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The Relationship Between Audit Committee and New Chief Financial Officer Charcteristics in Publicly Traded Healthcare Companies

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THE RELATIONSHIP BETWEEN AUDIT COMMITTEE AND NEW CHIEF FINANCIAL OFFICER CHARACTERISTICS IN PUBLICLY TRADED HEALTHCARE COMPANIES

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Signature page

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ABSTRACT

The Sarbanes-Oxley Act of 2002 established the role of the Chief Financial Officer (CFO) over financial reporting in public companies. Prior research had demonstrated that the CFO of a company who was a CPA, female, had industry experience, or had prior CFO experience had implications on the quality of the company's financial reporting. This quantitative study examined the relationship of these characteristics between a newly-hired CFO (N = 93) and the audit committee members (N = 331) in public healthcare companies. The extent to which audit committee members' characteristics may have influenced a newly-hired CFO to have had the characteristics of CPA designation, female, prior industry experience, or prior CFO experience could have been helpful to public healthcare companies and regulators in determining the composition of audit committees. The public healthcare companies were selected from an archival database where a new CFO was hired during the period between 2012 and 2016. Data was collected from the archival database and from public documents filed with the Securities and Exchange Commission. Data analysis included descriptive statistics, independent samples t-tests, and regression analyses. The results of the study identified only one statistically significant relationship, prior healthcare experience, between the audit committee members and a newly-hired CFO in a publicly held healthcare company. This statistically significant relationship should be helpful to a board of directors when selecting audit committee members at a public healthcare company.

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CHAPTER I

INTRODUCTION

The Securities and Exchange Commission (2002) enacted the Sarbanes-Oxley Act of 2002, a seminal law that changed financial reporting for public companies. The Sarbanes-Oxley Act added new rules for audit committees of public companies, causing these companies to create a stronger structure, thereby improving the oversight of financial reporting to the shareholders, the owners of public companies. The changes included requirements that all audit committee members be independent of the company and management and, at least one audit committee member be a financial expert as defined under the law. Section 302 of the Sarbanes-Oxley Act included new requirements for the chief financial officer (CFO) and chief executive officer (CEO) to certify the financial statements of the company and created potential criminal liability for the CFO or the CEO for failure to comply with provisions of the law.

Additional requirements under the Sarbanes-Oxley Act included increased oversight of the financial reporting process by audit committee members related to the system of internal control and approval of the audit plan and fees of the independent accounting firm that annually audits the financial statements of the company. Section 404 of the Sarbanes-Oxley Act required assessment of the adequacy of controls over financial reporting of the company and disclosure of any material weaknesses in internal control in the company's annual report under Form 10K filed with the Securities and Exchange

Commission. The Sarbanes Oxley Act created three levels of shortfall in the system of internal control over financial reporting, namely material weakness, significant deficiency, and deficiency. A material weakness in internal control over financial reporting is the most negative of the three levels. In addition to required reporting to the audit committee, a material weakness results in an adverse opinion about internal control over financial reporting by management and the independent accounting firm on annual report Form 10K. A significant deficiency is required to be reported to the audit committee of the company, but not disclosed within the annual report on Form 10K. A deficiency, the least of the three shortfalls, is not required to be reported to the audit committee.

The Chief Financial Officer has, arguably, become the second most important executive in a publicly traded company as evidenced by the Securities and Exchange Commission (2006) requirement that the CFO be one of the two named executives in proxy statements mailed to all shareholders, the other one being the CEO. The Bureau of Labor Statistics (2015) noted that the healthcare industry was one of the fastest growing industries in the United States. Between 2014 and 2024, the Bureau of Labor Statistics projected that healthcare positions would grow 21% whereas the growth in top executives, including CFOs, was projected to grow 6%, creating the possibility of CFO demand outpacing supply. Because of the potential that the demand for CFOs might outpace the supply in healthcare companies, the researcher selected newly hired CFOs of publicly traded healthcare companies in the current study. The researcher also found that research by others related to CFOs and audit committees (Aier, Comprix, Gunlock, & Lee, 2005: Cohen, Hoitash, Krishnamoorthy, & Wright, 2014) was not specific to the healthcare industry. The researcher's interest in publicly traded healthcare companies stems from over 10 years of experience as a CFO or CEO in publicly traded healthcare companies and service on the audit committee of four public companies. The current study addressed the relationship between the characteristics of CFOs and the characteristics of audit committee members and the influence that audit committee member characteristics may have on the characteristics of a new CFO recruited in a public healthcare company.

The Sarbanes-Oxley Act of 2002 (Securities and Exchange Commission, 2002) outlines the audit committee's reliance on the CFO to assist the audit committee in the fulfillment of their oversight duties. Consequently, the audit committee is generally involved when a new CFO is recruited into a company, although the level of involvement may vary. Prior research (Aier et al.; Cohen et al., 2014) has been conducted separately about the characteristics of CFOs and the characteristics of audit committee members related to the implications of the characteristics of each on the financial statement reporting of the companies they serve.

Statement of the Problem

As stated previously, the Sarbanes-Oxley Act of 2002 (Securities and Exchange Commission, 2002) was a seminal event that changed the landscape of public reporting, including the enactment of several new provisions for all public companies. Included in the provisions were new rules for CFOs and audit committee members to improve the financial reporting to the benefit of shareholders. The Sarbanes-Oxley Act established that the CFO has primary responsibility for financial reporting and required the CFO to sign a certification on the accuracy of the financial statements. A false certification carried the potential of criminal liability. The Sarbanes-Oxley Act established the oversight responsibility of the audit committee over financial reporting and added the requirement that audit committee members be independent of management, the company, and the independent accounting firm that annually audits the company's financial statements.

The characteristics of Certified Public Accountant (CPA) designation, gender, industry experience, and prior CFO experience all have implications on the quality of financial reporting. The characteristics of CPA designation, gender, industry experience, and prior CFO experience of the audit committee members may also have implications on the quality of financial reporting. However, the characteristics needed by CFOs may be different than the characteristics represented by the audit committee members.

Aier et al. (2005) established the CFO's responsibility for accurate financial statements of publicly traded companies by investigating the characteristics of CFOs whose companies were less likely to experience a restatement due to accounting errors. Li, Sun, and Ettredge (2010) established the key role that the CFO plays in the creation and maintenance of a proper system of internal control by investigating the characteristics of a CFO that were less likely to result in an adverse opinion on internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act.

Cohen et al. (2014) investigated the characteristic of audit committee member industry expertise and the relationship to errors in the financial statements that required restatement of the financial statements, in a subsequent filing with the Securities and Exchange Commission. Beck and Mauldin (2014) investigated the characteristic of CFO tenure versus audit committee tenure and the impact on external audit fee costs in order to evaluate the control displayed by the CFO, though the audit committee is charged specifically under the Sarbanes-Oxley Act to approve external audit fees.

While prior research (Aier et al., 2005; Cohen et al., 2014) studied the separate characteristics of CFOs and audit committee members, none of the studies addressed the potential interrelationship of the CFO’s characteristics with the audit committee members’ characteristics. The purpose of the current study was to develop a better understanding of the recruitment process by an examination of the relationship between the characteristics of CPA designation, gender, healthcare industry expertise, and prior CFO experience between a newly-hired CFO and the audit committee members in order to influence the composition of the audit committee members or their involvement in the recruitment process of a CFO in a public healthcare company.

Background

All publicly held companies are required to file quarterly and annual reports, respectively, Form 10Q and Form 10K, under Regulation SK (Securities and Exchange Commission, 2006) that include the financial statements of the enterprise. Congress passed the Sarbanes-Oxley Act of 2002 partially in response to financial statement reporting failures demonstrated by companies such as Enron and WorldCom. The provisions of the Sarbanes-Oxley Act were incorporated into SEC rules and established new requirements that the CFO and the CEO sign a certification about the accuracy and completeness of the financial statements. The Sarbanes-Oxley Act imposed potential criminal liability if provisions of the certification were not satisfied. In addition, the Sarbanes-Oxley Act required the audit committee of the board of directors of the company to specifically engage a qualified independent accounting firm registered with the Securities and Exchange Commission to audit the financial statements of the company annually. Because Congress attributed the financial reporting failures to management's negligence in the establishment of a proper system of internal control system over financial reporting, the Sarbanes-Oxley Act also included the requirement that company management opine about the company's system of internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act. Per this act, the system of internal control needs to be free of material weaknesses to be satisfactory. The independent accounting firm for the company is also required to attest to management's assessment of the internal control system over financial reporting.

The shareholders of a company elect a board of directors that represent the shareholders' interest in overseeing the management of a corporation. The board of directors establishes a system of corporate governance, including the establishment of different committees to fulfill the responsibilities of the board. One of the primary committees is the audit committee; the others generally are a compensation committee and a nominating and governance committee. The different stock exchanges where shares are publicly traded follow the guidelines of the Sarbanes-Oxley Act, requiring that all audit committee members of the board be independent, meaning that the members cannot be members of management nor receive compensation from the company other than board and committee fees. In addition, one of the audit committee members must qualify as a financial expert. The Sarbanes-Oxley Act defined financial expert as a person involved in the auditing of financial statements or in the preparation of financial statements, or someone who supervised others who prepared the financial statements of a company.

The Sarbanes-Oxley Act of 2002 provided an impetus for several research studies about different topics related to Chief Financial Officers and audit committees of board of directors of companies. Aier et al. (2005) found that companies whose CFOs had a CPA designation, a Master of Business Administration (MBA) degree, and to a lesser extent, prior CFO experience were less likely to incur a restatement of the company's financial statements.

In examining similar CFO attributes but for a different purpose, Sun, Johnson, and Rahman (2015) compared the characteristics of CFOs with CPA designations, MBA degrees, and years of CFO experience with the impact on proper corporate governance. Sun et al. defined corporate governance to include a company's accounting practices and transparency of financial reporting and used a scoring system established by Kinder, Lydenberg, and Domini, Inc. to evaluate corporate governance. Sun et al. found that CFOs with CPA designation were negatively associated with corporate governance concerns about accounting practices and transparency of financial reporting.

In examining risk in financial reporting, Hoitash, Hoitash, and Kurt (2016) found that companies with CFOs who had CPA designation were more risk averse in the structuring of the company's financial profile, implying less risk of financial failure for the company. Similarly, Barua, Davidson, Rama, and Thiruvadi (2010) found that companies with women CFOs were more likely to have higher quality accruals in the financial statements than companies with male counterparts in the CFO position. Barua et al. defined higher quality accruals as more risk averse, compared to the general population of companies, in the financial positioning of a company and linked higher quality accruals to an indication of better financial reporting.

Cohen et al. (2014) investigated the impact of audit committee industry experience on restatements and found that companies whose audit committee members had industry experience were less likely to incur a restatement of the company's financial statements. Wang, Xie, and Zhu (2015) found that independent directors of public companies with industry experience were more effective in monitoring senior executives of the company where the board members served, measured by a lack of earnings management by the senior executives. Wang et al. used the definition of earnings management as the use of abnormal accruals that increased the probability of a firm committing financial misconduct.

Despite the Sarbanes-Oxley Act of 2002 requirement that at least one member of the audit committee meet the definition of a financial expert, Erkens and Bonner (2013) found that a board of directors where the members had higher status, defined as graduation from an Ivy League school, membership in social clubs, trusteeships, and number of board memberships, were less likely to appoint an accounting financial expert than firms with lower status. Mathisen, Ogaard, and Marnburg (2013) investigated the dynamics of boardroom interaction of boards with women members. Mathisen et al. concluded that there were few differences in the way female directors presented their different views and competencies to the board when compared to the male directors at the same company. While prior research studied the separate characteristics of CFOs and audit committee members, none of the studies addressed the potential interrelationship of the CFO with the audit committee members and the potential influence the audit committee characteristics may have on the characteristics of a newly-hired CFO.

Research Questions

The current study was guided by the following questions:

1. To what extent does a Certified Public Accountant (CPA) designation versus a non-CPA designation for a newly-hired Chief Financial Officer (CFO) differ based on the proportion of audit committee members with a CPA designation at a publicly held healthcare company?
2. To what extent does the gender of a newly-hired CFO differ based on the proportion of women on a given audit committee at a publicly held healthcare company?
3. To what extent does the industry expertise, defined as experience, of audit committee members increase the likelihood of industry expertise for a new CFO hired at a publicly held healthcare company?
4. What is the relationship between audit committee members with CFO experience and the prior CFO experience of a new CFO hired at a publicly held healthcare company?

Description of Terms

Audit Committee. A committee of the board of directors whose purpose includes oversight of the accounting and financial reporting process and oversight of the audits of the financial statements of the company (Securities and Exchange Commission, 2002).

Certified Public Accountant. An individual who has passed the national uniform examination and met the state requirements as a certified public accountant in the state (American Institute of Certified Public Accountants, n.d.).

Chief Financial Officer. The principal financial officer of a company with primary responsibility for preparation of the financial statements of an enterprise (Securities and Exchange Commission, 2006).

Chief Executive Officer. The principal executive officer of an enterprise (Securities and Exchange Commission, 2006).

Internal Control. The system and processes underlying the preparation of the financial statements (Securities and Exchange Commission, 2014).

Material Weakness. A breakdown in the system of internal control that leads to a definition as ineffective for the system and processes used in preparation of the financial statements (Securities and Exchange Commission, 2014).

Restatement. An error in previously issued financial statements of a material nature resulting in the previously issued financial statements being corrected and reissued after the original filing of the financial statements (Investor Words, n.d.).

Section 302. The certification requirement for the CEO and the CFO to attest to the accuracy of the financial statements. (Securities and Exchange Commission, 2014)

Section 404. The report about internal control over financial reporting, in annual report Form 10K, as determined by management and attested by the external auditors (Securities and Exchange Commission, 2014).

Significant Deficiency. A weakness in internal control over the system and processes used in the preparation of the financial statements but not sufficient or material to classify the internal control over financial reporting as ineffective (Securities and Exchange Commission, 2014).

Significance of the Study

After the enactment of the Sarbanes Oxley Act of 2002, research topics focused on the characteristics of Chief Financial Officers that decrease the likelihood of accounting restatements, adverse Section 404 opinions, and the quality of accruals (Aier et al., 2005; Barua et al., 2010; Li et al., 2010). Research also focused on the characteristics of audit committee members and the likelihood of a decrease in accounting restatements and the quality of accruals (Cohen et al., 2014; Wang et al., 2015). The current study investigated the interrelationship of the CFO and the audit committee members and the role that the audit committee plays in the recruitment of a new CFO in a public healthcare company. The results of the current study could be important to the Chief Executive Officer and other senior members of management involved in the recruitment process of a newly-hired CFO in understanding the potential for bias that could occur from the audit committee members. The results of the research could also be important to a company's board of directors, representing the shareholders, in the placement of board members on the audit committee by recognizing that the characteristics of the audit committee could unduly influence the selection of a newly-hired CFO who may not be in the best interest of the shareholders. Lastly, the results could be important to regulatory bodies such as the Securities and Exchange Commission for consideration in future changes promulgated by the regulators regarding the composition of audit committees of publicly traded companies.

Process to Accomplish

The researcher used the following process to accomplish the purpose of the study.

Participants

The population consisted of newly-hired CFOs and audit committee members from those publicly traded healthcare companies that had a change in the CFO position during the five-year period between 2012 and 2016. Since the researcher was working with archival data, the sample was the same group as defined earlier as the population.

The researcher used the BoardEx (n.d.) database to select the publicly traded healthcare companies where there had been a change in the chief financial officer in the five-year period between 2012 and 2016.

BoardEx (n.d,) includes data from over 10,000 public companies in North America, including healthcare companies, gleaned from public filings with the Securities and Exchange Commission, company websites and other reliable sources. The database profiled the company's revenue, company announcements including changes in executive officers or board members, the composition of committees of the board and characteristics of each board member. The BoardEx database was selected by the researcher because BoardEx was frequently referenced as the source of information in many of the sources during the researcher's review of authoritative literature and because BoardEx listed as clients many academic institutions including Columbia, Harvard, the University of Chicago, and Wharton.

BoardEx (n.d.) classified each company into industry sectors. The researcher used the two sectors in the BoardEx database of *health* and *pharmaceutical and biotechnology* constituting the healthcare companies for the focus of the current study. There were 132 publicly traded healthcare companies included under the sector listings of *health* and *pharmaceutical and biotechnology*. Each of the 132 companies were included in only one sector in the BoardEx database.

Changes in the chief financial officer between 2012 and 2016 were identified by reviewing the public healthcare company's website of the 132 public healthcare companies, noting the year of the change. The Securities and Exchange Commission (2016) required the reporting of the hiring of a new CFO in a public company on Form

8K within four business days of the hiring, this information was then included on the public healthcare company's website. Of the 132 publicly traded healthcare companies, 93 publicly traded healthcare companies, or 70.5%, had a change in the chief financial officer during the five-year period under examination. There were 93 chief financial officers and 331 audit committee members included in the current study of the publicly traded healthcare companies where a change in the chief financial officer had occurred.

Measures

The newly-hired CFO characteristics of CPA designation, gender, prior chief financial officer experience, and prior healthcare experience were obtained from each company's proxy statement filed with the Securities and Exchange Commission for the year of the CFO change. Proxy statements for each company were accessed through the company filings section of the United States Securities and Exchange Commission website (United States Securities and Exchange Commission, n.d.). The audit committee members were identified using the BoardEx (n.d.) database. Information concerning name, gender, and prior CFO experience for each audit committee member were collected from the BoardEx database. Because the BoardEx database did not have the information on the characteristics of CPA designation and prior healthcare experience for audit committee members, the researcher obtained the data on the characteristics of CPA designation and prior healthcare experience for each audit committee member from each company's proxy statement filed with the Securities and Exchange Commission for the year of the CFO change. Proxy statements for each company were accessed through the company filings section of the United States Securities and Exchange Commission website (United States Securities and Exchange Commission, n.d.).

The CPA designation was coded as a 0 = no CPA designation and 1 = CPA designation for a newly-hired CFO and the audit committee. The proportion of audit committee members with CPA designation was calculated by averaging the CPA designation of all committee members. This proportion ranged from 0 to 1, with higher numbers indicating a higher proportion of CPAs on the committee.

Gender was coded such that 0 = male and 1 = female. The proportion of women on a given audit committee was calculated by averaging the gender codes across all committee members. The proportion ranged from 0 to 1, with higher numbers indicating a higher proportion of women on the committee.

Healthcare experience and CFO experience were measured in years and were averaged across the members of each audit committee member to provide a single composite measure of committee healthcare or CFO experience, controlling for the revenue size of the healthcare company. The public healthcare company's revenue for the year of the CFO change was collected from the company's annual report on Form 10K filed with the Securities and Exchange Commission and accessed through the company filings section of the United States Securities and Exchange Commission website (United States Securities and Exchange Commission, n.d.).

Procedures

The researcher gathered data on the characteristics of CPA designation, gender, industry experience, and prior CFO experience of a newly-hired chief financial officer in publicly traded healthcare companies and the same characteristics of audit committee members utilizing BoardEx (n.d.) and other publicly available data, including filings with the Securities and Exchange Commission. Prior CFO experience was measured in terms of years for both a newly-hired CFO and the audit committee members.

Research Question One: To what extent does CPA designation versus non-CPA designation for a newly-hired CFO differ based on the proportion of audit committee members with a CPA designation at a publicly held healthcare company?

Data. The CPA certification status of each company's newly-hired CFO and of each member of the audit committee was extracted from the public healthcare company's proxy statement filed with the Securities and Exchange Commission. A CPA designation was coded for both a newly-hired CFO and the audit committee member as described previously. The proportion of audit committee members with CPA designations was calculated by averaging CPA designations of all committee members.

Analysis. The researcher calculated the proportion and standard deviation of newly-hired CFOs of public healthcare companies with CPA designation as well as the average proportion of audit committee members with CPA designation overall. In addition, the researcher ran an independent-samples *t*-test comparing the proportion of audit committee members with CPA designation when a non-CPA CFO was hired versus a CFO with a CPA designation.

Research Question Two: To what extent does the gender of a newly-hired CFO differ based on the proportion of women on a given audit committee at a publicly held healthcare company?

Data. The gender of a newly-hired CFO and each member of the audit committee was obtained from the BoardEx (n.d.) database and the public healthcare company's proxy statement filed with the Securities and Exchange Commission. The CFO gender was coded as described previously. The proportion of women on a given audit committee was calculated by averaging the gender codes across all committee members.

Analysis**.** The number of male versus female CFOs was calculated, as well as the average proportion and standard deviation of women on the audit committees. In addition, the researcher ran an independent-samples *t*-test comparing the proportion of women on audit committees when a male was hired as CFO versus when a female was hired as CFO.

Research Question Three: To what extent does the industry expertise, defined as experience, of audit committee members increase the likelihood of industry expertise for a new CFO hired at a publicly held healthcare company, considering the revenue size in dollars of the publicly held healthcare company in the year the new CFO was hired?

Data**.** Healthcare industry expertise, defined as experience, of a newly-hired CFO and the audit committee members and company revenue size was obtained from the public healthcare company's proxy statement and annual report on Form 10K filed with the Securities and Exchange Commission. Healthcare industry expertise was measured in years and was averaged across the members of each committee to provide a single composite measure of committee healthcare industry expertise. Company revenue size was measured in millions of dollars.

Analysis. The researcher calculated the average and standard deviation of healthcare industry expertise in years for both a newly-hired CFO and the audit committee member composite. Following this, the researcher ran a multiple regression analysis predicting a newly-hired CFO's healthcare industry expertise from the committee's average healthcare industry expertise, controlling for the revenue size of the healthcare company.

Research Question Four: What is the relationship between the prior CFO experience of audit committee members and the prior CFO experience of a new CFO hired at a publicly held healthcare company, considering the revenue size in dollars of the publicly held healthcare company in the year the new CFO was hired?

Data**.** The prior CFO experience of a newly-hired CFO and of the audit committee members and the company revenue size was obtained from the BoardEx database, the public healthcare company's proxy statement and annual report on Form 10K filed with the Securities and Exchange Commission. Prior CFO experience was measured in years and was averaged across the members of each committee to provide a single composite measure of the committee's prior CFO experience. Company revenue size was measured in thousands of dollars.

Analysis**.** The researcher calculated the average and standard deviation of prior CFO experience in years for both newly-hired CFOs and the audit committee composites. Following this, the researcher ran a multiple regression analysis, controlling for the revenue size of the healthcare company, predicting a newly-hired CFO's prior CFO experience from the committees' average prior CFO experience.

Summary

The selection of a CFO in a publicly traded company is, arguably, the second most important executive appointment at the company evidenced by SEC requirements (Securities and Exchange Commission, 2006). The Bureau of Labor Statistics (2015) projected the healthcare industry to grow quickly through 2024; this growth had the potential to create a shortage of top executives, including CFOs (Bureau of Labor Statistics), to serve in the healthcare industry. Consequently, the current study focused on newly-hired CFOs in publicly held healthcare companies. The requirements established under the Sarbanes-Oxley Act of 2002 added new responsibilities for the CFO and changed the requirements for audit committees of publicly traded companies (Securities and Exchange Commission, 2002) to protect shareholders.

The erosion of confidence in a company may occur from an error in the company's financial statements that required a restatement of the financial statements of the company, or from a material weakness in the company's internal control over financial reporting. Earnings management through manipulation of accruals by the senior executives (Wang et al., 2015) could also have required that the financial statements of the company be restated. Audit Analytics (2008) established companies required to restate their financial statements are more likely to experience a decline in their stock price, harming shareholders. Similarly, Lobo, Wang, Yu, and Zhao (2017) established companies experiencing a material weakness were more likely to experience a decline in their stock price, harming shareholders. The current study examined the audit committee characteristics influence on a new CFO hired at public healthcare companies to improve the recruitment process in order to help reduce the potential erosion of confidence in the financial reporting of a company. The next chapter provides an in-depth literature review of the current research about the characteristics of Chief Financial Officers and the characteristics of audit committee members and the impact their characteristics may have on financial reporting.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The Chief Financial Officer has arguably become the second most important executive in publicly traded companies, evidenced by the Securities and Exchange requirement (Securities and Exchange Commission, 2006) that the CFO be one of the two named executives in proxy statements mailed to all shareholders, the other one being the Chief Executive Officer. The appointment of a new CFO is an important decision and it is in the best interest of the board of directors and company management that the most qualified candidate be hired. As mentioned in Chapter I, the enactment of the Sarbanes-Oxley Act of 2002 (Securities and Exchange Commission, 2002) was a seminal law that changed financial reporting for all publicly owned companies traded on an exchange in the United States of America and included new requirements for the CFO as well as new requirements for the audit committee of the board of directors.

The sections that follow discuss the history of CFOs and the history of audit committees in publicly traded companies, preceding the enactment of the Sarbanes-Oxley Act, and the requirements of the Sarbanes-Oxley Act itself. Subsequent sections highlight the characteristics of chief financial officers that improve their effectiveness over financial reporting and the characteristics of audit committee members that improve the effectiveness of the audit committee's oversight of the financial reporting process.

Academic research after the enactment of Sarbanes-Oxley focused on chief financial officer characteristics and audit committee characteristics in their respective silos of responsibility but did not look at the influence that the audit committee characteristics may have had on the characteristics of a newly-hired chief financial officer in a publicly traded company.

History of CFOs and Audit Committees

Howell (2002) and Zorn (2004) provided historical context in their studies of the chief financial officer role. For most of the 20th century, the role of the chief financial officer did not exist, according to Zorn, and Zorn suggested financial considerations played a smaller role in corporations than they do today. Thus, there was no reason for companies to seek out the strategic advice of their back-office financial department. Zorn stated that the position was called financial manager for most of the 20th century and the financial manager was primarily responsible for creating the budget, bookkeeping, and overseeing tax reporting. Since the early 1970s, regulatory bodies like the Securities and Exchange Commission and the Financial Accounting Standards Board (FASB) had been considering changes to the corporate reporting and accounting requirements. The Securities and Exchange Commission and the FASB logic was that, due to the inflationary economic conditions of the 1970s, traditional accounting requirements were no longer a reliable source of information of business performance.

After the regulatory changes by the FASB and the Securities and Exchange Commission in the 1970s, public companies took financial considerations more seriously than they had before. Then, as mergers became popular in the 1980s, Howell (2002) suggested that companies learned that they needed to perform better or get swallowed up by the competition. CFOs became popular for identifying the weakest performing business units and helping them to grow and improve efficiently or, closing or exiting the business.

In the late 1990s and the early 2000s, Howell (2002) noted that there were several accounting frauds that had occurred in the United States among publicly traded companies, most notably Enron, Tyco International, and WorldCom. Howell reported that between the years 2000 to 2002, trillions of dollars were lost by shareholders and employees as confidence in the capital markets was lost. Howell believed that there had been little focus on the role of the chief financial officer in the decline in shareholder value until the frauds involving Enron, Tyco International, and WorldCom were discovered. Howell asserted that the CFO should be the first line of defense against overly aggressive accounting and reporting practices but the CFOs of each of these corporations had failed that responsibility in the reported frauds.

DiGregorio and Carruth (2004) highlighted various additional frauds that implicated the chief financial officers and/or other members of management in frauds in publicly traded companies. DiGregorio and Carruth's study included the frauds of Adelphia Communications, where insiders were charged with hiding billions of dollars of liabilities, the chief executive officer of HealthSouth, who was charged with overstating earnings by $1.4 billion, and the founder and former executives of Waste Management, who were charged with understating expenses by $1.7 billion. Howell (2002), DiGregorio and Carruth believed that all of these major frauds contributed to the need for the Sarbanes-Oxley Act of 2002.

KPMG (2008) provided a historical context for audit committees, similar to the historical context of the role of the chief financial officer presented in the earlier paragraphs. According to KPMG, the New York Stock Exchange (NYSE) first endorsed the concept of audit committees in 1939. KPMG noted that in 1972, the Securities and Exchange Commission first recommended that publicly held companies establish audit committees of non-management, or independent, directors, and in 1977, the NYSE adopted a listing requirement that audit committees be composed entirely of independent directors for companies traded on the NYSE. Howell (2002) and DiGregorio and Carruth (2004) inferred that the audit committee's oversight role over financial reporting had been lacking in the accounting frauds of Tyco International, WorldCom, Enron, Adelphia, HealthSouth, and Waste Management.

In a speech before the New York University Center for Law and Business (Securities and Exchange Commission, 1998), Arthur Levitt, Jr., Chairman of the Securities and Exchange Commission, called for a blue ribbon committee to review the role of audit committees and to make recommendations for improving their effectiveness. Following this suggestion, the NYSE and the National Association of Securities Dealers sponsored an 11-member panel, called the Blue Ribbon committee (BRC) on audit committee effectiveness, chaired by a former Deputy Secretary of State and retired Co-Chairman of Goldman Sachs, and a senior partner from the law firm of Weil, Gotshal, and Manges. The recommendations from the BRC about improving the effectiveness of the corporate audit committee were published after the review by the BRC. The BRC recommendations resulted in rule changes adopted by all the major exchanges, the Securities and Exchange Commission, and the American Institute of Certified Public

Accountants (AICPA). After the publication of the recommendations by the BRC, the AICPA issued an auditing standard, requiring certain communications between the external auditor, the audit committee, and the management of publicly held companies.

The Sarbanes-Oxley Act of 2002

In 2002, the Securities and Exchange Commission (Securities and Exchange Commission, 2002) announced that President Bush had signed into law the Sarbanes-Oxley Act of 2002, largely in response to the frauds reported in the late 1990s and early 2000s. The Sarbanes-Oxley Act impacted public reporting companies, their senior executives, boards of directors, and the external auditors of the companies. The Sarbanes-Oxley Act mandated many reforms to enhance corporate responsibility, enhance financial disclosures, combat corporate and accounting fraud. Sarbanes-Oxley also called for the creation of the Public Company Accounting Oversight Board to oversee the activities of the external auditors as discussed in later paragraphs. The Sarbanes Oxley Act of 2002 contained over 50 separate Sections in the Act. The two sections that are most important in the current study were Section 302, corporate responsibility for financial reports, and Section 404, management assessment of internal controls.

Section 302 of the Sarbanes-Oxley Act (Securities and Exchange Commission, 2002) required the principal executive officer, the CEO, and the principal financial officer, the CFO, to sign a certification with each annual or quarterly report filed with the Securities and Exchange Commission. The requirements for quarterly reports, Form 10Q, and annual report, Form 10K, were already required under the Securities Exchange Act of 1934. The Section 302 certification was added under Sarbanes Oxley and was required to state that: (a) the signing officer had reviewed the report; (b) based on the officer's knowledge, the report did not contain any untrue statement of a material fact or omit a material fact needed to make the statement not misleading; (c) based on such officer's knowledge, the financial statements fairly presented, in all material respects, the financial condition, and results of operations of the company for the periods presented in the report.

Upon signing the certification required under Section 302 of Sarbanes-Oxley, the CEO and the CFO acknowledged that they were responsible for establishing and maintaining internal controls, had designed the internal controls to ensure that material information was made known, had evaluated the effectiveness of internal controls, and had presented in the report, their conclusions about the effectiveness of the internal controls based on their evaluation. The internal control evaluation falls under Section 404 of the Sarbanes-Oxley Act and was later codified in amendments to the Securities Exchange Act of 1934 (Securities and Exchange Commission, 2006) that covers quarterly and annual reports for public companies.

Under Section 404, the signing officers were required to affirm that they had disclosed to the company's auditors and the audit committee of the board of directors all *significant deficiencies* in the design or operation of internal controls that could adversely affect the company's reported financial data and had identified for the external auditors any *material weaknesses* in internal controls. Under Sarbanes-Oxley, a *material weakness* indicated the system of internal control over financial reporting was ineffective. A *significant deficiency* indicated a weakness in the system of internal control over financial reporting, but the weakness was not sufficient or material to classify the internal controls over financial reporting as ineffective.

Lastly, Sections 302 and Section 404 of Sarbanes-Oxley required the CEO and CFO to disclose any fraud, even if it was not material, that involved management or other employees who had a major role in the company's internal controls, and whether or not there were major changes in internal control over financial reporting during the period covered by the financial statements. The provisions in Sarbanes-Oxley, under Section 302, included the potential for the CEO or CFO to incur criminal liability for knowingly signing a false certification.

The Sarbanes-Oxley Act (Securities and Exchange Commission, 2002) established the audit committee, by and among the board of directors of a public company, to oversee the accounting and financial reporting processes of the company. Additionally, Sarbanes-Oxley established that the audit committee was solely responsible for the selection of the external audit firm of the company that audits the financial statements of the company. Böhm, Bollen, and Hassink (2016) studied the audit committee charters that outline the duties and responsibilities of the audit committee that included the audit committee responsibilities under Sarbanes-Oxley. Böhm et al. described the process followed by the audit committee to satisfy the audit committee's charter, including meeting periodically with management, the internal auditor, and the external auditor to review and approve the filing of financial information with the Securities and Exchange Commission on annual report Form 10K, and on quarterly reports, Form 10Q.

The Securities and Exchange Commission required that the audit committee charter was reviewed annually and approved by the board of directors and disclosed in a company's annual proxy statement filed with the Securities and Exchange Commission

(Securities and Exchange Commission, 2006). Böhm et al. (2016) studied the audit committee charters of publicly traded firms to determine whether audit committee charters were similar or distinct. Böhm et al. concluded that audit committee charters were more likely to be distinct and that the activities of the audit committees were more likely to be in fulfillment of the responsibilities specified in the audit committee charter. The audit committee duties and responsibilities profiled in the charter included satisfaction of the provisions in Sarbanes-Oxley and made the charter a key document for audit committees.

The Sarbanes-Oxley Act (Securities and Exchange Commission, 2002) required that at least one member of the audit committee be a financial expert. To meet the definition of a financial expert under the Sarbanes-Oxley Act, a person needed education and experience as a public accountant or auditor, or to have been, or be, a chief financial officer, comptroller, or principal accounting officer of a public company. Sarbanes-Oxley mandated that a financial expert needed

- an understanding of generally accepted accounting principles and financial statements;
- prior experience in the preparation or auditing of financial statements of public companies;
- experience with internal accounting controls; and
- an understanding of audit committee functions.

In fulfilling the audit committee's responsibility for oversight of the quality of financial reporting and the audit process, Beasley, Carcello, Hermanson, and Neal (2009) pointed out that it was very difficult to fulfill the audit committee responsibility without relying on management, the internal auditor, and the external auditor. Management included the chief financial officer and the chief executive officer who were required to sign the certification under Section 302 of the Sarbanes-Oxley Act. Beasley et al. described the activities followed by the audit committee to fulfill the audit committee's oversight responsibility as primarily discussion and questions during the audit committee meetings through interaction with the chief financial officer, the internal auditor, and the external auditor.

Beasley et al. (2009) noted the interaction with the CFO, the internal auditor, and the external auditor included involvement in the agenda and documents prepared in advance of audit committee meetings that assist the audit committee in the audit committee's assessment of risk and fairness of the financial statements. The interaction also included participation in the interview process when there was a change in the CFO, the internal auditor, or the external auditor.

Financial Reporting Measurements Under Sarbanes-Oxley

The Sarbanes-Oxley Act impacted the compensation of CFOs as new measurements related to the effectiveness of a CFO were introduced. Indjejikian and Matějka (2009) sampled compensation paid to CFOs by companies prior to the implementation of the Sarbanes-Oxley Act of 2002 that revealed approximately 50% of the CFOs' annual bonuses were tied to accounting-based financial performance. Indjejikian and Matějka described the CFO as the key decision maker in reporting the financial performance of a company. Indjejikian and Matějka found, however, that subsequent to the adoption of Sarbanes-Oxley, that public companies reduced the percentage of CFO compensation contingent on financial performance. Indjejikian and

Matějka concluded that the changes occurred because the responsibility for financial reporting raised the question of whether it is appropriate to pay CFOs annual bonuses contingent on self-reported financial performance.

The Sarbanes-Oxley Act (Securities and Exchange Commission, 2002) created new measurements, distinct from company financial performance, to evaluate financial reporting effectiveness for public companies. One of the requirements under Section 404 of Sarbanes-Oxley was for management to evaluate the internal controls over financial reporting. An effective system of internal control over financial reporting required that the system was devoid of any *material weakness*. A *material weakness,* under Sarbanes-Oxley was a *significant deficiency,* or combination of *significant deficiencies,* that resulted in more than a remote likelihood that a material misstatement of the annual or quarterly financial statements of the company would not be prevented or detected. As the chief financial officer had primary responsibility over the internal control system covering financial reporting, the lack of a *material weakness* became a measure of performance for chief financial officers.

Another measurement enhanced by the Sarbanes-Oxley Act related to a restatement of the financial statements. A restatement would be required when a material error was discovered in previously issued financial statements. The previously issued statements were then required to be revised and reissued including an accompanying opinion by the company's external auditors that the restatement was proper. While restatements were not new, Section 304 of the Sarbanes-Oxley Act (Securities and Exchange Commission, 2002) required companies to adopt claw-back provisions that required the payback of bonuses paid on earnings that may have been overstated from the error leading to the restatement in public company financial statements.

Chief Financial Officers

Responsibilities

Indjejikian and Matějka (2009) described the production of financial statements that fairly present a firm's financial position as a key fiduciary responsibility of chief financial officers. Indjejikian and Matějka recognized that chief executive officers and other top executives also had fiduciary responsibility for proper financial statements; however, Indjejikian and Matějka stated that CFOs typically had more expertise and influence than the CEO to determine the numbers that were reported in the financial statements. The Sarbanes-Oxley Act of 2002 used the required certifications, under Section 302 of the Act by the CEO and the CFO, to reinforce the CEO and CFO responsibility for the fair presentation of the financial statements. As described previously, the Sarbanes Oxley Act also required the CEO and the CFO to acknowledge the CEO's and CFO's responsibility for creating and maintaining a proper system of internal controls related to the preparation of the financial statements. As in the case of the financial statements, Indjejikian and Matějka noted that the CFO would typically have more influence over the system of internal control used in the preparation of the financial statements than other executives.

Zorn (2004) examined the role of the chief financial officer in public companies, noting that the CFO had become second only to the chief executive officer as financial considerations gained relevance to the company and to the company's shareholders. Zorn's study hypothesized that the role of the CFO had been enhanced by two needs of the 21st century corporation, the capital-dependence thesis and the finance conception of control. Under the capital-dependence thesis, Zorn highlighted the corporation's need and access to capital in order for the company to grow and improve profitability. Zorn described the expertise needed for efficient capital markets to require a background in finance typically not provided by the chief executive officer. Under the finance conception of control, Zorn emphasized the need for financial control to drive business efficiency. The same concept of financial control described by Zorn coincided with the needs established by the Sarbanes-Oxley Act related to internal controls over financial reporting. The responsibility over internal controls became a quality measurement for a chief financial officer in a public company after the enactment of the Sarbanes-Oxley Act, as will be discussed in the next section.

Internal Controls

The Sarbanes-Oxley Act required management to evaluate the system of internal control used to prepare the financial statements under Section 404 of the Sarbanes Oxley Act (Securities and Exchange Commission, 2002). The evaluation was included in the annual filing on Form 10K, as required by the Securities Exchange Act of 1934, and was to be opined upon by the external auditing firm of the public company. Barua and Yun-Chia (2011) studied adverse Section 404 opinions that had been issued as part of the firm's annual reporting to the Securities and Exchange Commission. An adverse Section 404 opinion meant that the company had one or more *material weaknesses* in the firm's system of internal control. Barua and Yun-Chia collected data from the proxy materials filed for each of the firms with an adverse Section 404 opinion to determine if a CFO transition had occurred in the company prior to the company receiving an adverse opinion. Barua and Yun-Chia concluded that firms that had a new chief financial officer were more likely to have an adverse Section 404 opinion than those where a CFO transition had not occurred. Barua and Yun-Chin's findings highlighted the importance of prior CFO experience in the avoidance of an adverse Section 404 opinion when a new CFO was hired.

Similarly, Li et al. (2010) found that firms with less-qualified chief financial officers, defined as lacking financial accounting knowledge such as a CPA designation, or having shorter working experience as CFOs, or both, were more likely to have initial adverse Section 404 opinions. Li et al. noted that the Sarbanes-Oxley Act heavily impacted a CFO's responsibility for ensuring the quality of the internal control system over financial reporting in public companies. Li et al. found that simply hiring a new CFO was not associated with a Section 404 opinion improvement and that an improved Section 404 opinion required the hiring of a CFO with more accounting knowledge, such as a CPA designation, and experience as a chief financial officer. Li et al.'s findings also indicated the importance of a CPA designation and prior CFO experience when a new CFO was hired. Lobo et al. (2017) found that the Sarbanes-Oxley Act made firms more concerned about the integrity of the internal controls over the financial reporting process due to the cost of non-compliance that might include a negative movement in the company's stock price.

Lack of Restatement

Another measure of the fair presentation of a firm's financial position that reflected the quality of the CFO was the lack of restatement of previously issued financial statements. A restatement of earnings was required if an error, deemed to be material to a company’s financial position, was discovered subsequent to the issuance of the company’s financial statements. Aier et al. (2005) found that companies with CFOs who had a Certified Public Accountant (CPA) designation, an MBA degree and, to a lesser extent, prior CFO experience were less likely to restate earnings. Aier et al.’s findings highlighted the importance of CPA designation for a CFO. Aier et al. noted that the increased complexity of accounting regulations, the Securities and Exchange focus on companies attempting to manage earnings, and the changes in the backgrounds of CFOs may have also contributed to an increase in restatements. Aier et al. highlighted that the chief financial officer was prized more for his or her ability to raise money than as an accounting officer, which likely contributed to an increase in restated financial statements. Aier et al.’s conclusion about the ability to raise money was consistent with Zorn’s (2004) description of the capital-dependence thesis as a reason for an individual being named the chief financial officer at a public company.

Xu and Zhao (2016) studied companies that had experienced a restatement of previously issued financial statements. Xu and Zhao noted that the chief financial officer was typically responsible for the company’s financial reporting. Xu and Zhao found some support that restating firms were more likely to hire new CFOs with greater accounting knowledge such as a certified public accountant designation when compared to those companies that did not restate earnings. Xu and Zhao’s findings highlighted the need for CFOs to have greater accounting knowledge such as a CPA designation.

The American Institute of Certified Public Accountants (n.d.) has profiled the requirements to become a CPA. The requirements vary by state and each state has specific requirements regarding education, experience, and residency. For example, to be eligible to take the CPA examination in Illinois, the applicant needed to have completed the equivalency of a master's degree in accounting. The CPA examination has four parts and is administered over a three-day period. Less than 20% of the candidates passed all four parts of the examination on their first attempt, according to the American Institute of Certified Public Accountants. The difficulty in becoming a CPA contributed to the lack of CFOs with a CPA designation in the study by Xu and Zhao (2016).

Another cause of restatement has been due to intentional fraud involving or perpetrated by the chief financial officer of a public company. Gillett and Uddin (2005) studied the characteristics of the CFOs involved in fraudulent financial reporting focusing on the size of the firm and the CFO's compensation structure as indicators of the likelihood of fraudulent financial reporting. Gillett and Uddin concluded that CFOs of larger companies were more likely to report fraudulent financial statements but did not find CFO compensation structure to increase the likelihood of fraudulent financial reporting. As noted by Indjejikian and Matějka (2009), public companies generally changed the compensation structure of CFOs to be less reliant on financial performance but Gillett and Uddin indicated such a change may not have been needed.

Accrual Quality and Earnings Management

In addition to the lack of adverse Section 404 opinions and the lack of restatement of previously issued financial statements, one of the other performance criteria by which CFOs were evaluated was accrual quality. Accrual quality had been the subject of studies by Barua et al. (2010), Francis, Hasan, Park, and Wu (2015), and Ge, Matsumoto, and Zhang (2011). Accruals are estimated liabilities or asset reductions in the balance sheet of a company. The offset to the accrual is found in the income statement as an increase in earnings for a reduction in the accrual and a decrease in earnings for an addition to the accrual. Because accruals are estimates, less conservative practices of accruals can improve earnings from what would otherwise have been reported. The improvement in earnings was labeled as earnings management by Francis et al. Ge et al. noted that chief financial officers who were viewed as conservative were more likely to reflect the most likely worst case in the accruals for a company. Ge et al. noted that conservative accruals were more likely to result in the avoidance of negative surprises to earnings forecasts by publicly traded companies.

Barua et al. (2010) investigated the association between chief financial officer gender and the quality of accruals. Barua et al. used measures established by prior research as measures of the quality of accruals, primarily performance related discretionary accruals and accrual estimation errors. Barua et al. found that the difference in the quality of accruals between male and female CFOs to be statistically significant with women CFOs more likely to have higher quality accruals than their male counterparts. Barua et al.'s study suggested that women tend to be less aggressive or more cautious in financial decisions. Barua et al.'s findings highlighted the importance of gender when a new CFO was hired. An element noted by Barua et al. was that, while females constituted about half of the accounting graduates and those passing the certified public accountant examination, less than five percent of CFOs of public companies were women.

A later study by Francis et al. (2015) investigated whether systematic differences existed in the choice of accounting conservatism between male and female chief financial officers. Francis et al. selected companies where there had been a change in the chief financial officer from a male to a female, noting that the CFO was primarily responsible for the company's financial reporting system. Francis et al. focused on accounting conservatism because Francis et al. felt it was an influential principle of accounting and was reflective of a CFO's attitude towards risk. Francis et al. used concepts that had been established from prior research as measures of accounting conservatism in the pre-transition male CFO period and the post-transition female CFO period. The accounting conservatism measures were in the areas of market-to-book values, accruals, and the time-series skewness of earnings. Market-to-book value was the comparison of the equity value in the financial statements to the equity value based on the stock price, accruals were estimated liabilities, and the time-series skewness of earnings was the reported company earnings compared to the normal distribution of the same company earnings over time.

Francis et al. (2015) found that the results were statistically significant for each measure of accounting conservatism, with the female CFO being more risk averse than the male chief financial officer. Francis et al.'s findings also highlighted the importance of gender when a new CFO was hired. Francis et al. also measured the level of conservatism based on the type of risk and found that female CFOs were more conservative when faced with litigation or systematic or management turnover risk when compared to other types of risk than their male predecessors. Finally, Francis et al. analyzed female chief financial officer compensation after a transition from a male chief financial officer and noted that female CFOs had a heavier cash component than equity-based component in their overall compensation. Francis et al. inferred that female CFOs were also more risk averse based on the compensation components compared to their male predecessor as equity contains uncertainty of value whereas cash value was known.

Hoitash et al. (2016) conducted a study that evaluated the background of chief financial officers in low-growth and high-growth companies and the impact of the CFO’s background on company performance/value. Hoitash et al. noted the chief financial officer had become the second most important executive to the chief executive officer. Hoitash et al. sought to determine the training and background an individual needed to perform well as a CFO, specifically whether the chief financial officer had an accounting background, an accountant CFO, typically with a CPA designation, or a non-accounting background, a non-accountant CFO. Hoitash et al. hypothesized that accountant CFOs were more likely to be risk adverse. Hoitash et al. concluded that there was a positive correlation between accountant CFOs in low-growth industries in relation to firm value but a negative correlation to firm value in high-growth industries. Hoitash et al. recommended that CEOs and board members consider the nature of the industry in which a company operated when the company sought a new chief financial officer. Hoitash et al. concluded an accountant CFO was more appropriate for a company in a low-growth industry and a non-accountant chief financial officer was more appropriate for a company in a high-growth industry. Hoitash et al.’s findings were consistent with the capital-dependency theory by Zorn (2004) for a company in a high-growth industry.

Ge et al. (2011) reviewed the accounting choices made by chief financial officers of public companies using measures from prior research, with each accounting choice having a distinctive value. Ge et al. noted that CFOs were primarily responsible for accounting choices of a company. The accounting choices focused on the quality of accruals as a proxy for earnings management. Ge et al. used characteristics of the chief financial officer including age, gender, prior experience, and educational background as indicators of style, with each element assigned a distinctive value. Ge et al. tracked CFOs across different firms over time as well as compared data from the same firm where different CFOs had filled the role for the company. Ge et al. determined that, across a range of accounting choices, individual chief financial officer style explained a statistically significant portion of the heterogeneity in accounting practices related to the quality of accruals. The research by Ge et al. related to gender was consistent with the findings by Barua et al. (2010) and Francis et al. (2015) that female CFOs were more likely to have had higher quality accruals than male CFOs and further highlighted the importance of gender when a new CFO was hired.

Other

There were other measures of the quality of a CFO beyond those included in previous subsections. Martinov-Bennie, Cohen, and Simnett (2011) studied the impact of a CFO's prior affiliation with the external auditing firm responsible for expression of an opinion on the fairness of a firm's financial statements. Martinov-Bennie et al. focused on companies where the CFO was an alumnus of the external auditing firm of the company either as an ex-partner or other senior position in the external auditing firm, all of whom would have been certified public accountants. The concern was the potential that an external auditing firm was not as independent in its decision making on financial matters related to the company if the chief financial officer of the company was an alumnus of the external auditing firm. The Sarbanes-Oxley Act required that alumni of the external accounting firm could not be in a senior financial position directly responsible for the financial statements of a company until a certain amount of time had passed after the individual left the external auditing firm. Martinov-Bennie et al. concluded that the external auditors did not show a difference in matters of independence between companies where the CFOs were alumni or ex-partners of the external auditing firm compared to companies where the CFOs had no prior affiliation with the external auditing firm.

Sharma and Jones (2010) suggested another measure of the quality related to the importance of chief financial officers. Sharma and Jones noted that the chief financial officer role had expanded and a CFO's management, leadership, and strategic skills were strongly linked to value creation. Sharma and Jones suggested that while the more traditional roles of a chief financial officer, including monitoring, are important, the CFO role was changing and future CFOs would likely need additional skills. The monitoring skills mentioned by Sharma and Jones were similar to Zorn's (2004) financial control concept and the value creation concept was similar to Zorn's capital-dependence thesis.

Sun et al. (2015) studied the relationship between the CFO's financial expertise and corporate governance concerns, including concerns that may arise in the interaction with the audit committee of the board of directors. Sun et al. used a CPA, MBA and, age and tenure of the CFO as measures of financial expertise. Sun et al.'s analysis demonstrated that the CPA certificate is negatively associated with corporate governance concerns, but they did not find the same link with the MBA degree. Sun et al. noted that the findings supported the recommendation of the American Institute of CPAs that CFOs should have a CPA certificate. Sun et al.'s findings had implications for the audit committee of the board of directors and their responsibility to protect shareholders because Sun et al. pointed out that a CFO with a CPA designation presented less risk to those involved with corporate governance, including the audit committee.

Audit Committees

Responsibilities

KPMG (2008) reported that audit committees had grown in importance throughout the world and were a critical link between financial reporting and investor confidence in the financial statements of public companies. The reliance on audit committees by investors and companies to oversee the financial reporting process has increased the scrutiny of audit committee effectiveness. There were parallels to the financial reporting measures, used to determine the quality of the CFO, to the characteristics that made an audit committee effective. However, Sarbanes-Oxley (Securities and Exchange Commission, 2002), in Section 301, established the function of the audit committee as an oversight role of the financial reporting process as compared to the responsibility for the preparation of the financial statements by the CFO. Additionally, Sarbanes-Oxley established that the audit committee was responsible for selection of the external auditing firm and that the audit committee was a conduit for the external auditing firm to raise concerns independent of company senior management related to the company’s financial statements.

Wu, Habib, and Weil (2014) studied audit committee members’ perceptions of their duties and responsibilities to achieve audit committee effectiveness. Through interviews, Wu et al. focused on the general objectives of an audit committee, specific tasks performed as an audit committee member, and what the members did to perform their roles, both during and outside of audit committee meetings. Wu et al. concluded that the audit committee members were independent and focused on their role of monitoring the financial reporting of the firm. Wu et al. also concluded that the interaction between the audit committee members, both during and between meetings, was as important as the interaction among the chief financial officer and other members of management, the internal auditor, and the external auditor.

Audit Committee Charter

An audit committee is guided by a charter that outlines the duties and responsibilities of the audit committee. The charter is periodically updated by the audit committee, approved by the full board of directors, and publicly disclosed by the company to investors in the annual proxy statement (Securities and Exchange Commission, 2006). Böhm et al. (2016) investigated whether audit committee charters were being prepared in a boilerplate format and whether the audit committee charters were being followed. Böhm et al. specified that the purpose of audit committee charters was to inform the public of the role of the audit committee and provide authority and direction for the audit committee. The concern by Böhm, et al. was that audit committee charters may have become boilerplate and not indicative of the actual process followed by the audit committee. Böhm et al. concluded that audit committee charters were more likely distinct and that the activities of the audit committees were more likely in fulfillment of the responsibilities specified in the audit committee charter.

Prior to the enactment of Sarbanes-Oxlery, Kalbers and Fogarty (1993) investigated the nature and extent of audit committee effectiveness in monitoring a company’s financial reporting. Kalbers and Fogarty focused on the power given to the audit committee by the board of directors and the audit committee’s ability to conduct diligence on the items that related to financial reporting. Kalbers and Fogarty's findings suggested audit committees needed a strong organizational mandate accompanied by an adequate audit committee charter that indicated duties and responsibilities for audit committees to monitor the financial reporting process properly. Kalbers and Fogarty's conclusions were consistent with the outline of an effective audit committee charter suggested by Böhm et al. (2016).

Internal Controls

Hoitash, Hoitash, and Johnstone (2012) studied the association between internal control *material weaknesses* that would result in an adverse Section 404 opinion and chief financial officer compensation as reflected in the governance oversight provided by the board, including the audit committee. Because an adverse Section 404 opinion was a negative event for a company, Hoitash et al. expected there to be a decline in the bonus paid to the CFO compared to the situation where there had not been an adverse Section 404 opinion. Hoitash et al. concluded that the compensation of CFOs where an internal control *material weakness* was disclosed were negatively impacted. Further, Hoitash et al. found that firms with audit committees that included multiple financial experts were likely to have a larger decrease in CFO compensation when an internal control *material weakness* was disclosed. Hoitash et al. concluded that CFOs were held accountable for their fiduciary duties associated with accurate financial reporting consistent with the expectations of Section 404 of the Sarbanes-Oxley Act. Hoitash et al.'s findings demonstrated influence of the audit committee on the CFO.

Lack of Restatement

Cohen et al. (2014) investigated the impact of audit committee industry expertise on monitoring the financial reporting process. Cohen et al. used the lack of restatements and the lack of discretionary accruals by management from prior research as measures of financial reporting quality. Cohen et al. noted that earlier research had documented that companies whose audit committees had an accounting financial expert, including a CPA designation, were less likely to experience a restatement of previously issued financial statements. Cohen et al. wanted to determine the impact that audit committee industry expertise, in the company's industry, combined with an accounting financial expert, had on improved financial reporting. Cohen et al. concluded that firms with audit committee members having industry expertise in addition to an accounting financial expert were less likely to experience restatements and less likely to use discretionary accruals than those with just an accounting financial expert. Cohen et al.'s findings highlighted the importance of industry expertise by the audit committee in addition to a CPA designation.

Accrual Quality and Earnings Management

Like Cohen et al. (2014), Wang et al. (2015) investigated whether the industry expertise of independent directors impacted board monitoring effectiveness. Wang et al. established that effective board monitoring decreased the potential for earnings management by the company's senior executives. Sarbanes-Oxley and the exchanges where public shares were traded required all members of the audit committee to be independent of the company, senior management, and the external auditors of the company. Wang et al. determined industry expertise by matching the independent audit committee members' prior experience with the same standard industry code as the company where the audit committee member served. Wang et al. concluded that independent directors who possessed knowledge and expertise about the industries of the firms where they served enhanced the audit committee's ability to perform the audit committee's monitoring role. Specifically, Wang et al. found that independent directors' industry expertise significantly curtailed firm's earnings management via abnormal accruals and reduced the probability of a firm committing financial misconduct. Wang et al.'s findings also highlighted the importance of audit committee industry expertise.

Agoglia, Doupnik, and Tsakumis (2011) studied two elements aimed at dampening aggressive financial reporting. The first element was principles-based versus rules-based accounting. The second was the enhancement of public company audit committees with increased expertise of audit committee members, which meant audit committee members who met the definition of a financial expert under Sarbanes-Oxley. Agoglia et al.'s thesis was that rules-based accounting had resulted in more aggressive financial reporting, contrary to the intent of rules-based accounting and that audit committees with more expertise were needed to assist the CFO and senior management in financial reporting decisions. Agoglia et al. concluded that CFOs were less aggressive in financial reporting decisions when a principle-based accounting process was followed versus a rules-based approach if also accompanied by an experienced audit committee. Agoglia et al.'s findings highlighted the need for audit committee members to have a CPA designation or prior CFO experience.

Karamanou and Vafaes (2005) used a longitudinal study that investigated the influence of corporate governance by boards of directors and audit committees on financial reporting practices as demonstrated by management earnings forecasts. The management in public companies may provide estimates to analysts and shareholders about the company's expectations of financial results that constitute a management earnings forecast. Karamanou and Vafaes noted that management's estimate, called guidance, often provided an estimate of annual revenue and annual earnings per share, or an equivalent measure to annual earnings per share. Karamanou and Vafaes recognized the importance of the voluntary disclosure of guidance to potential shareholders and focused on the role of the audit committee and board of directors in the accuracy of the guidance. Karamanou and Vafaes concluded that firms with more independent board members and more audit committee financial experts than required for public companies were more likely to provide management forecasts. However, Karamanou and Vafaes also found that management forecasts where more of the company's board members were independent, and where the audit committee contained more financial experts, were also more likely to have voluntarily disclosed potential bad news to shareholders. The latter finding was consistent with the conclusions of Wang et al. (2015) that companies with audit committee expertise were less likely to engage in earnings management.

Gender

Mathisen et al. (2013) investigated how female directors experienced boardroom dynamics compared to male members of the board of directors. Mathisen et al. noted that female directors were more likely to be found on the audit committee of the board of directors instead of other board committees. With a higher proportion of women on audit committees than other committees, Mathisen et al. was concerned that the effectiveness of the audit committee could be adversely impacted if the women members were not viewed as effective as their male counterparts. Mathisen et al. found that there were few educational differences between female board members and male board members. Further, Matisen et al. noted that there were few differences in the way female and male directors experienced boardroom dynamics. Contrary to the hypothesis, Mathisen et al.'s results indicated a tendency in the opposite direction, implying that female directors could present their different views and competencies to the board equally or better than their male counterparts.

Audit Committee Composition

Erkens and Bonner (2013) investigated the role that firm status may have on the reluctance of some firms to appoint accounting financial experts to the firm's audit committee. The need for a financial expert on the audit committee was defined under Sarbanes-Oxley as someone with knowledge of generally accepted accounting principles obtained by direct experience in accounting and auditing positions, or by supervising those in accounting and auditing positions. Erkens and Bonner characterized an accounting financial expert as an active or retired chief financial officer or a retired audit partner. Erkens and Bonner believed there was a reluctance to appoint accounting financial experts to a board audit committee due to a potential lack of high firm status compared to other board members in larger companies. Erkens and Bonner used measures of high firm status of board members as graduation from an elite undergraduate school, membership in social clubs, trustee memberships, and the number of board seats held. Erkens and Bonner concluded that firms where board members held a high firm status were less likely to have accounting financial experts than those firms with lower firm status. Further, Erkens and Bonner found that accounting financial experts on audit committees in the companies selected had a lower firm status, using the measures of firm status, than the other audit committee members.

Other

DeZoort, Hermanson, and Houston (2002) investigated the interaction between audit committee members and the external auditors of the company by testing the audit committee members' expertise and perspective on materiality. Materiality is a key concept used both by management in the preparation of the financial statements and by the audit committee in performing the audit committee's role in monitoring the financial reporting process because immaterial elements would not jeopardize the accuracy of reported financial results. DeZoort et al.'s sample of 300 audit committee members included 153, or 51%, who met the definition of a financial expert. DeZoort et al. discovered that only 144, or 48%, of the 300 sampled audit committee members discussed materiality with the external auditors but 246, or 82%, of the 300 sampled audit committee members felt that audit committees should have discussed materiality with the external auditors. DeZoort et al.'s finding appears to indicate some shortfall in the fulfillment of the expected audit committee responsibilities, contrary to the findings of Böhm et al. (2016) that indicated audit committees fulfilled their responsibilities specified in the audit committee charter. However, it should be noted a review of materiality may not be in all audit committee charters.

Interaction between CFOs and Audit Committee Members

Ernst and Young (2017) reported that the chief financial officer of a company interacts regularly with the audit committee members of the company, especially the chair of the audit committee. In addition to the direct interaction between the CFO and the audit committee, Ernst and Young noted that there were also shared interactions with other parties, namely the external auditor and the internal auditor. The interaction is usually concentrated around quarterly meetings that coincide with the publication of the company's quarterly results filed on quarterly Form 10Q or annual Form 10K as required by the Securities and Exchange Act of 1934. Beasley et al. (2009) pointed out that the audit committee cannot perform its monitoring function effectively without relying on management, specifically the CFO, the external auditor, and the internal auditor.

Ernst and Young (2017) described the meetings of the audit committee as formal quarterly meetings and frequently in-person. Audit committee meetings were characterized as having an agenda, having materials from company management related to an explanation of the results that focused on matters of judgement in the financial statements, a draft of the quarterly filing on Form 10Q or annual report on Form 10K, a report from the external auditor, and a report from the internal auditor. Materials for the meeting were prepared and circulated in advance of the meeting to the audit committee members in order to facilitate a proper review and provide adequate time for questions during the in-person meetings. In addition, Ernst and Young commented that the audit committee meeting would likely be concluded by separate private sessions with the CFO, the external auditor, and the internal auditor, although the separate private sessions may not occur at every meeting during the year. As an example that supported the conclusions by Ernst and Young, the researcher served on five audit committees, chairing four of the five audit committees, and the process described by Ernst and Young was followed for each of the companies where the researcher was on the audit committee.

The Securities and Exchange Commission (2006) required the audit committee to report on the number of meetings held during the year and the nature of the meetings, including a discussion about the external auditor selection in the company's annual proxy that is provided to each shareholder of the company. The shareholders were also asked to approve the company's external auditor at the annual shareholder meeting of the company.

While there should be cooperation between the CFO and the audit committee, the level of influence by the CFO or the audit committee on issues may vary. Beck and Mauldin. (2014) examined the extent of influence over external audit fees by the audit committee and the chief financial officer in an evaluation of the respective influence that CFOs wield compared to the audit committee. External auditors and their fees were required to be established and approved by the audit committee under Sarbanes Oxley. Beck and Mauldin found that when the CFO tenure was greater than the tenure of the audit committee members, external audit fees were more likely to decline than when the audit committee tenure was greater than the CFO tenure. Beck and Mauldin implied that the length of service of the audit committee members compared to the length of service of the CFO may be an element for consideration in the effectiveness of an audit committee when fulfilling the audit committee's role of approving the external auditor of a company.

Beasley et al. (2009) commented on the reliance of the audit committee on management, particularly the chief financial officer, the external auditor, and the internal auditor and highlighted the importance of the appointment of a new CFO, external auditor, or the internal auditor. Ernst and Young (2017) noted that the audit committee participated in the evaluation of the performance of the CFO, the external auditor, and the internal auditor, including making recommendations for changes. When a change was made in one of the roles, voluntarily, or involuntarily, the audit committee participated in the process of the new appointment. If the change was for the role of the chief financial officer, the audit committee participated by interviewing potential candidates, performing reference checks, and discussion of the compensation for the new chief financial officer.

Conclusion

The chief financial officer role in a company has become extremely important since the enactment of the Sarbanes-Oxley Act in 2002. The Sarbanes-Oxley Act brought about new requirements, under its Section 404, for the CFO in internal control over financial reporting and, under its Section 302, increased the focus on prevention of fraudulent financial reporting. Included were criminal penalties for knowingly signing a false Section 302 certification related to the company's financial statements. The Securities and Exchange Commission also recognized that the CFO was likely the second most important executive of a public company by requiring that the CFO be one of the two named executives, along with their compensation, in a public company's annual proxy statement provided to all shareholders (Securities and Exchange Commission, 2006). The research included in this literature review has shown that there were certain characteristics of a chief financial officer that likely improved financial reporting by avoiding an adverse Section 404 opinion, avoiding a restatement, and that produced high-quality accruals that helped to prevent earnings management. Therefore, consideration of the CFO characteristics that improve financial reporting in a company are matters of importance when a new CFO was hired for a company in fulfilling the company's fiduciary duty to shareholders.

Audit committees also experienced substantial change following the enactment of Sarbanes-Oxley, including new requirements that all members be independent of management, that the audit committee appoint the external auditors, that the audit committee have at least one financial expert on the committee, and that the institution of a more robust reporting of the process followed by the audit committee in fulfilling the committee's monitoring of financial reporting was needed. The research in this literature review has shown that there were certain characteristics of audit committee members that improved financial reporting by avoiding a restatement, by avoiding an adverse report on internal control, and by having higher quality accruals. When a new CFO was hired, consideration of the influence the characteristics of audit committee members may have had on a newly hired CFO was an important consideration for the board of directors in fulfilling the board's duties to shareholders.

Summary

The role of the chief financial officer in the preparation of financial statements and the role of the audit committee in monitoring the financial reporting process used for preparation of the financial statements are important functions. A thorough review of the literature suggested characteristics of the CFO that improve the quality of financial reporting. Improved quality of financial reporting was defined as the lack of an adverse Section 404 opinion, the lack of a restatement, and higher quality accruals. The current study focused on the characteristics of CPA designation, gender, industry expertise, and

CFO experience for CFOs from the literature review as characteristics that research had shown improved the quality of financial reporting.

Separately, a thorough review of the literature also suggested characteristics that improve the monitoring process by the audit committee. The study focused on the characteristics of the audit committee members of CPA designation, gender, industry expertise, and CFO experience from the literature review as characteristics that research had shown improved the quality of financial reporting. The current study analyzed the influence the characteristics of the audit committee members may have had on the characteristics of a newly-hired chief financial officer not found in prior research. The gap in the literature established the research-based foundation for the current study. The next chapter will provide a systematic plan of the research methodology and will explain how the research questions were answered.

CHAPTER III

METHODOLOGY

Introduction

In the previous chapter, the researcher reviewed the literature related to the characteristics of the chief financial officer in a publicly traded company that likely improved financial reporting. In addition, the researcher reviewed the literature related to the characteristics of the audit committee that likely improved the monitoring process over financial reporting of publicly traded companies. The review of literature included a history of chief financial officers and audit committees and the provisions of the Sarbanes Oxley Act of 2002, a seminal law that increased the responsibilities of chief financial officers and audit committee members of publicly traded companies. This chapter will include a description of the research design, the participants, the data collection process, the methods used to analyze the data, and limitations of the current study. The purpose of the current study was to develop a better understanding of the recruitment process by an examination of the relationship between the characteristics of CPA designation, gender, healthcare industry expertise, and prior CFO experience between a newly-hired CFO and the audit committee members in order to influence the composition of the audit committee members or their involvement in the recruitment process of a CFO in a public healthcare company.

The research was guided by the following questions:

1. To what extent does a Certified Public Accountant (CPA) designation versus a non-CPA designation for a newly-hired Chief Financial Officer (CFO) differ based on the proportion of audit committee members with CPA designation at a publicly held healthcare company?

2. To what extent does the gender of a newly-hired CFO differ based on the proportion of women on a given audit committee at a publicly held healthcare company?

3. To what extent does the industry expertise, defined as experience, of audit committee members increase the likelihood of industry expertise for a new CFO hired at a publicly held healthcare company?

4. What is the relationship between audit committee members with CFO experience and the prior CFO experience of a new CFO hired at a publicly held healthcare company?

Research Design

In order to achieve the purpose of the study, a quantitative research design was developed to analyze the relationship of the characteristics of CPA designation, gender, healthcare industry expertise, and prior CFO experience of the audit committee members and a newly-hired CFO. Leedy and Ormrod (2016) noted that a quantitative study that involved descriptive research either identified the characteristics of an observed phenomenon or explored possible associations among two or more phenomena. Leedy and Ormrod further explained that descriptive research examined situations as they were and did not involve changing or modifying the situation under investigation. Lastly, Leedy and Ormrod identified a correlational study as one that examined the extent to which differences in one or more characteristics are associated with one or more other characteristics or variables.

The researcher gathered data on the characteristics of CPA designation, gender, industry experience, and prior CFO experience of a newly-hired chief financial officer in publicly traded healthcare companies and the same characteristics of audit committee members utilizing BoardEx (n.d.) and other publicly available data, including filings with the Securities and Exchange Commission. Inaccurate reporting of information to the Securities and Exchange Commission can result in penalties including potential criminal penalties, placing importance on the accuracy of the information included in the filings (Securities and Exchange Commission, 2002). The characteristics of the CFO and the audit committee members were gathered for the year of change in a CFO at publicly traded healthcare companies in the five-year period between 2012 and 2016. Consequently, the characteristics gathered were historical and consistent with Leedy and Ormrod's (2016) criteria for quantitative research. The data was analyzed by determining the association between the audit committee members and the CFO for each characteristic consistent with the explanation of correlational research by Leedy and Ormrod, as described in an earlier paragraph.

Participants

The participants for the current study were chief financial officers and audit committee members of publicly traded healthcare companies in North America where there had been a change in the CFO position in the five-year period between 2012 and 2016. The researcher used the BoardEx (n.d.) database to select the publicly traded healthcare companies where there had been a change in the chief financial officer in the five-year period between 2012 and 2016.

BoardEx (n.d,) includes data from over 10,000 public companies in North America, including healthcare companies, gleaned from public filings with the Securities and Exchange Commission, company websites and other reliable sources. The database profiled the company's revenue, company announcements including changes in executive officers or board members, the composition of committees of the board and characteristics of each board member. The BoardEx database was selected by the researcher because BoardEx was frequently referenced as the source of information in many of the sources during the researcher's review of authoritative literature and because BoardEx listed as clients many academic institutions including Columbia, Harvard, the University of Chicago, and Wharton.

BoardEx (n.d.) classified each company into industry sectors. The researcher used the two sectors in the BoardEx database of *health* and *pharmaceutical and biotechnology* constituting the healthcare companies for the focus of the current study. There were 132 publicly traded healthcare companies included under the sector listings of *health* and *pharmaceutical and biotechnology*. Each of the 132 companies were included in only one sector in the BoardEx database. Of the 132 publicly traded healthcare companies, 93 publicly traded healthcare companies, or 70.5%, had a change in the chief financial officer during the five-year period under examination. There were 93 chief financial officers and 331 audit committee members included in the current study of the publicly traded healthcare companies where a change in the chief financial officer had occurred. The public healthcare companies that had a change in the chief financial officer during the five-year period between 2012 and 2016 ranged in revenue size from $6 million to $137 billion.

Demographic data collected from the participants indicated that the newly-hired chief financial officers in the 93 publicly traded healthcare companies ranged in age from 30 to 62 years of age with an average age of 49 years. Five of the 93 newly hired CFOs, or 5.4%, were female and 88 of the 93, or 94.6%, were male. The 331 audit committee members in the 93 companies ranged in age from 45 to 81 years with an average age of 64 years. The number of audit committee members ranged from a minimum of three members to a maximum of seven members, with the average audit committee size in the 93 publicly traded healthcare companies of 3.6 members. Sixty-five of the 331 audit committee members, or 19.6%, were female and 266 of the 331 members, or 80.4%, were male.

Data Collection

The current study collected data from the BoardEx (n.d.) database, the 93 company websites, and filings with the Securities and Exchange Commission by the 93 companies. The BoardEx database included information from over 10,000 public companies in North America, including healthcare companies, gleaned from public filings with the Securities and Exchange Commission, company websites and other reliable sources. The researcher first sorted the companies in the BoardEx database by sector listing category. Companies in one of the two BoardEx sectors of *health* or *pharmaceutical and biotechnology* were identified. Companies selected from the BoardEx database were in one of the two sectors of *health* or *pharmaceutical and biotechnology* and not included in any other sector of the BoardEx database. The

BoardEx sectors of *health* and *pharmaceutical and biotechnology* included the company name, ticker symbol, the names of audit committee members, the audit committee members gender and whether or not the audit committee member had prior CFO experience. The healthcare companies within the two sectors of *health* and *pharmaceutical and biotechnology* resulted in the selection of 132 publicly traded healthcare companies in North America that constituted all the companies in the two sectors.

Changes in the chief financial officer between 2012 and 2016 were identified by reviewing the public healthcare company's website of the 132 public healthcare companies, noting the year of the change. As noted previously, there were CFO changes in 93 of the 132 public healthcare companies, or 70.5% of them. The list of the 93 companies where there was a change in the chief financial officer during the five-year period between 2012 and 2016 was included in Appendix A. A newly-hired CFO's characteristics of CPA designation, gender, prior chief financial officer experience, and prior healthcare experience were obtained from each company's proxy statement filed with the Securities and Exchange Commission for the year of the CFO change. Proxy statements for each company were accessed through the company filings section of the United States Securities and Exchange Commission website (United States Securities and Exchange Commission, n.d.). In addition, the age of the CFO was also collected from the company's proxy statement for the year of the CFO change. Age, prior healthcare experience, and prior CFO experience were collected in years, gender as male or female, and whether or not the CFO was a CPA. The public healthcare company's revenue for the year of the CFO change was collected from the company's annual report on Form 10K filed with the Securities and Exchange Commission and accessed through the company filings section of the United States Securities and Exchange Commission website (United States Securities and Exchange Commission).

The audit committee members were identified using the BoardEx (n.d.) database. Information concerning name, gender, and prior CFO experience for each audit committee member were collected from the BoardEx database. Because the BoardEx database did not have the information on the characteristics of a CPA designation and prior healthcare experience for audit committee members, the researcher obtained the data on the characteristics of a CPA designation and prior healthcare experience for each audit committee member from each company's proxy statement filed with the Securities and Exchange Commission for the year of the CFO change. Proxy statements for each company were accessed through the company filings section of the United States Securities and Exchange Commission website (United States Securities and Exchange Commission, n.d.). The researcher also verified the name, gender, and prior CFO experience included in the BoardEx data base from the company's proxy statement accessed through the company filings section of the United States Securities and Exchange Commission website (United States Securities and Exchange Commission).

The age of each audit committee member and the number of audit committee members were also collected from the proxy statement accessed through the company filings section of the United States Securities and Exchange Commission website (United States Securities and Exchange Commission, n.d.). Age, prior healthcare experience, and prior CFO experience were collected in years, gender as male or female, and whether or not the audit committee member was a CPA. The CPA designation was coded as a 0 = no

CPA designation and 1 = CPA designation for each audit committee member. The proportion of audit committee members with CPA designation was calculated by averaging the CPA designation of all committee members. This proportion ranged from 0 to 1, with higher numbers indicating a higher proportion of CPAs on the committee. Gender was coded such that 0 = male and 1 = female. The proportion of women on a given audit committee was calculated by averaging the gender codes across all committee members. The proportion ranged from 0 to 1, with higher numbers indicating a higher proportion of women on the committee. Healthcare experience and prior CFO experience were measured in years and were averaged across the members of each audit committee member to provide a single composite measure of committee healthcare or prior CFO experience.

Analytical Methods

The researcher used SPSS to compile and organize the data collected for analysis in support of answering the research questions. For research question one, the researcher calculated the proportion and standard deviation of newly-hired CFOs of public healthcare companies with CPA designation as well as the average proportion and standard deviation of audit committee members with a CPA designation overall. The CPA designation was coded as a 0 = no CPA designation and 1 = CPA designation for a newly-hired CFO and the audit committee members. In addition, the researcher ran an independent-samples *t*-test comparing the proportion of audit committee members with CPA designation when a non-CPA CFO was hired versus when a CFO with CPA designation was hired to examine the differences between the two groups.

For research question two, the number of male versus female CFOs was calculated, as well as the average proportion and standard deviation of women on the audit committees. Gender was coded such that 0 = male and 1 = female. The proportion of women on a given audit committee was calculated by averaging the gender codes across all committee members. In addition, the researcher ran an independent-samples *t*-test comparing the proportion of women on audit committees when a male was hired as CFO versus when a female was hired as CFO to examine the difference between the two groups.

For research question three, the researcher calculated the average and standard deviation of healthcare industry expertise in years for both a newly-hired CFO and the audit committee member composite. In addition, the researcher ran a multiple regression analysis predicting CFO healthcare industry expertise from the committee's average healthcare industry expertise, controlling for the revenue size of the healthcare company.

For research question four, the researcher calculated the average and standard deviation of prior CFO experience in years for both newly-hired CFOs and the audit committee composites. In addition, the researcher ran a multiple regression analysis, controlling for the revenue size of the healthcare company, predicting a newly-hired CFO's prior CFO experience from the audit committee's average prior CFO experience.

Limitations

There were several limitations to the current study. To begin with, the population used was limited to publicly traded healthcare companies from the BoardEx (n.d.) sectors of *health* and *pharmaceutical and biotechnology* in North America and could be considered a limitation to generalizability of any findings, conclusions, or implications to other sectors, some of which may be considered healthcare related, of publicly traded companies in North America. In addition, the period used for the study involved changes in the chief financial officer role during the five-year period between 2012 and 2016 and thus, the results may not be indicative of periods prior to 2012 or after 2016, because board and committee compositions may change over time. Lastly, the data extracted from the filings with the Securities and Exchange Commission are subject to potential error about CPA designation, gender, prior healthcare experience, and prior CFO experience because the information provided by the individual may have been incorrect, or mistakes in the transcribing of the information into the public filings may have occurred.

Summary

This chapter explained the detailed methodology of the current study. The research design, participants included in the study, the data collection process, the methods for statistical analysts, and limitations of the current study were all described in specific detail. The next chapter will discuss the findings and conclusions of the current study, implications of these findings and conclusions, as well as recommendations for future studies.

CHAPTER IV

FINDINGS AND CONCLUSIONS

Introduction

In the previous chapter, the researcher explained the methodology for the current study. The methodology of the current study included a description of the research design, the participants, the data collection process, the methods used to analyze the data, and limitations of the current study. This chapter will report the findings of the data collection and analyses, as well as the conclusions, implications, and recommendations for future studies. The purpose of the current study was to develop a better understanding of the recruitment process by an examination of the relationship between the characteristics of CPA designation, gender, healthcare industry expertise, and prior CFO experience between a newly-hired CFO and the audit committee members in order to influence the composition of the audit committee members or their involvement in the recruitment process of a CFO in a public healthcare company.

The research was guided by the following questions:

1. To what extent does a Certified Public Accountant (CPA) designation versus a non-CPA designation for a newly-hired Chief Financial Officer (CFO) differ based on the proportion of audit committee members with CPA designation at a publicly held healthcare company?

2. To what extent does the gender of a newly-hired CFO differ based on the proportion of women on a given audit committee at a publicly held healthcare company?

3. To what extent does the industry expertise, defined as experience, of audit committee members increase the likelihood of industry expertise for a new CFO hired at a publicly held healthcare company?

4. What is the relationship between audit committee members with CFO experience and the prior CFO experience of a new CFO hired at a publicly held healthcare company?

Findings

Research Question One

Descriptive statistics for a newly-hired CFO and the composite of the audit committee are represented in Table 1. Of the 93 chief financial officers, there were 46, or 49.5% with a certified public accountant designation and 47 chief financial officers, or 50.5%, without a certified public accountant designation in the publicly held healthcare companies in the current study.

Table 1

Descriptive Statistics of CPA Designation

	Newly-hired CFO	Audit Committee Composite
CPA	46	46
Non-CPA	47	285
Total	93	331
N	93	93
M	.49	.14
SD	.50	.18

The researcher conducted an independent-samples *t*-test in SPSS comparing the proportion of audit committee members with CPA designation when a non-CPA CFO was hired versus when a CFO with CPA designation was hired to examine the relationship between the audit committee members and a newly-hired CFO. Results of the independent samples *t*-test comparing the proportion of audit committee members with CPA designation when a non-CPA CFO was hired versus when a CFO with CPA designation was hired are represented in Table 2.

Table 2

Newly-hired CFO with a CPA Versus a non-CPA designation

	Equality of Means	*df*	Sig.(2-tailed)
Independent Samples *t*-Test	-1.73	91	.09

*$p < .05$

The results of the independent samples *t*-test did not demonstrate statistical significance when a non-CPA CFO was hired versus when a CFO with CPA designation was hired based on the proportion of audit committee members with CPA designation.

Research Question Two

Descriptive statistics for a newly-hired CFO and the composite of the audit committee are represented in Table 3. There were five of the 93 chief financial officers, or 5.4%, who were female and 88 chief financial officers, or 94.6%, who were male in the publicly held healthcare companies in the current study. The number of female chief financial officers was consistent with the findings of Barua et al. (2010) that less than five percent of CFOs of public companies were women.

Table 3

Descriptive Statistics of Gender

	Newly-hired CFO	Audit Committee Composite
Male	88	276
Female	5	55
Total	93	331
N	93	93
M	.05	.17
SD	.23	.18

In order to determine the relationship between the female audit committee members and newly-hired female CFOs, the researcher conducted an independent-samples *t*-test using SPSS comparing the proportion of women on audit committees when a male was hired as CFO versus when a female was hired as CFO. The results of the independent samples *t*-test are represented in Table 4.

Table 4

Newly-hired CFO Male Versus Female

	Equality of Means	*df*	Sig.(2-tailed)
Independent Samples *t*-Test	.45	91	.06

*$p < .05$

The results of the independent samples *t*-test did not demonstrate statistical significance when a male CFO was hired versus when a female CFO was hired based on the proportion of female audit committee members.

Research Question Three

The mean of a newly-hired chief financial officer's healthcare industry experience and the average healthcare experience for the members of the audit committees for the publicly held healthcare companies in the current study are represented in Table 5.

Table 5

Mean and Standard Deviation of Prior Healthcare Experience

	Newly-hired CFO	Audit Committee Composite
N	93	93
M	10.5 years	9.9 years
SD	8.2 years	9.3 years

In order to determine the relationship between the average healthcare experience of audit committee members and the healthcare experience of a newly-hired CFO, the researcher conducted a regression analysis using SPSS predicting CFO healthcare industry expertise from the committee's average healthcare industry expertise, controlling for the revenue size of the healthcare company. The CFO healthcare industry experience was the dependent variable and the audit committee's average healthcare experience and company revenue size were the independent variables in the analysis. Zero years appeared as a variable input for both a newly-hired CFO and the audit committee members. To determine that the zero years variable was not unequal across the range of values used to predict healthcare industry experience, residual plots were examined to determine that no heteroskedasticity problem existed. The results of the regression analysis are represented in Table 6.

Table 6

Prediction of Newly-hired CFO Healthcare Experience

	F	*df*	Sig.	R squared
Regression Analysis	3.55	90	.03*	.07

*p < .05

Overall, the average audit committee prior healthcare experience and company revenues were statistically significant predictors of a newly-hired CFO's healthcare experience. Of the predictors investigated, average healthcare industry experience of the audit committee members was a statistically significant predictor (p = .01) of a newly-hired CFO's prior healthcare industry experience, but company revenue size was not (p = .22). The overall R squared of .07 equated to moderate effect size based on Cohen's (1988) determination of small, medium, or large effect sizes.

Research Question Four

The mean of a newly-hired chief financial officer's prior CFO experience and the average prior CFO experience of the members of the audit committees in the publicly held healthcare companies in the current study are represented in Table 7.

Table 7

Mean and Standard Deviation of Prior CFO Experience

	Newly-hired CFO	Audit Committee Composite
N	93	93
M	7.8 years	3.7 years
SD	5.8 years	3.3 years

In order to determine the relationship between the average prior CFO experience of audit committee members and the prior CFO experience of a newly-hired CFO, the researcher conducted a regression analysis using SPSS predicting prior CFO industry experience from the committee's average prior CFO experience, controlling for the revenue size of the healthcare company. The CFO's prior CFO experience was the dependent variable and the audit committee's average prior CFO experience and company revenue size were the independent variables in the analysis. Zero years appeared as a variable input for both a newly-hired CFO and the audit committee members. To determine that the zero years variable was not unequal across the range of values used to predict prior CFO experience, residual plots were examined to determine that no heteroskedasticity problem existed. The results of the regression analysis are represented in Table 8.

Table 8

Prediction of Newly-hired CFO Prior CFO Experience

	F	*df*	Sig.	R squared
Regression Analysis	.72	90	.50	.02

*$p < .05$

Overall, the audit committee's average prior CFO experience, controlling for company revenue size was not significant as a predictor of a newly-hired CFO's prior CFO experience. The average audit committee's prior CFO experience was not a significant predictor (p =.32), nor was company revenue size (p = .56).

Conclusions

The review of literature in Chapter II demonstrated the characteristics of CPA designation, gender, industry experience, and prior CFO experience of a chief financial officer had implications on the quality of financial reporting. The current study addressed the relationship between the characteristics of CPA designation, gender, industry experience, and prior CFO experience of audit committee members and the influence that may have on the characteristics of a CFO recruited to a public healthcare company.

The researcher examined the relationship of the variable of certified public accountant designation by use of an independent samples *t*-test between audit committee members and newly-hired CFOs of companies in the BoardEx (n.d.) sectors of *health* and *pharmaceutical and biotechnology*. The researcher had anticipated a relationship between the characteristics of CPA designation between the audit committee members and a newly-hired CFO. The data analysis of the difference in the means in the proportion of audit committee members with CPA designation (M = .14, SD = .18) compared to a newly-hired CFO with CPA designation (M = .49, SD = .50) did not demonstrate evidence that the difference in the associated population means were statistically significant. The results suggested that the proportion of CPAs on the audit committee was not related to the CPA designation of a newly-hired CFO in a public healthcare company.

The researcher examined the relationship between the variable of gender by use of an independent samples *t*-test between audit committee members and newly-hired CFOs of companies in the BoardEx (n.d.) sectors of *health* and *pharmaceutical and biotechnology*. The data analysis of the difference in the means in the proportion of female audit committee members (M = .17, SD = .20) compared to a newly-hired female CFO (M = .05, SD = .23) did not demonstrate evidence that the difference in the associated population means was statistically significant. Based on the analysis, the results suggested that the proportion of females on the audit committee was not related to the gender of a newly-hired CFO in a public healthcare company.

The researcher examined the relationship between the variable of prior healthcare industry experience by use of regression analysis, controlling for company revenue size, between audit committee members and newly-hired CFOs of companies in the BoardEx (n.d.) sectors of *health* and *pharmaceutical and biotechnology*. The researcher had anticipated a relationship between the between the prior healthcare experience of the audit committee members and the prior healthcare experience of a newly-hired CFO. The data analysis demonstrated prior healthcare experience of the audit committee members was a statistically significant predictor of the prior healthcare experience of a newly-hired CFO in a public healthcare company. Based on the analysis, the researcher concluded that the average audit committee prior healthcare experience likely was predictive of the prior healthcare experience of a newly-hired CFO in a public healthcare company.

The researcher examined the relationship between the variable of prior CFO experience by use of regression analysis, controlling for company revenue size, between audit committee members and newly-hired CFOs of companies in the BoardEx (n.d.) sectors of *health* and *pharmaceutical and biotechnology*. The researcher had anticipated a relationship between the prior CFO experience of the audit committee members and the prior CFO experience of a newly-hired CFO. The data analysis demonstrated prior CFO experience of the audit committee members, controlling for revenue size, was not a statistically significant predictor of the prior CFO experience of a newly-hired CFO in a public healthcare company. Based on the analysis, the researcher concluded that the average audit committee prior CFO experience likely was not predictive of the prior CFO experience of a newly-hired CFO in a public healthcare company.

Implications and Recommendations

The chief financial officer has, arguably, become the second most important executive in a publicly traded company as evidenced by the Securities and Exchange Commission (2006) requirement that the CFO be one of the two named executives in proxy statements mailed to all shareholders, the other one being the CEO. The review of literature in Chapter II demonstrated that the chief financial officer of a company who was a CPA, female, had industry experience, or had prior CFO experience had implications on the quality of the company's financial reporting. The Sarbanes-Oxley Act added new rules for audit committees of public companies, causing companies to create a stronger structure, thereby improving the oversight of financial reporting to its shareholders. To the extent audit committee members characteristics may have influenced a newly-hired CFO to have had the characteristics of CPA designation, female, prior industry experience, or prior CFO experience would have been helpful to public healthcare companies and regulators in determining the composition of audit committees. The current study demonstrated that a moderate relationship of prior healthcare experience of audit committee members to the prior healthcare experience of a newly-hired CFO existed and that should be helpful to a board of directors when selecting audit committee members at a public healthcare company. Because the other three characteristics did not demonstrate statistical significance, the same claim cannot be made related to CPA designation, gender, or prior CFO experience between the audit committee members and a newly-hired CFO.

The following recommendations for future research may lead to more evincive results. The first recommendation is to review periods after 2016 using the BoardEx (n.d.) sectors of *health* and *pharmaceutical and biotechnology*, because the periods may provide different results about the relationship between the audit committee members and a newly-hired CFO for one or more of the characteristics of CPA designation, gender, prior healthcare experience, or prior CFO experience in a publicly held healthcare company.

The second recommendation that developed as a result of the findings is the need to broaden the scope of the study beyond the BoardEx (n.d.) sectors of *health* and *pharmaceutical and biotechnology*. Doing so may result in different findings that could improve the generalizability of the findings. Lastly, because each audit committee has a chairperson that leads the committee, it may be meaningful to analyze the characteristics of CPA designation, gender, prior industry experience, and prior CFO experience of the audit committee chair separately from the proportion of the audit committee members. The purpose of this analysis would determine if the results would be different in the relationship between the audit committee chair and a newly-hired CFO compared to the relationship between the newly-hired CFO and the proportion of audit committee members.

The researcher mentioned a limitation of possible errors in transcription of the data in Chapter III. The Securities and Exchange Commission (Securities and Exchange Commission, 2002) may impose penalties for false information in documents filed with the Securities and Exchange Commission. The threat of penalty should have mitigated the risk of error in the public filings that were the basis for the data used in the current study and, will continue to do so in the foreseeable future.

The results of the current study identified only one statistically significant relationship, prior healthcare experience, between the audit committee members and a newly-hired CFO in a publicly held healthcare company. Although this relationship in one of the four characteristics examined having statistical significance did not reflect strong results, identification of factors that may improve the likelihood of CFOs that are CPAs, are female, have prior industry experience, or prior CFO experience warrants further scholarly research due to the implications to improved financial reporting. The improved financial reporting when the CFO possesses one or more of the four characteristics assists the company in meeting the requirements of the Sarbanes Oxley Act, benefitting their shareholders.

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Appendix A

Health and *Pharmaceutical and Biotechnology* Companies Utilized in the Current Study

Short Name (Ticker Symbol)

Abbott (ABT)

Abaxis (ABAX)

Abbvie (ABBV)

Arcaidia (ACHC)

Acorda Therapeutics (ACOR)

Akorn (AKRX)

Albany Molecules (AMRI)

Alexion Pharmacy (ALXN)

AMAG Pharmacy (AMAG)

Amedisys (AMED)

Amerisource Bergen (ABC)

Amgen (AMG)

Amphastor (AMPH)

Angio Dynamics (ANGO)

ANI Pharnacy (ANIP)

ANIKA Therapeutics (ANIK)

Baxter (BAX)

Biogen (BIIB)

BioMarin Pharmacy (BMRN)

BioVerativ (BIVV)

Boston Scientific (BSC)

Cambrex (CRM)

Short Name (Ticker Symbol)

Cantel Medical (CMD)

Cardinal Health (CAH)

Catalent (CTLT)

Celgene (CELG)

Community Healthcare (CYN)

Computer Program (CPSI)

Cooper Companies (COO)

Corvel (CRYL)

Cross Country Health (CCRN)

DaVita (DVA)

Dentsply (XRAY)

Depomed (DEPO)

Eagle Pharmaceuticals (EGRX)

Edwards LifeScience (EW)

Envision (EVHC)

Globus Medical (GMCD)

Haemenetics (HAE)

Halyard Health (HYE)

HCA Holdings (HCA)

Heska (HSKA)

Hill-Rom (HRC)

Idexx Labratories (IDXX)

Short Name (Ticker Symbol)	Short Name (Ticker Symbol)
Impax Labratories (IPXL)	Neogen (NEOG)
INC Research (INCR)	NuVasive (NUVA)
INCYTE (ICY)	Orthofix (OFIX)
Innova (INVA)	Paraxel (PRXL)
Interra Lifescience (IART)	Patterson (PDCO)
Kindred (KND)	Pharmerica (PMC)
Laboratory Corp. (LH)	Progenics Pharmaceutical (PGNX)
LHC Group (LHCG)	Providence Science (PRSC)
Lifepoint (LPNT)	Quest Diagnositics (DGX)
Ligand Pharmceutical (LGND)	Quorum Health (QHC)
Mallinckroft (MNK)	Regeneron Pharmacy (REGN)
Masimo (MASI)	Repligen (RGEN)
McKesson (MCK)	Sciclone Therapy (SCLN)
Medicines Company (MDCD)	Spectrum Pharmceutical (SPPI)
Knight Therapeutics (GUD)	Stryker (SYK)
Medidata (MDSD)	Sucampo Pharmaceutical (SCMP)
Merck (MRK)	Supenus Pharmaceutical (SUPN)
Molina (MOH)	Surmodics (SRDX)
Momenta Pharmaceutical (MNTA)	Tenent Healthcare (THC)
Myraid Genetics (MYGN)	Tivity Health (TVTY)
Mylan (MYL)	United Therapeutics (UTH)
Nektar Therapeutics (NKTR)	Valeant Pharmaceuticals (VRX)

Short Name (Ticker Symbol)

Varex Imaging (VREX)

Varian Medical Systems (VAR)

Vertex Pharmaceuticals (VRTX)

Zimmer Biomet (ZBH)

Zoetis (ZTS)