

IS MANDATORY AUDIT FIRM
ROTATION NECESSARY?

by

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ABSTRACT

This study investigates voluntary audit firm rotation in order to determine if mandatory audit firm rotation as proposed by the Public Company Accounting Oversight Board (PCAOB) is necessary or if voluntary audit firm rotation is an acceptable alternative. The study accomplishes this by examining the average audit firm tenure for companies included in the S&P 500 index. The first analysis examines the average audit firm tenure of companies included in the S&P 500 index at any time in the period from 1990 to 2014. Recognizing that companies may not remain in the S&P 500 index for very long, this sample could potentially bias the result. Therefore, the second analysis focuses on the average audit firm tenure for those companies listed in the S&P 500 in 2013 using data from 1974 to 2013. The second analysis finds that less than 50% of companies listed in the S&P 500 index voluntarily switch auditors within the suggested ten-year guidelines. Therefore, I conclude that the voluntary audit firm rotation naturally occurring in the markets is insufficient to allay the concerns of financial statement users and regulators and other measures should be considered in order to maintain audit firm's independence.

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INTRODUCTION

This study examines the issue of mandatory audit firm rotation proposed by the Public Company Accounting Oversight Board (PCAOB) as a way of enhancing auditor independence and audit quality. Audits enhance investors' confidence in a company's financial statements because auditors examine the inner workings of a company prior to issuing an audit opinion. For example, auditors will examine a company's accounts such as cash and accounts receivable for completeness, accuracy, and existence. However, audit procedures can fail to detect a material misstatement of the financial statements, costing investors millions of dollars. After the audit failures at Enron and WorldCom in the early 2000s, major concerns surrounding the regulation of the auditing profession began to arise.

One of the most debated topics for regulation of the accounting profession is mandatory audit firm rotation. Mandatory audit firm rotation involves a requirement that firms switch audit firms after a given amount of time. However, the costs and benefits of mandatory audit firm rotation need to be examined. After all, there are over 17,000 registrants with the Securities and Exchange Commission (SEC), and if the PCAOB or the SEC decided to pass legislation it would substantially affect the cost and the quality of auditing services provided to all of the SEC registrants (Carcello & Nagy, 2004). Mandatory audit firm rotation would also substantially affect audit firms. Audit firms would have to revise their audit procedures and attracting companies to use their services would become a greater priority. Mandatory audit firm rotation would also cause audit firms to lose knowledge about existing clients and have to evaluate the risk associated with new clients more frequently.

Many studies have been conducted to potentially determine the effectiveness of audit firm rotation, and the results have been mostly against the creation of legislation requiring mandatory audit firm rotation. Jackson, Moldrich, and Roebuck (2007) discussed how audit firm quality actually seems to increase as audit firm tenure increases. This is precisely the opposite of what mandatory audit firm rotation is supposed to accomplish. Other studies look into the relationship between audit firm tenure and fraudulent financial reporting. Carcello and Nagy (2004), for instance, determined that fraud is more likely to occur during the first three years of an audit. However, many still believe that mandatory audit firm rotation should be enacted because the bonding effect suggests that audit quality declines as audit tenure increases (Brooks, Cheng, & Reichelt, 2013).

Other studies have looked into the effect that mandatory audit firm rotation has had in other countries. Martinez and Reis (2010) examined the impact that it has had in Brazil, and concluded that mandatory audit firm rotation was no more effective than voluntary audit firm rotation. Ruiz-Barbadillo, Gómez-Aguilar, and Carrera (2009) examined the impact that mandatory audit firm rotation had while it was required in Spain, and found no evidence that a company was more likely to issue a going-concern opinion under mandatory audit rotation. Even though looking into the effects that mandatory audit firm rotation had in other countries is useful, these studies do not perfectly replicate the effects that mandatory audit firm rotation would have in the United States.

Even though there has been much research on mandatory audit firm rotation, it is not clear whether mandatory audit firm rotation is even necessary in the United States or if the current regulation is sufficient. In order to try and fill this gap, companies' voluntary audit firm rotation will be examined in order to determine if there is pervasive problem

with long-audit firm tenure. The average audit firm tenure of companies included in the S&P 500 will be compared to the suggested audit-firm tenure of 10 years. Even though there have been similar studies done, determining if voluntary audit firm rotation is sufficient was not the primary goal of the research. Brooks et al., (2013), for instance, discussed the average length of audit tenure, but the primary focus of their research was in determining the point in time audit quality begins to decline.

The goal of this paper is to develop a thorough understanding of mandatory audit firm rotation. In order to accomplish this goal, existing literature is reviewed to determine the background of auditing, the history of auditing regulation, the pros and cons of mandatory audit firm rotation, the results of mandatory audit firm rotation in other countries, the Big 4's viewpoint of mandatory audit firm rotation, and voluntary audit firm rotation. Then, using existing data on auditor tenure for companies in the S&P 500 index, the average length of auditor tenure will be examined and compared to suggested legislation. These results will then be discussed, as will the implications of the study.

I. LITERATURE REVIEW

Importance of Auditing

The SEC requires publicly traded companies to file annual audited financial statements in their annual report, Form 10-K. These financial statements must be audited by an independent CPA firm registered with the PCAOB (Louwers, Ramsay, Sinason, Strawser, & Thibodeau 2013). The annual report includes “a letter from the CEO, financial data, results of operations, market segment information, new product plans, subsidiary activities, and research and development activities on future program” (U.S. Securities and Exchange Commission, n.d.). The financial statements included in a 10-K are the balance sheet, income statement, comprehensive income statement, statement of cash flows, and statement of shareholder’s equity, along with notes to the financial statements.

Auditing is the process of a third party comparing a company’s financial statements to the established guidelines known as the Generally Accepted Accounting Principles or GAAP. The result of an audit is the auditor’s report, which reports on the fairness of presentation and the compliance with GAAP. The audit report contains an opinion and there are three types of opinions an audit firm can issue: unqualified (unmodified), qualified (modified), and adverse. An unqualified or unmodified opinion offers assurance that the financial statements are presented fairly in accordance with GAAP, and companies strive for this opinion. A qualified or modified opinion is issued when a specific aspect of the company’s financial statements depart from GAAP. An example would be if the only issue with a company’s financial statements was with its accounts receivable because the issue only deals with a specific aspect of the company’s financial statements. Finally, an adverse opinion is rendered when a departure from GAAP occurs and/or the financial

statements do not reflect fairly the company's current financial position and/or results of operating. The SEC will not accept financial statements with qualified or adverse opinions because the financial statements do not represent the financial position of the company in accordance with GAAP (Louwers et al., 2013). Below is an example of an unqualified audit opinion issued by Deloitte & Touche (2013) on Microsoft's financial statements:

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of Microsoft Corporation and subsidiaries as of June 30, 2013 and 2012, and the results of their operations and their cash flows for each of the three years in the period ended June 30, 2013, in conformity with accounting principles generally accepted in the United States of America.

Through the issuance of audit reports, the users of financial statements can have confidence that companies' financial statements fairly represent companies' financial positions and results of operations. It is important to note that the financial statements are ultimately management's responsibility and the purpose of the audit is to enhance their credibility.

The "Big 4" includes Ernst & Young (EY), KPMG, PricewaterhouseCoopers (PwC), and Deloitte. These firms are generally created as partnerships, which means that the senior person on every engagement is a partner with the firm. Regardless, sometimes audit firms miss a material misstatement or fraud, resulting in financial statements that are material misleading. In the early 2000's, two of the most famous audit failures occurred, Enron and WorldCom, causing legislators to look into ways to improve the audit process. In 2002, the United States Congress passed the Sarbanes Oxley Act (SOX) causing many changes to the accounting profession and audit procedures.

One of the most important changes that SOX introduced was mandatory audit partner rotation. Section 203 of the "Sarbanes Oxley Act of 2002" (2002) required that

auditing firms rotate both the lead and coordinating partners assigned to an audit every five years for companies listed on American exchanges. The lead partner responsible for the engagement ultimately signs the audit report. The coordinating partner is responsible for performing an evaluation of all significant judgments and conclusions during the audit, thereby providing assurance that the statements are in conformity with GAAP and free of material misstatement (Public Company Accounting Oversight Board, 2009). By introducing this mandatory audit partner rotation, Congress hoped to enhance an audit firm's independence and professional skepticism, thus increasing the overall quality of an audit. However, the PCAOB has questioned if mandatory audit partner rotation is enough, and if it would better to require mandatory audit firm rotation instead. In fact, the PCAOB issued a concept release in 2011 proposing mandatory audit firm rotation. The purpose of this concept release was to open the discussion of mandatory audit firm rotation and see if mandatory audit firm rotation was a way to protect investors and enhance auditor independence. (Public Company Accounting Oversight Board [PCAOB], 2011). Congress, however, has never acted upon the PCAOB's concerns, and the idea of mandatory audit firm rotation never got further than the PCAOB's concept release.

History of Audit

Prior to SOX being enacted in 2002, the accounting profession was largely self-regulated through the American Institute of Certified Public Accountants (AICPA). The AICPA set both ethical standards and auditing standards for the accounting profession, but Congress determined that it was necessary to increase regulation after the large-scale audit frauds of Enron and WorldCom. Therefore, SOX created the PCAOB, which made the government in charge of the regulations over the audits of public companies. One of the

PCAOB's duties is to regularly conduct inspections of public companies' audits. This was an attempt to increase investor's confidence. SOX attempted to increase the quality of internal controls over financial reporting through Section 404, which requires companies to publish information regarding the scope and adequacy of their internal controls, and the audit firm to issue an opinion about these controls (U.S Securities and Exchange Commission, 2007). The AICPA Auditing Standards Board (ASB), however, still remains the rule-making body for the audits of private companies.

SOX also required that the US Comptroller General do research on mandatory audit firm rotation. Therefore, the General Accounting Office (GAO) conducted research regarding the potential consequences and benefits of mandatory audit firm rotation (Carcello & Nagy, 2004). The GAO monitors how the federal government ultimately spends tax dollars and is often referred to as the "Congressional Watchdog" (U.S. Government Accountability Office, n.d.). In 2003, the GAO determined that there was no need for mandatory audit firm rotation, but mentioned that their opinion could change if the requirements created by SOX were ineffective (Carcello & Nagy, 2004). Therefore, it is essential to explore if the requirements created by SOX are efficient, or if other legislation should also be passed.

Pros of Audit Firm Rotation

One of the primary arguments for mandatory audit firm rotation is based on the concept known as the bonding effect. The bonding effect occurs when a client and its auditor develop an overly close relationship thus impairing the independence of an auditor's final opinion (Brooks et al., 2013). A study conducted by Bamber and Venkataraman (2007) showed that auditors tend to identify with their clients, and even

though this client identification is lower than an auditor's professional identification it is still a cause for concern. This client identification relationship ultimately is thought to affect an auditor's independence, which could cause an auditor to overlook material misstatements. It is also thought that over time audit firms can become complacent in their procedures, causing any report issued to be less meaningful. This often translates to auditors just doing "Same As Last Year," which is a concern because auditors are supposed to do a top down approach in evaluating risk (Arel, Brody, & Pany, 2005). Therefore, it could be beneficial to introduce mandatory audit firm rotation in order to force a new auditor to look at the company's financial statements. Brooks et al. (2013) presented interesting insight into this topic by discussing how familiarity and learned confidence prevent auditors from exercising an appropriate amount of professional skepticism because audit firms become complacent and do not develop new or creative audit programs.

There are also financial implications to consider when looking into mandatory audit firm rotation. Audit firms need to make a profit to stay in business, which means that audit firms need to keep their clients. Therefore, it is possible that an auditor might allow questionable accounting decisions in order to make their client happy; if mandatory audit firm rotation was introduced it could alleviate some of this pressure (Brooks et al., 2013). After all, no audit firm wants to be terminated by their client. However, it is important to note that, a study conducted by Jenkins and Velury (2008) looked into the relationship between auditor tenure and the reporting of conservative earnings, and found that audits with short tenure produced less conservative earnings.

There are also the costs associated with some of the high profile failures. For example, Morgan Stanley estimated that the audit failures at WorldCom, Tyco, Quest,

Enron, and Computer Associates ended up costing the total economy as much as \$460 billion (Jackson et al., 2007). It is possible that complacency in audit procedure was to blame for these failures, and mandatory audit firm rotation could help prevent this type of complacency by ensuring that new auditors continue to take a top-down approach.

Cons of Audit Firm Rotation

Even though mandatory audit firm rotation sounds like a promising way to enhance auditor independence, there still remains much opposition. One of the main arguments against mandatory audit firm rotation is that imposing such legislation would disrupt the learning effect. The learning effect suggests that audit quality increases the longer an auditor remains with a client because the auditor develops a deeper understanding of the client's business (Brooks et al., 2013). Due to this learning effect, it is possible that more audit failures would occur if mandatory audit firm rotation is implemented. In fact, one study found evidence that both medium (four to eight years) and short term (two to three years) audit firm tenures result in lower quality financial reports, and no evidence that long audit-firm tenures (over nine years) resulted in lower quality audits (Johnson, Khurana, & Renolds, 2002). The study conducted by Geiger and Raghunandan (2002) also found that more audit reporting failures occurred in the early years of an audit than the later years of an audit. Finally, a study conducted by Lim and Tan (2010) suggested that longer audit tenures resulted in higher audit qualities. These studies suggest that mandatory audit firm rotation would result in lower quality audits, entirely defeating the purpose of implementing mandatory audit firm rotation.

It is also interesting to see how the public perceives longer auditor tenures. A study done by Ghosh and Moon (2005) actually revealed that investors and information

intermediaries believed that longer audit firm tenure increased audit quality. This is the opposite of what would be expected, and many would argue that mandatory audit firm rotation should not be implemented if the users of the financial statements do not find it beneficial.

Many opponents of mandatory audit firm rotation also believe that these procedures would be completely ineffective and add unnecessary start-up costs (Healey & Kim, 2003). The study done by Brooks et al. (2013) compared audit tenure to audit quality, in order to determine when audit quality began to decline. They found that the average turning point for audit quality occurs between 10 to 14 years, and the average audit-firm tenure was only 9 years. Therefore, it would appear that mandatory audit firm rotation maybe unnecessary since companies generally voluntarily rotated their auditors before it became an issue. Also, many argue that professional standards and the desire to maintain a good reputation guide the individuals involved with an audit, thereby making mandatory audit firm rotation unnecessary (Martinez & Reis, 2010). This argument is favored by many of the Big 4 firms and will be discussed in further detail.

Other Countries and Mandatory Audit Firm Rotation

Even though mandatory audit firm rotation remains a popular subject of debate, it is hard to find studies looking at the successes and failures of actual implementation of mandatory audit firm rotation. However, mandatory audit firm rotation remains in effect in Brazil and it was implemented in Spain from 1988 to 1994. Through studying the effects of mandatory audit firm rotation in these two countries, it will help shed some light on the overall effectiveness of mandatory audit firm rotation, and if it would be beneficial for the United States to incorporate mandatory audit firm rotation into its legislation.

For the effects of the five-year mandatory audit firm rotation in Brazil, the study of Martinez and Reis (2010) proved to be very useful since it looked into the effect that mandatory audit firm rotation had on earnings management. Earnings management refers to management's efforts to manipulate reported earnings to smooth fluctuations in earnings or to increase earnings to match financial analyst's expectations. High quality audits limit earnings management, which is why the study used earnings management to measure audit quality. The study examined public Brazilian companies from 1997-2007, and uses abnormal working capital accruals in order to measure the amount of earnings management in order to determine if there is a relationship between the type of change in auditor (obligatory or spontaneous), and the type of opinion issued. Ultimately, no association was found between any of these variables (Martinez & Reis, 2010). This suggests that the obligatory or mandatory audit firm rotation was no more effective than spontaneous or voluntary audit firm rotation, and mandatory audit firm rotation should not be enacted. However, it is important to note that abnormal working capital accruals may not be an effective measure for earnings management because what is considered an abnormal working capital accrual can be very subjective.

Spain proved to be an interesting example because mandatory audit firm rotation was only in effect from 1988 to 1995; therefore, it was possible to examine a mandatory audit firm rotation period and then examine a post mandatory audit firm rotation period. The study done by Ruiz-Barbadillo et al. (2009) compared a group of financially distressed companies in Spain from 1991 to 1994 and 1995 to 2000 in order to determine if mandatory audit firm rotation had an effect on issuing a going-concern opinion. If a going-concern opinion for a financially distressed company is issued more frequently under mandatory

audit firm rotation, it implies that mandatory audit firm rotation increases auditor independence and can increase the quality of audits. According to the study, there was no evidence that a company was more likely to issue a going-concern opinion under mandatory audit rotation; in fact, the study found evidence that mandatory audit-firm rotation can reduce incentives that the auditor has to protect its reputation (Ruiz-Barbadillo et al., 2009). This implies that the legislation is not necessary, and that the internal procedures of an audit firm provide an adequate amount of independence.

“Big 4” Viewpoints

In 2011, The Public Company Accounting Oversight Board issued a concept release, which was designed to discuss ways to increase professional skepticism and independence; one of the ideas mentioned was mandatory audit firm rotation. The “Big 4” auditors all issued a response, and it was unsurprising that all were opposed to the idea.

Many of the “Big 4’s” fears stemmed from the fact that they believed that mandatory audit firm rotation could decrease the quality of the audits. PwC’s letter to the Board brought up some interesting concerns on this topic. PwC reminded investors that much of the data surrounding mandatory audit firm rotation is inconsistent; therefore, there was no conclusive evidence that mandatory audit firm rotation would be an effective mandate (PricewaterhouseCoopers [PwC], 2012). This would mean that companies could feel the costs of the legislation with no benefit, and more solid evidence should be found before anything is enacted. Also, many of the audit firms specialize in particular regions and industries, and the “Big 4” argued that a company should be able to select an audit firm that will do the best job (PwC, 2012). In fact, a study conducted by Hogan and Jeter (1999)

suggests that there was a trend of industry specialization. If an audit firm is inexperienced in a region or an industry, this inexperience could lead to more errors and perpetuate the very issue that mandatory audit firm rotation is attempting to solve. In fact, a study conducted by Gul, Fung, and Jaggi (2009), found that audit quality improves among shorter tenure audits when a company is audited by an industry specialist than by non-industry specialists.

Most of the “Big 4” companies offered various other solutions rather than mandatory audit firm rotation to increase auditor independence and professional skepticism. EY, for instance, listed some possible options as audit partner rotation, effective audit committees and greater transparency of their auditor oversight, external auditor independence requirements, and globally consistent auditor independence requirements (Ernst & Young [EY], 2013). The problem with the solutions, however, is that the “Big 4” firms can be considered biased sources. In other words, the “Big 4” firms have a vested interest in the *status quo* and could simply offer solutions they perceive as preferable to mandatory audit firm rotation since mandatory audit firm rotation could affect their bottom line.

Voluntary Auditor Rotation

Voluntary auditor rotation occurs when a company chooses to change auditors. Typically, either a company dismisses its audit firm or an audit firm resigns from an engagement (“fires” its client), causing voluntary auditor rotation. A company generally dismisses an audit firm for fee-related or service-related causes. Fee-related causes occur when a company wants lower audit fees, and service-related causes occur when a company perceives another auditor’s services as superior (Sankaraguruswamy & Whisenant, 2004).

An audit firm typically resigns from engagements that it perceives as too risky. Another major cause of voluntary auditor rotation is corporate takeover. After a merger or an acquisition, the acquiring company generally keeps its current auditor and keeps only one auditor. Having one auditor means that it is less costly for the company to negotiate and communicate and the fixed costs of one audit are more spread out (Anderson & Zimmer, 1993).

One of the major concerns with voluntary audit firm rotation is that it gives audit firms the opportunity to “opinion shop.” The idea of opinion shopping is that a company only switches auditors in order to get a better opinion (Krishnan, 1994). In other words, companies may switch auditors in order to avoid qualified opinions or required adjustments to its financial statements. The studies conducted on opinion shopping, however, provide inconclusive results.

Chow and Rice (1982) studied the overall impact of qualified opinions on voluntary auditor rotation. They found that companies tend to switch auditors after receiving a qualified opinion, and have a higher likelihood of getting an unqualified opinion the following year. These results imply that companies can successfully opinion shop. Lennox’s study conducted in 2000 also supports this notion. Lennox’s goal was to predict opinions that would have been issued if firms made the opposite decision about switching auditors. The study suggested that switching auditors increases the likelihood of being issued a better opinion; thereby indicating companies are able to opinion shop (Lennox, 2000). The results of the study conducted by Krishnan, on the other hand, contradict the above studies. Krishnan (1994) investigated companies’ motivation for switching auditors. Krishnan (1994) found that many times companies switch auditors due to conservative

treatment and not the issuance of unqualified opinions. Krishnan (1994) also pointed out that opinion shopping is usually ineffective.

Hypothesis Development

Mandatory audit firm rotation seeks to improve the quality of audits by increasing professional skepticism and auditor independence. However, it is important to look into how effective mandatory audit firm rotation is in accomplishing these two goals. Based on the above research, mandatory audit firm rotation does not appear to be effective. Studies support the learning effect. The overall quality of audits is lower in the initial years of the audit due to the auditor's lack of knowledge of its new client's business (Johnson et al., 2002). Also, mandatory audit firm rotation has not proven effective in the countries that have adopted this legislation. In fact, a study conducted about mandatory audit firm rotation in Spain found the quality of audits to be worse with mandatory audit firm rotation (Ruiz-Barbadillo et al., 2009).

It is also important to evaluate the costs and benefits of mandatory audit firm rotation because mandatory auditor rotation would greatly impact audit firms and companies. The costs of mandatory audit firm rotation appear to be high, while no strongly supported benefits are clear. The "Big 4" audit firms pointed out many of the issues encountered with mandatory audit firm rotation, and they recommended some other solutions that should be evaluated (EY, 2013).

The primary issue this paper seeks to expand on is the necessity of mandatory audit firm rotation under current guidelines. Based on the above research, it does not appear to be necessary. After all, audit quality does not start to decline until 10 to 14 years, and the average firm tenure was nine years (Brooks et al., 2013). Therefore, the voluntary audit

firm rotation that occurs appears to be sufficient. Any additional legislation would not help increase professional skepticism or auditor independence, and would just increase the overall costs and risks associated with the audit. Voluntary audit firm rotation brings up the issue of opinion shopping. Even though there is some concern about opinion shopping, the results are inconclusive.

Based on the above research and findings, the study proposes the following hypothesis about audit firm tenure:

H1: *There is sufficient voluntary audit firm rotation making mandatory rotation unnecessary.¹*

It is important to note the competition that exists among accounting firms. Audit firms compete for their clients based on price, quality, and industry expertise. These competitive pressures give economic incentives for companies to change auditors. However, there are only four large accounting firms, which create the potential for limited competition and a reduction in voluntary audit firm rotation. If the market for audit services is sufficiently competitive then regulation is unnecessary, which aligns with the hypothesis above.

¹ Voluntary audit firm rotation will be deemed sufficient if on average (greater than 50%) S&P 500 companies switch auditor before ten years.

II. METHODS & RESULTS

Research Purpose

The study conducted will attempt to determine if auditor rotation is sufficient under the current guidelines. In 2011, the PCAOB issued a concept release. The PCAOB sought comments on mandatory audit firm rotation for audit tenures of more than 10 years (PCAOB, 2011). Therefore, the study uses 10 years as the current guideline for mandatory auditor rotation. Voluntary audit firm rotation will be deemed sufficient if on average (greater than 50%) S&P 500 companies switch auditor before ten years, and mandatory audit firm rotation will be considered unnecessary and ineffective because the market is adequately rotating auditors.

Research Design

Both portions of the study used data available from COMPUSTAT. The S&P 500 was chosen as the sample for both portions of the study because it includes 500 very large public companies; therefore, this sample includes large companies in a variety of industries and operating under a variety of management styles.

For the first portion of the study, the data was collected on the companies included in the S&P 500 any time during 1990 to 2013. The composition of the S&P 500 changes often, and there were 1,045 companies included in the index between 1990 and 2013. Therefore, this portion of the study relied on data from 1,045 companies. The data collected included the company's name, the year, and the identity of company's auditor every year. This data was used to determine the average audit firm tenure for companies in the S&P 500 during the 23 year time period. This data was examined to determine the average audit

firm tenure. Frequency distributions of observed auditor tenure were examined to determine if voluntary audit firm rotation appears sufficient.

When designing this portion of the study, it was necessary to consider the unique situation of Arthur Andersen. Arthur Andersen was one of the five largest accounting firms. However, Arthur Andersen was the audit firm for Enron. When the massive accounting fraud at Enron was revealed, Arthur Andersen was convicted in 2001 of obstruction of justice and once convicted was unable to audit public companies². Therefore, many public companies (clients of Andersen) had to switch auditors in 2002. This switch from Arthur Andersen does not meet the definition of voluntary audit firm rotation because the companies had no other choice. In order to address this issue, the same averages and frequency tables were created as discussed above, but they did not include data on Arthur Andersen.

The second portion of the study used data on the firms included in the S&P 500 during 2013. The data collected included the company's name, the year, and the company's auditor for the past 40 years. This data was then used to determine the average auditor tenure for each company included in the S&P 500 during 2013. This portion of the study was designed to address some of the limitations encountered in the first portion of the study, which will be discussed in further depth below.

Results

S&P 500: 1990 to 2013

Table 1 illustrates the study's findings in regards to the average audit firm tenure. The average audit firm tenure for the S&P 500 from 1990 to 2013 was 11.052 years. The

² This conviction was later overturned in 2011.

average audit firm tenure not including Arthur Andersen was 11.365 years. Removing Arthur Andersen from the study did not greatly impact the overall findings. These numbers will be further discussed below.

Table 1:

Average Audit Tenure (years)	11.052
Average Audit Tenure Without Arthur Andersen (years)	11.365

Table 2 illustrates the distribution of audit firm tenure for the S&P 500 including data from the accounting firm Arthur Andersen. The purpose of this was to determine the number of times audit firm tenure exceeded ten years. As shown in Table 2, audit firm tenure exceeded 10 years 775 times, which accounted for 48.26% of audit firm tenures. Therefore, audit firm tenure was less than or equal to ten years 831 times, which accounted for 51.74% of audit firm tenures. However, the most surprising result was that audit firm tenure was equal to 24 year (the maximum of this study) 167 times, which accounted for 10.40% of audit firm tenures. To be clear, these are firms that did not change auditors once over the sample period.

Table 2: Audit Firm Tenure Frequency

Audit Firm Tenure (Years)	Frequency	Percentage of Total
1	89	5.54%
2	88	5.48%
3	83	5.17%
4	84	5.23%
5	64	3.99%
6	66	4.11%
7	63	3.92%
8	142	8.84%
9	89	5.54%
10	63	3.92%
11	66	4.11%
12	173	10.77%
13	37	2.30%
14	24	1.49%
15	52	3.24%
16	84	5.23%
17	21	1.31%
18	29	1.81%
19	29	1.81%
20	29	1.81%
21	11	0.68%
22	25	1.56%
23	28	1.74%
24	167	10.40%
Total	1,606	100.00%

Table 3 is very similar to Table 2; the only difference is that Table 3 excludes data from Arthur Andersen. Overall, the results are similar. Audit firm tenure exceeded ten years 697 times, which accounted for 49.02% of audit firm tenures. Audit firm tenure was less than or equal to 10 years 725 times, which accounted for 50.98% of all audit firm tenures. Once again, it surprising how many audit firm tenures were at 24 years. Table 3 shows that audit firm tenure of 24 years occurred 167 times, which was about 11.74% of all audit firm tenures.

Table 3: Audit Firm Tenure Frequency

Audit Firm Tenure (Years)	Frequency	Percentage of Total
1	82	5.77%
2	81	5.70%
3	76	5.34%
4	70	4.92%
5	56	3.94%
6	56	3.94%
7	55	3.87%
8	127	8.93%
9	79	5.56%
10	43	3.02%
11	52	3.66%
12	110	7.74%
13	36	2.53%
14	24	1.69%
15	52	3.66%
16	84	5.91%
17	21	1.48%
18	29	2.04%
19	29	2.04%
20	29	2.04%
21	11	0.77%
22	25	1.76%
23	28	1.97%
24	167	11.74%
Total	1,422	100.00%

S&P 500: 2013 Results

Table 4 demonstrates the distribution of the average audit firm tenures of the firms included in the S&P 500 in 2013. The purpose was to determine the number of times audit firm tenure exceeded 10 years. Audit firm tenure exceeded 10 years 73.15% of the time; therefore, suggesting that voluntary audit firm rotation is insufficient. The most surprising result, however, was that 12.83% of S&P 500 firms' average audit firm tenure was between 35 and 40 years. Also, the median audit firm tenure was 16 years. It is also important to note that many of these firms were forced to switch auditors due to Arthur Andersen's collapse in 2002, which does not meet the definition of voluntary audit firm rotation. Therefore, it is likely that this distribution is overly favorable.

Table 4: Average Audit Firm Tenure of S&P 500 in 2013

Average Audit Firm Tenure (Years)	Number of Firms	Percentage of Firms
0 to 5	20	4.01%
5.01 to 10	114	22.85%
10.01 to 15	113	22.65%
15.01 to 20	143	28.66%
20.01 to 25	22	4.41%
25.01 to 30	15	3.01%
30.01 to 35	8	1.60%
35.01 to 40	64	12.83%

III. DISCUSSION

Conclusions

The purpose of the study was to determine if there is sufficient voluntary audit firm rotation, making mandatory audit firm rotation unnecessary. The first portion of the study determined the audit firm tenure of every firm included the S&P 500 for the past 20 years. The second portion of the study focused on the audit firm tenure of the S&P 500 in 2013, using 40 years of data. The distributions of these audit firm tenures were then compared to the PCAOB's suggested mandatory audit firm rotation of 10 years in order to determine if voluntary audit firm rotation is sufficient. Based on the above results, there is not sufficient voluntary audit firm rotation occurring in the S&P 500 that would make mandatory audit firm rotation unnecessary because on average companies in the S&P 500 did not switch auditors within the 10 year guideline.

The first portion of the study determined the audit firm tenure of every audit firm included in the S&P 500 from 1990 to 2013. Initially, it appeared that voluntary audit firm rotation is relatively sufficient since the average audit firm tenure was 11.052 years, and 11.365 years excluding firms audited by Arthur Andersen. Table 2 shows the audit firm tenure frequency of every company included in the S&P 500 over the sample period. Audit firm tenure was less than or equal to ten years 831 times, which accounted for 51.74% of audit firm tenures. Audit firm tenure exceeded 10 years 775 times, which accounted for 48.26% of audit firm tenures. This met the study's original definition of sufficient. Table 3 shows the audit firm tenure frequency of the S&P 500 from 1990 to 2013 excluding Arthur Andersen. The results are very similar to Table 2. Audit firm tenure was less than or equal to 10 years 725 times, which accounted for 50.98% of all audit firm tenures. Audit

firm tenure exceeded 10 years 697 times, which accounted for 49.02% of audit firm tenures; thereby, meeting the original definition of sufficient. However, these results are misleading because the data in Tables 1 and 2 only covers the time the firms were included in the S&P 500 Industrials Index, thereby understating audit firm tenure. In order to address the second portion of the study was designed to give a better representation.

The second portion of the study determined the average audit firm tenure of those companies included in the S&P 500 at the end of 2013, and addresses the limitations of the first study. This portion of the study used 40 years of data. Average audit firm tenure exceeded 10 years 73.15% of the time, revealing that voluntary audit firm rotation is insufficient. One of the most significant findings; however, was that 53 companies did not switch auditors once during the entire 40 year period. This accounted for about 10.52% of the companies included in the S&P 500. This brings into question the ability of an audit firm's independence and professional skepticism if they have been working with a company for 40 years.

Therefore, the study conducted establishes that left to their own decisions large public companies do not, on average, change auditors often. This implies that voluntary audit firm rotation cannot be relied upon as a substitute for mandatory audit firm rotation since many companies stay with the same auditor for a prolonged period of time. The S&P 500 is a good representation of the market since it includes a variety of industries; therefore, it is likely that the market behaves in a very similar manner. This lack of rotation has the potential of negatively impacting those who rely on a company's financial statements because auditors' professional skepticism and independence could be adversely impacted.

Limitations

One of the major limitations for the first portion of the study is that many companies included in the S&P 500 switch in and out of the S&P 500 during the 24-year period. This switching in and out of the S&P 500 caused the average audit firm tenures found in the study to be artificially low. The second portion of the study sought to address this limitation by examining 40 years' worth of data for all the companies included in the S&P 500 in 2013, which provides better insight into the voluntary audit firm rotation naturally occurring.

The issue of Arthur Andersen was sufficiently addressed in the first portion of the study, which examined audit firm tenure of all companies included in the S&P 500 from 1990 to 2013. However, the issue of Arthur Andersen was not addressed in the second portion of the study, which examined the average audit firm tenure for companies included in the S&P 500. Therefore, it is likely that the average audit firm tenure results in the second portion are artificially low. Without the collapse of Arthur Andersen and the auditor changes that resulted from it, this study would have likely reported even longer average auditor tenures.

In terms of the overall study, the greatest limitation is that the study did not take into consideration the effectiveness of mandatory audit firm rotation. The study only examined the ineffectiveness of voluntary audit firm rotation. It appears, however, that on average, the large public companies included in the S&P 500 Industrial Index do not perceive that the benefits of changing auditors are sufficient to exceed the costs of such changes and they tend to maintain long relationships with their audit firms. Therefore, in

order to build upon this study, the overall effectiveness of mandatory audit firm rotation should be examined.

IV. IMPLICATIONS

As discussed above, large public companies do not change their auditors frequently. Long audit tenures have the potential to limit an auditor's professional skepticism and independence. Therefore, implementation of mandatory audit firm rotation remains an issue worthy of consideration due to the potential impacts of audit failures.

Professional skepticism and independence are two of the most important concepts for audit firms. However, audit firms' professional skepticism and independence are often called into question when the same audit firm has been auditing a company for a prolonged period of time. It is difficult to believe that auditors can maintain both independence and professional skepticism with clients after developing a close relationship, often spanning multiple decades. It is often feared that auditors become too comfortable with their client and overlook or even allow questionable accounting policies in order to retain a client. Switching audit firms is often thought to help audit firms retain their professional skepticism and independence by allowing a fresh set of eyes to evaluate the company. This fresh set of eyes is critical because it allows risks to be reassessed and for audit procedures to be scrutinized, which could help produce higher quality audit opinions.

It is essential that auditors maintain both professional skepticism and independence in order to issue the appropriate audit opinion for a company. This opinion is critical because it allows investors to have confidence in the company that they are investing in. If auditors fail to maintain their professional skepticism and independence, then an audit firm can allow companies to issue financial statements that are materially misstated, negatively impacting investors who have relied on the information presented in the company's financial statements. An audit failure can cost investors and creditors millions of dollars

since they base their decisions based on the information provided in a company's financial statements.

However, it is critical to also consider the costs associated with mandatory audit firm rotation because the implementation of mandatory audit firm rotation can adversely impact both companies and audit firms. Many audit firms argue that mandatory audit firm rotation will increase both the costs and time associated with an audit. After all, many companies choose to stay with the same audit firm since switching is expensive since a first-year audit is very time-consuming. These increased costs could be pushed onto the company being audited; ultimately affecting a company's budget and scheduling. If mandatory audit firm rotation is not effective, it could be adding a substantial amount of unnecessary costs for both audit firms and their clients.

Since voluntary audit firm rotation does not appear to occur often, mandatory audit firm rotation should continue to be evaluated as a possible solution to help maintain auditor's independence and professional skepticism. However, there are substantial potential costs associated with both implementing and not implementing mandatory audit firm rotation.

V. CONCLUSION

Many studies have focused on the potential effectiveness of mandatory audit firm rotation but have not have focused on the necessity of mandatory audit firm rotation based on the existing voluntary audit firm rotation occurring naturally in the market. The study conducted sought to fill this gap in order to determine if the existing voluntary audit firm rotation based on current suggested legislation was sufficient. Voluntary audit firm rotation would have been found to be sufficient if over 50% of the average audit firm tenures were less than the PCAOB's suggested guidelines of ten years.

The study used the average audit firm tenure for companies included in the S&P 500 as the measure for voluntary audit firm rotation existing in the market. The study was broken into two portions. The first portion focused on the average audit firm tenure for companies included in the S&P 500 Industrial Firms at any time in the period 1990 to 2014. The second portion of the study focused on the average audit firm tenure for companies included in the S&P 500 at the end of 2013. By observing the voluntary audit firm rotation that existed in the S&P 500, it was possible to see if mandatory audit firm rotation was necessary or if companies voluntarily switched audit firms frequently enough.

Based on the results from the study, it appears that voluntary audit firm rotation is currently insufficient in the S&P 500. This implies that voluntary audit firm rotation is insufficient to ensure auditor independence and professional skepticism for large public companies. In fact, many companies failed to switch auditors even once in the entire 40-year period. This brings an auditor's independence and professional skepticism into question. However, it is important to note that even though voluntary audit firm rotation is

insufficient, this does not mean that mandatory audit firm rotation will be an effective solution in helping auditors maintain their independence and professional skepticism.

One potential solution to the potential issues that arise from long audit firm tenures is to focus on audit committees. Audit committees are made up of independent members of the board of directors who are not responsible for the company's day-to-day operations. Audit committees are critical because they oversee the entire audit and are informed about the audit's scope and results (Louwers et al., 2013). PwC (2012) recommends strengthening audit committee's governance by reassessing the audit firm, ensuring audit standards are applied, and assessing the audit firm's findings. This will increase the oversight of the audit, meaning that an audit firm's procedures and independence can be better monitored. If the audit committee deems that either is inadequate, they can switch audit firms at that time.

Another possible alternative to mandatory audit firm rotation is selective rotation. Selective rotation involves the PCAOB requiring companies to switch audit firms under certain circumstances (Ernst & Young [EY], 2011). This practice could be advantageous since the PCAOB could require only those firms where independence has been impaired to rotate, thereby decreasing unnecessary costs. However, it could be difficult for the PCAOB to distinguish independence levels, which is an issue that should be investigated further.

Finally, it is important to note that the European Union (EU) has made a requirement for companies to rotate audit firms at least once every ten years starting in June 2016 with the goal of increasing competition and avoiding cozy relationships (Jones, 2015). It will be interesting to study the effects that mandatory audit firm rotation has on

the quality of audits for companies and in the overall cost of audits on European companies. This will provide better insight and understanding into evaluating whether mandatory audit firm rotation would be beneficial for the United States to adopt or not.

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