

The Determinants of Audit Prices for Financial Services Institutions in the United States

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ABSTRACT. Several studies have sought to establish the link between the characteristics of a corporation and the audit fees charged by its auditor. Many studies have tried to discover whether auditor specialization affects audit fees. Other research has attempted to discover the effects of government regulation on fees. The impact of risk on audit fees has also been examined, but has proved to be an elusive topic. This study uses regression analysis to examine the effect of size and financial position on audit fees. The model shows a direct relationship between measures of both assets and revenues and the audit fees that firms are charged.

I. Introduction

Financial statement audits, hereafter referred to as audits, on public corporations within the United States have a profound effect on the reliability and availability of financial information. The Securities Acts of 1933 and 1934 require every corporation registered with the U.S. Securities and Exchange Commission (SEC) to undergo an annual audit of its financial statements by an independent registered public accounting firm. The annual set of financial statements filed with the SEC, known as a Form 10-K, is completed and made available to all shareholders, prospective investors, and the general public via the SEC and the individual corporation. Audited financial statements are important because they are the source of financial measures used by stockbrokers and analysts to evaluate financial performance. Audited financial statements give analysts and investors greater faith in the validity of the financial statements. The importance of the statements suggests that measures of size and financial performance will affect the audit fees charged to clients of the Big 4 public accounting firms.

II. Background

Audits are regulated by government agencies such as the SEC. The Sarbanes-Oxley Act of 2002 created the Public Company Accounting

Oversight Board (PCAOB) and increased the regulation of financial reporting for auditors and corporations. The professional audit standards, as applied to public corporations, are governed by the PCAOB. An audit requires an independent public accounting firm to express an opinion about the validity of representations made by a company's management on its financial statements. In order to express an opinion, auditors examine evidence and evaluate the accounting methods and estimates used by management for financial reporting (PCAOB, 2004). Audits involve testing transactions, interviewing and observing the client, and evaluating the internal controls and systems used within the corporation. Due to the annual requirements of the SEC and the amount of work required to perform a financial statement audit in compliance with PCAOB standards, audit fees represent a considerable expenditure for corporations.

This paper asks whether measures of size and financial position affect the pricing of audits for the 37 largest financial services institutions audited by the four largest public accounting firms in the United States (i.e. the Big 4). The sample of financial services institutions includes health insurance corporations, property and casualty insurance corporations, and banks. This study will use regression analysis to develop an audit fee model to analyze the effects that corporate characteristics had on audit fees for the fiscal year 2006. This will be accomplished by exploring the relationship between audit fees and measures of size and financial position of the companies.

It is as important for corporations to know that their corporate structure and strategic decisions affect audit fees as it is for the auditor to adequately understand and evaluate the liability risk associated with that audit engagement. Auditors accept engagements to perform services and issue an opinion on the representations of the financial statements. There is, however, a great deal of risk associated with the process. An auditor is liable to the corporation, its shareholders, and other foreseeable third parties, such as banks or regulators, for its performance of the audit. An inherent risk associated with the performance of financial statement audits is that a material misstatement of the financial statements exists and the auditor fails to detect it and then issues a positive opinion on the statements. If an auditor performs the audit in accordance with PCAOB standards, he is not responsible for misstatements in the financial statements. If, however, the auditor does not follow the PCAOB standards and fails to detect a material misstatement that results in

damage to users of the statements, then the auditor can be held liable for damages. For example, Enron had been falsely reporting its financial position and operating results prior to its eventual collapse. Enron's auditor, Arthur Andersen, failed to adhere to the professional standards of the time. Arthur Andersen was held liable for damages associated with Enron, and that led to the dissolution of the firm. The PCAOB was created after the Enron situation and has broadened the previous professional standards. In effect, accounting firms can share liability with their clients if they are negligent and fail to detect errors that should have been detected. As Simunic and Stein (1996) state, "Because audit fees cannot normally be adjusted 'after the fact' to cover actual litigation and/or reputation losses, an auditor has a strong incentive to try to minimize actual losses and to incorporate expected losses into the fees" (120). Risk is difficult to quantify. This paper explains only the effects of size and financial position on audit fees and does not directly establish a quantifiable link between litigation risk and audit pricing.

III. Previous Empirical Contributions

A large body of research exists that addresses audit fees and their determinants. Because the present study applies only to U.S. companies audited by the four largest public accounting firms, much of the previous research does not directly apply. For example, studies performed in other countries on non-U.S. corporations reflect different regulatory and judicial contexts. The fundamental differences in reporting requirements and application of accounting principles change the requirements of audits and the determination of audit fees. For example, studies such as Ferguson *et al.* (2003) and Ferguson *et al.* (2006), analyze auditor pricing and industry specialization in Australian markets, and are not applicable to this study. Also, many studies analyze public sector pricing of audit fees, such as for charities. These studies will not provide a sufficient evidential link relating audit fees to risk factors due to the differences in the operating environment and reporting requirements of these entities. As previously mentioned, the Sarbanes-Oxley Act of 2002 (SOX) has considerably changed the audit environment and liability associated with the representations made on the financial statements of corporations. SOX and new SEC regulations require the study to focus solely on the audit environment existing after SOX took effect.

Casterella *et al.* (2004) provide an analysis of auditor industry

specialization, client bargaining power, and audit fees. Casterella *et al.* (2004) apply Porter's (1985) analysis of competitive strategy to auditor industry specialization by Big 6 (prior to mergers into the Big 4) accounting firms in U.S. markets. Differentiation, or specialization, by auditors will lead to higher audit fees. Their study finds that the premiums paid to firms that specialize in certain industries are only applicable to those clients with assets less than \$123 million. This conclusion is in contrast to the research performed outside of the U.S. regarding industry specialization. Casterella *et al.* (2004) also show that audit fees decrease as the client becomes larger in size relative to other firms within that industry. Casterella *et al.* (2004) conclude that "larger companies in the sample do not pay a premium for industry specialization, but they do have lower fees as their bargaining power increases" (135).

Francis and Wang (2005) study the impact of the SEC's mandated public disclosure of audit fees in the year 2000 on subsequent period audit fees. They found that mandating public disclosure of audit fees leads to greater pricing precision of audit services and has a profound effect on the audit market. Francis and Wang found that audit fees have a significantly lower variance in the year subsequent to mandated public disclosure. They conclude that clients who were initially overcharged for audit services in 2000 saw a reduction in their fees paid in 2001, and clients who were undercharged initially paid higher fees in the subsequent period. However, the upward adjustment to the undercharged clients was less than the downward adjustment of overcharged clients. The result makes sense as clients will be reluctant to pay higher fees for the same services that they have received in the past. Francis and Wang also conclude that the fee adjustment process was completed by the second year after the public disclosure requirement took effect. The research finds that public fee disclosure results in greater precision of audit pricing.

Fields *et al.* (2003) investigate audit pricing for 277 banking institutions in the U.S. They adapted an audit pricing model used for manufacturing firms by introducing measures of risk and complexity that are more appropriate for banks. The study incorporates variables that deal directly with the regulatory structure and include ratios related to deposits, commercial and mortgage loans, and charge-offs for non-performing loans that are exclusive to the banking industry. The purpose is to develop an audit pricing model that can explain audit fees and

investigate the consistency between government regulations and the variables used by accounting firms to price audits. Fields *et al.* (2003) conclude that banks with more transactions accounts, fewer securities as a percentage of total assets, lower levels of efficiency, and higher degrees of credit risk are charged higher audit fees (69). Also, savings institutions, banks actively involved in acquisition activity, and banks with a higher required level of risk adjusted capital also generate higher audit fees. Their model concludes that the risks addressed by regulatory bodies are consistent with the risks that are priced by public accounting firms. Interestingly, Fields *et al.* (2003) draw a distinction between the larger banks with total assets above \$1.2 billion in their sample. The larger banks have characteristics that cause the price of their audit to differ from that of smaller banks. Mortgage loans, intangible assets, and volume of transactions accounts all have a significant positive effect on audit fees for large banks, but not for banks with assets less than \$1.2 billion. Securities as a percentage of total assets did not have a significant effect for large banks. That suggests that larger institutions rely less on securities for meeting financial obligations.

Simunic and Stein (1996) provide an overview of the economics and impact of litigation risk pricing on audits. The economic considerations implicit in audit fees are described in the following passage:

In a competitive market equilibrium, fees will equal the economic costs including a normal profit incurred by efficient suppliers of the various service qualities. When considering auditors' costs, two issues need to be considered: the client specific nature of audit costs, and the fact that total audit costs include a resource cost and an expected liability loss component (121).

As size, complexity, and risk affect audit pricing, Simunic and Stein purport that a more comparable increase in audit fees across clients is a result of an increase in assurance provided by the audit. They also discuss the inverse relationship between the resource costs and expected liability losses. An increase in resource costs represents an increase in the amount of work, or effort, devoted to the audit. It follows that as the level of effort increases, the expected liability loss should decrease. The regulations and standards that must be met, however, blur this logic. If an auditor increases resource costs but still fails to meet the required level

of work, he has not necessarily reduced any expected liability loss. Simunic and Stein argue that an increase in the level of effort reduces the probability of performing an audit that does not conform to PCAOB standards.

Simunic and Stein (1996) also discuss the quality of audit services by Big 6 and non-Big 6 auditors. Big 6 auditors are assumed to provide higher quality services as a result of the greater amount of wealth at risk during an audit engagement than for non-Big 6 firms. As a result of having more wealth at risk, Big 6 firms will expend greater effort to insure a greater quality of audit services. That, in turn, will increase audit fees. Another issue addressed by Simunic and Stein in the following passage is the increase in a liability regime faced by Big 6 firms:

To summarize, a change in liability regime which imposes relatively greater costs on the Big 6 firms as potential “deep pocket” defendants will tend to shift demand away from these firms to lower quality levels of attestation because Big 6 audits may cease to be net benefit maximizing for some clients (123).

The increase in fees related to audit services for the same level of quality may cause clients to move services to non-Big 6 firms. Simunic and Stein conclude that an increase in litigation exposure increases the costs of Big 6 firms, so more risky clients will shift their needs away from the Big 6. The empirical results based on studies in the U.S. show that audit fees reflect litigation risk and that the amounts are sufficient to cover the risks. The empirical results confirm previous conclusions regarding the economics of audit pricing. Although this study was done prior to the current audit environment, the basic economics of pricing audits has not changed. Only the methods used to evaluate the liability loss exposure, not litigation risk itself, have changed.

Peter Williams (2003) wrote an article discussing the effect that Deloitte & Touche’s resignation from a major client in London has had on the audit industry. Williams acknowledges that the event of an auditor resigning from a client is a rarity in the audit industry. The article addresses the issues that public accounting firms must deal with when deciding to accept or reject certain clients. He believes that an audit firm walking away from a client is a signal to the market about the reliability of that firm’s financial statements. Williams mainly discusses the

decision for firms to accept a level of risk or simply resign.

IV. Model

It is important for a corporation to know how its corporate structure and operating results affect audit fees. The model seeks to establish a link between basic measures of size and audit fees charged to the top 37 financial services institutions in the U.S.

Many empirical studies incorporate the same variables in their studies to explain as much of the audit fees as possible. There is little disagreement that the size of a client has some affect on audit fees charged by Big 4 firms. I include three measures of firm size: total assets, sales revenue, and the number of employees of the client. A measure of firm performance and financial position is also included with a variable measuring net income. Most existing research also considers whether the firm earned a profit or loss for the year, the type of opinion issued by the accounting firm (unqualified, qualified, or adverse), and the number of business segments. All sample firms are profitable, which suggests that financial distress is not an omitted variable. Similarly, all opinions issued on the financial statements in the sample were “unqualified”, or positive opinions. Business segments refer to the number of subsidiaries and/or product divisions within the corporation. As the number of business segments is a measure of size, I limit the model to the variables of size mentioned earlier. Berkshire Hathaway, Fifth Third Bancorp, and the Bank of New York were left out of the analysis due to unavailable information.

The first variable tested is the natural log of total assets for each corporation. Total assets are a measure of size, and it follows that as the size of a corporation increases, the audit fees will increase. Therefore, a positive relationship to audit fees is expected. The natural log of sales revenue, another measure of size, is used to incorporate a measure that reflects the size of operations for one year. Total assets are accumulated over time and can be attributed to revenue in many periods. However, sales revenue measures revenue earned only in the fiscal year 2006. This is also expected to yield a positive relationship with audit fees. As sales revenues increase, the number of transactions likely increases and thus the amount of audit testing and effort will increase. The number of employees for the client is another measure of risk that could have an effect on audit fees. As the number of employees increases, the amount

of work performed during the audit of internal control would typically rise. For example, auditors may have to travel to more client locations, the time to obtain adequate documentation may increase, and the complexity of transactions is likely to increase. Net income reported by these companies is used to measure the operating results and financial position of these firms for the fiscal year 2006. Net income represents the overall result of revenues and gains net of expenses and losses. As net income increases, the return that the company is generating from operations also increases. This variable creates a unique ethical issue when included in the analysis. If auditors are able to make suggestions that affect net income and subsequently charge fees related to net income, then the possibility of impropriety in audit pricing exists. Thus, in order to mitigate this perception, firms should not use net income to determine audit pricing and this variable should not be significant in my regression.

The data obtained for this analysis were compiled from the SEC and CompuStat. The SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system provided access to each corporation's audit fees for fiscal year 2006. CompuStat is a database that collects information on all public companies and provided all of the financial and qualitative information with the exception of audit fees. Ordinary Least Squares (OLS) was used to find the relationship between the dependent variable and the independent variables, and is reported in the following equation:

$$Y = 6.6168 - 0.37280(X_1) + 0.83282(X_2) - 0.35638(X_3) - 0.51676E-1(X_4)$$

- Y = Natural log of Audit Fees (LOGFEE)
- X₁ = Natural log of Total Assets (LOGAST)
- X₂ = Natural log of Sales Revenue (LOGSAL)
- X₃ = Natural log of Net Income (LGNETIN)
- X₄ = Natural Log of number of employees (LGEMPL)

V. Results

The equation above provides estimates of the size and signs of the coefficients. One must also consider the statistical significance associated with each of the variables. Below is a table that outlines the statistical results of the OLS regression.

Table of Regression Results
Dependent Variable = LOGFEE
Audit Fees _a

Variable	Shazam Name	Estimated Coefficient	T-Ratio	P-Value
Natural Log of Total Assets _b	LOGAST	0.37280	2.969	0.006
Natural Log of Sales Revenue _b	LOGSAL	0.83282	3.757	0.001
Natural Log of Net Income _b	LGNETIN	-0.35638	-1.784	0.084
Natural Log of Employees _b	LGEMPL	-0.51676E-01	-0.3063	0.761
	CONSTANT	6.6168	5.050	0.000
N = 37		R ² = 0.7419		F = 7451.06
dF = 31		ADJ R ² = 0.7097		P-Value = .000
Sources for Data				
a. SEC Electronic Data Gathering, Analysis, and Retrieval system (EDGAR)				
b. CompuStat				

The table above shows the relationships found when regressing the independent variables against the dependent variable, LOGFEE. It shows that LOGAST and LOGSAL are both statistically significant at the 5 percent level. With t-ratios greater than +/-2 and p-values less than .050, these variables have a significant impact on audit fees. Consistent with the discussion above, net income is not a significant variable in this analysis. The ethical issue of firms charging fees related to results that the auditor approves is not evidenced by this model. The number of employees also is insignificant. This result contradicts the discussion above. The result, however, may suggest that the nature of the audited transactions and the systems processing those transactions has a greater impact on the amount of work to be performed than the number of employees involved. Ultimately, these four variables were able to explain approximately 71 percent of the audit fees charged to the 37 largest financial services institutions in the United States in 2006. The F-value of 22.998 from the mean is significantly smaller than the F-value of 7451.06 from zero, which indicates that the R^2 is statistically different from zero.

The only transformations performed were using the natural log of the dependent and independent variables. This is common in OLS and is important for two reasons. First, the use of the natural log reduces the issue of heteroskedasticity. The use of natural logs also provides a better fit for outliers within the distribution. Squaring of other variables and variables in the study was attempted but did not yield any significant results. Various other variables such as price/earnings ratio, percentage change in price/earnings ratio, earnings per share, and number of employees were used but yielded no significant results.

VI. Limitations

A concern about this study is how to account for the difference among pricing strategies of each of the Big 4 public accounting firms. Dummy variables for each accounting firm were tested separately but did not have a significant effect on audit fees. The model, therefore, concludes that there is not a statistical difference in the audit pricing structure among Big 4 public accounting firms. This reflects the completion of the adjustment in audit fee pricing structure that Francis and Wang (2005) demonstrated. Also, with only 37 observations, the ability to incorporate a large number of independent variables is reduced. Nevertheless, the results show that

a relationship between measures of size and audit fees is present.

VII. Conclusion

Measures of size do have an affect on the price of audit services in the U.S. financial services industry. Simunic and Stein (1996), as previously noted, conclude that measures of risk are important in audit pricing because of the risk of litigation against an auditor. Auditors include in audit fees amounts designed to compensate for the litigation risk of the audit. Also, Casterella *et al.* (2004) conclude that claims of auditor industry specialization having an effect on audit pricing does not hold for U.S. corporations with assets greater than \$123 million. Auditors have a choice to make when accepting/continuing engagements. That choice reflects the decision to accept an engagement and its associated risk or to choose not to perform services for that client. As a result, each audit must be priced such that it can compensate the auditor for the risk assumed in performing those audit services. As the above model shows, financial measures of size have a significant effect on audit pricing. This model, however, cannot quantify the amount of pricing related to the risk of the audit. Risk is still an important issue within the auditing community, but many other factors play a role in determining audit fees. As mentioned earlier, audit expenditures can be relatively small or quite large. Management has control over the capital structure and operating procedures of the corporation that have an impact on audit fees and can use models like this to understand what factors led to the fees charged annually by their auditor.

Improvements can be made to this study by increasing the number of observations so that an increased number of independent variables can be used, That would provide better evidence. Also, the current mortgage crisis and collapse of significant corporations is sure to increase audit fees. With an expansion of the study, it should be possible to better predict the impact of choices of management on audit fees and financial performance.

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