

Audit Client Satisfaction and Engagement Profitability

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ABSTRACT

This study examines client data from the national office of a Big-4 accounting firm to examine how auditors deliver client satisfaction and enhance engagement profitability. Specifically, I study how accounting quality (using abnormal discretionary accruals as a proxy), auditor expertise and audit service quality contribute to client satisfaction ratings and engagement realization rates. I also analyze client and engagement characteristics, including client status as a priority account with enhanced service quality commitments from head office. My findings indicate that audit clients' satisfaction is determined primarily by their perceptions of auditors' customized service delivery (e.g., understanding the client's business and demonstrating responsiveness to the client), and engagement profitability is positively associated with this service dimension. Consistent with prior research, I find no association between audit or non-audit fees and abnormal accruals. I also find no association between realization rates and abnormal accruals. My study contributes to a better understanding of audit client preferences and the economic bonds between auditors and their clients.

1. Introduction

This study investigates the factors that contribute to the profitability of audit client engagements. While auditors must meet standards of competence and exercise objectivity in auditing clients' financial statements, they also operate in profit-seeking organizations and face pressure to maintain long-term relationships with clients. Regulators are particularly concerned about the ability of auditors to withstand client pressure and enforce accounting quality, and have thus established measures to weaken economic and relationship bonds between auditors and clients. At the same time, the literature has documented a shift in accounting firms' focus towards managing profitable relationships, rather than accounting quality (Wyatt 2004; Zeff 2003). Field research suggests that, in order to win client engagements, auditors may distinguish themselves from competitors by committing to deliver high standards of expertise and service quality (e.g., responsiveness to the client's needs) (Fiolleau et al. 2011). I investigate auditor-client bonds by analyzing a proprietary dataset from a Big-4 accounting firm to empirically examine the influence of accounting quality, auditor expertise and audit service quality on client satisfaction and engagement profitability.

Auditing theory suggests that economic dependence on clients may impede auditor objectivity (DeAngelo 1981). Thus, researchers have sought to demonstrate relationships between engagement fees and accounting quality (using abnormal discretionary accruals as a proxy) (Hribar et al. 2011; Larcker and Richardson 2004; Ashbaugh et al. 2003; Chung and Kallapur 2003; Frankel et al. 2002; Reynolds and Francis 2001; Francis et al. 1999). Furthermore, archival studies have tested whether stronger auditor-client relationships hinder auditor independence (Johnson et al. 2002; Myers et al. 2003; Davis et al. 2009, Li 2009).

Overall, the documented evidence is mixed and inconclusive with regards to whether accounting quality is compromised by strong economic or relationship bonds between auditors and their clients (DeFond and Francis 2005). An implicit assumption in this prior research is that clients have a preference for opportunistic financial reporting and seek lenient monitoring from their auditors. However, clients that seek credibility from the accounting firm may prefer auditors who will not allow the company to produce low quality financial statements (Francis et al. 1999), because higher quality earnings can reduce the cost of capital. What clients want remains ambiguous: if clients do not favour auditors that permit more managerial discretion over accounting choices, then what are the determinants of client satisfaction, and what contributes to engagement profitability?

The auditing literature suggests that other dimensions of audit quality play a role in distinguishing auditors from their competitors. The size of an accounting firm or office has been associated with differences in accounting quality (Francis and Yu 2009; Francis et al. 1999; Becker et al. 1998). Researchers have also reported industry expertise distinctions amongst firms, which they have linked accounting quality (Reichelt and Wang 2010; Francis and Yu 2009; Balsam et al. 2003; Francis et al. 1999) and audit pricing (Ferguson et al. 2003; Francis and Stokes 1986). Though this archival research has identified accounting firm size and industry specialization as important proxies for audit quality, little is known about the role of auditors' service delivery processes. Field and survey research suggests that clients may not favour a high degree of auditor skepticism, and instead place importance on service quality from their auditors (e.g., responsiveness and fieldwork conduct) (Fiolleau et al. 2011; Behn et al. 1997). One study also attributes higher fees to greater client satisfaction with the audit team, but is unable to link this satisfaction premium to the quality attributes listed in its questionnaire (Behn et al. 1999).

By analyzing an accounting firm's service quality commitments to clients, conveyed in its proprietary client satisfaction survey, my study sheds light on what clients want from their auditors. I investigate the possibility that expertise and service dimensions of audit performance differentiate auditors from their competitors and, thus, dominate accounting quality in contributing to client satisfaction and engagement profitability.

Identifying how auditors generate profits by delivering on clients' expectations is an important step towards understanding auditor-client bonds, but it is difficult to disentangle audit clients' preferences using publicly available archival data. Rather than inferring audit client preferences or auditor-client bonds from fee levels, my analysis examines client survey data and realization rates to directly test the determinants of satisfaction and engagement profitability. Client survey responses are especially insightful because they offer perspectives of executives and audit committee members who make decisions on hiring, terminating and compensating auditors. I obtain client satisfaction ratings, as well as fees and realization rates from audit and non-audit services, and explore the roles of: (1) service quality (perceptions of service attributes, priority status); (2) technical expertise quality (perceptions of technical attributes, assignment of top national industry experts); (3) client and engagement characteristics (size, billed hours, industry); and (4) accounting quality (abnormal discretionary accruals).

Prior research has examined clients' economic importance to the accounting firm through audit and non-audit fee levels. As an alternative measure of economic bonding between auditors and clients, I study engagement realization rates to more precisely account for audit production costs and profit margins. It is possible that larger clients are more costly to audit (Simunic 1980), and potentially less profitable to the accounting firm. Realization rates represent an important metric that accounting firms use to measure engagement profitability. The engagement

realization rate captures the accounting firm's achievement of a cost-plus-profit target.¹ This measure reflects the accounting firm's ability to realize returns from client engagements by performing work within budget and by negotiating prices.² Partners' and managers' performance evaluations are based on a scorecard, and one element in this scorecard is the actual realization rates on their client portfolio. This study is the first to examine not only audit realization rates, but also overall rates for all client services, to investigate the role of non-audit services and gain a comprehensive perspective on client profitability.

The major obstacles to studying client satisfaction are the sensitivity of engagement profitability data and concerns about client confidentiality. The national office of one Big-4 firm provided a dataset by following my sample selection specifications and by masking client identities. To measure accounting quality, the accounting firm was provided with a database of abnormal discretionary accruals for its clients, which was calculated using the modified Jones' model (Dechow, Sloan and Sweeney 1995). Auditor industry expertise was captured by having the firm indicate whether the audit engagement partner and lead senior manager assigned to the client represent top national industry experts. Included in the dataset are client survey ratings of overall satisfaction with the accounting firm, as well as client perceptions of quality attributes that the firm identified as its standards of professional service. Furthermore, the sample is stratified by including two types of publicly-listed clients: those in the accounting firm's "priority" program (which offers enhanced service quality for the firm's most significant accounts), and those representing the firm's "average" clients. Examining clients from different

¹ The standard fee for the engagement is first determined by applying a standard hourly charge-out rate (cost-plus-profit target) for each grade of labour, multiplied by number of hours worked on the engagement. Billing and collection of fees equalling this standard fee amount would represent 100% actual realization. Fees are also charged for incidental expenses, such as travel and regulatory costs (e.g., PCAOB fees), but these incidental fees are not part of the realization calculation and are billed separately.

² Limited access to proprietary data has resulted in a dearth of research on realization rates. Researchers have characterized realization rates as proxies for audit production efficiency (Simunic and Stein 1996; Dopuch et al. 2003) and auditor-client friction (Hackenbrack and Hogan 2005).

tiers parallels the way in which the accounting firm tracks information for relationship management purposes, and also allows me to observe whether the highest level of client service provided by the accounting firm is associated with client satisfaction and engagement profitability.

I develop a regression model of satisfaction ratings with factors for auditor expertise, accounting quality, and client perceptions of technical and service quality. My findings suggest that the primary determinant of top satisfaction ratings is clients' perceptions of customized service quality (e.g., understanding the client's business and demonstrating responsiveness to the client). However, clients' priority status is not associated with greater satisfaction. With respect to auditor expertise, client satisfaction is positively associated with perceptions of technical quality, but not with the assignment of top industry experts. I find no association between abnormal discretionary accruals and client satisfaction ratings. My main analysis is regression models to analyze the determinants of engagement realization rates and fees for both total and audit services. My findings indicate that realization rates are determined primarily by perceptions of the firm's customized service quality. I provide further evidence that clients' economic importance to the firm is not associated with accounting quality. Neither audit fees, nor total fees, nor realization rates are associated with abnormal accruals.

My study contributes to better understanding what contributes to client satisfaction and engagement profitability. I extend prior research by investigating not only the financial reporting aspect of audit quality, but also the client service aspect that accounting firms invest in to generate profitable client relationships. My findings do not support the premise that auditors' pursuit of profits impairs their ability to enforce accounting quality. Instead, my results suggest that the accounting firm generates profits by seeking to satisfy clients through service activities.

Even though greater client satisfaction and profitability tighten bonds in the auditor-client relationship, these forces compel auditors to deliver high quality audit service and not low quality accounting. By studying the linkage between client satisfaction survey responses and realization rates, I provide insight into the role that client relationship management plays in the profitability of professional service firms.

In the next section, I discuss the accounting literature on auditor-client bonds and audit service quality, and I develop my hypotheses. In Section 3, I describe the sample and define the variables included in my analyses. Section 4 reports my analyses on the determinants of client satisfaction, and Section 5 examines the determinants of engagement profitability. I provide concluding remarks in Section 6.

2. Literature Review and Hypothesis Development

2.1 Accounting Quality and Economic Dependence on Clients

Previous studies define audit quality as the “joint probability that an auditor will (a) discover a breach in the client’s accounting system and (b) report the breach” (DeAngelo 1981). The outcomes of the audit can be observed through the auditor’s report and the client’s financial statements (Francis 2011). Audit quality has thus been determined using numerous constructs: auditors’ propensity to issue qualified opinions (e.g., Craswell et al. 2002; Butler et al. 2004) or going concern opinions (e.g., DeFond et al. 2002); audit litigation (e.g., Palmrose 1988; Lys and Watts 1994); financial statement restatements (e.g., Kinney et al. 2004; Palmrose and Scholz 2004); and accounting (or earnings) quality (e.g., see Francis 2011 for a comprehensive review). Examining accounting quality to learn about audit quality acknowledges the auditor’s role in the financial reporting supply chain. Abnormal discretionary accruals, as a proxy for accounting quality, measures the departure from statistical norms in a company’s accruals compared to peer

companies in the same industry and year (Dechow et al. 1995). The premise of research that studies abnormal accruals to learn about audit quality is that clients seek to report earnings opportunistically, which presumes that clients desire a low level of auditor monitoring so that they may apply more discretion over accrual choices.

The literature argues that auditors' economic dependence on the client, along with the expectation of earning economic rents from tenure, impairs auditor independence and, hence, reduces audit quality (DeAngelo 1981; Dye 1991). This perspective views profits as an economic incentive for auditors to deliver what clients want, presumably by exhibiting more leniency in clients' accounting choices. Concerns about auditor leniency regarding accounting quality have fuelled regulatory efforts to weaken auditor-client bonds. These concerns have motivated several studies to investigate relationships between audit or non-audit fees and the magnitude of abnormal discretionary accruals, but the evidence from these studies remains mixed: one segment of research documents a negative relationship between fees and accounting quality (Frankel et al. 2002; Hribar et al. 2011); another segment reports no association (Ashbaugh et al. 2003; Chung and Kallapur 2003; Larcker and Richardson 2004); yet another segment suggests that fees are positively associated with accounting quality (Becker et al. 1998; Francis et al. 1999). Although clients' economic importance to the auditor is the primary factor of interest in this literature, recent research reports that client characteristics are a key determinant of accounting quality (Lawrence et al. 2011).

A major limitation of this research is the lack of any direct link between audit fees and client preferences or engagement profitability. In this study, I analyze realization rates to capture the economic bonds between auditors and their clients. Engagement realization rates reflect the accounting firm's ability to achieve cost-plus-profit targets from a particular client. The

realization rate has been studied as a measure of audit production efficiency in prior research (Simunic and Stein 1996; Dopuch et al. 2003). Hackenbrack and Hogan (2005) take a different approach to the construct, positing that low realization rates reflect friction in the auditor-client relationship, which interferes with the auditor's ability to realize a fair rate of return on an engagement. I study the realization rate as an important factor that contributes to client profitability and represents the accounting firm's ability to achieve a cost-plus-profit target for the engagement. Other ways to enhance profitability include managing engagement team composition, effective budgeting, and setting fee levels. Since accounting firms are profit-seeking enterprises, partners and managers are evaluated on their ability to realize returns on engagements by controlling production costs and negotiating prices.

By taking into account production costs in performing the engagement, the realization rate offers a more comprehensive perspective on profitability than fees. If higher fees are driven by higher costs or risk attributes of audit clients (Simunic 1980; Francis and Stokes 1986), then high fees may not generate the rents posited by economic theory (Francis 2011). If a high fee audit entails high production costs, then fees would poorly represent the accounting firm's economic dependence on the client. Although prior research suggests that non-audit service fees from audit clients may lead to high profit margins (Simunic 1980), the major regulatory changes brought about by the Sarbanes-Oxley Act of 2002 (SOX) may have altered the relationship between audit fees, consulting fees and the respective profitability of providing these services. My study examines engagement realization rates, supplemented by an analysis of fees, for a more direct measure of client profitability and economic importance to the accounting firm. I analyze two realization rates for each client observation: the audit realization rate and the overall rate for all client services. Examining overall realization rates provides insight on clients'

economic importance through the roles of both audit and non-audit services in client engagement profitability.

2.2 The Production of High Quality Audits

Auditor performance of a baseline level of audit quality is enforced by professional accounting and auditing standards, oversight boards (e.g., the Canadian Public Accountability Board), and stock exchange listing requirements. Empirical findings suggest that quality distinctions can be made among auditors (e.g., Francis 2011 proposes a framework for audit quality research). Although there is an established body of literature on audit quality that focuses on factors that impair accounting quality, there remains more to be learned about the forces that compel auditors to perform high quality audits.

Klein and Leffler (1981) propose two market mechanisms that can induce a supplier to deliver high quality goods to consumers (i.e., fulfill contractual obligations) in the absence of third party enforcement. The first mechanism is a price premium that generates above average profitability. The prospect of a stream of future profits induces the supplier to produce high quality goods in the current period. This price mechanism, however, could unravel due to competition; thus, a monopoly or oligopoly protection from competition is necessary to preserve these economic premiums.³ The second quality-inducing mechanism is a non-price strategy to differentiate the supplier's goods from its competitors. This non-price mechanism involves investment in a firm-specific asset that creates sunk costs and provides a direct value to customers (e.g., investments in providing better customer service). Investments in sunk costs are a commitment to consumers through which the supplier signals its willingness to supply high quality, and it stands to incur massive losses if it defects from its quality standard. This

³ The debate about whether audit firms operate in competitive versus oligopoly markets is motivated, in part, to ascertain whether premium prices can be sustained in audit markets (Simunic 1980).

differentiation mechanism, thus, induces suppliers to provide a high level of quality to sustain future profits.

By studying auditor-client bonding through accounting firms' economic dependence on clients, the auditing literature has focused on the price premium mechanism that may influence audit quality. I contribute by examining how Klein and Leffler's (1981) product differentiation mechanism for sustaining profits may compel auditors to perform a high level of service quality in order to satisfy clients and enhance engagement profitability.

2.3 Differentiation through Audit Service Quality

Although the auditing literature has focused on the auditor's role in producing accounting quality in clients' financial statements, it is possible that audit service quality is more strongly associated with client satisfaction and profitability. Drawing from the marketing literature on consumer services (e.g., Parasuraman et al. 1991), service quality relates to audit clients' perceptions of how the accounting firm met their expectations. Service quality is significant in the market for audits because, according to Klein and Leffler's (1981) model of quality, suppliers may generate profits by investing in client service activities to enhance clients' perceptions of distinct service quality. I investigate service quality attributes by analyzing audit clients' ratings from an accounting firm's questionnaire.

Consumer research identifies five dimensions of service quality in the widely used SERVQUAL scale: tangibles, reliability, responsiveness, assurance and empathy (Parasuraman et al. 1991).⁴ Consumers rank the following three dimensions as most important to evaluating service quality (p. 449): (1) reliability (the provider's service is dependable and accurate); (2)

⁴ The accounting firm's questionnaire incorporates dimensions of quality that align with those presented by Parasuraman et al. (1991), except for the tangibles dimension, which relates to physical appearances of facilities and staff.

responsiveness (the provider is willing to help and is prompt); (3) assurance (the provider's knowledge conveys trust and confidence). In the accounting literature, only three studies examine client perceptions of audit quality (Carcello et al. 1992; Behn et al. 1997; Behn et al. 1999). These studies identify twelve attributes that reflect audit quality with respect to (1) fulfillment of professional auditing standards; (2) technical expertise and competence; and (3) service delivery. The reported results suggest that only expertise and service components of quality are associated with client satisfaction.⁵ In the current study, I investigate attributes that reflect the accounting firm's technical quality and service delivery.

i) Technical Performance Attributes

One way that accounting firms may implement Klein and Leffler's (1981) product differentiation mechanism is by offering a higher level of technical quality than its competitors. Technical quality relates to the reliability and assurance dimensions that consumers viewed as most important in the SERVQUAL scale (Parasuraman et al. 1991). In the provision of audit services, technical quality encompasses not only the mechanical aspects of performing audit work, but also expertise in accounting, auditing, and specific industries.

Researchers have examined the effect of audit firm and office size (Becker et al. 1998; Reynolds and Francis 2001; Francis and Yu 2009) and industry specialist expertise (Balsam et al. 2003; Ferguson et al. 2003; Reichelt and Wang 2010) on audit quality. The main finding of these studies is that larger offices of Big-4 firms, and local offices that are industry leaders, are better able to constrain clients' opportunistic use of discretion over accruals, and thus differentiate themselves from competitors through higher quality audits (Francis 2011). If clients demand

⁵ In the current study, the accounting firm's survey does not include any questions on auditor performance relative to professional standards.

auditor expertise and high quality audits, then accounting firms may increase client satisfaction and profitability by demonstrating technical and industry expertise.

Technical qualities are an important consideration to those who seek professional audit services. My study contributes to understanding the role of auditor expertise by examining client perceptions of technical quality attributes from survey responses. In addition, while prior research reports that expertise of the office plays a key role in local markets (using industry market leadership and concentration as proxies for expertise), I extend the literature by investigating the expertise of individual audit engagement partners and senior managers. The firm's assignment of individuals with nationally-recognized expertise may be more important than the geographical location of expertise if accounting firms are willing to relocate key individuals to perform client engagements (Fiolleau et al. 2011).

ii) Service Delivery Attributes

Auditors may sustain profitable client relationships through the process of delivering client services, such as being easily accessible and responding quickly to inquiries. Related to the second market mechanism proposed by Klein and Leffler (1981) involving product differentiation, service delivery attributes are privately experienced and observed by customers while being difficult for competitors to observe and imitate. Service delivery attributes are intangible qualities that are represented in consumer research by the responsiveness and empathy dimensions of the SERVQUAL scale (Parasuraman et al. 1991). I contribute by investigating how service delivery contributes to client satisfaction and engagement profitability.

Service quality may be more important than earnings quality or technical expertise in order to generate profits. Practitioner-oriented books and articles (e.g., Boress 2007; Dunn and

Baker 2003; Maister 1997) are mainly focused on client service quality (e.g. communication, responsiveness, and making the client feel important) and, to a lesser extent, industry expertise, which they see as the primary factors leading to higher fees and profits. A field study of how a client selects an auditor (Fiolleau et al. 2011) indicates that all Big 4 firms are seen as being similarly technically competent, such that differentiation among audit firms occurs primarily through non-audit specialty (especially tax) knowledge and service attributes, such as perceived responsiveness, commitment and fit with the client management team. These practitioner resources and field study findings reinforce the important role of Klein and Leffler's (1981) second quality-producing mechanism of non-price based differentiation, which can be perceived and valued by customers but cannot easily be copied by competitors. I analyze client perceptions of service quality in the participating firm's satisfaction survey responses.

Although audit fees have been linked to client satisfaction (Behn et al. 1999), this satisfaction premium is attributed to undocumented enhanced services that have not been explored in the literature. Fiolleau et al. (2011) provide insight into the standards of service proposed to a 'top-tier' client: auditors offered gestures of commitment to service quality to win favour with prospective clients, and accounting firms' national offices have dedicated units to monitor and manage service levels for priority clients. My analysis includes audit clients in a targeted priority program for a higher standard of service quality to investigate whether this priority status influences client satisfaction ratings and engagement realization rates.

Audit service expectations are set and directly experienced by client executives and audit committee members who hire auditors, provide satisfaction ratings and approve audit fee levels. Although auditors face economic pressures that strengthen auditor-client bonds, auditors' focus on client service quality may enable accounting firms to satisfy clients and sustain future profits.

By custom-tailoring services to suit client demands, the accounting firm may differentiate itself from competitors. Further, auditors may be in a stronger position to negotiate higher rates of return from clients that perceive a high level of service quality. Thus, I posit that client service quality is more important than accounting quality in determining audit client satisfaction and engagement profitability. I test the following hypotheses:

H1: Client satisfaction ratings are positively associated with audit quality attributes (technical performance and service delivery), rather than with accounting quality (magnitude of abnormal accruals).

H2: Audit and overall engagement realization rates are positively associated with audit quality attributes (technical performance and service delivery), rather than with accounting quality (magnitude of abnormal accruals).

3. Description of Sample and Variables

3.1 Sample

The national office of a Big 4 accounting firm has provided data on a sample of 70 publicly-listed audit clients without revealing their identities. All financial figures in the dataset are multiplied by a constant number known only to the audit firm to further mask client identities. The firm provided satisfaction ratings from its most recent client surveys at the time of data collection in 2010.

The sample includes 35 observations from audit clients on the firm's list of priority accounts (i.e. the largest accounts, which are specially monitored by a national office unit) and 35 observations from the remainder of its portfolio of clients. The priority clients were selected

first, and then a sample of non-priority clients (in the same year and industry) was selected to stratify the sample of audit clients.

The observation years range from 2007 to 2010. Six priority clients in the sample are repeated in different years. Three observations had missing values in its financial statement data; thus, the final sample for the regression analysis is made up of 67 observations.

3.2 Variable Definitions

The dataset includes measures of service quality attributes, accounting quality, auditor expertise, client characteristics, engagement characteristics, and client satisfaction ratings. For a list and summary of all variable definitions, refer to Table 1.

i) Client Satisfaction – Overall Rating

The participating accounting firm gathers feedback from clients via survey or interview using a client satisfaction questionnaire. Feedback is collected on an annual basis for priority clients and every 2-4 years for other clients. Respondents include one or a combination of client representative(s), including CEOs, CFOs, other management personnel and audit committee members of the client. The questionnaire collects ratings on several service dimensions and an overall rating of the client's satisfaction with the accounting firm. Ratings assess the professional services received as a whole; thus, if audit clients received significant tax and non-audit services, their evaluations would reflect their satisfaction with the entire service package. I create a dichotomous variable to measure overall client satisfaction because, based on discussions with the participating firm, the client ratings exhibit a bimodal distribution (corroborated through descriptive statistics). *TOPSATIS* is coded one if the overall satisfaction rating is above the

median and zero if it is below the median. Overall satisfaction is the key dependent variable in Section 4.

ii) Engagement Profitability

Client profitability is measured by actual realization rates for all professional services (*ALLREAL*) and for those specific to the audit engagement (*AUDITREAL*). For client engagements, a standard figure is first determined by multiplying a standard charge-out rate for each grade of labor by the forecasted number of hours on the engagement. The actual realization rate equals fees collected on the charge-out rate multiplied by chargeable hours, plus incidental incurred expenses, compared to the standard fee. For example, if collected fees are equal to the standard fee, the realization rate would be 100%. Realization rates for overall services and audit services are the key dependent variables in Section 5.

Engagement fees are the amounts collected from each client. *TOTALFEES* represents revenues from all professional services provided to the client during the year. *AUDITFEES* measures revenues collected for audit services provided to the client in the year. Fees for total and audit services are dependent variables in the supplemental analysis in Section 5.

iii) Accounting quality

Abnormal accruals (*DACC*) represent the auditor's ability to constrain the client's opportunistic use of discretion over accruals. This proxy for accounting quality implies that auditors perform high quality audits when they successfully withstand such client pressure and produce better quality financial reporting. A small magnitude of abnormal accruals suggests little deviation from accrual accounting at peer companies in the same industry and year.

The participating accounting firm was provided with a database of abnormal accruals for all of its publicly-listed audit clients using data from Compustat annual, enabling the firm to search for the clients in its sample and input the abnormal accruals values from the database accordingly. For observations selected by the firm that do not have accruals amounts in this database⁶, the accounting firm was provided with a spreadsheet (with expected accruals coefficients by industry and year) to enable them to manually calculate abnormal accruals from financial statement data and then input the values into the dataset.

Following Dechow et al. (1995), I estimate abnormal discretionary accruals using Equation (3) [i.e., Total Accruals in Equation (1) less Expected Total Accruals in Equation (2)] based on the modified Jones (1991) model.⁷ Since I am interested in managerial discretion over both aggressive and conservative accruals choices, I use the absolute value of abnormal accruals in developing my models.

Total Accruals:
$$TA_{it} = \beta_0(1/A_{it-1}) + \beta_1\Delta REV_{it} + \beta_2PPE_{it} + e_{it} \quad (1)$$

where:

TA_{it} = total accruals minus operating cash flow for company i for year t divided by total assets (AT) at the end of year $t-1$

A_{it-1} = total assets for company i at the end of year $t-1$

ΔREV_{it} = change in revenue from prior year for company i for year t divided by total assets at the end of year $t-1$

PPE_{it} = gross PP&E for company i at the end of year t divided by total assets at the end of year $t-1$

e_{it} = error term assumed to have normal OLS regression properties

⁶ The Compustat database may omit entries due to missing values or input errors.

⁷ I estimated expected accruals coefficients by industry (two-digit SIC code) and year, and I required at least 10 observations in each industry and year. I truncated the top and bottom percent of the distribution of all variables.

Expected Total Accruals:
$$ETA_{it} = \hat{\beta}_0 (1/A_{it-1}) + \hat{\beta}_1 (\Delta REV_{it} - \Delta REC_{it}) + \hat{\beta}_2 PPE_{it} \quad (2)$$

where:

$\hat{\beta}_0$ to $\hat{\beta}_2$ = estimated coefficients from Equation (1)

ETA_{it} = expected total accruals for company i in year t

ΔREC_{it} = change in accounts receivable from prior year for company i in year t

Abnormal Discretionary Accruals:
$$DACC_{it} = TA_{it} - ETA_{it} \quad (3)$$

As a robustness check on these findings from the absolute values of abnormal discretionary accruals, I also measure signed accruals. This analysis can also shed light on the relationship between client satisfaction or profitability and income-increasing or income-decreasing accruals.

iv) Audit Service Quality

The accounting firm's satisfaction survey measures client ratings on several service quality attributes, including (among others): timely communication, responsiveness, professional competence, technical ability, providing value-added service and understanding the client's business and expectations. In Section 4, I conduct a factor analysis (Everitt 2004) of the clients' responses to investigate the structure underlying these multiple attributes of service quality. This analysis identifies two dimensions of service quality to categorize the client survey data: customized service (*CUST_SERV*) and technical competence (*TECH_COMP*).

One additional variable captures the accounting firm's service commitments to the client. *PRIORITY* is coded one if the firm considers the client a priority account and manages the client relationship through a dedicated national office program to monitor service levels.

v) Auditor Industry Expertise

Auditor industry expertise is measured at the audit partner and senior manager level. The definitions of auditor industry expertise were developed in collaboration with the participating accounting firm. For each observation, one partner from the firm’s national office identified the lead audit partner and lead senior manager as top national industry experts. Figure 1 summarizes the criteria for assigning auditors to levels of expertise.

TOPPARTNER is coded one if the partner has practiced in the industry for longer than ten years, has a client portfolio comprised of greater than 75 percent from the industry, participates in internal and external industry-specific networks, contributes to thought leadership in the industry, and is a lead for a priority account in the industry. *TOPMANAGER* is coded one if the senior manager has practiced in the industry for longer than five years, has a client portfolio comprised of greater than 50 percent from the industry, participates in internal industry-specific networks and contributes to thought leadership in the industry. Table 2, Panel B, reports that 27 observations (40 percent) are assigned top expert partners, and 32 observations (47 percent) are assigned top expert senior managers.

Figure 1: Assignment of Auditor Industry Expertise Levels

Indicator of Expertise	Top Manager	Top Partner
Years of practice in industry	> 5 years	> 10 years
% of client portfolio represented by industry	50%	75%
Participates in internal industry-specific networks	Yes	Yes
Participates in external industry-specific networks	Maybe	Yes
Contributes to thought leadership in industry	Yes	Yes
Leads a priority account in industry	No	Yes

vi) *Client Characteristics*

I control for client characteristics, consistent with prior studies on the determinants of fees. *SIZE* is the client’s total assets at fiscal year-end prior to the survey date. *PROFIT* represents the client’s financial performance, indicating whether the client reported a profit

(coded one) or a loss (coded zero) in the fiscal year prior to the survey date. In the sample, 23 observations (34 percent) recorded a profit.

INDUSTRY is a dummy variable based on the one-digit SIC code for each industry in the sample of clients. Figure 2 describes the industries. For the analysis, *INDUSTRY7* and *INDUSTRY8* were aggregated because few observations were categorized under SIC code 8. In the regression models, the comparison industry is *INDUSTRY1*.

Figure 2: Industry Descriptions

Industry (1-digit SIC)	Description
1	Mining, resources, construction
2	Consumer goods
3	Manufacturing supplies
4	Transportation, energy, utilities
5	Durable goods, wholesale and retail
6	Financial services
7	Hospitality and technology services
8	Health and professional services

vii) Engagement Characteristics

Service mix of all professional services is indicated by *NONAUDITPERCENT*, which quantifies the percentage of revenues from the client attributable to tax and non-audit services, respectively. *HOURS* equals the number of hours recorded for all personnel assigned to the audit engagement relating to the client’s fiscal year-end prior to the survey date.

3.3 Descriptive Statistics and Correlation Matrix

To provide further information about the sample used for analysis in this study, Table 2 summarizes the frequency of dummy variables for client characteristics, including industry and financial performance, as well as auditor characteristics, including partner and manager

expertise. Table 3 reports report the mean, standard deviation, median and range of variables in the multivariate analysis.

The correlation matrix (Spearman coefficients) in Table 4 reports that the following variables for client and engagement characteristics are significantly correlated: *AUDITFEE*, *TOTALFEE*, *HOURS*, *PRIORITY* and *SIZE*. Including all of these variables as predictors in one regression model leads to a multicollinearity issue and reduces the precision of coefficient estimates. Consistent with prior research on audit client satisfaction and profitability, *SIZE* is used in the regression analysis to control for client size by total assets. To test role of clients' priority status I replace *SIZE* with *PRIORITY* in alternative regression models of satisfaction and realization rates. The control variable *HOURS* is excluded from the main regression models to avoid redundancy; regression models are developed using this variable to control for client size in sensitivity tests.

4. Client Satisfaction: What Do Clients Want from Their Auditors?

4.1 Factor Analysis of Service Quality Attributes

I conducted a maximum likelihood factor analysis (Everitt 2004) of the clients' responses to investigate the structure underlying these multiple attributes of service quality. Clients provided ratings for service attributes listed in categories in the firm's questionnaire.⁸ I calculated average scores from client responses for each service category. The factor analysis distinguished those categories that demonstrated common response patterns, which yielded two factors that characterize client perceptions of service quality: 1) technical competence (*TECH_COMP*) demonstrated high loadings on technical dimensions of service delivery that the firm could transfer to any client engagement (e.g., expertise and professionalism); and 2) custom-tailoring

⁸ In order to protect the identity of the participating firm, labels for the service categories are not presented here.

of services to the client (*CUST_SERV*) exhibited high loadings on dimensions specific to the client's demands (e.g., responsiveness to the client's needs). I calculate factor scores for both technical competence and customized service for each observation to investigate the association between client perceptions of service quality and client satisfaction.⁹

4.2 Tests of Hypotheses

i) Correlation Analysis

Table 4 reports correlation analysis (Spearman correlation coefficients). An examination of abnormal accruals indicates a positive relationship with satisfaction, but this correlation is not significant. Consistent with H1, client perceptions of technical competence quality are associated with higher satisfaction ratings. The correlation analysis also indicates that client satisfaction is positively correlated with customized service delivery, further supporting H1.

ii) Logistic Regression Model: Client Satisfaction

I develop a logistic regression model to investigate the determinants of client satisfaction. The dichotomous satisfaction variable, bisected at the median rating, is regressed on client service quality dimensions, abnormal accruals, auditor industry expertise, service mix, and control variables based on prior studies.

Test Variable Model 1: Client Satisfaction

$$\begin{aligned} TOPSATIS = & b_0 + b_1TECH_COMP + b_2CUST_SERV + b_3|DACC| + \\ & + b_4TOPPARTNER + b_5TOPMANAGER \\ & + b_6NONAUDITPERCENT + b_7SIZE + b_8PROFIT + b_{9-14}INDUSTRY_{2-7} + e \end{aligned}$$

where:

⁹ To investigate whether my two client service factors, technical competence and customized service, are associated with the other independent or control variables in my study, I regressed the factor scores for *TECH_COMP* and *CUST_SERV* as dependent variables. None of the test variables were associated with the client service factors, and the regression models had low predictive power (adjusted R-squareds of 0.01 for technical competence and 0.09 for customized service).

<i>TOPSATIS</i>	=	1 if overall satisfaction rating is greater than the median, and 0 otherwise
<i>TECH_COMP</i>	=	factor score for technical competence quality dimensions
<i>CUST_SERV</i>	=	factor score for customized service quality dimensions
<i>TOPPARTNER</i>	=	1 if the lead audit partner is designated a top national expert, and 0 otherwise
<i>TOPMANAGER</i>	=	1 if the lead audit senior manager is designated a top national expert, and 0 otherwise
<i> DACC </i>	=	absolute value of abnormal discretionary accruals
<i>NONAUDITPERCENT</i>	=	percentage of total revenues from the client attributable to tax and other non-audit services
<i>PROFIT</i>	=	1 if the client recorded a profit, and 0 otherwise
<i>SIZE</i>	=	total assets at fiscal year-end prior to the survey date
<i>INDUSTRY_j</i>	=	1 if the client is in industry 1, 2, ..., 6 and 7 (based on one-digit SIC code), and 0 otherwise, where <i>INDUSTRY1</i> is the comparison industry excluded from the model
<i>e</i>	=	the error term, assumed to have normal OLS regression properties

The test variable model in Table 5 is significant ($p < 0.001$) and reports on client satisfaction. In Panels A and B, the only significant coefficients are technical competence (1.509, $p = 0.011$) and service customization (3.072, $p = 0.001$). This finding suggests that clients are more likely to assign top satisfaction ratings when they perceive that the accounting firm delivered high quality service, with the customized service factor being the primary determinant of overall satisfaction. In contrast to the consumer research on service quality, dimensions of responsiveness and empathy appear to be more important drivers of top satisfaction scores than reliability and assurance in the professional audit setting. Auditor reliability and assurance may be minimum standards that meet the requirements of professional competence, but responsiveness to client needs presents a salient service distinction to audit clients.

The assignment of industry expert personnel is not associated with top client satisfaction ratings. In addition, Panel B reports that priority clients are not more likely to assign top satisfaction rating. Lastly, the magnitude of abnormal discretionary accruals is not significant. Overall, the findings support H1 on client satisfaction being attributable to technical and service

quality, but only with respect to client perceptions (measured by the two factors from survey responses).

4.3 Additional Analyses

i) Sensitivity Analysis with Audit Hours as a Control Variable

When *SIZE* is replaced by *HOURS* as an alternative control variable engagement scope, the same two factors as the main analysis (technical competence and customized service factors) are positively and significantly associated with top satisfaction scores (not tabulated).

ii) Robustness Check of Earnings Quality: Signed Abnormal Discretionary Accruals

I substitute signed (positive and negative) accruals for absolute values of abnormal accruals as an indicator of earnings quality. I find that this measure of earnings quality is not associated with client satisfaction. Consistent with H1, the two service components (technical competence and customized service) are the only factors associated with top client service ratings (not tabulated).

5. What Makes Audit Clients Profitable?

5.1 Tests of Hypotheses

i) Correlation Analysis

Table 4 reports correlation analysis (Spearman correlation coefficients). Due to the formula for calculating realization, overall (*ALLREAL*) and audit realization rates (*AUDITREAL*) are correlated with total fees (*TOTALFEES*), audit fees (*AUDITFEES*) and audit hours (*HOURS*). The magnitude of abnormal accruals is positively correlated with realization rates, but this correlation is not significant. Partially supporting H2, audit realization is also positively correlated with the assignment of a top industry expert senior manager (but not audit partner).

Also consistent with H2, audit (but not overall) profitability, realization rates are positively correlated with client's perceptions of customized service quality.

ii) Regression Models: Realization Rates

To investigate the determinants of client profitability, I develop ordinary least squares regression models. Overall and audit realization rates are regressed on client service quality dimensions, abnormal accruals, auditor industry expertise, service mix, and control variables based on prior studies of fee determinants (e.g., Simunic 1980; Hribar et al. 2011).

Test Variable Model 2: Overall Realization

$$\begin{aligned}
 ALLREAL = & b_0 + b_1TOPSATIS + b_2TECH_COMP + b_3CUST_SERV + b_4|DACC| + \\
 & + b_5TOPPARTNER + b_6TOPMANAGER \\
 & + b_7NONAUDITPERCENT + b_8SIZE + b_9PROFIT \\
 & + b_{10-15}INDUSTRY_{2-7} + e
 \end{aligned}$$

Test Variable Model 3: Audit Realization

$$\begin{aligned}
 AUDITREAL = & b_0 + b_1TOPSATIS + b_2TECH_COMP + b_3CUST_SERV + b_4|DACC| + \\
 & + b_5TOPPARTNER + b_6TOPMANAGER \\
 & + b_7NONAUDITPERCENT + b_8SIZE + b_9PROFIT \\
 & + b_{10-15}INDUSTRY_{2-7} + e
 \end{aligned}$$

where:

<i>ALLREAL</i>	=	blended realization rate for all professional services provided to the client
<i>AUDITREAL</i>	=	realization rate for the client's audit engagement
<i>TOPSATIS</i>	=	1 if overall satisfaction rating is greater than the median, and 0 otherwise
<i>TECH_COMP</i>	=	factor score for technical competence quality dimensions
<i>CUST_SERV</i>	=	factor score for customized service quality dimensions
<i>TOPPARTNER</i>	=	1 if the lead audit partner is designated a top national expert, and 0 otherwise
<i>TOPMANAGER</i>	=	1 if the lead audit senior manager is designated a top national expert, and 0 otherwise
<i> DACC </i>	=	absolute value of abnormal discretionary accruals
<i>NONAUDITPERCENT</i>	=	percentage of total revenues from the client attributable to tax and other non-audit services
<i>PROFIT</i>	=	1 if the client recorded a profit, and 0 otherwise
<i>SIZE</i>	=	total assets at fiscal year-end prior to the survey date

$INDUSTRY_j$ = 1 if the client is in industry 1, 2, ..., 6, 7 and 8 (based on one-digit SIC code), and 0 otherwise, where $INDUSTRY_1$ is the comparison industry excluded from the model

e = the error term, assumed to have normal OLS regression properties

Test variable models 2 and 3 in Table 6 are significant ($p < 0.001$) and the adjusted R-squares are 24 percent (overall realization) and 18 percent (audit realization). The test variables add predictive power to the realization rate models; the adjusted R-squares of the control variable-only models are 2.6 percent (overall realization) and -2.1 percent (audit realization). The magnitude of abnormal discretionary accruals ($|DACC|$) is not associated with overall or audit realization rates. Furthermore, I find no association between top satisfaction ratings and realization rates. With respect to technical performance, the coefficients on the technical competence factor and the dummy variables for assigning a top national expert partner and manager are not significant, counter to H2.

Panel A reports overall realization rates. Consistent with H2, the coefficient on client perceptions of service customization is positive and significant (0.076, $p = 0.009$). Panel B on audit realization also reports a positive and significant coefficient for the customized service attribute (0.086, $p = 0.006$). Thus, H2 is supported for both overall and audit profitability with respect to client perceptions of service customization. The results regarding technical performance of the audit, however, do not support H2; the coefficients on the technical competence factor and the dummy variables for assigning a top national expert partner and manager are not significant. The results suggest that client profitability is driven primarily by perceptions of the accounting firm's custom-tailoring of client service, supporting the notion that the accounting firm is able to realize better returns when it differentiates itself through a high level of service quality.

In Table 7, I substitute priority status for client size and find that priority is not associated with either overall or audit realization rates. These findings are inconsistent H2 with regards to the relationship between priority status and realization rates. However, similar to the regression model in the main analysis, I find that the customized service factor is the only significant determinant of overall realization (0.081, p=0.007) and audit realization (0.089, p=0.004).

5.3 Additional Analyses

i) Engagement Fees

I develop regression models to compare my sample with prior literature on the determinants of audit fees. Total fees and audit fees are regressed on client service quality dimensions, abnormal accruals, auditor industry expertise, service mix, and control variables.

Test Variable Model 4: Total Fees

$$\begin{aligned} TOTALFEE = & b_0 + b_1TOPSATIS + b_2TECH_COMP + b_3CUST_SERV + b_4|DACC| + \\ & + b_5TOPPARTNER + b_6TOPMANAGER \\ & + b_7NONAUDITPERCENT + b_8SIZE + b_9PROFIT \\ & + b_{10-15}INDUSTRY_{2-7} + e \end{aligned}$$

Test Variable Model 5: Audit Fees

$$\begin{aligned} AUDITFEE = & b_0 + b_1TOPSATIS + b_2TECH_COMP + b_3CUST_SERV + b_4|DACC| + \\ & + b_5TOPPARTNER + b_6TOPMANAGER \\ & + b_7NONAUDITPERCENT + b_8SIZE + b_9PROFIT \\ & + b_{10-15}INDUSTRY_{2-7} + e \end{aligned}$$

where:

<i>TOTALFEE</i>	=	the natural log of total revenues for all professional services provided to the client
<i>AUDITFEE</i>	=	the natural log of revenues for the audit engagement
<i>TOPSATIS</i>	=	1 if overall satisfaction rating is greater than the median, and 0 otherwise
<i>TECH_COMP</i>	=	factor score for technical competence quality dimensions
<i>CUST_SERV</i>	=	factor score for customized service quality dimensions
<i>TOPPARTNER</i>	=	1 if the lead audit partner is designated a top national expert, and 0 otherwise

<i>TOPMANAGER</i>	=	1 if the lead audit senior manager is designated a top national expert, and 0 otherwise
<i> DACC </i>	=	absolute value of abnormal discretionary accruals
<i>NONAUDITPERCENT</i>	=	percentage of total revenues from the client attributable to tax and other non-audit services
<i>PROFIT</i>	=	1 if the client recorded a profit, and 0 otherwise
<i>SIZE</i>	=	total assets at fiscal year-end prior to the survey date
<i>INDUSTRY_j</i>	=	1 if the client is in industry 1, 2, ..., 6, 7 and 8 (based on one-digit SIC code), and 0 otherwise, where <i>INDUSTRY1</i> is the comparison industry excluded from the model
<i>e</i>	=	the error term, assumed to have normal OLS regression properties

In Table 8, Panel A reports that total client engagement fees are primarily determined by client size (in the test variable model, 0.395, $p < 0.001$). In this model, the customized service factor is negatively and significantly associated with fees, but the test variables for client service quality, auditor expertise and abnormal accruals add little predictive power to the model (adjusted R-squared of 0.573, compared to 0.546 in the control variable model). Similarly, client size is significant in the audit fee model (0.369, $p < 0.001$). Customized service scores are negatively and significantly associated with audit fees, and the assignment of a top industry expert senior manager is related to higher fees. However, the test variables add little predictive power to this model (adjusted R-squared of 0.520 in the test model, compared to 0.484 in the control variable model). Size is a strong predictor of fees, emphasizing the need to consider client characteristics and audit production costs when examining economic bonds between auditors and clients.

Similar to the findings in Behn et al. (1999), my results indicate that audit fees are not associated with overall client satisfaction with the audit firm. Consistent with prior research, as well as my findings related to client profitability, I find that neither total nor audit fees are associated with abnormal accruals (Ashbaugh et al. 2003; Chung and Kallapur 2003; Reynolds and Francis 2001).

ii) Sensitivity Analysis with Audit Hours as a Control Variable

The regression models above control for client size by measuring total assets. An alternative measure of client size is the number of audit hours spent on the engagement. In addition to company size, other factors related to the audit engagement may contribute to this measure: the auditor's assessment of risk; the complexity and scope of the audit; and audit effort. I re-run my regression models for engagement realization and overall satisfaction, and I replace total assets with audit hours (*HOURS*) as the control variable for client size.

I find a similar pattern of results compared to the total assets model. For overall and audit realization, customized service is positive and significant (0.083, $p=0.003$ for overall and 0.093, $p=0.002$ for audit, not tabulated). Audit hours are also positively associated with overall realization (0.044, $p=0.02$, not tabulated) and audit realization (0.048, $p=0.016$, not tabulated).

iii) Robustness Check of Earnings Quality: Signed Abnormal Discretionary Accruals

I substitute signed (positive and negative) accruals for the absolute values of accruals to investigate how earnings quality is associated with engagement profitability. Consistent with the main analysis, I find that signed accruals are not associated with overall or audit realization rates (not tabulated).

6. Conclusion

This study investigates the influence of service quality attributes, accounting quality, auditor expertise and engagement characteristics on audit client satisfaction and profitability. I provide evidence that service quality (including responsiveness and understanding the client's business) is the primary determinant of satisfaction and realization rates. Although client perceptions of technical quality are positively associated with higher satisfaction ratings, they do

not contribute to increased realization rates. Thus, technical competence appears to be a “hygiene factor”¹⁰ that is necessary to the client engagement but does not enhance profitability.

Furthermore, I do not find an association between accounting quality and satisfaction or profitability. My findings do not indicate that the accounting firm’s pursuit of profits impairs accounting quality. Instead, consistent with Klein and Leffler’s (1981) market mechanism of product differentiation, a focus on delivering high quality service enables auditors to enhance client satisfaction and realize higher returns on client engagements. The prospect of sustained profits compels auditors to deliver a high level of service quality, even though high realization rates strengthen economic bonds between the accounting firm and its clients.

To address concerns that auditors are inclined to win favour with clients, regulators have sought to weaken auditor-client bonds and strengthen professional judgment. In response, the literature has focused on the relationships among publicly observable indicators of economic dependence (e.g., audit and non-audit fees), auditor industry expertise (e.g., accounting firm size and market leadership) and audit quality (e.g., earnings quality). My examination of proprietary data on engagement realization rates is a more comprehensive test of economic bonding that takes into account audit production costs and profit margins. My findings suggest that, rather than impede accounting quality, the pursuit of profits induces the auditor to provide a high level of service quality.

This study of client satisfaction survey responses is a direct test of what audit clients want from their accounting firm. I contribute by investigating how clients perceive the accounting firm’s internal identification of auditor industry expertise and service quality standards. These

¹⁰ Practitioner resources assign the label “hygiene factors” to the activities that are required for client relationship maintenance but insufficient for delivering excellent, differentiated service quality (e.g., Maister 1997).

quality measures represent important dimensions on which the accounting firm may distinguish itself from competitors in order to satisfy clients and generate profits.

Future research is needed to extend the current study and address its limitations. I examine a sample of clients from one Big-4 audit firm; the differences among professional services firms would be better understood by studying the determinants of client satisfaction and profitability at a peer firm, or at a smaller firm that offers a different value proposition. An extension of this study could explore how other members of the professional service team contribute to client satisfaction and profitability, including the client relationship partner, the technical partner and non-audit (e.g. tax) personnel. The activities of the relationship partner or tax partner may be more visible and valuable to the client, and it is possible that these contributions dominate client perceptions of the accounting firm.

The antecedents and consequences of severe client dissatisfaction are also worthy of study. A launching point for such an investigation would be a field study of clients that assigned very low satisfaction ratings. Another potential avenue for future study is the perceptions of different respondents at the client. The current study aggregates survey responses from CFOs, audit committee chairs, controllers, and other client contacts. Prior field research suggests that client management and audit committees diverge in what they seek from prospective auditors, and also differ in their relationships with accounting firms (Fiolleau et al. 2011). Even though they jointly determine auditor compensation, managers and directors face different incentives and are likely to perceive and value different dimensions of audit and service quality. Lastly, my study provides evidence that a focus on client service translates into economic outcomes for auditors, highlighting the need for further research into how these service activities influence accounting judgments and decisions.

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Table 1: Variable Definitions

<i> DACC </i>	=	absolute value of abnormal discretionary accruals
<i>ALLREAL</i>	=	blended realization rate for all professional services provided to the client
<i>AUDITFEE</i>	=	the natural log of fees (net service revenues) for the audit engagement
<i>AUDITREAL</i>	=	realization rate for the client's audit engagement
<i>CUST SERV</i>	=	factor score for customized service quality attributes
<i>HOURS</i>	=	the natural log of audit hours charged by all personnel assigned to the audit engagement
<i>INDUSTRY1-INDUSTRY8</i>	=	client's industry based on one-digit SIC codes
<i>NONAUDITPERCENT</i>	=	percentage of total revenues from the client attributable to tax and other non-audit services
<i>PRIORITY</i>	=	1 if the client is a priority account specifically monitored by a national office program, and 0 otherwise
<i>PROFIT</i>	=	1 if the client recorded a profit, and 0 otherwise
<i>SIZE</i>	=	total assets at fiscal year-end prior to the survey date
<i>TECH COMP</i>	=	factor score for technical competence quality attributes
<i>TOPMANAGER</i>	=	1 if the lead audit senior manager is designated a top national expert : has practiced in the industry for longer than five years, has a client portfolio comprised of greater than 50 percent from the industry, participates in internal industry-specific networks and contributes to thought leadership in the industry; and 0 otherwise
<i>TOPPARTNER</i>	=	1 if the lead audit partner is designated a top national expert: has practiced in the industry for longer than ten years, has a client portfolio comprised of greater than 75 percent from the industry, participates in internal and external industry-specific networks, contributes to thought leadership in the industry, and is a lead for a priority account in the industry; and 0 otherwise
<i>TOPSATIS</i>	=	1 if overall satisfaction rating is greater than the median, and 0 otherwise
<i>TOTALFEE</i>	=	the natural log of total fees (net service revenues) for all professional services provided to the client

Table 2: Frequency Tables of Dummy Variables

PANEL A: Industry

Frequency Table of Client Industry

Industry (1-digit SIC)	Description	Frequency	Percent (%)
1	Mining, resources, construction	19	28.35
2	Consumer goods	6	8.96
3	Manufacturing supplies	17	25.37
4	Transportation, energy, utilities	7	10.45
5	Durable goods, wholesale and retail	5	7.46
6	Financial services	3	4.48
7 and 8	Consumer and commercial services	10	14.93
Total		67	100.00

PANEL B: Auditor Expertise

Frequency Table of Top Industry Expert Auditors

	Partner Expertise		Manager Expertise	
	Frequency	Percent (%)	Frequency	Percent (%)
Top Expert	27	40.30	32	47.76
Others	40	59.70	35	52.24
Total	67	100.00	67	100.00

Table 3: Descriptive Statistics of Variables in the Multivariate Analysis

Variable	N	Mean	St Dev	Median	Minimum	Maximum
<i>ALLREAL</i>	70	57%	15%	56%	29%	112%
<i>AUDITREAL</i>	70	57%	16%	56%	30%	114%
<i>TOTALFEE</i>	70	13.058	1.296	13.083	9.626	15.735
<i>AUDITFEE</i>	70	12.686	1.284	12.744	8.953	15.369
<i>TOPSATIS</i>	70	0.486	0.503	0.000	0.000	1.000
<i>TECH_COMP</i>	70	0.000	0.878	0.100	-5.290	1.081
<i>CUST_SERV</i>	70	0.000	0.852	0.009	-2.831	2.102
<i>TOPPARTNER</i>	70	0.400	0.493	0.000	0.000	1.000
<i>TOPMANAGER</i>	70	0.457	0.502	0.000	0.000	1.000
<i>DACC</i>	69	0.186	0.678	0.050	0.001	4.921
<i>NONAUDITPERCEN</i> <i>T</i>	70	28%	18%	26%	-36%	88%
<i>PROFIT</i>	67	0.701	0.461	1.000	0.000	1.000
<i>PRIORITY</i>	70	0.500	0.504	0.500	0.000	1.000
<i>SIZE</i>	69	6.320	2.205	6.383	0.820	10.794
<i>HOURS</i>	70	7.712	1.107	7.778	4.836	10.467

Industry dummy variables are not reported for brevity.

Table 4: Spearman Correlation Matrix

	<i>ALLREAL</i>	<i>AUDITREAL</i>	<i>TOTALFEE</i>	<i>AUDITFEE</i>	<i>TOPSATIS</i>	<i>TECH_COMP</i>	<i>CUST_SERV</i>	<i>TOPPARTNER</i>	<i>TOPMANAGER</i>	<i> DACC </i>	<i>NONAUDITPERCENT</i>	<i>PROFIT</i>	<i>PRIORITY</i>	<i>SIZE</i>
Variables														
<i>AUDITREAL</i>	0.923													
<i>TOTALFEE</i>	0.360	0.373												
<i>AUDITFEE</i>	0.398	0.429	0.961											
<i>TOPSATIS</i>	0.173	0.209	0.010	0.018										
<i>TECH_COMP</i>	0.098	0.110	0.254	0.247	0.563									
<i>CUST_SERV</i>	0.195	0.244	-0.086	-0.080	0.694	0.504								
<i>TOPPARTNER</i>	0.038	-0.017	0.014	0.046	-0.035	0.001	-0.096							
<i>TOPMANAGER</i>	0.221	0.268	0.291	0.339	0.026	0.058	0.028	-0.047						
<i> DACC </i>	0.160	0.121	-0.054	0.062	0.086	0.076	0.190	0.157	-0.058					
<i>NONAUDITPERCENT</i>	-0.090	-0.105	0.238	0.035	-0.053	0.140	0.037	-0.038	-0.831	0.151				
<i>PROFIT</i>	0.033	0.052	0.329	0.302	-0.186	-0.093	-0.213	0.070	0.017	-0.167	-0.096			
<i>PRIORITY</i>	0.204	0.209	0.704	0.708	-0.057	0.294	-0.050	0.117	0.229	-0.100	0.154	0.316		
<i>SIZE</i>	0.273	0.247	0.763	0.703	-0.112	0.166	-0.071	-0.095	0.413	-0.158	0.181	0.400	0.543	
<i>HOURS</i>	0.324	0.307	0.900	0.925	-0.010	0.273	-0.101	0.098	0.204	0.001	0.092	0.231	0.694	0.653

Coefficients in **bold** are significant at 5%. Industry dummy variables are not reported for brevity.

Table 5: Logistic Regression Analysis of Top Client Satisfaction Scores

PANEL A: Dependent Variable is the Probability of a Satisfaction Score above Median (*TOPSATIS*, N = 67)

Model 1 Variable	Control Variable Model		Test Variable Model		
	Estimate	p-value	Estimate	p-value	
INTERCEPT	1.078	0.344	1.204	0.614	
<i>TECH_COMP</i>			1.509	0.011	**
<i>CUST_SERV</i>			3.072	0.001	***
<i>ABDACC</i>			4.856	0.512	
<i>TOPPARTNER</i>			0.980	0.320	
<i>TOPMANAGER</i>			0.669	0.589	
<i>NONAUDITPERCEN</i>					
<i>T</i>	0.348	0.826	-0.895	0.589	
<i>SIZE</i>	-0.075	0.643	-0.337	0.261	
<i>PROFIT</i>	-0.551	0.390	-0.736	0.496	
Chi-Square	12.061	0.21	48.974	<.0001	

***Significant at p = 0.01. **Significant at p = 0.05. Coefficient p-values are two-tailed and based on Wald Chi-squares. Estimates for industry dummies are not reported for brevity.

PANEL B: Priority Status as a Control Variable

Dependent Variable is the Probability of a Satisfaction Score above Median (*TOPSATIS*, N = 67)

Model 1 Variable	Test Variable Model		
	Estimate	p-value	
INTERCEPT	-0.754	0.639	
<i>TECH_COMP</i>	1.319	0.018	**
<i>CUST_SERV</i>	2.931	0.001	***
<i>ABDACC</i>	4.820	0.505	
<i>TOPPARTNER</i>	0.988	0.319	
<i>TOPMANAGER</i>	0.306	0.798	
<i>NONAUDITPERCEN</i>			
<i>T</i>	-0.690	0.790	
<i>PRIORITY</i>	-0.239	0.807	
<i>PROFIT</i>	-0.901	0.391	
Chi-Square	47.663	<.001	

***Significant at p = 0.01. **Significant at p = 0.05. Coefficient p-values are two-tailed and based on Wald Chi-squares. Estimates for industry dummies are not reported for brevity.

Table 6: Multivariate Regression Analysis of Realization Rates

Panel A: Dependent Variable is Overall Realization (*ALLREAL*, N= 67)

Model 2	Control Variable Model		Test Variable Model			
Variable	Estimate	p-value		Estimate	p-value	
INTERCEPT	0.485	<.0001	***	0.371	<.0001	***
<i>TOPSATIS</i>				0.049	0.300	
<i>TECH_COMP</i>				-0.005	0.815	
<i>CUST_SERV</i>				0.076	0.009	***
<i>ABDACC</i>				0.002	0.930	
<i>TOPPARTNER</i>				0.440	0.220	
<i>TOPMANAGER</i>				0.076	0.114	
<i>NONAUDITPERCEN</i>						
<i>T</i>	-0.156	0.159		-0.139	0.185	
<i>SIZE</i>	0.023	0.049	**	0.017	0.125	
<i>PROFIT</i>	-0.049	0.299		-0.023	0.603	
F-Value	1.170	0.332		2.350	0.012	
Adj-R²		0.026			0.2352	

Panel B: Dependent Variable is Audit Realization (*AUDITREAL*, N = 67)

Model 3	Control Variable Model		Test Variable Model			
Variable	Estimate	p-value		Estimate	p-value	
INTERCEPT	0.496	<.0001	**	0.367	0.000	***
<i>TOPSATIS</i>				0.056	0.269	
<i>TECH_COMP</i>				0.004	0.873	
<i>CUST_SERV</i>				0.086	0.006	***
<i>ABDACC</i>				-0.012	0.674	
<i>TOPPARTNER</i>				0.047	0.223	
<i>TOPMANAGER</i>				0.097	0.061	
<i>NONAUDITPERCEN</i>						
<i>T</i>	-0.178	0.142		-0.147	0.188	
<i>SIZE</i>	0.022	0.083		0.013	0.266	
<i>PROFIT</i>	-0.034	0.083		0.003	0.955	
F-Value	0.850	0.575		2.330	0.013	
Adj-R²		-0.021			0.2319	

***Significant at p = 0.01. **Significant at p = 0.05. Coefficient p-values are two-tailed and based on t-statistics. Estimates for industry dummies are not reported for brevity.

Table 7: Analysis of Realization Rates Controlling for Priority Status

Panel A: Dependent Variable is Overall Realization (*ALLREAL*, N= 67)

Model 2	Test Variable Model	
Variable	Estimate	p-value
INTERCEPT	0.450	<.001
<i>TOPSATIS</i>	0.039	0.419
<i>TECH_COMP</i>	0.000	0.988
<i>CUST_SERV</i>	0.081	0.007 ***
<i>ABDACC</i>	0.003	0.926
<i>TOPPARTNER</i>	0.042	0.254
<i>TOPMANAGER</i>	0.091	0.066
<i>NONAUDITPERCEN</i>		
<i>T</i>	-0.115	0.273
<i>PRIORITY</i>	0.026	0.540
<i>PROFIT</i>	-0.009	0.833
F-Value	2.130	0.023
Adj-R²		0.2046

Panel B: Dependent Variable is Audit Realization (*AUDITREAL*, n = 67)

Model 3	Test Variable Model	
Variable	Estimate	p-value
INTERCEPT	0.431	<.0001
<i>TOPSATIS</i>	0.048	0.349
<i>TECH_COMP</i>	0.004	0.858
<i>CUST_SERV</i>	0.089	0.004 ***
<i>ABDACC</i>	-0.009	0.764
<i>TOPPARTNER</i>	0.043	0.273
<i>TOPMANAGER</i>	0.101	0.053
<i>NONAUDITPERCEN</i>		
<i>T</i>	-0.134	0.227
<i>PRIORITY</i>	0.039	0.379
<i>PROFIT</i>	0.007	0.878
F-Value	2.280	0.015
Adj-R²		0.2248

***Significant at p = 0.01. **Significant at p = 0.05. Coefficient p-values are two-tailed and based on t-statistics. Estimates for industry dummies are not reported for brevity.

Table 8: Multivariate Regression Analysis of Fees

Panel A: Dependent Variable is Total Fees (*TOTALFEE*, N= 67)

Model 4 Variable	Control Variable Model			Test Variable Model		
	Estimate	p-value		Estimate	p-value	
INTERCEPT	9.763	<.0001	***	9.163	<.0001	***
<i>TOPSATIS</i>				0.453	0.135	
<i>TECH_COMP</i>				0.005	0.972	
<i>CUST_SERV</i>				-0.365	0.042	**
<i>ABDACC</i>				-0.157	0.369	
<i>TOPPARTNER</i>				0.093	0.679	
<i>TOPMANAGER</i>				0.575	0.060	
<i>NONAUDITPERCEN</i>						
<i>T</i>	0.650	0.306		1.082	0.103	
<i>SIZE</i>	0.427	<.0001	***	0.395	<.0001	***
<i>PROFIT</i>	0.229	0.396		0.277	0.312	
F-Value	9.820	<.0001		6.910	<.0001	
Adj-R²		0.546			0.5734	

Panel B: Dependent Variable is Audit Fees (*AUDITFEE*, n = 67)

Model 5 Variable	Control Variable Model			Test Variable Model		
	Estimate	p-value		Estimate	p-value	
INTERCEPT	9.964	<.0001	***	0.932	<.0001	***
<i>TOPSATIS</i>				0.478	0.131	
<i>TECH_COMP</i>				0.034	0.812	
<i>CUST_SERV</i>				-0.375	0.046	**
<i>ABDACC</i>				-0.172	0.347	
<i>TOPPARTNER</i>				0.124	0.598	
<i>TOPMANAGER</i>				0.644	0.045	**
<i>NONAUDITPERCEN</i>						
<i>T</i>	-0.953	0.155		-0.501	0.465	
<i>SIZE</i>	0.409	<.0001	***	0.369	<.0001	***
<i>PROFIT</i>	0.268	0.345		0.326	0.256	
F-Value	7.880	<.0001		4.508	<.0001	
Adj-R²		0.484			0.5203	

***Significant at p = 0.01. **Significant at p = 0.05. Coefficient p-values are two-tailed and based on t-statistics. Estimates for industry dummies are not reported for brevity.