THE POTENTIAL MARKET IMPACTS OF A MORE CONCENTRATED AUDIT MARKET

A Thesis

Presented to

The Honors Tutorial College

Ohio University

In Partial Fulfillment

Of the Requirements for Graduation

From the Honors Tutorial College

With a degree of

Bachelor of Business Administration

By

Daniel C. Borzelleca

June 2012
# Table of Contents

Introduction .......................................................................................................................... 3

Development of Research Questions ............................................................................... 14
  Concentration in the Audit Market .................................................................................. 14
  Big Firm versus Next-Tier Firm Audit Quality ............................................................... 20

Research Methodology ...................................................................................................... 24
  Decision Task .................................................................................................................. 24
  Independent Variables .................................................................................................... 24
    Concentration .............................................................................................................. 24
    Firm Size ..................................................................................................................... 25
  Quality Differences Between Firms ................................................................................. 26
  Dependent Variables ....................................................................................................... 26
  Manipulation Check and Demographic Data ................................................................. 27
  Participants ...................................................................................................................... 27

Results .................................................................................................................................. 28
  Manipulation Check ........................................................................................................ 28
  Analysis Methodology ..................................................................................................... 29
  Comparison of Firms By Audit Market .......................................................................... 31
  Comparison of Firms By Size of Firm ............................................................................ 34
  Supplemental Analysis ...................................................................................................... 37

Discussion ............................................................................................................................. 39
  Analysis of Results .......................................................................................................... 40
  Implications of Results ..................................................................................................... 44

Conclusion, Limitations, and Future Research .................................................................. 46

References ............................................................................................................................ 49
Introduction

In this study, I examine the potential financial market impacts of a more concentrated audit market. My research will analyze the reaction of the financial markets to two different aspects of a more concentrated audit market. The first aspect is the actual concentration, and how the financial markets react to an audit market where there are fewer "Big" audit firms but more and larger "next-tier" audit firms. The second phase of my research is to study the difference in perceived audit quality of Big audit firm versus next-tier audit firms.

If Americans have learned anything since the economic downturn of 2008, it is the US economy relies heavily on the capital markets. The ups and downs of the American economy have mirrored those experienced by stock exchanges such as the New York Stock Exchange (NYSE) and National Association of Securities Dealers Automated Quotations (NASDAQ). Thus, any factor that could affect these markets requires serious consideration and study.

Well-functioning financial markets are critical to the continued success of the global economy. However, the financial markets are dependent on investors having accurate information on publicly traded companies. Accurate information is disseminated to the markets through publicly released financial statements. Companies that are publicly traded are required to have their financial statements audited by a public accounting firm to provide assurance that the financial statements fairly present the financial position of the company.
Unerman and O'Dwyer (2004) describe the relationship between markets, the external auditors, and audited financial statements in terms of the expert system. An expert system exists whenever non-experts (investors in the financial markets) rely upon a perceived expert (auditors) to perform an expert-related task. Auditors are considered experts in verifying the accuracy of financial statements, and investors rely on auditors to ensure companies release financial statements with accurate financial information. Because the investors trust the auditors, they are willing to accept the numbers presented on the financial statements as the truth and thus the financial markets can function effectively.

If, for any reason, the investors lose their trust in the auditor expert system, serious issues would arise. A loss of trust in the audit expert system creates doubt as to the accuracy of the financial statements presented to the financial markets. Any loss in faith in an expert system renders it "ineffective in transferring value across time and space" (Unerman and O'Dwyer, 2004). Essentially, mistrust in auditors lessens the perceived quality and veracity of financial statements which investors use to determine the worth and prospects of companies. Thus, the financial markets would take a significant downturn because investors would doubt the veracity of companies' reported figures and would be less willing to invest in companies' stocks and bonds.

Maintenance of the trust system falls on numerous parties and goes beyond sheer technical expertise. Governments and their regulatory agencies, professional firms, and audit firms all realize the implications of a failure in the expert system as it relates
MARKET IMPACTS OF A MORE CONCENTRATED AUDIT MARKET

One of the worst failures of the trust system occurred after the stock market crash of 1929, as the federal government realized that neither states nor businesses themselves were able to effectively monitor and regulate business. Under the umbrella of regulating interstate commerce, the federal government passed both the Securities Act of 1933 (SA 1933) and the Securities Exchange Act of 1934 (SEA 1934). The SA 1933 required that most companies that wanted to publicly trade securities register with a governmental entity. The governmental agency responsible for oversight of securities was the Securities and Exchange Commission (SEC), created by SEA 1934. The registration requirements of SA 1933 entailed the disclosure of company information, including audited financial statements (Securities act of 1933, 1933). The need for effective public accounting firms capable of auditing large public companies emerged, and the requirement for audited annual financial statements sustained a constant need for audit services throughout the years.

In addition to the government mandate for audited financial statements, firms may be motivated to have an audit of the financial statement for other economic reasons. Chow, Kramer, and Wallace (1988) identify three incentives for companies to hire an external auditor: information signaling, recovery of losses, and contracting. First, by incurring the cost of an audit, the company signals the market that the information presented is of high quality (Dye, 1993). This is commonly referred to as the information signaling hypothesis. Companies also hire auditors as insurance for
investors since investors can pursue legal claims against the auditor (Kellogg, 1984; Wallace, 1987). Finally, companies retain auditors to provide external verification that companies’ accounting numbers are materially accurate (Beatty, 1989; DeFond, 1992).

Although there are a great number of public accounting firms that are able to perform audits, the market for auditing services gains additional complexity based on the size of the audit firm. Starting with DeAngelo (1981), there has been significant research into the effectiveness of the largest international public accounting firms (Big 8, 6, 5, 4, hereafter Big firms) and national firms that may have some international affiliations, such as McGladrey & Pullen, Grant Thornton, or BDO Seidman (next-tier firms). While the literature has mixed results on actual Big/next-tier audit quality, results have indicated that investors and the market perceive a higher quality for Big audits than next-tier firm audits (Behn, Choi, Kang 2008; Boone, Khurana, Raman, 2010; Teoh and Wang 1993). Companies must determine which size of firm will be able to best accomplish the objectives of the audit.

Another important aspect of the audit market environment is the growing concentration of large firms and its effect on audit quality and reputation. Until 1987, eight large, international accounting firms (Arthur Andersen, Arthur Young & Co, Coopers & Lybrand, Ernst & Whinney, Deloitte Haskins & Sells, Peat Marwick, Mitchell & Co., Price Waterhouse, and Touche Ross; commonly referred to as the Big 8) were primarily responsible for providing audit services to the largest companies in the US and world (Wootton, Wolk, and Normand, 2003). The existence of eight large
firms provided competition in the audit market so large companies had a multitude of auditor choices. However, mergers among the Big firms from 1987 to 1997 have made a significant impact on the audit market.

In 1987, KMG Main Hurdman, one of the largest non-Big 8 firms, merged with Peat Marwick, Mitchell & Co. to create KPMG. At the time of the merger, KPMG was the largest of the Big 8 firms, thereby making it the largest public accounting firm in the world. Both firms sought and agreed to the merger because they hoped to expand their presence into markets where they did not already have a significant presence (Wooden, Wolk, and Normand, 2003). The formation of KPMG served as a catalyst for the other Big 8 firms to explore mergers.

In 1989, Ernst & Whinney and Arthur Young & Comerged to create Ernst & Young. The merger came as both firms looked to consolidate audit clients into a more diverse client portfolio and generate greater economies of scale for all services. Deloitte Haskins & Sells and Touche Ross continued the mergers of 1989 by creating Deloitte & Touche. The third and final merger came in 1997 when Coopers & Lybrand merged with Price Waterhouse to form PricewaterhouseCoopers. Through the mergers from 1987 to 1997, the number of firms commonly viewed to be capable of auditing the world’s largest companies was reduced from eight to five. This severely limited the competition and auditor choice of the largest publicly traded firms, the drivers of the financial markets.
KPMG and Ernst & Young also announced a merger in 1997 that would have created the largest public accounting firm in the world and further reduced the Big firm audit market to just four firms (Wooden, Wolk, and Normand, 2003). However, regulatory agencies across the world expressed reservations over the creation of a firm of that size and the potential effects of such a high level of concentration. Consequently, KPMG and Ernst & Young decided to abandon their pursuit of a merger, and it appeared there would be no further changes to the Big 5 firms. Unfortunately, unforeseen changes to the audit market were coming.

The Big 5 became the Big 4 in one of the most damaging events in the history of auditing. In 2001, one of Arthur Andersen's (hereafter Andersen) audit clients, Enron, was found to have overstated earnings and made numerous questionable accounting decisions. As government investigators were gathering evidence about Enron's fraudulent activities, it was discovered that Andersen employees had destroyed a significant amount of electronic documents, paper documents, and correspondence related to the Enron account. On March 15, 2002, the United States Department of Justice's unsealed a criminal indictment of Andersen for obstruction of justice (Farrell, 2002). On June 15, 2002, Andersen was convicted of obstruction of justice and was barred from conducting and reporting audits on U.S. – registered public companies (Chaney and Philipich, 2002). The indictment, conviction, and ultimate collapse of Andersen caused a major ripple across both the financial and auditing markets.

The financial markets' reaction was a loss of trust in the auditing expert system, specifically that of Andersen (Unerman and O'Dwyer, 2004). As a result of the
market’s lost trust, Andersen’s audit clients’ stock prices fell (Chaney and Philipich, 2002). An auditor’s reputation and independence impacts the financial markets’ perception of the quality of the audit. The resulting changes in a company's stock price reflect some of that correlation between perceived audit quality and the financial markets (Krishnamurthy, Zhou, Zhou, 2006; Mayhew, 2001).

The fall of Andersen and the resulting accounting scandals (WorldCom, Adelphia, Global Crossing, etc) led to a myriad of issues for the audit services industry. One of the most prominent and criticized issues was the government's accounting regulation legislation, the Sarbanes-Oxley Act (SOX). From 1973 until the passing of SOX in 2002, the audit service industry regulated itself through the Auditing Standards Committee of the American Institute of Certified Public Accountants (AICPA). However, in light of the accounting failures, Congress decided that the audit profession was no longer capable of regulating itself and thus it needed governmental oversight and regulation. As a result, Congress passed SOX to regulate the audit industry and require greater transparency in financial reporting.

In order to end the tradition of auditors auditing themselves, as was the case under the Auditing Standards Committee of the AICPA, SOX created a government entity to regulate the auditors. The Public Company Accounting Oversight Board (PCAOB) was established by Congress to "oversee the audits of public companies" which allows the PCAOB to be an "external and independent oversight" for auditors of public companies in the United States ("About the pcaob").
Furthermore, the implementation of SOX's provisions for greater transparency in financial reporting created numerous issues for both audit firms and public companies. Section 404(a) required companies to include a section in their annual financial statements which provided a self-assessment of effectiveness for their internal control structure and procedures for financial reporting (GAO-08-163). Companies were also required to include an assessment from their external auditor.

The requirement for an assessment of internal controls and procedures for financial reporting caused a significant increase in audit fees to companies that were publicly traded (Kaserer, Mettler, and Obemberger, 2011). Not only did the cost of SOX implementation affect companies that were publicly traded, it also influenced companies that were considering initial public offerings. Since all public companies regardless of size were required to have the same costly SOX-mandated controls and assessments as other public companies, many companies decided to remain private. In addition, many small publicly traded companies chose to “go private” to avoid the cost of compliance with SOX. The ultimate result was a contraction of the financial market.

In addition to the extra reporting requirements, SOX placed another limitation on accounting firms. A public accounting firm that provides audit services to a public company can no longer provide certain non-audit services, including bookkeeping, appraisal services, actuarial services, and the outsourcing of internal audit functions, to its audit clients (GAO-08-163). As a result of these new limitations from SOX, many
public companies were forced to look for additional accounting firms to undertake these non-audit services.

Although there were numerous other provisions of SOX, the two aforementioned provisions are the most relevant to this research. Any public accounting firm that plans to perform a public company audit would needed sufficient manpower and technical skills to provide the SOX-mandated assessments. Furthermore, the ban on non-audit services by a company’s audit firm means a public company needs to retain an additional accounting firm to perform any non-audit services. While there may be some additional cost to the company in the hiring of the new accounting firm for its non-audit services, there is an issue of greater importance. If the company decides to switch its audit firm, it cannot hire the firm that performs its non-audit services. Consequently, the number of firms capable of performing public company audits, especially audits of large public companies (approximately, companies that would be a Fortune 1000 company) available to the company is severely limited.

The second great issue resulting from the collapse of Andersen is a greater concentration of the audit services industry. After the government passed SOX, it also commissioned the General Accounting Office (GAO) to conduct a study on concentration within the audit market. It found the Big 4 to have "significant market power" and a high level of audit market concentration (GAO-03-864). A second GAO study was commissioned in 2008 to follow up on the findings of the 2003 study, and it also found extremely high levels of concentration in the market for public company
audits (GAO-08-163). Hence, there is a major issue with concentration in the public company audit market.

An audit for a large public company requires a certain level of manpower and expertise that only certain large accounting firms can offer (GAO-03-864). Moreover, the prevailing thought among executives is Big firms are able to provide the best level of service for large public companies (Gray and Ratzinger, 2010). Yet, the limitations imposed upon public companies by SOX prevent them from using a firm that provides its non-audit services as its audit firm. Thus, if a large public company wishes to change its audit firm, it is likely limited to two Big firms, and almost 60% of large companies feel that they do not have an adequate number of choices for a new audit firm (GAO-08-163).

Nevertheless, despite its concern over the level of concentration, the GAO did not recommend that any changes be made to decrease the concentration of the audit market. However, there are numerous threats to the Big 4 firms that could cause another firm to collapse. As previously mentioned, companies hire audit firms as insurance against investor claims if financial statements are misstated. There is a major risk to the audit firms that one of these cases could result in a major loss, a loss large enough to drive the firm into bankruptcy (Cunningham, 2006). The loss of

---

1The GAO used the Hirschman-HerfindahlIndex (HHI) to measure the level of concentration in the audit market, specifically for public company audits. An HHI of 1,800 indicates a highly concentrated market. In 2006, he market for audit services for companies with over $1 billion in revenue had a HHI of 2,500, and the market for audit services for companies with $500 million - $1 billion in revenue had an HHI of 2,300.
another Big firm would cause major ramifications for the audit market, as it would increase the concentration to even more dramatic levels.

The confluence of increasing audit market concentration and the need for functional financial markets brings up an important and relevant dynamic: what level of audit market concentration is detrimental to the financial markets? Or, another way to examine this question, how would the financial markets react to a more concentrated audit market? In addition, would a change in the audit firms available also change the market's perception of the next-tier firms? The results of this paper will attempt to answer these questions.

I conducted an experiment in which experienced financial analysts and advisors estimate the stock price of a hypothetical company whose situation might drive it to manipulate earnings. Thus, users of the financial statements would be more inclined to consider the quality of the auditor. The manipulation between subjects affected concentration in the audit market (concentration) and whether the auditor was a Big firm or a next-tier firm (perceived audit quality). Since it is difficult to evaluate the reaction of the financial markets to a hypothetical situation, this research equates a stock price evaluation to the reaction of the market as a whole, as is done by O'Reilly, Leitch, and Tuttle (2006).

My results corroborated previous studies' findings that the financial markets perceive higher quality audits among Big firms in the current audit market. With the more concentrated audit market, my findings indicate an elimination of the financial
markets’ quality bias against next-tier firms. The financial markets did not indicate the same perceived difference in quality between Big firms and next-tier firms in the more concentrated audit market that was shown in the current market.

The remainder of the paper is organized as follows. Research questions are developed in section 2. Section 3 explains the methodology of the experiment used to test the hypothesis. Section 4 details and explains the empirical findings of the experiment. Section 5 discusses the findings as it applies to the research questions. Finally, Section 6 provides a conclusion, discusses limitations, and lists suggestions for future research.

**Development of Research Questions**

**Concentration in the Audit Market**

The US government has paid significant attention to the concentration level of the audit market. Specifically, the government is concerned with the concentration level in audit services for large public companies, since the market for audit services for the small client segment remains reasonably competitive (Caban-Garcia and Cammack, 2009). However, the government has not recommended any steps be taken to reduce the concentration in the audit market (GAO-08-163). Nevertheless, there are numerous ways that the audit market could become more concentrated.

It would seem illogical that the government would allow two of the Big firms to merge. The merger of two Big firms would further exacerbate the governmental and industry concerns of too much concentration in the audit market. Because the
government and its regulatory agencies have power to prevent such a merger, it is
doubtful that the government would willingly allow such a merger to take
place. Governmental agencies faced a similar situation in 1998 when KPMG and Ernst & Young tried to merge, and it is unlikely that a merger attempt would be any more successful now.

As the collapse of Andersen demonstrated, mergers are not the only way the audit market can become more concentrated. However, it appears the government has already taken steps to prevent further concentration in the audit market. In 2004, the US Senate released documents exposing illegal tax shelters created and sold by KPMG (Tolleson and Pai, 2011). Despite the illegality of its actions and the negative public sentiment towards public accounting firms after the collapse of Andersen, KPMG initially refused to admit wrongdoing. The Justice Department had grounds to indict KPMG of criminal charges but it chose to settle the issue with KPMG and pursue criminal charges against individual accountants rather than the entire firm (Cunningham, 2006). The Justice Department’s decision to indict individuals rather than the firm stemmed in part from fears of negative repercussions from the financial markets (Reilly, 2007).

There are events beyond the government’s control that could force an increased level of concentration. Cunningham (2006) found evidence that major civil lawsuit judgments, or even several moderately sized judgments, against Big 4 firms could easily “wipe out” one or more firms. In such a situation, the government would have severe limitations in its ability to intervene and prevent the collapse of the firm/s.
Cunningham also found that the likelihood of a significant lawsuit is not trivial, and such an event poses a serious threat to public accounting firms and the audit market. The repercussions of lawsuits forcing changes or other events challenging the reputation and reliability of audit firms would likely mimic those from the collapse of Andersen. Andersen’s audit clients showed a “statistically negative market reaction” as a result of the indictment and conviction of Andersen following the bankruptcy and collapse of Enron (Chaney and Philipich, 2002; Krishnamurthy, Zhou, and Zhou, 2006).

In addition to the negative market reaction from the loss of Andersen, the dispersion of Andersen's clients to other firms caused significant issues. In the case of Andersen, the other Big 4 firms pursued Andersen’s newly available clients and offices with different strategies and varying degrees of success (Kohlbeck, Mayhew, Murphy, and Wilkins, 2008). Although some firms showed interest in a wholesale purchase of Andersen’s audit practice (and, thus, most of their audit clients), the fear of inadvertently acquiring Andersen’s liabilities prevented such a purchase (Frank and Pacelle, 2002).

Andersen’s practice and clients were not only pursued by other Big firms, but by some next-tier firms as well. BDO Seidmanentered negotiations to purchase Andersen’s audit practice, which would have been a major increase to the firm’s audit portfolio, firm reputation, and audit capabilities (Kohlbeck, Mayhew, Murphy, and Williams, 2008). The next-tier firms did not limit themselves to the pursuit of Andersen’s talent,
as they were active in the pursuit and acquisition of Andersen's former clients and the clients of other Big 4 firms (Turner, Williams, and Weirich, 2005).

In the two years following the indictment of Andersen and the passage of SOX (2003 and 2004), 2,500 public companies changed their auditor, excluding Andersen's former clients (Turner, Williams, and Weirich, 2005). However, a number of these companies were not moving from Big firm to Big firm or from next-tier firm to Big firm. Big firms showed a net loss of 400 audit clients, while the next-tier firms had a net gain of 117 audits.

Although the Big firms experienced a significant net loss in their overall audit portfolios, the critical issue in this research is the Big firms' dominance over large company audits. Further investigation into the auditor switching statistics reveals 280 of the 400 companies (70%) that chose to change from a Big 4 firm auditor to an non-Big 4 firm had annual revenues of under $100 million (Turner, Williams, and Weirich, 2005). On the other hand, 53 of the 2,500 companies that changed auditors had revenues of over $1 billion. Prior to their auditor change, 46 of the 53 firms had employed a Big 4 firm as their auditor (87%). Of those 46, 32 chose a different Big 4 firm to be their new audit firm (70%). While many public companies changed auditors, a majority of large public companies still showed a preference for the perceived audit quality and reputation of Big firms and remained within the collective Big firm portfolio.
Once Andersen's clients and the 2003/2004 companies had made their transitions to new audit firms, the new levels of concentration could be calculated and analyzed. Dunn, Kohlbeck, and Mayhew (2011) found that the Big 4 actually had more equal market shares after consolidation than they had when the Big 5 existed. However, this is not necessarily positive for audit clients, especially large companies, as the research also suggests the large audit clients had constrained choices for their audit firm.

Though constrained choices may be a source of frustration for large companies, it has not led the Big firms to charge exorbitant audit fees. Big firms have the ability to (and do) charge a premium for their audit services, and that premium has increased significantly as the audit market contracted from the Big 6 to Big 5 and from Big 5 to Big 4 (Carson, Simnett, and Wright, 2012). However, the research also finds that the premium paid by the largest public companies has increased at a lower rate than other companies.

Any further consolidation of the Big firms would be highly detrimental to audit clients of all sizes. Medium-sized and small public companies are forced to pay significantly higher premiums for Big firm audits (Carson, Simnett, and Wright, 2012). The large public companies also pay a higher premium, but not as much proportionally as the smaller companies. However, as the cost to the large companies increase, they may consider non-Big firms to be a viable choice for their audit firm.

In the event of a negative market concentration event, such as a bankruptcy resulting from a civil lawsuit, the remaining Big firms would likely be unwilling to make a
wholesale acquisition of the collapsing firms’ audit practice for fear of the liability. Yet, it is conceivable that the next-tier firms would be willing to acquire large portions of the collapsing firms’ audit practices as they tried to do after the collapse of Andersen. The acquisition of the firms' audit practice would make the next-tier firms more capable of handling large public company audits than the current-sized next-tier firms. Thus, I assume that the next-tier firms in a more highly concentrated audit market would grow to the point where they would be fully capable of performing a quality audit on a large (Fortune 1000) client. Currently, most Fortune 1000 companies retain Big firms as their external auditors (GAO-08-163).

After the fall of Enron, WorldCom, Tyco, and numerous other accounting scandals of 2002, the financial markets reacted in a predictable manner. The Dow Jones Industrial Average (DJIA) opened 2002 at 10,021.71 and, on the last day of 2002, closed at 8,332.85, a 17 percent drop in value (using the Dow Jones Industrial Average Historical Index). In particular, the DJIA fell from 8,015.04 to 7,784.58 on July 22, which was the day after WorldCom declared bankruptcy. Despite the upheaval that caused a 17 percent drop in the DJIA in one year, the market re-stabilized quickly, closing over 10,000 on December 11, 2003.

The DJIA has also recovered from the recession that began in 2008, which brought the market down from its 13,261.82 open to its 8,776.39 close, by once again going above 13,000 in March 2012. These two examples, among others, have shown that the financial markets will eventually rebound from catastrophic financial events, including those involving accounting firms.
If a market concentration event would occur, the financial markets would likely react as they have to past negative events. Yet, despite the damaged reputation of the audit firms, it is not unreasonable to foresee the market eventually rebound and stabilize. However, the volatility of the market for audit services and the two distinctly different types of audit firms available could create some lingering trepidation by the financial markets. This unknown market reaction leads to the first research question:

**RESEARCH QUESTION:** *How would the financial markets react to a more concentrated audit market?*

**Big Firm versus Next-Tier Firm Audit Quality**

Fundamentally, the academic study of audit quality is complicated. There are numerous inputs that can be used to determine and differentiate audit quality (Francis, 2011). Nevertheless, there has been significant research into the effects of different inputs on audit quality.

The critical components of an audit are accurate financial reporting and future company viability as expressed through the audit opinion. Until the audit firm makes its audit opinion available to the public, the firm possesses information regarding client viability that is unknown to the financial markets (Dodd, Dopuch, Holthausen, and Leftwich, 1984; Frost, 1994; Chen and Church, 1996; Jones, 1996). The financial markets desire high quality audits because they desire the most accurate information regarding financial statements and company viability.
There exists an extensive stream of literature exploring the quality of audits performed by Big firms and next-tier firms. DeAngelo (1981) found large audit firms (Big 8) provided higher quality audits than smaller audit firms (next-tier firms). Studies of the quality of Big 6 firms and next-tier firms were consistent with DeAngelo’s findings (Becker, DeFond, Jiambalvo, and Subramanyam, 1998; Francis and Krishnan, 1999; Kim, Chung, and Firth, 2003).

However, not all of the literature supports Big firm audit quality superiority over next-tier audit quality. Boone, Khurana, and Raman (2010)’s findings supported a perceived difference in audit quality between Big firms and next-tier firms, but a minimal difference in actual quality of Big and next-tier firm audits. Francis and Wang (2008) suggest Big firms only differentiate their audit quality from non-Big firms in countries with weak investor protection regimes. Choi, Kim, Kim, and Zang (2010) concludes actual audit quality between Big and next-tier firms is comparable when examined on a city-by-city basis. Some companies may even choose to use a non-Big firm auditor with full knowledge of the perceived quality differential because they prefer the lower cost of a non-Big firm (Hogan, 1997).

Even financial professionals who rely on audited statements and/or work with external auditors have differing opinions on actual versus perceived audit quality (Gray and Ratzinger, 2010). There are recognized industry specializations for Big firms, and there is little debate as to their perceived and actual audit superiority for those specific industries. Yet, for the industries that do not have a clear specialization expert, the
difference between Big and next-tier firm quality appears to be more of a perception than a reality.

The difference in perceived quality between the Big firms and next-tier firms carries a significant impact when considering the market for audit services. Though next-tier firms are able to audit large public companies, 82 percent of the largest public companies do not consider next-tier firms to be viable candidates for their audits (GAO-08-163). Thus, the elimination of any Big firm severely limits those companies’ flexibility in choosing a firm deemed capable of performing their audit.

Big firms are aware of their dominance of Fortune 1000 company audits and would not consider next-tier firms as realistic competitors for the Fortune 1000 audits. However, Big firm perceptions of next-tier firms’ ability to handle Fortune 1000 audits have a significant impact on their own actual audit quality. Francis, Michas, and Seavey (2011) find Big 4 firms perform higher quality audits in countries where all 4 Big firms are present and there is a high degree of market concentration. However, in countries with high levels of Big 4 concentration but market domination by one or two Big firms, the audit quality from the Big 4 firms decrease. Thus, the Big firms operate most effectively when they feel they have significant competition for their clients.

In addition, Boone, Khurana, and Raman (2011) found evidence that suggests an increase in auditor concentration also leads to an increase in auditor tolerance for earnings management by clients. This would suggest a larger problem within the audit
firms. Auditors permitting earnings management indicates a lack of objectivity and independence, which is a critical component of a public accounting firm's role as external auditor. If clients perceive their audit firm has increased tolerance for earnings management and less objectivity, they may continue to be more aggressive with their earnings management and financial decisions. A contributing factor to Andersen's role in Enron was the audit team did not remain objective, so they allowed Enron to make very aggressive accounting decisions that ultimately contributed to the inflated earnings and downfall/bankruptcy of Enron.

In the event of a market concentration event, there would only be environments with one or two Big firms competing. If the Big firms would not perceive the next-tier firms to be significant competition, the audit quality of the Big firms could diminish. Conversely, if the Big firms perceive the next tier firms to be of high quality, the combined levels of audit quality could approach the levels of high concentration among the Big 4 firms.

The most pressing issue is not the way the audit firms evaluate each other’s audit quality, but rather the market’s perception of quality. If the markets see the next-tier firms’ acquisition of Big firm talent and perceive a higher quality of audit, then the gap between Big and next-tier firms could close. However, if old perceptions remain, the Big firms could retain the perceived higher quality audit.

RESEARCH QUESTION: Would the financial markets perceive next-tier firm audits to be of equal quality as Big firm audits?


**Research Methodology**

**Decision Task**

Financial analysts and advisors (participants) were asked to predict the stock price for a hypothetical company based on a brief company description and the company's financial statements in a decision-making experiment. The company's financial information was a compilation of eight publicly traded firms in the consumer electronics industry. The four scenarios varied audit market concentration and audit market firm.

I chose to model my experiment after the experiment in O'Reilly, Leitch, and Tuttle (2006). They asked financial analysts to predict the stock price for a company based on the investor's ability to recover losses from the auditors (insurance), the audit opinion (going concern opinion), and the opinion of industry specialists.

**Independent Variables**

The research instrument utilized a complete 2 x 2 factorial manipulating the audit market (*CONCENTRATION*) and the audit firm type (*FIRM SIZE*). Thus, there were four different versions of the experiment that were randomly distributed to the participants.

**Concentration**

I manipulate *CONCENTRATION* through the structure of the market for audit services. There is substantial research in the literature regarding financial
markets' perceptions of audit quality in the current audit market that will provide a baseline environment. Participants with the current market read:

The audit market in CHT’s [the hypothetical company] country consists of four large international firms and four national firms with international affiliations.

The other version of the CONCENTRATION manipulation has increased Big firm concentration within the audit market which allows me to differentiate the financial market’s reaction between the current (control) and more concentrated (variable) audit markets. Participants with the more concentrated market read:

The audit market in CHT’s country consists of two large international firms and six national firms with international affiliations.

**Firm Size**

*FIRM SIZE* is also manipulated through the description of the audit information section in the company profile. The company will have two choices for an auditor: a Big firm or a next-tier firm, both of which are fully capable of performing an audit of the company. This should differentiate the perceived quality of a Big audit versus a next-tier audit. Previous research (DeAngelo, 1981; Becker, DeFond, Jiambalvo, and Subramanyam, 1998; Francis and Krishnan, 1999; etc) would indicate that the market would perceive the Big audit to be of higher quality and thus generate a higher stock price. Participants with a Big firm as the external auditor read:

CTH employs a large international accounting firm for the annual audit of its financial statements.

Participants with a next-tier firm as the external auditor read:
CTH employs a national accounting firm for the annual audit of its financial statements.

**Quality Differences Between Firms**

There has been significant debate in the literature over the market's perceived quality of Big firm audits and next-tier audits. In order to mitigate any preconceived ideas participants may have had regarding the audit quality of Big firms and next-tier firms, the following description was given to the participants:

> The accounting firm is experienced in auditing financial statements prepared under US GAAP…All firms are considered highly competent and follow standard audit programs designed for effective and efficient assessment of financial statements. The programs are meant to meet or exceed audit standards in all potential jurisdictions.

In addition, a common perception of next-tier firms is next-tier firms are less willing to discuss negative issues (qualified opinions, going concern opinions, etc) with their large clients because they are highly dependent on their audit fees and fear that a negative report would cause their clients to go elsewhere (DeAngelo, 1981; Teoh and Wong, 1993). To control for that potential bias, all participants read the following description:

> Audit fees from the CTH audit represent an insignificant portion of the accounting firm’s revenue.

**Dependent Variables**

Once the participants had read through the company’s background and financial information, they provided their stock price estimate based on the following question:

> Based solely on the information provided on this and previous pages, what do you think would be the current stock price for CTH Corp?
The stock price estimates provided by the participants are the dependent variables in my experiment. The participants' stock price estimates will serve as a proxy for the financial markets' reaction to a particular audit market and audit firm.

**Manipulation Check and Demographic Data**

After the participants had provided their stock price estimates, they answered two questions that served as a manipulation check. Participants were asked to identify both the audit market in the hypothetical company's country and the company's actual audit firm. These checks allowed us to identify which responding participants were aware of the audit market/firm identified in their research instrument.

In addition to the manipulation check, participants also provided demographic information. The demographic data sought the highest degree earned, professional certifications, years of financial experience, whether the respondent had made investment recommendations for clients and if so for how many years, and age.

**Participants**

Experimental instruments were sent to financial analysts and financial advisors with experience making investment recommendations for clients. Chapters of the Certified Financial Analyst (CFA) Society in five states were asked to participate. Due to privacy issues, the CFA societies would not provide contact information for their members. They agreed to distribute the experimental materials themselves. The experimental materials were sent to the administrators of the chapters for distribution with instructions to each scenario to approximately one fourth of the members. The
CFA societies would not disclose the number of their members so I do not know how many experimental instruments were distributed and thus cannot calculate a response rate.

Fifty-nine percent of my respondents have their CFA credentials or were CFA candidates at the time they participated in my experiment. All of my respondents had earned a bachelor's degree, and another 59% held a master's degree. The participants averaged 15.32 years of experience in the financial sector. Seventy-six percent of my participants have been making investment recommendations to clients for an average of 12.57 years. A comprehensive compilation of all responding participant demographic data is given in Table 1.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Profile of All Responding Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Responses</td>
<td>46</td>
</tr>
<tr>
<td>Bachelors</td>
<td>46</td>
</tr>
<tr>
<td>Masters</td>
<td>27</td>
</tr>
<tr>
<td>CFA</td>
<td>27</td>
</tr>
<tr>
<td>Average years of financial experience</td>
<td>15.32</td>
</tr>
<tr>
<td>Investment Recommendations</td>
<td>35</td>
</tr>
<tr>
<td>Average years of Investment Recommendations</td>
<td>12.57</td>
</tr>
<tr>
<td>Average Age</td>
<td>40.43</td>
</tr>
</tbody>
</table>

Results

Manipulation Check

The first step in organizing the data was to filter the responses based on the participants' performance with the manipulation check. Respondents who did not pass
the manipulation check were excluded from the final analysis because they were not aware of the manipulation and thus their estimated stock price may not fairly represent the "financial market opinion" in the given audit market.

Of the 46 responses received, 32 (or 69.6%) of respondents correctly identified the audit market and size of the audit firm. Surprisingly, the profile of respondents who failed the manipulation check shows more (average) years of financial experience, more likely to make investment recommendations for clients, and a higher percentage of Masters degrees. However, the respondents who passed the manipulation check were more likely to have earned a CFA certification.

Table 2 Profile of All Responding Participants Based on Results of Manipulation Check

<table>
<thead>
<tr>
<th></th>
<th>Passed Manipulation Check</th>
<th>Failed Manipulation Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Responses</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>Bachelors</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>Masters</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>CFA</td>
<td>21</td>
<td>8</td>
</tr>
<tr>
<td>Average years of financial experience</td>
<td>14.17</td>
<td>17.93</td>
</tr>
<tr>
<td>Investment Recommendations</td>
<td>23</td>
<td>12</td>
</tr>
<tr>
<td>Average years of Investment Recommendations</td>
<td>11.35</td>
<td>14.92</td>
</tr>
<tr>
<td>Average Age</td>
<td>39.25</td>
<td>43.14</td>
</tr>
</tbody>
</table>

Analysis Methodology

Based on my sample size, I used a distribution-free rank sum test (Wilcoxon) and analyzed the manipulations in pair wise comparisons. For each pair wise comparison, one set of stock market price estimates were designated \( n \) number of responses (fewer number of stock market price estimates) and the other designated \( m \) number of
responses (greater number). The stock market price estimates were combined for N total observations \((n + m)\) and ranked in order from least to greatest.

Once ranked, the stock market price estimates were re-organized into the \(n\) group and the \(m\) group. The ranks of the \(n\) stock market price estimates were summed, and the ranks of the \(m\) ranks were summed. The sum of the \(n\) stock market price estimates is designated \(W\).

The null hypothesis in my analysis states that there is no difference between each firm in the pair wise comparison. In applying the Wilcoxon Rank Sum Test, I would expect the direction of the null hypothesis to be based upon the number of respondents in each pair wise comparison.

If the current literature would lead me to believe that the \(n\) pair would have a greater sum than the \(m\) pair, I am testing \(\Delta > 0\). For this test, I determine my \(W\) and use a table of upper tail probabilities to locate \(w (\alpha, m, n)\). \(w\) will be the same value as \(W\), and locating \(w\) in the table will provide a value \(P\) which indicates the statistical strength of the result. A \(P\) value of .05 indicates a 95% veracity of my result. In the case of \(\Delta > 0\), a \(P\) value of .05 indicates a 95% likelihood of a rejection of the null hypothesis (there is a difference between \(n\) and \(m\)). I would only reject the null hypothesis if I found a \(P\) value less than or equal to .05.

If the current literature would lead me to believe that the \(m\) pair would have a greater sum than the \(n\) pair, I would test the null hypothesis using the alternative \(\Delta < 0\). The alternative test compares \(W\) to \([n(n + m + 1) - w (\alpha, m, n)]\). In this test, the \(w (\alpha, m, n)\)
also determines the $P$ value of significance. If $W \leq n(n + m + 1) - w (a, m, n)$, I reject the null hypothesis of no difference.

**Comparison of Firms By Audit Market**

The first group of pair wise comparisons had Big firms and next-tier firms in the same audit market (Table 3). This comparison examines the financial markets' perceptions of Big firms and next tier firms in the same audit market.

The pair wise comparison between Big firms and next-tier firms in the "current" (4,4) audit market (Table 3, Panel A) has the most literature-based support for the presumed results. The literature (DeAngelo, 1981; Becker, DeFond, Jiambalvo, and Subramanyam, 1998; Francis and Krishnan, 1999; Kim, Chung, and Firth, 2003) indicates the market has historically perceived and continues to perceive a higher quality audit from Big firms as compared to next-tier firms. Thus, I would expect to see the Big firm have a higher sum total. Since the Big firm is the $n$ pair, I use the standard $Δ > 0$.

I can reject the null hypothesis of no difference in this comparison because I found a $P$ value of .044, which is below my rejection standard of .05. In my data set for my Big firm ($n$), I had a response that appeared to be an outlier. If that data point is removed from the $n$ (Big firm) group, the $P$ value decreases significantly (stronger indication to reject the null hypothesis) to .005. However, I included the apparent outlier because the participant did pass the manipulation check, so the participant was aware of the audit market and audit firm so the participant's response deserves to be included. The
### Table 3: Analysis of Big Firms and Next-Tier Firms by

#### Panel A 4 Big, 4 Next-tier Market

<table>
<thead>
<tr>
<th>4,4 Big, n</th>
<th>4,4 Next, m</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00 (1)</td>
<td>5.50 (2)</td>
</tr>
<tr>
<td>15.00 (9)</td>
<td>6.00 (3)</td>
</tr>
<tr>
<td>17.50 (12)</td>
<td>10.00 (4)</td>
</tr>
<tr>
<td>18.50 (13)</td>
<td>10.42 (5)</td>
</tr>
<tr>
<td>22.00 (14)</td>
<td>12.00 (6)</td>
</tr>
<tr>
<td>22.00 (15)</td>
<td>12.70 (7)</td>
</tr>
<tr>
<td>25.00 (17)</td>
<td>13.75 (8)</td>
</tr>
<tr>
<td></td>
<td>15.00 (10)</td>
</tr>
<tr>
<td></td>
<td>16.00 (11)</td>
</tr>
<tr>
<td></td>
<td>22.00 (16)</td>
</tr>
</tbody>
</table>

$8I (W) = 8I(w)$

$P = .044$

$\Delta > 0$

#### Panel B 2 Big, 6 Next-tier Market

<table>
<thead>
<tr>
<th>2,6 Big, m</th>
<th>2,6 Next, n</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.00 (1)</td>
<td>12.00 (2)</td>
</tr>
<tr>
<td>12.28 (3)</td>
<td>18.00 (8)</td>
</tr>
<tr>
<td>12.60 (4)</td>
<td>21.87 (10)</td>
</tr>
<tr>
<td>13.00 (5)</td>
<td>25.00 (13)</td>
</tr>
<tr>
<td>14.00 (6)</td>
<td>25.00 (14)</td>
</tr>
<tr>
<td>15.00 (7)</td>
<td></td>
</tr>
<tr>
<td>19.22 (9)</td>
<td></td>
</tr>
<tr>
<td>25.00 (11)</td>
<td></td>
</tr>
<tr>
<td>25.00 (12)</td>
<td></td>
</tr>
<tr>
<td>27.06 (15)</td>
<td></td>
</tr>
</tbody>
</table>

$47 (W) = 47 (w)$

$P = .220$

$\Delta < 0$
rejection of the null hypothesis for this comparison concurs with the viewpoints suggested by the literature: the market perceives Big firm audits to be of higher quality than next-tier firms.

The second pair wise comparison was between Big firms and next-tier firms in the more concentrated "hypothetical" (2,6) audit market (Table 3, Panel B). This comparison has less support from the literature, since the literature does not have significant research into a more concentrated audit market. I maintained the assumption that the financial markets would perceive a higher quality audit from the Big firms. The literature indicates the next-tier firms moved to acquire portions of Andersen's audit practice in the aftermath of its collapse and became more capable of handling large company audits (Kohlbeck, Mayhew, Murphy, and Wilkins, 2008; Turner, Williams, and Weirich, 2005). In addition, Francis, Michas, and Seavey (2011) found actual Big firm audit quality decreases in countries where there is high concentration from one or two Big firms, which could indicate a decrease in audit quality among Big firms in the more concentrated audit market. Nevertheless, my assumption was founded on the belief the traditional perception of Big firm quality would supersede the more recent developments by the next-tier firms. Thus, I tested this pair wise comparison with the assumption the Big firm would have a higher sum total. Since the Big firm was $m$ in this pair wise comparison, I used the alternative $\Delta < 0$.

In Panel B, I was not able to reject the null hypothesis of no difference between the audit firms at the .05 level. At the value where $W$ was equal to $w$, which is where I
can reject the null hypothesis, the $P$ value was .220. By not rejecting the null hypothesis for this pair wise comparison, my results suggests there is no difference in the perceived audit quality between the Big firms and next-tier firms in the more concentrated market.

**Comparison of Firms By Size of Firm**

The second group of pair wise comparisons evaluates how Big firm quality is perceived in the current audit market as compared to the more concentrated audit market (Table 4). The comparison is repeated for next-tier firms in both audit markets. The purpose of this grouping is to evaluate how the financial markets perceive firms of the same size in different audit markets.

The pair wise comparison of both Big firms (Table 4, Panel A) does not have much guidance from the literature concerning any perceived difference in the quality of audits performed by the Big firms. The literature indicates the financial markets perceive high quality audits from Big firms in the current market. Although the Big firms in the more concentrated audit market would likely retain significant financial market credibility, Francis, Michas, and Seavey (2011) did find that Big firm audit quality decreases in countries where there is high concentration from one or two Big firms. Thus, I assume a greater sum total for the Big firm in the current audit market (4/4). In this comparison, the Big firm in the current audit market is the $n$ group, so I used the standard $\Delta > 0$. 
### Table 4: Analysis of Same-Sized Firms Across Markets

#### Panel A  Big Firms Across Markets

<table>
<thead>
<tr>
<th>4,4 Big, n</th>
<th>2,6 Big, m</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00 (1)</td>
<td>12.00 (2)</td>
</tr>
<tr>
<td>15.00 (8)</td>
<td>12.28 (3)</td>
</tr>
<tr>
<td>17.50 (9)</td>
<td>12.60 (4)</td>
</tr>
<tr>
<td>18.50 (10)</td>
<td>13.00 (5)</td>
</tr>
<tr>
<td>22.00 (12)</td>
<td>14.00 (6)</td>
</tr>
<tr>
<td>22.00 (13)</td>
<td>15.00 (7)</td>
</tr>
<tr>
<td>25.00 (16)</td>
<td>19.22 (11)</td>
</tr>
<tr>
<td></td>
<td>25.00 (14)</td>
</tr>
<tr>
<td></td>
<td>25.00 (15)</td>
</tr>
<tr>
<td></td>
<td>27.06 (17)</td>
</tr>
</tbody>
</table>

81 (W) = 81 (w) \( P = .300 \)
\[ \Delta > 0 \]

#### Panel B  Next-Tier Firms Across Markets

<table>
<thead>
<tr>
<th>4,4 Next, m</th>
<th>2,6 Next, n</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.50 (1)</td>
<td>12.00 (5)</td>
</tr>
<tr>
<td>6.00 (2)</td>
<td>18.00 (11)</td>
</tr>
<tr>
<td>10.00 (3)</td>
<td>21.87 (12)</td>
</tr>
<tr>
<td>10.42 (4)</td>
<td>25.00 (14)</td>
</tr>
<tr>
<td>12.00 (6)</td>
<td>25.00 (15)</td>
</tr>
<tr>
<td>12.70 (7)</td>
<td></td>
</tr>
<tr>
<td>13.75 (8)</td>
<td></td>
</tr>
<tr>
<td>15.00 (9)</td>
<td></td>
</tr>
<tr>
<td>16.00 (10)</td>
<td></td>
</tr>
<tr>
<td>22.00 (13)</td>
<td></td>
</tr>
</tbody>
</table>

57 (W) = 57 (w) \( P = .02 \)
\[ \Delta > 0 \]
For this pair wise comparison, the $P$ value where $W$ intersect $w$ is .300. This $P$ value exceeds my rejection threshold of .05, so I cannot reject the null hypothesis of no difference between the firms. This pair wise comparison indicates the financial markets do not differentiate between the audit quality of Big firms in the current audit market and Big firms in a more concentrated audit market.

Table 4, Panel B shows the pair wise comparison between next-tier firms in the current audit market and the more concentrated audit market. Again, there is little explicit guidance from the literature on this comparison. In a more concentrated audit market, the next-tier firms would have likely grown by acquiring portions of the collapsed Big firms which could allow them to became fully capable of handling large company audits (Kohlbeck, Mayhew, Murphy, and Wilkins, 2008; Turner, Williams, and Weirich, 2005). The growth of the next-tier firms via Big firm talent would lead me to assume that the financial markets would perceive a higher quality audit from the next-tier firms in more concentrated audit market. I tested my pair wise comparison with the assumption of a greater sum total from the next-tier firm in the more concentrated audit market. The next-tier firm in the more concentrated audit market is the $n$ group, so I used the standard $\Delta > 0$.

Based on my findings, I was able to reject the null hypothesis of no difference between the firms. At the point where $W$ equaled $w$, the table produced a $P$ value of .02, which was under my null hypothesis rejection threshold of .05. Thus, my results from Table 4, Panel B indicate the financial markets perceive a higher quality audit
from next-tier firms in a more concentrated audit market than from next-tier firms in the current audit market.

**Supplemental Analysis**

My final group of pair wise comparisons served as a robustness check to provide extra validation for the conclusions derived from the first groups of pair wise comparisons (Table 5).

The first pair wise comparison examined the Big firm from the current audit market and the next-tier firm from the more concentrated audit market (Table 5, Panel A). The literature indicates a perception of a high quality audit from Big firms in the current market. Even though next-tier firms in the more concentrated audit market would have likely increased their size and audit ability via the collapsed firms, there is no guarantee the financial markets would perceive an increase in the quality of their audits. Thus, for this pair wise comparison, I used the assumption the Big firm would have a greater sum total. The Big firm in the current market is \( m \) in this comparison, so I used the alternative \( \Delta < 0 \).

For this pair wise comparison, the \( P \) value where \( W \) is equal to \( w \) is over .500. I cannot reject the null hypothesis of no difference between firms because the \( P \) value exceeds my rejection threshold of .05. The results of this comparison indicate the financial markets do not differentiate the quality of audits from Big firms in the current audit market and next-tier firms in the more concentrated audit market. This is
**Table 5: Robustness Checks**

**Panel A**  Big Firm in 4,4 Market and Next-Tier Firm in 2,6 Market

<table>
<thead>
<tr>
<th>4,4 Big, m</th>
<th>2,6 Next, n</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00 (1)</td>
<td>12.00 (2)</td>
</tr>
<tr>
<td>15.00 (3)</td>
<td>18.00 (5)</td>
</tr>
<tr>
<td>17.50 (4)</td>
<td>21.87 (7)</td>
</tr>
<tr>
<td>18.50 (6)</td>
<td>25.00 (10)</td>
</tr>
<tr>
<td>22.00 (8)</td>
<td>25.00 (11)</td>
</tr>
<tr>
<td>22.00 (9)</td>
<td></td>
</tr>
<tr>
<td>25.00 (12)</td>
<td></td>
</tr>
</tbody>
</table>

$35 (W) = 35 (w)$  $\Delta < 0$

$P = .500$

**Panel B**  Big Firm in 2,6 Market and Next-Tier Firm in 4,4 Market

<table>
<thead>
<tr>
<th>4,4 Next, n</th>
<th>2,6 Big, m</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.50 (1)</td>
<td>12.00 (5)</td>
</tr>
<tr>
<td>6.00 (2)</td>
<td>12.28 (7)</td>
</tr>
<tr>
<td>10.00 (3)</td>
<td>12.60 (8)</td>
</tr>
<tr>
<td>10.42 (4)</td>
<td>13.00 (10)</td>
</tr>
<tr>
<td>12.00 (6)</td>
<td>14.00 (12)</td>
</tr>
<tr>
<td>12.70 (9)</td>
<td>15.00 (13)</td>
</tr>
<tr>
<td>13.75 (11)</td>
<td>19.22 (16)</td>
</tr>
<tr>
<td>15.00 (14)</td>
<td>25.00 (18)</td>
</tr>
<tr>
<td>16.00 (15)</td>
<td>25.00 (19)</td>
</tr>
<tr>
<td>22.00 (17)</td>
<td>27.06 (20)</td>
</tr>
</tbody>
</table>

$82 (W) = 82 (w)$  $\Delta > 0$

$P = .045$
consistent with the increased perceived audit quality of next-tier firms in a more concentrated market for audit services.

The second pair wise comparison in the robustness check compared the next-tier firm in the current market and the Big firm in the more concentrated market (Table 5, Panel B). The literature indicates Big firms have audits of a higher perceived quality in the current audit market. Even though there is no explicit indication in the literature of the perceived quality of audit from Big firms in a more concentrated audit market, the audit quality reputation of Big firms would not likely diminish significantly. Thus, I assumed the Big firm in the more concentrated audit market would have a greater sum total. In this pair wise comparison, both samples have the same number of responses, so I chose to designate the Big firm as $n$ and use the standard $\Delta > 0$.

For this pair wise comparison, I was able to reject the null hypothesis of no difference between firms. At the value where $W$ was equal to $w$, the $P$ value was .045, which is less than my rejection threshold of .05. These results indicate a the financial markets perceives a difference in the quality of audit from Big firms in the more concentrated audit market (higher quality) and next-tier firms in the current audit market. This is consistent with the perception of the audit quality of next-tier firms in the current market.
Discussion

Analysis of Results

My first group of pair wise comparisons (Table 3) provides a look at the financial markets' assessments of Big firms and next-tier firms in the current audit market and in a more concentrated audit market. I found that the financial markets perceive a higher quality audit from Big firms in the current audit market (Table 3, Panel A), which mirrors the assessment found in the literature. This result is especially important because it provides validation for the rest of my results. Most of the pair wise comparisons incorporate testing elements (more concentrated audit market) that have no empirical foundation in the literature. Since my current audit market findings agree with the findings of the literature, I believe the rest of my results have reasonable credibility.

The second pair wise comparison showed no difference between the market perception of a Big firm and a next-tier firm in a more concentrated audit market (Table 3, Panel B), a critical finding for my research. The perceived quality differential between Big firms and next-tier firms in the current audit market is a major cause of concern over the concentration in the large public company audit market. In the more concentrated audit market, the financial markets did not distinguish between the quality of Big firms and next-tier firms, which indicates the perceived audit quality bias against next-tier firms has been reduced to a point of no significance.
However, the result of only one pair wise comparison is not enough evidence to indicate an elimination of the quality bias. In addition, the previous comparison does not tell me if the financial markets perceived the overall audit quality in the more concentrated market to be comparable to the current market's Big firm quality (high perceived quality) or next-tier firm quality (lower perceived quality). Thus, my second group of pair wise comparisons (Table 4) provided a comparison of the financial markets' perceptions of Big firms in the current market as opposed to a more concentrated audit market. A similar comparison is provided for with the next-tier firms.

The first pair wise comparison (Table 4, Panel A) examined the Big firms. The finding of no difference means the market perceives comparable audit quality for Big firms in both the current audit market and the more concentrated market. The literature states (and first pair wise test supports) the financial markets perceive a high quality audit from Big firms in the current market. I would not think the financial markets would perceive a lower quality audit from a Big firm in a more concentrated audit market because the Big firm would still retain a Big firm reputation for audit quality. Yet, there was a chance that the greater concentration of Big firms would be unsettling to the financial markets and thus they would perceive greater audit risk because of uncertain audit quality and competition, thereby lowering the stock prices. Nevertheless, the results I found of no difference in perceived quality supports my initial assessment as to the reaction of the financial markets.
Of the two pair wise comparisons in the second grouping, the one that was more interesting to me was the comparison testing whether the financial markets perceive a difference in quality between the next-tier firms in different markets (Table 4, Panel B). Overall, the results of this pair wise comparison has a significant impact on any conclusions I will draw from my research because it will indicate whether the financial markets perceive a higher quality audit from next-tier firms in the more concentrated market.

My results did indicate a difference in perceived quality, which means the financial markets perceive a higher quality audit from next-tier firms in the more concentrated market than in the current audit market. For the more concentrated audit market, the financial markets maintained the high quality perception of Big firms and elevated the perceived audit quality of next-tier firms to be equal to Big firms.

The additional pair wise comparisons (Table 5) were robustness checks to provide additional validation for the conclusions drawn from my previous results. The first pair wise comparison (Table 5, Panel A) confirms the financial markets do not differentiate between the audit quality of Big firms in the current audit market and next-tier firms in the more concentrated audit market. The second pair wise comparison (Table 5, Panel B) confirms the Big firms in the more concentrated market have higher perceived audit quality than next-tier firms in the current audit market.

Both of these results were to be expected based on the results from the previous comparisons. Table 3, Panel B showed no differentiation between the audit quality of
Big firms and next-tier firms in the more concentrated audit market, and Table 4, Panel B showed the financial markets differentiated between the perceived audit quality of next-tier firms in the more concentrated market (higher perceived quality) and next-tier firms in the current audit market. The robustness comparison between the Big firm in the current audit market and the next-tier firm in the audit was critical to see the perceived quality of next-tier firms in the more concentrated market.

My results indicating no differentiation between the firms strengthened my conclusion that the financial markets perceive a higher quality audit from next-tier firms in the more concentrated audit market. My results do not say that the financial markets perceive audits of equal quality between Big firms in the current audit market and next-tier firms in the more concentrated audit market. Yet, the lack of differentiation indicates the financial markets perceiving the audit next-tier firms in the more concentrated audit market to be of comparable quality to Big firms in the current audit market.

In addition, my findings in Table 5, Panel B were an important confirmation. Table 3, Panel A showed a differentiation between the Big firm in the current market (higher quality) and the next-tier firm in the current audit market. Table 4, Panel B also indicated a differentiation between next-tier firms in the more concentrated audit market (higher quality) and next-tier firms in the current market. Since the financial markets did not differentiate between Big firms in the more concentrated audit market and Big firms in the current audit market/next-tier firms in the more concentrated audit market, it would seem logical that the Big firm in the more concentrated audit market
should also have the financial markets differentiate over the next-tier firm in the current market. My results did indicate a differentiation between the Big firms in the more concentrated audit market and the next-tier firm in the current audit market, so my conclusions were strengthened.

**Implications of Results**

Since the collapse of Andersen, there has been a concern over the fall of another Big 4 firm. Although the initial impact on the financial markets due to the loss of auditor reputation would be severe, the financial markets would eventually rebound. The greater issue would be the concentration of the Big firms, since the financial markets have not perceived a viable alternative audit firm for a large public company. The financial markets do not consider the audits of next-tier firms to be of comparable quality to Big firms. Thus, the elimination of a Big firm means there would be fewer firms able to handle large company audits.

However, my results indicate a change in the financial markets' perception of audit quality when the audit market increases in concentration. The next-tier firms that were perceived to have lower quality audits in the current audit market were found to have comparable quality in the more concentrated audit market. Thus, the large public companies would have a viable alternative to a Big firm for its external auditor because the financial markets would not penalize the company for retaining a next-tier firm.
The repercussions of these findings go beyond the audit profession and financial markets. The government revealed its interest in the audit market through SOX and the two GAO reports on audit market concentration. Furthermore, the government's decision not to file criminal charges against KPMG revealed the government's fears concerning the audit market concentration and the potential harm resulting from another Big 4 collapse.

My results provide a direction for public policy decisions regarding a potential Big 4 collapse. The short-term impacts would likely be significant, but the government would not necessarily need to stop the collapse from occurring. The government may still choose to prevent a collapse if it has control of the situation, as it did with KPMG. However, if the catalyst for the collapse is outside of the government's control (e.g. a civil lawsuit), the government would not necessarily need to prevent the collapse. The Big 4 are not "too big to fail" so they would not need to be treated as such.

In the event of a Big 4 collapse, the government could take one major step to help ensure results similar to my research's results. After Andersen, numerous Big and next-tier firms acquired former Andersen employees as a way to attract Andersen's former audit clients. If an Andersen client's audit team went to a new firm, the new firm hoped the client would follow its audit team to the new firm. If the collapsing firm's employees went to mostly next-tier firms, the reputation and expertise of the next-tier firms would increase significantly. The increased reputation capital would likely be attractive to the financial markets, making the next-tier firms appear more viable as Big firm alternatives. If the government could do something to influence the
Big firms not to pursue the collapsing Big firm's employees, it could aid the next-tier firms in realizing perceived audit quality comparable to Big firms.

**Conclusion, Limitations, and Future Research**

My research is exploratory research into a more concentrated audit market and its resulting effects on the financial markets. Consolidation among the Big firms has created some fears that the Big 4 firms are too big to fail (Tolleson and Pai, 2011). If the Big 4 are indeed too big to fail, then further consolidation among the Big firms through the loss of a firm (similar to collapse of Andersen) would be catastrophic to the financial markets and economy.

A potential remedy for the financial markets in the event of a Big firm collapse would be the next-tier of audit firms to fill the void left by the departed Big firm/s. However, the financial markets perceive lower quality audits from next-tier firms (DeAngelo, 1981; Becker, DeFond, Jiambalvo, and Subramanyam, 1998; Francis and Krishnan, 1999; Kim, Chung, and Firth, 2003). After the collapse of Andersen, the next-tier firms grew by acquiring some of Andersen's talent and clients, but not enough to rival the remaining Big 4 firms.

My results indicated the financial markets would not differentiate between Big firms and next-tier firms in a more concentrated audit market. The growth of the next-tier firms at the expense of the collapsed Big firms would increase the perceived quality of the next tier firms. My research does not suggest the market would perceive the next-tier firms to be of equal quality to the Big firms. Nevertheless, if the market does not
differentiate the audit quality between Big firms and next-tier firms, the next-tier firms serve as a viable competitor to the Big firms. This reduces the strain on companies and the government/governmental regulatory agencies to find alternatives to the Big firms and abate the high level of audit market concentration.

I analyzed my response data using statistical tests suited to my sample size, and any conclusions drawn from the results of my data analysis were taken at a level of statistical significance considered reasonable for this type of research. However, a higher participant response rate would have allowed me to use an analysis of variance (ANOVA) and analysis of covariance (ANCOVA). These regression analyses would have provided a stronger statistical foundation for my research findings.

In addition, my respondents primarily live in the Midwest and Mid-Atlantic regions of the United States. The perspectives of these respondents may reflect the views and opinions of these two regions but may not be representative of the views and opinions of financial analysts and financial planners across the entire United States.

Although the government and the literature have expressed concern over the levels of concentration in the audit market concentration (GAO-03-864; GAO-08-163; Francis, Michas, and Seavey, 2011) the effects of a more concentrated market have not been explored in the literature. As such, there are numerous areas for further exploration of this topic.

My research focused on the impact of higher Big firm audit market concentration on the financial markets, and my findings indicated a perceived equalizing of audit
quality between Big firms and next-tier firms. However, my research did not explore the audit quality perceptions of audit clients. Though the financial markets may have greater confidence in the audit quality of next-tier firms, there is no indication how clients perceive the quality of audits between Big firms and next-tier firms. If audit clients do not perceive a higher quality audit from next-tier firms, the financial markets' reaction will likely have no bearing on companies' inclination to retain a next-tier firm as their external audit firm.

In addition, I used stock price estimates as a proxy for financial markets' perceptions of audit quality. Another proxy that has been used to measure financial markets' perceptions of audit quality is through market value opinions on initial public offerings. By recreating my experiment but substituting a company about to issue its initial public offering for (my use of) an established company, a researcher could gain additional perspective into the financial markets' evaluation of audit quality in a more concentrated audit market.
References

(1933). *Securities act of 1933*

(1934). *Securities exchange act of 1934*

*About the pcaob.* (n.d.). Retrieved from http://pcaob.us/About/Pages/default.aspx


