hospitals have administrators, board members, and publicly elected officials who form committees directly responsible for the hospital financial activities, not unlike audit committees for public corporations.

The subsequent sections of this chapter develop the research hypotheses, discuss the design of variables including the details of variables, describe the sample selection and data collection procedures, and include the statistical methodology.

Development of Research Hypotheses

The Presence of Audit Committees

For all organizations with audit committees, the Institute of Internal Auditors Research Institute, in a “model” audit committee charter, identifies specific duties related to internal controls that require measuring and understanding the effectiveness of the entity’s internal control system and the scope of internal and external auditors’ review of internal control over financial reporting (Roth & Espersen, 2003). It includes the obtaining reports on significant findings and recommendations and validating these with management’s responses (Roth & Espersen, 2003), and points to oversight of internal control as a primary function of the audit committee.

In corporations, most audit committees view their role over internal controls seriously (Carcello et al., 2002; DeZoort, 1998). Most corporate audit committees do engage in the examination of internal controls (Krishnan, 2005). In addition, other studies suggest that the existence of an audit committee impacts financial reporting quality (e.g., Dechow et al., 1996; Defond & Jiambalvo, 1991; McMullen, 1996). Moreover, Uzun et al. (2004) find that the presence of an audit committee is associated with lower likelihood of corporate fraud.

While public hospitals are not required to establish audit committees, the importance and number of audit committees in the public sector continues to increase (Hardiman, 2006). U.S. Government Accountability Office (GAO) also recommends

public sector entities to consider the benefit of using audit committees (Gorge, 2005) to improve financial reporting. Thus, I would expect the first research hypothesis:

H1: The presence of a public hospital audit committee is positively associated with the quality of internal control over financial reporting and over major Federal award programs.

Audit Committee Quality

The audit committee plays an important monitoring mechanism for the oversight of an entity's internal control (e.g., COSO, 1992; Krishnan, 2005; New York State Attorney General, 2005; SEC, 2003c). An effective audit committee can increase the integrity and efficiency of the system of internal controls and financial reporting (Gorge, 2005). Prior research of publicly traded companies uses the size, independence, financial expertise, and/or meeting frequency as proxies of audit committee composition (Abbott et al. 2004; Abbott & Raghunandan et al., 2003; Bedard et al., 2004; Carcello & Neal, 2000, 2003; Chen et al., 2005; Felo et al., 2003; Klein, 2002; Krishnan, 2005; McMullen & Raghunandan, 1996; Xie et al., 2003).

Krishnan (2005) investigates the association between audit committee quality (identified by audit committee size, independence, and financial expertise) and the presence and absence of internal control problems. She examines 128 publicly traded firms who changed auditors and had internal control deficiencies reported from 1994-2000 in the 8-Ks with those firms who did not change auditors and have no internal control deficiencies. She finds that independent audit committees and audit committees with financial expertise are negatively associated with internal control problems, which

indicates that a high-quality or effective audit committee is associated with a good-quality internal control.

Other studies in publicly traded companies find that the presence of certain qualitative elements (such as size, independence of members, and/or financial expertise) of audit committees improve quality financial reporting outcomes (Abbott et al., 2004; Agrawal & Chadha, 2005; Bedard et al., 2004; Carcello & Neal, 2000; Felo et al., 2003; Klein, 2002; Xie et al., 2003). Therefore, I could anticipate similar results for public hospitals, this leads to the second research hypothesis:

H2: A public hospital's audit committee quality is positively associated with the quality of internal control over financial reporting and over major Federal award programs.

The methods used by audit committees to ensure high quality internal controls vary. The COSO (1992) "tone at the top" attitude requires integrity, ethical values, and the competence for personnel. The COSO model suggests that specific actions that must be taken to maintain a control environment. These include assessing risk, developing specific control activities and policies, communicating, and monitoring (COSO, 1992). On an operational level, the board should communicate with external and internal auditors about their assessment of internal controls. The external auditor, likewise, must communicate to the audit committee about significant deficiencies in the entity's control system (AICPA, 2006, SAS No. 112).

Financial Distress

The consequence of weak financial controls is likely financial distress, given the complexity of public hospital transactions. For example, billing Medicare, Medicaid, and other insurance payers requires specialized expertise in assigning service codes, diagnostic requirements, and more, so that collections and hence financial viability, will be successful. “Almshouse” hospitals may not be able to invest resources adequately and/or have the time to meet or maintain these requirements. In a sample from publicly traded companies, Doyle, Ge, and McVay (2006) and Ge and McVay (2005) find that financially weaker firms are less likely to properly fund financial controls. Similarly, Krishnan (2005) finds that financial distress (measured by net loss) is positively associated with the likelihood of an internal control problem. Therefore, I expect similar results for hospitals, and this leads to the third research hypothesis:

H3: The quality of internal control over financial reporting and over major Federal award programs by public hospitals is positively associated with the reduced likelihood of financial distress.

If the quality of the audit committee (H2) influences internal controls, and they are associated with financial stress (H3), it could follow that this quality would then be associated with financial distress. Carcello and Neal (2000) find that a public traded company with financial distress is more likely to receive a going concern modified auditor’s report, making the right decision, when the percentage of independent directors on the audit committee, a measure of audit committee quality, is higher. Using the same measure of audit committee quality to examine a sample of S&P firms,

Anderson, Mansi, and Reeb (2004) find that entirely independent audit committees are associated with a significantly lower cost of debt financing. Additionally, the findings of Felo et al., (2003) study suggest that firms with audit committees having financial experts may be able to reduce their cost of capital. Therefore, given H1 and H3 research hypotheses, I would expect the fourth research hypothesis:

H4: The presence of a public hospital audit committee is positively associated with the reduced likelihood of financial distress.

Given H2 and H4 research hypotheses, I would expect the fifth research hypothesis:

H5: A public hospital's audit committee quality is positively associated with the reduced likelihood of financial distress.

Corresponding Statistical Hypotheses

In order to answer the above research hypotheses, I need to test the following corresponding two-sided statistical hypotheses.

H_{0,1} (null): The presence of a public hospital audit committee is independent from the quality of internal control over financial reporting and over major Federal award programs.

H_{a,1} (alternative): The presence of a public hospital audit committee is not independent from the quality of internal control over financial reporting and over major Federal award programs.

H_{0,2} (null): A public hospital's audit committee quality is not associated with the quality of internal control over financial reporting and over major Federal award programs.

H_{a,2} (alternative): A public hospital's audit committee quality is associated with the quality of internal control over financial reporting and over major Federal award programs.

H_{0,3} (null): The quality of internal control over financial reporting and over major Federal award programs by public hospitals is not associated with the reduced likelihood of financial distress.

H_{a,3} (alternative): The quality of internal control over financial reporting and over major Federal award programs by public hospitals is associated with the reduced likelihood of financial distress.

H_{0,4} (null): The presence of a public hospital audit committee is independent from the reduced likelihood of financial distress.

H_{a,4} (alternative): The presence of a public hospital audit committee is not independent from the reduced likelihood of financial distress.

H_{0,5} (null): A public hospital's audit committee quality is independent from the reduced likelihood of financial distress.

H_{a,5} (alternative): A public hospital's audit committee quality is not independent from the reduced likelihood of financial distress.

Design of Variables

Dependent Variable

I define the dependent variable as the presence of an internal control problem (a significant deficiency or more serious) as identified in the OMB Circular A-133 report. The dependent variable, internal control problem, *ICPROB*, is coded 1 or 0 according to the presence or absence of control problems. Correspondingly, those independent variables that reduce these control problems will be negatively associated with *ICPROB*.

The OMB Circular A-133 report identifies control problems as reportable conditions and their more serious versions, material weaknesses. A reportable condition is a significant deficiency “in the design or operation of internal control that could adversely affect the entity’s ability to record, process, summarize, and report financial data consistent with assertions of management in the financial statements” (U.S. General Accounting Office [GAO], 2003, p.50: similar to AICPA, SAS No. 60 which was replaced by SAS No.112). A material weakness is:

A reportable condition in which the design or operation of one or more of the internal control component does not reduce to a relatively low level the risk that misstatements caused by error or fraud in amounts that would be material in relation to the financial statements being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions” (GAO, 2003, p.51).

On February 1, 2007, the Comptroller General of the United States issued the 2007 revision of GAGAS, which supersedes the 2003 revision. The effective date for the

2007 revision of GAGAS is for financial audits and attestation engagements for periods beginning on or after January 1, 2008, and for performance audits beginning on or after January 1, 2008. Until the 2007 GAGAS revisions becomes effective, auditors adopt the terminology and definitions in the AICPA statement on Auditing Standards No. 112. when reporting on internal control deficiencies and include in their reports material weaknesses and other significant deficiencies, but, in this study, instead all internal control deficiencies (in 2005, it is reportable conditions), not just material weaknesses, are reported in the OMB Circular A-133 report. In addition, since the 2007 revision of GAGAS will be not effective until January 1, 2008. Thus, while the GAO updated the standards, to date, OMB still follows the 2003 revision of GAGAS for the 2005 fiscal year.

OMB Circular A-133 Reporting Requirements over Financial Reporting and over Major Federal Award Programs

The external auditor reports in the OMB Circular A-133 control deficiencies over financial reporting and over major Federal award programs. The following is the reporting requirements over financial reporting and over major Federal award programs identified by OMB Circular A-133.

Reporting Requirements over Financial Reporting

OMB Circular A-133 requires the external auditor to determine whether the financial statements are presented fairly in all material respects in conformity with generally accepted accounting principles in the United States and also to determine

whether the schedule of expenditures of Federal awards is presented fairly in all material respects in relation to the financial statements taken as a whole (OMB, 2003).

The external auditors perform the financial audits in accordance with GAGAS. A reportable condition over financial reporting occurs when a misstatement arises in the financial statements or the schedule of Federal award expenditures in all material respects in relation to the financial statements (OMB, 2003). Therefore, the external auditors report findings on “internal control over financial reporting and on compliance with laws and regulations, and provisions of contracts and grant agreements as they related to financial transactions, systems, and processes” (GAO, 2007, p.13-14). Figure 1 (in Appendix A) outlines the OMB Circular A-133 audit reporting requirements over financial reporting.

Reporting Requirements over Major Federal Award Programs

OMB Circular A-133 requires the external auditors to use a risk-based approach in determining which Federal programs are major programs to audit (OMB, 2003). The criteria include a consideration of current and prior audit experience, oversight by Federal agencies and pass-through entities, and the inherent risk of the Federal programs.

The auditors must obtain reasonable assurance that internal controls are in place and are operating effectively and that the programs comply with 14 program and financial requirements (OMB, 2004). Therefore, a reportable condition over major Federal award programs occurs when the external auditor does not obtain reasonable assurance that internal controls are in place and are operating effectively and that the major Federal programs comply with 14 program and financial requirements (OMB, 2004). External auditors report the findings as part of the annual report. Figure 2 (in

Appendix A) outlines the reporting requirements of the OMB A-133 over reportable conditions and non-compliance.

Independent Variables

The Audit Committees

The first independent variable is the presence or absence of an audit (or similar function) committee (*AC*) responsible for the internal controls. I code *AC* 1 if a public hospital has an audit committee, and 0 otherwise.

The next variable is the quality of the audit committee. While the SEC has no regulatory authority over public hospitals, their requirements provide a benchmark for examining the quality of audit committees of public hospitals. The SEC (1999c) benchmark requires audit committees to have (1) at least three members, (2) all members are independent of management, and (3) at least one member with financial expertise.

The BRC (1999) implies that audit committees should meet at least quarterly. Similarly, the National Association of Corporate Directors (1999) and KPMG (1999) indicate this minimum recommendation. Additionally, survey evidence from a sample of 76 hospitals with audit (or similar function) committees, Urbancic (1991) finds that over half of audit committees usually meets at least four or more times a year. Moreover, fax poll evidence from a sample of 110 non-profit healthcare organizations provided by *The Governance Institute* indicate that audit committee/sub-committee averaged six meetings per year (The Governance Institute, 2002). Therefore, in addition to the three SEC requirements, I add a fourth measure of audit committee quality, meeting frequency.

Those audit committees that meet five or more times a year, exceed the minimum of four and therefore this frequency defines a measure of audit committee quality.

Consequently, I use four covariates, size (*SIZE*), independence (*INDEP*), financial expertise (*EXPERT*), and meeting frequency (*MEET*) to proxy for audit committee quality. I code *SIZE* 1 if the audit committee consists of at least three members, and 0 otherwise. *INDEP* is coded 1 if the audit committee consists entirely of independent members, and 0 otherwise. I code *EXPERT* 1 if the audit committee includes at least one member with financial expertise, and 0 otherwise. *MEET* is coded 1 if the audit committee met more than four times during the 2005 fiscal year, and 0 otherwise.

Financial Distress

I construct a modified Altman Z-Score that predicts the probability of bankruptcy or financial distress (*FDISTRESS*). Altman, Hartzell, and Peck (1995) modified the model for non-manufacturing and general service organizations. Almwajeh (2004) and Langabeer (2006) apply the Altman Z-Score model to predict the financial distress in a hospital setting and find that the Altman Z-Score revised model is good predictor of financial performance. Technically, a score less than 2.6 indicates that the hospital has a very likely probability of bankruptcy or financial distress. I code *FDISTRESS* 1 if the Altman Z-Score is less than 2.6, and 0 otherwise.

Other Monitors

Three monitors –management qualifications, the external auditors, and internal audit function – interact with audit committees to contribute to the control environment

(COSO, 1992). These monitors form the basis of the control environment and affect the entity's internal controls (Krishnan, 2005).

Management Qualifications

Similar to Krishnan (2005), I use as a proxy for management qualifications (*CFOEXP*) the presence of a CPA certification, or similar financial experience of the Chief Financial Officer (CFO) or Controller.

The External Auditor

The external auditor characteristics include auditor type (*BIG4*) and auditor tenure (*TENURE*). I include external auditor control variables since they may have an independent effect on the internal control quality (Krishnan, 2005). Section 404 of SOX requires that every registrant to contain an assessment by management of the design and operating effectiveness of its internal control over financial reporting in its financial statements and independent auditor to attest to the management's assessment of the company's internal control over financial reporting (SEC, 2003a). In addition, these variables serve to control for differences in auditors' discovery, determination, and reporting of control problems (Krishnan, 2005).

It is generally assumed that "brand name" (Big Four International) auditors enhance audit quality. Prior studies on the use of Big Four auditors focus on publicly traded companies. The Big Four auditors generally have more audit expertise and experiences, and greater resources to identify control issues than non- Big Four auditors do (Doyle et al., 2006; Ge & McVay, 2005). Brand-name auditors generally have higher quality of financial reporting (Becker, Defond, Jiambalvo, & Subramanyam, 1998;

Francis, Maydew, & Sparks, 1999; Reynolds & Francis, 2000). Becker et al. (1998) and Reynolds and Francis (2000) argue that Big Six auditors are able to detect earnings management and act to curb opportunistic earnings management. Becker et al., Francis et al. (1999), and Reynolds and Francis (2000) provide evidence that clients with the use of Big Six auditors have lower discretionary accruals than clients with the use of non- Big Six auditors. Moreover, Krishnan (2005) finds that companies with internal control problems are more likely to have Big Five auditors than companies with no internal control problems. Ge and McVay (2005) find that companies with larger audit firms are more likely to disclose a material weakness in internal control, after controlling for business complexity, firm size, and firm profitability.

Auditor tenure (*TENURE*) is the second proxy for external auditor quality.

Research finds a negative association between auditor tenure and the measures of control quality, such as discretionary accruals (Frankel, Johnson, & Nelson, 2002; Johnson, Khurana, & Reynolds, 2002; Myers, Myers, & Omer, 2003), the likelihood of failures in auditor reporting (Geiger & Raghunandan, 2002), and the incidence of internal control problems (Krishnan, 2005). However, in public hospitals where the auditor would provide the lower audit fee financial audit and the Federal programs audit, tenure is less likely used into obtain additional consulting and to treat the audit fee as annuity or to breed familiarity so as to reduce professional skepticism. Here, auditor tenure may actually increase the auditor's ability to find reportable conditions and may be required as some programs are not audited each year.

Internal Audit Function

The internal audit department (*IAUDIT*) is a primary resource available to the audit committee to assist in their responsibility over corporate governance (Gramling, Maletta, Schneider, & Church, 2004). The internal audit department should be able to identify and monitor internal controls uses, and hence may help to reduce the control problems.

Other Independent Variables

I identify two additional variables – the size and age of the hospital – that have a potential impact on internal control quality.

Hospital Size

I measure public hospital size as the logarithm of total assets (*LASSET*), as used in Krishnan (2005). In the business sector, large firms generally have higher quality internal controls (e.g., Defond & Jiambalvo, 1991). Large firms likely have more financial reporting processes and control procedures in place (Ge & McVay, 2005). These firms generally have higher quality employees and resources as well as the ability to invest in internal control systems. Prior research posits that firm size may be a determinant of good internal control (e.g., Kinney & McDaniel, 1989), but the findings on the association of firm size and the quality of internal control yielded mixed results. Krishnan (2005) finds that firm size is positively associated with the incidence of internal control problems. However, Doyle et al. (2006) and Ge and McVay (2005) find that firm size is negatively associated with the disclosure of material weaknesses in internal control, after controlling for firm complexity.

Hospital Age

The hospital's age (*HOSPAGE*) is another control variable that may be associated with the quality of internal control. In the business sector, younger firms likely have less established processes and procedures of internal control, and might have employees with less experience compared to older, more established firms (Ge & MvVay, 2005).

Empirical study by Doyle et al. (2006) finds that younger firms (measured by the number of years the firm has price information on Center for Research in Security Prices) are more likely to disclosure material weaknesses in internal control.

Sample Selection and Data Collection Procedure

This study focuses on public acute care hospitals and multi-hospital healthcare systems. I excluded not-for-profit hospitals without a government affiliation, skilled nursing facilities, psychiatric hospitals, and federal facilities such as Veterans and military hospitals. While there are over 1,100 public, non-federal acute care hospitals in the United States, most are relatively small (Regenstein & Huang, 2005). Eighty-five percent have fewer than 200 beds (Regenstein & Huang, 2005). These smaller hospitals (total beds are fewer than 200) generally do not receive sufficient Federal awards to require an OMB Circular A-133 audit. While there may be multiple hospitals within a health network or health system, the auditor issues one single audit and OMB Circular A-133 report for the system.

I identified all hospital and hospital systems with bed sizes over 200 and operated by state, county, city, or hospital district or authority from the U.S. News/American Hospital Association National Directory (hereafter Hospital Directory) provided by

American Hospital Association (AHA). The AHA is an association of health care provider organizations and is a national database that includes data on almost 5,000 public and private hospitals, health care systems, networks and other providers of care. On the Hospitals Directory, it contains basic information for each hospital or health care network or health care system. The basic information includes the hospital's name, address, telephone number, website, type, total beds, administrator, key services, and parent system (if the hospital has a parent system). From this list, I gathered the list of those facilities identified as public or community hospitals.

Unlike Vermeer et al. (2006) who analyzed the nonprofits, including hospitals and universities, using financial data from IRS Forms 990/990EZ which is easier to obtain but is also unaudited. I use these audited financial statements for the measures of financial distress, auditor type, and hospital size. I also request additional supporting (questionnaire) documentation from each of the sample that completed the OMB Circular A-133 report for the fiscal year 2005 through direct interview, email, fax, and USPS mail responses to a two-page form (see Appendix B).

I used data from supporting documentation to construct the audit committee variables (the presence or absence of an audit committee and audit committee quality – size, independence, financial expertise, and meeting frequency), the qualification of management variable, the auditor tenure variable, the internal audit function variable, and the age of hospital variable. I classify an audit committee member as either an independent member or non-independent/affiliated member as in prior research (Beasley, 1996; Carcello & Neal, 2000, 2003; Klein, 2002; Krishnan, 2005). Independent members are not employees or officers. I consider employees of banks, accounting firms, law

firms, and others in public corporations independent members for this study (some prior research classifies these as non-independent or gray members). In addition, I consider public officials independent members since the hospital does not pay them a salary (For example, county-owned hospitals have publicly elected Commissioners who serve committees. These members can be considered “grey” members, but my research suggests, later investigation, their office have no impact on their independence requirement).

Because the definition of “financial expertise” varies, I asked the respondent the same two different questions used by Vermeer et al. (2006) to determine the presence of financial experts on the audit committee. The first question asks for the “number of [audit or similar function committee] members who are CPAs.” The second question asks for the “number of [audit or similar function committee] members (other than CPAs) who have senior-level accounting or finance experience.” Yes responses to either of these two questions signify financial expertise.

Statistical Methodology

This research project is testing the impact that the presence, absence, and quality (size, independence, financial expertise, and meeting frequency) of audit committees on the internal controls and on the financial survival of public hospitals. I used chi-square test of independence to test hypotheses one (H1), four (H4), and five (H5). Chi-Square is a non-parametric test of statistical significance for bivariate tabular analysis (Freund & Wilson, 2002; Ott, Longnecker, & Ott, 2002). Bivariate tabular analysis is used when

you are trying to summarize the intersections of independent and dependent variables and the relationship between those variables. Therefore, chi-square is most widely used to conduct tests of hypothesis that involve data that can be presented in a 2×2 table (Grizzle, 1967; Sims, 1999). The assumption of chi-square is that the variable is normally distributed in the population from which the sample is drawn (Freund & Wilson, 2002; Ott et al., 2002). The value of the chi-square statistic cannot be negative. The p-value in the chi-square test presents the probability that the chi-square test statistic is extreme than observed if the null hypothesis were true.

In order to test hypotheses two (H2) and three (H3), I estimate the covariates parameters using a logistic regression model similar to the one from Krishnan (2005) who examines the relationship between audit committee quality (size, independence, and financial expertise) and internal control quality. Various prior studies also use logistic regression to examine audit committee composition (size, independence, financial expertise, and/or meeting frequency) (e.g., Abbott & Parker, 2000; Abbott et al. 2004; Abbott & Raghunandan et al., 2003; Bedard et al., 2004; Carcello & Neal, 2000, 2003; Chen et al., 2005; Felo et al., 2003; Klein, 2002; Krishnan, 2005; Lee & Mande, 2005). Logistic regression is used to estimate relationships between the dependent variable that is dichotomous and the independent variables that are either continuous or non-continuous (Hosmer & Lemeshow, 2000; Menard, 2002). In addition, the assumption of the logistic regression is that all relationships between the dependent and independent variables are assumed to be linear into logit. The logit was defined based on the probability of having internal control problems (*ICPROB*) p , using the following definition:

$$p(x) = \frac{e^{\beta_0 + \beta_1 x_1 + \dots}}{1 + e^{\beta_0 + \beta_1 x_1 + \dots}}$$

where x_1, x_2, \dots are covariates in the model. The linear transformation of $p(x)$ is called the logit and is defined as

$$\text{Logit} = \log\left(\frac{p(\mathbf{x})}{1 - p(\mathbf{x})}\right)$$

The following is my full logistic regression model that summarizes variables and the design for internal control problems.

$$\begin{aligned} \text{Logit (ICPROB)} = & \alpha + \beta_1 \text{SIZE} + \beta_2 \text{INDEP} + \beta_3 \text{EXPERT} + \beta_4 \text{MEET} \\ & + \beta_5 \text{FDISTRESS} + \beta_6 \text{CFOEXP} + \beta_7 \text{BIG4} + \beta_8 \text{TENURE} \\ & + \beta_9 \text{LAUDIT} + \beta_{10} \text{LASSET} + \beta_{11} \text{HOSPAGE} + \varepsilon \end{aligned}$$

where:

- ICPROB* = 1 for a hospital has internal control problems, and 0 otherwise;
- SIZE* = 1 if an audit committee has at least three members, and 0 otherwise;
- INDEP* = 1 if audit committee members are totally independent, and 0 otherwise;
- EXPERT* = 1 if audit committee members with at least one financial expertise, and 0 otherwise;
- MEET* = 1 if an audit committee meets more than four times annually during the sample year, and 0 otherwise;
- FDISTRESS* = 1 if the Altman's Z-Score is less than 2.6 (technically bankrupt), and 0 otherwise;
- CFOEXP* = 1 if the Chief Financial Officer (or Controller) has CPA certification or previous experience in a similar capacity with another company, and 0 otherwise;
- BIG4* = 1 if audited by big 4 accounting firm, and 0 otherwise;
- TENURE* = number of years the auditor has audited the client;

IAUDIT = if internal audit function exists, and 0 otherwise;

LASSET = natural logarithm of total assets (in million);

HOSPAGE = number of years the hospital has been existed.

I used the purposeful selection method for the model construction.

Chapter Summary

This research extends prior work involving the audit committee quality and internal control to public hospital setting. I include variables explored by prior researchers using publicly traded companies as the population (e.g., size, independence, financial expertise, and/or meeting frequency). This research, however, examines these variables on the relationship among audit committee quality, internal controls, and corresponding financial distress of U.S. public hospitals.

Another significant contribution of this research is that I use the OMB Circular A-133 reports in conjunction with audited financial statements and supporting documentation (questionnaire). This is the first to use OMB Circular A-133 reports to measure the quality of internal controls. In addition, unlike Vermeer et al. (2006) who use unaudited financial data to analyze nonprofits, I use financial data from audited financial statements.

Chapter III develops the research hypotheses, describes the design of variables, the sample section and data collection procedure, and the statistical methodology used to test these research hypotheses. Chapter IV describes the finding of results of this research.

CHAPTER IV

ANALYSIS AND PRESENTATION OF FINDINGS

Introduction

Chapter III describes the research design and methods to test whether the presence, absence, and quality (size, independence, financial expertise, and meeting frequency) of audit committees have impact on the internal controls and on the financial survival of public hospitals in the United States. This chapter describes sample selection, provides descriptive statistics of the variables, and reports the results of tests of the hypotheses.

Sample Selection

I identified an initial sample of 154 public hospitals and health systems (hereafter hospitals) from AHA. I contacted each of the 154 by either email or telephone. Each responded with information on how to obtain copies of their 2005 fiscal year audited financial statements and A-133 reports. Every state in the United States has a law (For example, Section 610.011 of Missouri Sunshine Law) requiring that public records be open and available for inspection and copying by any member of the public

Seventy-six hospitals did not have an OMB Circular A-133 audit because they did not expend \$500,000 or more in Federal grants during the fiscal year 2005, and three

hospitals did not complete the year 2005 OMB Circular A-133 audit as of January 31, 2007. Thus, I dropped these 79 hospitals from the initial sample. This resulted in all publicly available 75 hospitals in the United States or in the United States territory that met the OMB Circular A-133 audit requirement for 2005 fiscal year.

I also requested additional supporting documentation from each of the 75 hospitals that completed the OMB Circular A-133 report for the fiscal year 2005 through direct telephone interview, email, fax, or USPS mail responses. Through this interview process, each hospital completed a two-page questionnaire (see Appendix B). As mentioned above, the information and reports I requested from hospitals are public records, therefore, I received all 75 supporting documentation for which all the variable were available.

Descriptive Statistics

Table 1 (Appendix C) shows basic information on all 75 reporting systems, including the location, bed size, and finances. The finances include total assets, net assets or liabilities, operating revenues, operating expenses, and operating income or loss. The average bed size is 774. Thirty-eight of 75 hospitals (51 percent) have 500 beds or fewer, 25 hospitals (33 percent) have between 501 and 1,000 beds, and 12 hospitals (16 percent) have more than 1,000 beds.

Panel A of Table 2 (Appendix D) shows that 62 of the 75 hospitals (83 percent) in my sample have an audit (or similar function) committee while another 13 hospitals have no audit (or similar function) committee. Among the 62 public hospitals, thirty-four

hospitals (55 percent) have an audit committee and 28 hospitals (45 percent) have a similar function committee as an audit committee (not tabulated). Eighteen of these “similar function committees” are named financial committees, and the rest are named finance and audit committee (five hospitals), fiscal affair committee (two hospitals), finance and compliance committee (one hospital), financial review committee (one hospital), and hospital committee (one hospital). A summary of the hospitals with audit (or similar function) committees is presented in Panel B of Table 2 (Appendix D).

In addition, since control problems in this study include reportable conditions and material weaknesses, for the 26 hospitals with internal control problems, 16 have reportable conditions and the rest are material weaknesses (not tabulated).

Panel C of Table 2 (Appendix D) reports the means and standard deviations for the hospitals with audit committees (AC sample) and those without audit committees (NOAC sample). The AC and NOAC samples differ significantly in the presence of internal control problems (*ICPROB*) ($p\text{-value} = 0.048 < 0.05$) and the probability of bankruptcy or financial distress (*FDISTRESS*) ($p\text{-value} = 0.059 < 0.10$). The mean number of AC (NOAC) sample with control problems is 29 percent (62 percent). Sixty-two (31) percent of NOAC (AC) sample had the probability of bankruptcy or financial distress.

With respect to other monitors and other independent variables, the AC and NOAC samples differ in external auditor type (*BIG4*) ($p\text{-value} = 0.003 < 0.01$), the existence of internal audit function (*IAUDIT*) ($p\text{-value} = 0.003 < 0.01$), and the size of public hospitals (*LASSET*) ($p\text{-value} = 0.008 < 0.01$). AC sample is more likely to use Big 4 auditor (69 percent) compared to NOAC sample (23 percent). Sixty-nine (23) percent

of AC (NOAC) sample have internal audit function. Finally, larger hospitals are more likely to have audit committees than smaller or median hospitals.

Results of Tests of Research Hypotheses

Support for First Research Hypothesis (H1)

Panel A of Table 2 (Appendix D) gives the 2x2 Chi-Square analysis of the corresponding of audit committees with internal control problems, and shows that 62 hospitals with audit committees are less likely to have internal control problems (29 percent) than those 13 without audit committees (62 percent) ($p\text{-value} = 0.025 < 0.05$). Thus, the result supports the first research hypotheses (H1) that the presence of a public hospital audit committee is positively associated with the quality of internal controls over financial and major Federal award programs reporting.

Support for Second (H2) and Third (H3) Research Hypotheses

Table 3 (Appendix E) shows the results of the logistic regression model and the relationship between quality of the audit committee (size, independence, financial expertise, and meeting frequency) and the incidence of internal control problems (research hypothesis H2). The first measure of audit committee quality, size (*SIZE*) of an audit committee is not related to control problems ($p\text{-value} = 0.985 > 0.05$). However, the other three characteristics are related. The presence of an audit committee comprised of solely independent members (*INDEP*) ($p\text{-value} = 0.050 < 0.10$) (however, all p-values are in one sense two-tailed so the argument that independent members related to control

problems, a one-side argument, is then significant at $p\text{-value} = 0.025 < 0.05$), an audit committee possessing at least one financial expert (*EXPERT*) ($p\text{-value} = 0.036 < 0.05$), and committee meeting frequency (*MEET*) ($p\text{-value} = 0.045 < 0.05$) are negatively associated with the incidence of internal control problems. These control problems are positively related to the incidence of financial distress (research hypothesis H3) ($p\text{-value} = 0.027 < 0.05$). Among the additional control variables, the use of Big Four auditor (*BIG4*) ($p\text{-value} = 0.029 < 0.05$), and the number of years the hospital has been existed (*HOSPAGE*) ($p\text{-value} = 0.045 < 0.05$) are negatively related to control problems, as anticipated. Also, auditor tenure (*TENURE*) ($p\text{-value} = 0.108$) is not statistically significant but close, as these are two-tail p -values, and has a negative sign suggesting the possibility that tenure could be a positive influence.

Support for Fourth (H4) and Fifth (H5) Research Hypotheses

Because I find support that links both internal controls to financial distress (research hypothesis H3) and the audit committee to internal controls (research hypothesis H1), I now investigate the relationship between the presence of an audit committee, and financial distress in Panel A of Table 4 (Appendix F): for 75 hospitals, the 62 with audit committees are less likely to experience financial distress (29 percent) than those 13 without audit committees (62 percent) ($p\text{-value} = 0.025 < 0.05$).

Panels B – E of Table 4 (Appendix F) consider the audit committee quality characteristics (size, independence, financial expertise, and meeting frequency) and hospital financial distress. In Table 3 (Appendix E), three characteristics (*INDEP*, *EXPERT*, and *MEET*) are significantly related to control problems, but now only one,

financial expertise (*EXPERT*) seems related to hospital financial distress (see Panel D of Table 4, $p\text{-value} = 0.025 < 0.05$). If most of the committee characteristics relate to control quality, only one characteristic, financial expertise (*EXPERT*), correlates with financial distress (*FDISTRESS*).

Since a financial expert on the committee seems to matter, could then a CFO with financial expertise substitute for this positive effect of the audit committee? Panel F of Table 4 (Appendix F) examines this. Eight of the 13 hospitals have financial distress and five of these (more than half) have qualifications the same as would a financial expert on the audit committee (e.g., CPA certifications or with previous experience in a similar capacity). Descriptively, having a CFO with financial expertise does not seem to replace the effect of the audit committee.

Chapter Summary

This chapter details the findings of the study on the relationship among the presence or absence of quality audit committees, internal control quality, and corresponding financial distress of public hospitals operating in the United States. Consistent with prior research on audit committees for public traded companies (e.g., Krishnan, 2005), I find that the presence of an audit committee and the quality of audit committee characteristics of independence, financial expertise, and meeting frequency positively correlate with reduced frequencies of internal control problems. In addition, I find that the presence of an audit committee and an audit committee with at least one

financial expert member are positively related to the reduced likelihood of financial distress.

Chapter V concludes this study, discusses study limitations, and provides avenues for future research.

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

This chapter consists of two sections. The first section concludes the results of findings of this research. The final section discusses the limitations of this study and provides avenues for future research.

Conclusions

This study is the first to use OMB Circular A-133 reports to investigate the impact that the presence, absence, and quality of audit committees have on the internal controls and on the financial survival of public hospitals in the United States. This study adds to the body of knowledge about the role of audit committees over internal control quality and financial distress in public hospitals. I provide evidence that the presence and quality of an audit committee is positively related to internal control quality and inversely related to financial distress. Big Four auditors and older hospital systems also correlate with improved financial control quality.

I also provide additional support for the recent SOX and OMB Circular A-123 requirements (The White House, 2004). I find that audit committee independence, financial expertise, and activity level (meeting frequency) have a positive effect on

internal control quality for hospitals. This extends research to the public sector conducted by others on publicly traded companies (Krishnan, 2005) and non-for-profit organizations (Vermeer et al., 2006).

Other variables may reduce control problems. I find the hospital's age, the use of Big Four auditors and possibly the auditor tenure to improve control quality, but not the consideration of the internal audit function and the hospital size. Younger hospitals are more likely to have control problems. This suggests that older hospitals are more likely to have "ironed out the kinks" in their internal control processes (Doyle et al., 2006). This finding is consistent with prior research on publicly traded companies by Doyle et al.

I also find information related to the financial distress of hospitals. I find that the presence of audit committees and audit committees with at least one financial expert member are negatively related to the probability of financial distress. The understanding of these relationships is especially critical to safety net public hospitals. These hospitals fill a critical need for healthcare for underserved and uninsured recipients. It is only through strong financial management and an awareness of the importance of internal controls that these hospitals are able to survive without placing an undue burden on local taxpayers. This is especially true, given the recent Federal budget proposal from the Bush administration that will cut an additional \$75 billion or more from Medicare over the next five years (Dorschner, 2007). Therefore, this study points to areas to improve public hospital internal controls to reduce the misappropriation of assets, the wasteful spending for supplies and services, change poor collect practices, and reduce the corresponding increases in public debt.

Discussion and Limitations

This study is the first to use OMB Circular A-133 reports to investigate the impact of audit committees and audit committee quality on internal control quality and financial distress in the public health care sector. This study, however, has limitations.

First, this is a study of association, not causation. The connection of controls to financial distress may not always be causal. For example, financially distressed hospitals may not have sufficient funding and correspondingly spent less to control financial errors. Several authors note similar limitations (e.g., Carcello & Neal, 2003; Krishnan, 2005).

A second limitation of this study relates to the nature of the A-133 audits. There is the possibility that the auditor failed to identify existing internal control problems related to financial reporting and major Federal award programs. The external audit does not, by design, identify all internal control problems. The A-133 audit program does not require that the auditor review all Federal programs annually. The auditor's requirement is that only a sample of Federal sponsored programs be audited each year and that each major Federal program be audited at least once every three years. In addition, the audit excludes non-Federal sponsored programs (e.g., county government and pharmaceutical-company sponsored programs). Thus, reportable conditions may exist in Federal and non-Federal programs not audited and not reported in the year of the OMB Circular A-133 audit.

A third limitation relates to the verification of additional data I collected beyond that available in the OMB Circular A-133 reports. I could not verify all the questionnaire

responses on the presence or absence or quality variables of the audit (or similar function) committee. However, even though this data was self-reported, the truthfulness of this additional information can be compared to the truthfulness of verifiable information from the OMB Circular A-133 reports, and very few exceptions appeared. Additionally, the public record law requirements mandate that information given in responses to public record requests be accurate.

A fourth limitation relates to audit committee member independence. Elected officials who do not get direct pay from the hospital may not be independent, as I have assumed, since they may seek self-serving political gains rather than monetary benefits.

A fifth limitation relates to the small sample size. Even though the sample only contains 75 reporting systems, but many variables were found to be statistically related, even so.

A final limitation of this study relates to the sample selection. Out of necessity, I limited my data collection to all known available large (over 200 beds) acute care public hospitals with issued 2005 OMB Circular A-133 audit reports. Because of public record law requirements, I had no problem obtaining all data from all hospitals known to produce OMB Circular A-133 reports. There is, however, no way to be certain that I have all large acute care public hospitals. In addition, I relied upon the hospital to disclose if they had a required A-133 report. In a few cases, I was unable to determine if the contact fully understood the nature of my public record request. Future research may examine the findings of this study apply to smaller public acute care hospitals and/or examine the difference in governance structure across different types of hospitals (such as Veteran and military hospitals).

APPENDIX A

OMB CIRCULAR A-133 REPORTING REQUIREMENT OVER FINANCIAL
REPORTING AND OVER MAJOR FEDERAL AWARD PROGRAMS

FIGURE 1	
Reporting Requirements over Financial Reporting	
Audit Results	OMB Citation
The type of report the auditor issued on the financial statements (e.g., unqualified opinion, qualified opinion, adverse opinion, or disclaimer of opinion).	OMB 2003, Section 505 (d) (1) (i)
Where applicable, a statement that reportable conditions in internal control were disclosed by the audit of the financial statements and whether any such conditions were material weaknesses.	OMB 2003, Section 505 (d) (1) (ii)
A statement as to whether the audit disclosed any noncompliance which is material to the financial statements.	OMB 2003, Section 505 (d) (1) (iii)
Where applicable, a statement that reportable conditions in internal control over major programs were disclosed by the audit and whether any such conditions were material weaknesses.	OMB 2003, Section 505 (d) (1) (iv)
The type of report the auditor issued on compliance for major programs (i.e., unqualified opinion, qualified opinion, adverse opinion, or disclaimer of opinion).	OMB 2003, Section 505 (d) (1) (v)
A statement as to whether the audit disclosed any audit findings which the auditor is required to report under the requirements listed in FIGURE 2.	OMB 2003, Section 505 (d) (1) (vi)
A statement as to whether the auditee qualified as a low-risk auditee.	OMB 2003, Section 505 (d) (1) (ix)

FIGURE 2	
Reporting Requirements over Major Federal Award Programs	
Reporting Requirement	OMB Citation
Reportable conditions in internal control over major programs.	OMB 2003, Section 510 (a) (1)
Material non-compliance with the provision of laws, regulations, contracts, or grant agreements related to a major program.	OMB 2003, Section 510 (a) (2)
Known questionable costs, which are greater than \$10,000 for a type of compliance requirements for a major program.	OMB 2003, Section 510 (a) (3)
Know questionable costs, which are greater than \$10,000 for a Federal program and is not audited as a major program.	OMB 2003, Section 510 (a) (4)
Know fraud affecting a Federal award.	OMB 2003, Section 510 (a) (6)

APPENDIX B
QUESTIONNAIRE

**Nova Southeastern University
Wayne Huizenga Graduate
School of Business & Entrepreneurship
DOCTORAL PROGRAMS**

mm, dd, yyyy

XXX
XXX Medical Center
XXX Newton St.
Davie, FL 33314

Dear Mr. / Ms. XXX

I am an accounting doctoral student at Nova Southeastern University and am currently working on my dissertation. Several weeks ago, you sent to me your hospital's 2004 and 2005 Financial Statements and Single Audit Reports (OMB Circular A-133 Reports). To complete my dissertation I need to identify additional information.

In return for your contribution to my work, when my report is prepared, I will provide you with an advanced electronic copy so that you can review the results of the association between public hospitals' audit committee quality and internal controls over financial reporting and Federal awards. All individual responses will of course be kept confidential.

I would like to call you within a week to answer these questions or, if you would like, I can be reached at xxx-xxx-xxxx or at my school email address: wenwen@nova.edu My dissertation committee member, Dr. Roger Mayer, can be reached at mayer@nova.edu if you have any questions that you would prefer to direct to him.

In addition, you can email me these questions with answers or, if you would like, you can fax them to me or to Dr. Roger Mayer at (xxx) xxx-xxxx.

Cordially,

Sophia (Wen-wen) Chien
3301 College Avenue
Fort Lauderdale-Davie, FL33314

Please answer the following questions that accurately reflected the status of your hospital during the fiscal year 2005. Thank you for your assistance.

Q1. Did your hospital have an audit committee?

1. Yes; 2. No.

Q2. If your hospital did not have an audit committee, which similar control committee did you have for the hospital's audit?

1. Finance committee; 2. Audit review committee; 3. Finance and audit committee;
4. Fiscal affair committee; 5. Administrative committee; 6. Audit or similar committee; 7. Other: _____

Q3. When did the audit/control committee come into existence?

Q4. How many members were on the audit/control committee?

1. Three; 2. Four; 3. Five; 4. Six; 5. Seven; 6. Eight; 7. Other: _____

Q5. Were all members independent (i.e. non-employees or non-officers)?

1. Yes; 2. No.

Q6. If all members were not independent members, how many of them were independent members on the audit/control committee?

1. One; 2. Two; 3. Three; 4. Four; 5. Five; 6. Six; 7. Other: _____

Q7. Was any of the audit/control committee member an elected county or city government official (i.e. County Commissioners)?

1. Yes; 2. No.

Q8. How many times did the committee meet during the fiscal year 2005?

1. One; 2. Two; 3. Three; 4. Four; 5. Five; 6. Six; 7. Other: _____

Q9. How many of the audit/control committee members are CPAs?

1. Zero; 2. One; 3. Two; 4. Three; 5. Four; 6. Five; 7. Other: _____.

Q10. How many of the audit/control committee members (other than CPAs) have senior-level accounting or finance experience?

1. Zero; 2. One; 3. Two; 4. Three; 5. Four; 6. Five; 7. Other: _____.

Q11. Does your CFO have a CPA license or similar financial experience at another employment?

1. Yes; 2. No.

Q12. Does your Controller have a CPA License or similar financial experience at another employment?

1. Yes; 2. No.

Q13. Do you have an internal audit department?

1. Yes. 2. No.

Q14. To whom does the internal auditor department report?

1. Audit committee; 2. Similar control committee mentioned in **Q2**; 3. CFO;
4. Other: _____

Q15. What is the size of the internal audit department (F.T.E.s)?

Q16. What is your hospital bed size?

Q17. When did the hospital come into existence?

Q18. How long has the hospital's financial statements and the single audit been audited by the current external auditor?

1. One year; 2. Two years; 3. Three years; 4. Four years; 5. Five years; 6. Six years; 7. Other: _____

APPENDIX C

BASIC INFORMATION ON ALL REPORTING SYSTEMS

TABLE 1
Basic Information on All Reporting Systems

Hospital Name	Location (State)	Bed Size	Total Assets	Net Assets (Liabilities)	Operating Revenues	Operating Expenses	Operating Income (Loss)
Alameda County Medical Center	CA	475	172,667	(98,666)	369,669	364,940	4,729
Antelope Valley Hospital	CA	379	292,351	99,085	222,205	220,153	2,052
Arrowhead Regional Medical Center	CA	373	598,095	(19,519)	440,545	468,400	(27,855)
Bay Medical Center	FL	403	193,960	94,505	195,733	185,206	10,527
Boston Medical Center	MA	547	1,214,817	712,517	868,608	841,459	27,149
Broadlawns Medical Center	IA	200	87,438	26,295	35,582	77,869	(42,287)
Cambridge Health Alliance	MA	368	442,867	193,611	644,163	644,984	(821)
Carolinas HealthCare System	NC	4,000	2,709,132	1,405,950	1,748,234	1,641,840	106,394
Catawba Valley Medical Center	NC	258	131,709	85,759	141,477	137,243	4,234
Citizens Medical Center	TX	368	155,763	103,219	112,782	101,867	10,915
Cooper Green Hospital	AL	319	32,237	27,986	30,252	75,306	(45,054)
Denver Health System	CO	500	559,466	347,450	448,265	431,828	16,437
Erlanger Health System	TN	540	514,363	158,293	426,473	459,207	(32,734)

Evergreen Healthcare	WA	259	425,562	139,467	244,717	251,379	(6,662)
Good Samaritan Hospital	IN	232	167,192	116,079	125,522	119,704	5,818
Grady Health System	GA	953	490,547	23,657	523,846	616,920	(93,074)
Greenville Hospital System	SC	1,100	1,115,354	404,630	853,114	823,889	29,225
Guam Memorial Hospital Authority	GU	201	74,100	41,606	57,689	75,765	(18,076)
Halifax Community Health System	FL	764	423,426	175,979	718,673	675,254	43,419
Harborview Medical Center	WA	413	673,094	588,423	506,986	498,864	8,122
Harris County Hospital District	TX	975	826,729	531,807	565,253	901,466	(336,213)
Hennepin County Medical Center	MN	422	237,693	144,613	415,153	429,019	(13,866)
Health Central	FL	171	209,530	120,210	118,816	112,980	5,836
Henry County Medical Center	TN	316	66,024	41,677	60,262	54,902	5,360
Hurley Medical Center	MI	480	240,245	94,938	341,686	343,638	(1,952)
Iowa Health System	IA	1,967	1,980,038	1,120,498	1,683,452	1,634,675	48,777
Jackson Memorial Hospital	FL	1,500	1,187,802	449,891	1,084,419	1,417,766	(333,347)
JPS Health Network	TX	459	488,010	395,002	236,657	409,358	(172,701)
Kern Medical Center	CA	222	86,881	(9,483)	153,302	186,474	(33,172)
Kootenai Medical Center	ID	246	199,412	164,314	174,409	155,139	19,270

Lee Memorial Health System	FL	1,070	973,072	458,758	601,447	572,737	28,710
Lincoln County Health System	TN	319	43,452	22,794	33,455	31,946	1,509
Los Angeles County Department of Health Services	CA	3,257	3,112,809	226	2,513,401	2,269,271	244,130
Maury Regional Hospital	TN	275	205,874	156,520	228,103	221,634	6,469
Magic Valley Regional Medical Center	ID	203	123,981	78,941	132,708	123,787	8,921
Memorial Healthcare System	FL	1,418	1,231,740	594,785	879,345	846,520	32,825
Memorial Health System	CO	477	708,607	350,447	396,029	365,305	30,724
MetroHealth System	OH	702	626,729	221,862	547,412	572,038	(24,626)
Midland Memorial Hospital	TX	320	152,961	84,744	149,183	154,211	(5,028)
Nassau Health Care Corporation	NY	631	334,486	(77,184)	453,829	467,226	(13,397)
North Broward Hospital District	FL	1,524	833,596	361,742	665,158	807,540	(142,382)
North Kansas City Hospital	MO	451	494,287	338,823	317,247	304,675	12,572
New York City Health and Hospitals Corporation	NY	7,407	3,595,230	1,463,769	4,678,288	4,706,830	(28,542)
Oregon Health & Service University	OR	650	2,023,239	1,143,691	1,192,392	1,149,047	43,345
Orlando Regional Healthcare System	FL	1,582	1,397,336	591,219	1,168,708	1,112,581	56,127
Parkland Health & Hospital System	TX	968	637,928	455,292	689,022	985,375	(296,353)
Riverside County Regional Medical Center	CA	439	284,599	16,824	229,439	253,336	(23,897)

Shelby County Health Care Corporation	TN	330	175,768	124,030	253,885	287,094	(33,209)
Santa Clara Valley Medical Center	CA	574	683,283	(21,525)	595,696	704,601	(108,905)
San Francisco General Hospital	CA	509	134,351	48,435	377,069	441,999	(64,930)
San Joaquin General Hospital	CA	236	153,362	52,091	147,741	167,002	(19,261)
San Mateo Medical Center	CA	509	51,392	(8,263)	112,751	178,749	(65,998)
Sarasota Memorial Health Care System	FL	826	834,627	380,570	407,300	424,968	(17,668)
Shands HealthCare	FL	1,941	1,308,740	677,271	1,421,902	1,309,829	112,073
Spartanburg Regional Healthcare System	SC	588	679,289	402,537	521,569	501,801	19,768
Health and Hospital Corporation of Marion County	IN	294	488,880	256,687	391,643	525,994	(134,351)
Thomason General Hospital	TX	327	233,293	156,598	218,029	268,109	(50,080)
Truman Medical Centers	MO	349	309,031	161,170	331,729	330,863	866
UMass Memorial Health Care	MA	1,055	1,355,975	481,655	1,592,140	1,497,823	94,317
United Medical Center	WY	206	210,110	186,203	151,837	142,620	9,217
University of Alabama at Birmingham Health System	AL	908	1,084,172	620,081	732,858	729,412	3,446
University of Arkansas for Medical Sciences	AR	265	795,193	495,314	763,828	776,700	(12,872)
University of Chicago Hospitals and Health System	IL	631	1,179,435	576,923	868,515	798,755	69,760
University of Colorado Hospital and Health System	IL	537	825,015	305,988	464,246	459,355	4,891

University Health System	TX	604	781,262	530,878	470,079	596,222	(126,143)
University of IOWA Hospitals and Clinics	IA	762	970,987	819,075	674,118	646,629	27,489
University of Kentucky Albert B. Chandler Medical Center University Hospital	KY	473	509,329	456,677	441,935	404,777	37,158
University of Missouri Health System	MO	590	509,020	228,894	556,939	534,354	22,585
University of New Mexico Health Sciences Center Clinical Operations	NM	421	477,922	189,532	321,818	391,943	(70,125)
University of Utah Hospital and Clinics	UT	539	394,952	224,575	577,359	543,124	34,235
University of Virginia Medical Center	VA	574	977,777	668,543	810,268	762,808	47,460
University of Wisconsin Hospital and Clinics Authority	WI	471	732,574	325,917	676,223	633,400	42,823
Virginia Commonwealth University Health System	VA	701	780,438	474,054	1,032,800	968,637	64,163
West Tennessee Healthcare	TN	796	640,367	385,925	473,702	430,936	42,766
Westchester County Health Care Corporation	NY	900	487,147	(181,898)	562,994	575,256	(12,262)

* Units in (000s) except for bed size

APPENDIX D
DESCRIPTIVE STATISTICS

TABLE 2
Descriptive Statistics

Panel A: Chi-Square Analysis of All Reporting Hospitals

<i>ICPROB</i>	Frequency	<i>AC</i>		n
		1	0	
1	18	8	26	
0	44	5	49	
n	62	13	75	

Chi-Square
P-value 0.025*

* = p-value <.05.

Variable Definitions:

ICPROB = 1 for a hospital with internal control problems, and 0 otherwise;

AC = 1 for a hospital with an audit committee, and 0 otherwise;

Panel B: A Summary of 62 Hospitals with Audit (or similar function) Committees

Committee Name	Number of Hospitals
Audit committee	34
Financial committee	18
Finance and audit committee	5
Fiscal affair committee	2
Finance and compliance committee	1
Financial review committee	1
Hospital committee	1
Total	62

TABLE 2 (continued)

Panel C: Descriptive Statistics of All Hospitals

Variable	AC Sample		NOAC Sample		Diff. in + Means	t-statistics ++	p-value
	Mean	Std. Dev.	Mean	Std. Dev.			
<i>ICPROB</i>	0.290	0.458	0.615	0.506	-0.325	2.14	0.048**
<i>FDISTRESS</i>	0.307	0.465	0.615	0.506	-0.309	2.03	0.059*
<i>CFOEXP</i>	0.903	0.298	0.692	0.480	0.211	-1.52	0.150
<i>BIG4</i>	0.694	0.465	0.231	0.439	0.463	-3.42	0.003***
<i>TENURE</i>	6.936	6.414	6.769	8.776	0.166	-0.06	0.949
<i>IAUDIT</i>	0.694	0.465	0.231	0.439	0.463	-3.42	0.003***
<i>LASSET</i>	6.599	1.834	5.391	1.248	1.208	-2.90	0.008***
<i>HOSPAGE</i>	72.903	39.476	83.000	47.720	-10.097	0.71	0.486
n	62		13				

*, **, *** = p-value < .10, .05, .01, respectively, one-tail if in predicted direction, two-tail otherwise.

+ Difference in means may actually be differences in percentage, where appropriate.

++ Test for significant differences in means.

AC sample is the sample of hospitals with audit committees.

NOAC sample is the sample of hospitals without audit committees.

Variable Definitions:

- ICPROB* = 1 for a hospital has internal control problems, and 0 otherwise;
FDISTRESS = 1 if the Altman's Z-Score is less than 2.6 (technically bankrupt), and 0 otherwise;
CFOEXP = 1 if the Chief Financial Officer (or Controller) has a CPA certification or previous experience in a similar capacity with another company, and 0 otherwise;
BIG4 = 1 if audited by Big 4 accounting firm, and 0 otherwise;
TENURE = number of years the auditor has audited the client;
IAUDIT = if internal audit function exists, and 0 otherwise;
LASSET = natural logarithm of total assets (in million);
HOSPAGE = number of years the hospital has been existed.

APPENDIX E
LOGISTIC REGRESSION ANALYSIS

TABLE 3
Logistic Regression Analysis for the Incidence of Internal Control Problems
for 62 Hospitals with Audit Committees

$$ICPROB = \alpha + \beta_1 SIZE + \beta_2 INDEP + \beta_3 EXPERT + \beta_4 MEET + \beta_5 FDISTRESS + \beta_6 CFOEXP + \beta_7 BIG4 + \beta_8 TENURE + \beta_9 IAUDIT + \beta_{10} LASSET + \beta_{11} HOSPAGE + \varepsilon$$

Variable	Expected Sign	Coefficient Estimate	Wald test p-value	Wald test Chi-Square
Intercept	+/-	20.782	0.974	0.001
SIZE	-	-10.753	0.985	0.000
INDEP	-	-1.760	0.050*	3.829
EXPERT	-	-3.223	0.036**	4.413
MEET	-	-2.046	0.045**	4.008
FDISTRESS	+	1.940	0.027**	4.910
CFOEXP	-	-0.396	0.762	0.092
BIG4	+/-	-2.083	0.029**	4.755
TENURE	-	-0.104	0.108	2.590
IAUDIT	-	0.202	0.843	0.039
LASSET	+/-	-0.037	0.950	0.004
HOSPAGE	-	-0.025	0.074*	3.204
Chi-Square (p-value)			27.244	0.004
Adjusted R			0.203	
n			62	

*,** = p-value < .10, .05, respectively, one-tail if in predicted direction, two-tail otherwise.

Variable Definitions:

- ICPROB* = 1 for a hospital with internal control problems, and 0 otherwise;
SIZE = 1 if an audit committee has at least three members, and 0 otherwise;
INDEP = 1 if audit committee members are totally independent, and 0 otherwise;
EXPERT = 1 if audit committee members with at least one financial expertise, and 0 otherwise;
MEET = 1 if an audit committee meets more than four times annually during the sample year, and 0 otherwise;
FDISTRESS = 1 if the Altman's Z-Score is less than 2.6 (technically bankrupt), and 0 otherwise.
CFOEXP = 1 if the Chief Financial Officer (or Controller) has a CPA certification or previous experience in a similar capacity with another company, and 0 otherwise;
BIG4 = 1 if audited by Big 4 accounting firm, and 0 otherwise;
TENURE = number of years the auditor has audited the client;
IAUDIT = 1 if internal audit function exists, and 0 otherwise;
LASSET = natural logarithm of total assets (in million);
HOSPAGE = number of years the hospital has been existed.

APPENDIX F
CHI-SQUARE ANALYSIS

TABLE 4
**Chi-Square Analysis of the Presence and Quality of Audit Committees,
 Management Qualifications, and Financial Distress**

Panel A: The Presence of An Audit Committee and Financial Distress of All Reporting Hospitals

<i>FDISTRESS</i>	Frequency	<i>AC</i>		n
		1	0	
1	18	8	26	
0	44	5	49	
n	62	13	75	

Chi-Square
P-value 0.025*

Panel B: Audit Committee Size and Financial Distress of 62 Hospitals with Audit Committees

<i>FDISTRESS</i>	Frequency	<i>SIZE</i>		n
		1	0	
1	17	1	18	
0	44	0	44	
n	61	1	62	

Chi-Square
P-value 0.115

Panel C: Audit Committee Independence and Financial Distress of 62 Hospitals with Audit Committees

<i>FDISTRESS</i>	Frequency	<i>INDEP</i>		n
		1	0	
1	13	5	19	
0	33	11	43	
n	46	16	62	

Chi-Square
P-value 0.821

TABLE 4 (continued)

Panel D: Audit Committees with At Least One Financial Expert and Financial Distress of 62 Hospitals with Audit Committees

<i>FDISTRESS</i>	Frequency	<i>EXPERT</i>		n
		1	0	
1	13	5	18	
0	41	3	44	
n	54	8	62	

Chi-Square
P-value 0.025*

Panel E: Audit Committee Meeting Frequency and Financial Distress of 62 Hospitals with Audit Committees

<i>FDISTRESS</i>	Frequency	<i>MEET</i>		n
		1	0	
1	6	12	18	
0	23	21	44	
n	29	33	62	

Chi-Square
P-value 0.175

TABLE 4 (continued)
**Panel F: The Management Qualifications and Financial Distress of 13 Hospitals
 with No Audit Committees**

<i>FDISTRESS</i>	Frequency	<i>CFOEXP</i>		Total
		1	0	
1	5	3	8	
0	4	1	5	
Total	9	4	13	

Chi-Square
P-value 0.506

* = p-value < 0.05.

Variable Definitions:

- AC* = 1 for a hospital with an audit committee, and 0 otherwise;
- SIZE* = 1 if an audit committee has at least three members, and 0 otherwise;
- INDEP* = 1 if audit committee members are totally independent, and 0 otherwise;
- EXPERT* = 1 if audit committee members with at least one financial expertise, and 0 otherwise;
- MEET* = 1 if an audit committee meets more than four times annually during the sample year, and 0 otherwise;
- FDISTRESS* = 1 if the Altman's Z-Score is less than 2.6 (technically bankrupt), and 0 otherwise;
- CFOEXP* = 1 if the Chief Financial Officer (or Controller) has a CPA certification or previous experience in a similar capacity with another company, and 0 otherwise.

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