

The Joint Determination of Audit Fees, Non-Audit Fees, and Abnormal Accruals

by¹

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Abstract

Prior research has estimated piecemeal the determinants of audit fees, non-audit services fees and abnormal accruals. Intuition, informal analysis, and a variety of theories of various aspects of auditor-client interaction suggest that audit fees, nonaudit fees, and abnormal accruals are jointly determined. We address this endogeneity issue by modeling the confluence of audit fees, fees for non-audit services and abnormal accruals in a system of simultaneous equations. Using audit and non-audit fee data from the U.K. for 1994-2000, we find evidence consistent with knowledge spillovers (or economies of scope) from auditing to non-audit services and from non-audit services to auditing. While knowledge spillovers from non-audit services to auditing is a known result [e.g. see Simunic (1984)] the presence of knowledge spillovers from auditing to non-audit services is a new result. Contrary to recent results in Ferguson et al. (2001) and Frankel et al. (2002), we do not find support for the assertion that fees for non-audit services increase abnormal accruals. In fact, we find that nonaudit fees *decrease* abnormal accruals. We also find evidence that audit fees increase abnormal accruals. Finally, our evidence is not consistent with audit firms playing pricing games, bribery or the demand and supply effects of abnormal accruals. The findings are robust to preliminary tests with U.S. data.

Keywords: auditing, auditor independence, earnings management, abnormal accruals, economies of scope, endogeneity

JEL Classification: C30, M40, M41, M49

1. Introduction

This research seeks a better understanding of audit fees, nonaudit fees, and abnormal accruals by treating them as endogenously determined in a system of three equations. There are at best partial, incomplete theories connecting these variables. Our approach is decidedly empirical: we estimate a general formulation of the possible relations among the variables and examine the results for insights. Therefore, we allow each variable to be an explanatory variable for the others.

Intuition, informal analysis, and a variety of theories of various aspects of auditor-client interaction suggest that audit fees, nonaudit fees, and abnormal accruals are jointly determined. A common assertion in the popular press is that fees for nonaudit services allow clients to get away with accounting chicanery, at least part of which might be reflected in abnormal accruals.² The possibility that high audit fees might have the same effect is less frequently mentioned, but no less plausible. Theories about economies of scope suggest connections between audit and nonaudit fees.³ Bargaining theories suggest a relation between accounting firm fees and the characteristics of financial reports (which could be abnormal accruals).⁴

These arguments imply that abnormal accruals and audit and non-audit fees are endogenously determined and should be estimated in a system that allows for many directions of effects among the variables. Prior research suggests that the equations in the system should also contain many of the same exogenous variables. For example, variables that attempt to capture agency costs, past performance, and client characteristics such as amounts of receivables and inventories have been used in studies of both audit and nonaudit fees.⁵

There is also empirical evidence that suggests estimation of a system of equations. Audit fee studies [e.g. Simunic (1984)] have included nonaudit fees as explanatory variable for audit fees, and Prakash and Venable (1993) document a positive relation between audit and nonaudit fees. Ferguson, Seow and Young (2001) and Frankel, Johnson and Nelson (2002) find some evidence of a positive association between abnormal accruals and the ratio of nonaudit fees to the sum of audit fees and nonaudit fees. Thus, empirical evidence suggests there is a web of relations among audit fees, nonaudit fees, and abnormal accruals.

To reflect the joint determination of the variables, we estimate a set of three simultaneous equations, one for each of audit fees, nonaudit fees and abnormal accruals. We estimate this joint model using data from audit clients (firms) both the United Kingdom⁶ (UK) and the United States (US). While our primary interest ultimately lies in the US, there are two advantages in using UK data over US data. First, UK GAAP have mandated the disclosure of audit fees and non-audit fees since 1992, while in the US such disclosures have been mandatory only since 2000. Therefore, there is only one year of data available for US firms, but more than one year of data available for UK firms. Second, the disclosure requirements in the US were added at a time of increased of nonaudit services. This increased scrutiny, among other things, could affect the relation between abnormal accruals and nonaudit fees.

The estimation of the simultaneous equations model leads to interesting inferences. We find that in both the US and the UK, higher audit fees lead to higher nonaudit fees. Higher

² See, for example, "Lone Ranger of Auditors Fell Slowly Out of Saddle," *The New York Times*, Business Day, April 20, 2002, page C1.

³ Antle and Demski (1991).

⁴ Antle and Nalebuff (1991).

⁵ See Simunic (1984), Palmrose (1986), Prakash and Venable (1993) and Firth (1997).

⁶ A concurrent study by Gore, et al, also examines issues similar to the ones addressed here using U.K. data.

nonaudit fees also lead to higher audit fees. These results are consistent with economies of scope running in both directions between audit and nonaudit services. We find no significant effect of abnormal accruals on either audit or nonaudit fees. These results are not consistent with clients using audit or nonaudit fees as inducements to obtain favorable treatment on abnormal accruals. We do find a significant, negative effect of nonaudit fees on abnormal accruals in the UK.⁷ This is consistent with a productive effect of nonaudit services: they are effective at lowering clients' investments in receivables and inventories, for example. We find a significant, positive effect of audit fees on abnormal accruals in the UK.⁸ This is consistent with higher audit fees leading to more acceptances of abnormal accruals.

The remainder of the paper is organized as follows. First we discuss in Section 2 the ties between auditor independence, non-audit services, and abnormal accruals. We show why, conceptually, it is appropriate to model audit fees, non-audit fees, and abnormal accruals as simultaneously determined. In Section 3 we examine several "theories" of these variables with the intent of seeing what they suggest about the directions of effects. In Section 4 we present our model and our approach to estimating audit quality. In Section 5, we discuss the data sources, description of control variables and the summary statistics. In Section 6 we present the results of estimating the regressions and we conclude in Section 7.

2. Auditor independence, auditors' services and financial reporting

Although there is no definition of auditor independence that is widely recognized as clear and unambiguous, there is no doubt that independence is fundamentally about the incentives of auditors. Even the more behavioral definitions of independence point to the auditors' ability to maintain objectivity and impartiality. Aside from personal psychological issues, the obstacles to maintaining these qualities are presumably the economic incentives to forego it.

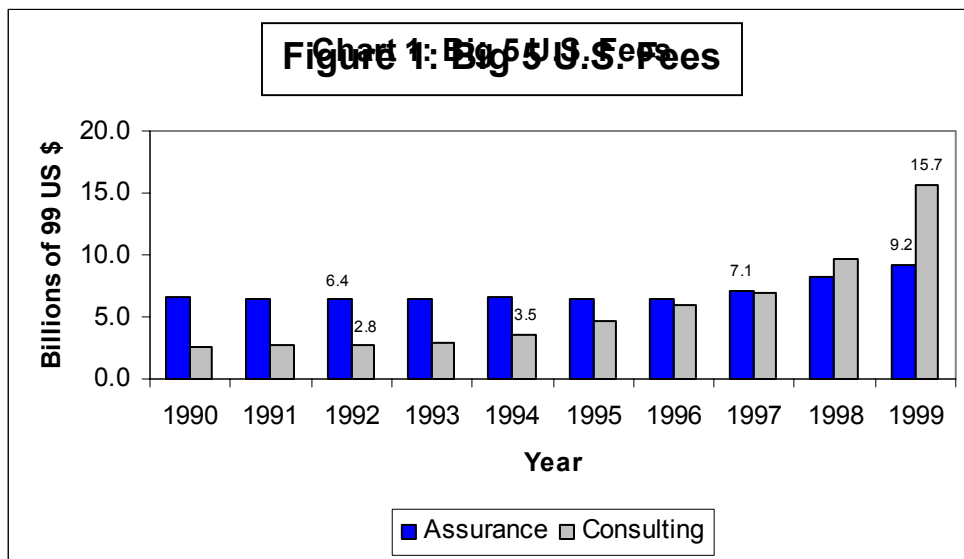
At the level of the largest accounting firms, there would seem to be two main determinants of their incentives: the profitability of the services they provide and their legal liability.⁹ While each of these has been the focus of study, issues involving profitability, particularly about the scope of services, have been the most difficult to explore. Yet scope of services is the most troublesome area in auditor independence, both in practice and in theory.

In practice, the largest accounting firms have been extremely successful in expanding the scope of services they offer. This expansion has gotten to the point that critics questioned whether the five largest accounting firms were really accounting firms -- at least until two of the five disposed of their consulting arms. Figure 1, taken from Antle (2000) shows the evolution of fees paid to the Big 5 in the U.S. for assurance and for consulting services from 1990 to 1999. The chart shows the rapid growth of consulting fees relative to assurance fees over this period. It also shows that consulting fees outstripped assurance fees by 1999.

⁷ The sign of the effect is the same in the US, but the coefficient is not statistically significant.

⁸ The sign of the effect is the same in the US, but the coefficient is not statistically significant.

⁹ See Antle, Griffin, Teece and Williamson (1997) for an analysis and some data on these incentives.



Source: Antle (2000)

In theory, the underlying economy of scope that is seen as allowing the firms to be so successful in expanding their scope has never been definitively identified, much less measured. Figure 1 establishes the accounting firm's success in offering consulting, but it does not help to identify its source. Understanding this economy of scope would seem a necessary ingredient for satisfactory theories of the structure and functioning of accounting firms, as well as the industrial organization of the accounting industry.¹⁰

There is an academic tradition that tries to trace empirically the effects of potential economies of scope, typically thought to be knowledge spillovers, on audit fees.¹¹ As mentioned earlier, auditors' incentives are driven by the profitability of the services they offer, not simply the fees they receive. Unfortunately, detailed profitability data are not available,¹² and we will also study fees.

More recently, there have been attempts in the academic literature to find an association between agency variables and purchases of non-audit services.¹³ Palmrose (1986) uses non-audit fees as an explanatory variable in a regression whose dependent variable is audit fees.¹⁴ We know of no model of non-audit fees that uses audit fees as an explanatory variable. Firth's (1997) proposed model of non-audit services fees uses the ratio of non-audit to audit fees as the dependent variable.¹⁵

All these studies, however, fail to account fully for the simultaneity of companies' decisions to purchase audit and non-audit services from their auditors.¹⁶ It is possible, therefore,

¹⁰ See Antle and Demski (1991), Beck, Frecka and Solomon (1988a), and Dopuch and King (1991).

¹¹ See Abdel-Khalik (1990), Davis, Ricchiute and Trompeter (1993), Palmrose (1986), and Simunic (1984).

¹² Antle and Gitenstein (2000) provide a start toward analysis of profits by reporting gross profit percentages from audit and non-audit services on an industry-wide basis for the Big 5 in the U.S.

¹³ See Prakash and Venable (1993) and Firth (1997).

¹⁴ Simunic (1984) uses a dummy variable for purchase/not purchase of non-audit services in an audit fee regression.

¹⁵ The use of this variable was undoubtedly driven in part by data availability. ASR 250, in effect from September 1978 to February 1982, required public companies to disclose the percentage of fees for auditor-supplied, non-audit services to audit fees. One problem with using this ratio as a variable is that it is affected by both non-audit and audit fees, therefore the reliability of the conclusion about non-audit fees is questionable.

¹⁶ Abdel-Khalik (1990) is notable in its attempt to model empirically the endogeneity of the purchase of non-audit services.

that these studies draw erroneous inferences about the nature and magnitude of the effects of these variables on one another.¹⁷

Perhaps a bigger issue than the simultaneity problem is what effects of the growth in non-audit services have had on the functioning of capital markets. In particular, data such as that presented in Figure 1 do not address the impact of the changing nature of auditor-client relationships on financial reporting. Financial market regulators have been expressing their intuition that there are some problems here. For example, in a speech on October 24, 2000, Arthur Levitt said:

Like never before, companies are under increasing pressure to "make their numbers" or risk losing millions of dollars in their stock value, simply because they are a penny or two shy of Wall Street earnings expectations. Auditors are sometimes encouraged to "go easy" on a judgment call, or "look the other way" when it comes to accounting sleight of hand, all in the name of boosting revenues. ... [T]he Commission is fiercely committed to ensuring that this great profession, and the public trust it is charged to preserve, will not be compromised by arrangements or circumstances that threaten the auditor's integrity and independence.

If the provision of non-audit services does create perverse incentives for auditors that find their way into auditor behavior, it is important to determine how, if at all, financial reports are affected. Recent research by Ferguson, Seow and Young (2000), Gore, Pope and Singh (2001) and Frankel, Johnson and Nelson (2002) address a potential link between the purchase of non-audit services and financial reporting. They seek to determine whether the presence of non-audit services provided by audit firms is associated with clients' abnormal accruals. They operationalize the presence of non-audit services by using the proportion of non-audit fees to audit fees,¹⁸ and find that this proportion is positively related to companies' abnormal accruals, at least for some types of audit firms.

These authors interpret these findings as evidence that audit quality is impaired as the magnitude of non-audit services increase. However, a basic problem with their approaches is that, under the maintained hypothesis that clients are using their purchases of non-audit services to get favorable treatment from their auditors, the fees for these non-audit services and the abnormal accruals are jointly determined. This joint determination should be included in the estimation process.

Further, it seems needlessly restrictive to envision that a client that wants to bribe his auditor would do so only with a contract for the supply of non-audit services. Alternatively, the client could just pay an extraordinarily large audit fee. This possibility has not been taken very seriously by academic literature to date, possibly because of extant rhetoric about audits being "loss leaders" used simply to gain access the sale of "lucrative" consulting contracts. Antle and Gitenstein (2000) present data from the Big 5 in the U.S. that shows that auditing is a profitable business.

It seems to us that the best way to approach the confluence of auditing, non-audit services, and financial reporting is to model audit fees, fees for non-audit services and abnormal accruals in a system of simultaneous equations. This is the heart of our research design.

¹⁷ The use of ASR 250 data is another difficulty with this literature. Re-examination of Figure 1 shows that the growth of non-audit services, except for those supplied by Andersen Consulting (which are excluded from the chart), began in earnest in about 1995. ASR 250 data all relate to 1978 through 1982. Firth (1997) and Craswell, Francis and Guz (2000) are exceptions that did not use ASR 250 disclosures. Firth's data were from 1993. He reports an extension of his analysis to early 1994 data yielded the same results. Craswell, et al, studied Australian data from fiscal 1996.

¹⁸ This is similar to Firth (1997).

3. Some thoughts about fees to accounting firms and abnormal accruals

The purpose of this section is to sketch some thoughts about the relations among the types of fees paid to accounting firms and abnormal accruals. The idea is to take some lines of thought about factors that *might* affect abnormal accruals and abnormal fees to accounting firms and try to gain some insight about their implications for observable variables. Because we will estimate a system of equations, we want to understand both the signs and the directions of relations among the variables.

Abnormal accruals are denoted AbAC. Fees paid to accounting firms are audit fees, AF, or fees for nonaudit services, NAF. We focus on abnormal audit fees, AbAF, and abnormal fees for nonaudit services, AbNAF, by controlling for factors known or suspected to drive audit and nonaudit fees.

The factors we consider are:

- Economies of scope
- Demand for services
- Supply of services
- Bribery
- Unconscious influence
- Pricing "games" played by accounting firms
- Productive effects

These factors are not mutually exclusive, nor can we be confident that the list is exhaustive. Nonetheless, we have to start somewhere, and we believe this list is a useful one.

Before we begin going through each factor in detail, we first discuss the variables and the assumptions we make in this discussion. We assume that abnormal accruals (AbAC) are observable. Abnormal audit fees (AbAF) and nonaudit fees (AbNAF) are assumed observable. Accounting firm profits are not observable, and are very likely different per dollar of fees for audit and nonaudit services. We will not try to distinguish fees and profits right now, but it is worth noting that available evidence suggests that profitability differs between the two types of services.¹⁹

Figure 2 contains a summary of the effects we the forces we identify. The dotted line around abnormal audit and nonaudit fees suggests that the same firm receives both types of fees, and the split may not be meaningful.

Economies of scope

Economies of scope exist when one service has a favorable effect on the other. The effect might be felt through either revenues or costs. For example, supplying audit services might enable the firm to better identify consulting opportunities. Or delivering nonaudit services could help lower audit costs by making auditors more familiar with client systems. Another possibility is that delivering audit services lowers the cost of providing nonaudit services, perhaps through lowering the costs of marketing those services to an audit client. Typically, economies of scope are thought to arise from information effects.

We only observe fees, not costs; therefore, we must think about what effects economies of scope might have on fees. Economies of scope felt through revenues show up direct in audit and nonaudit fees. We would expect to see a positive relation caused by these effects.

¹⁹ See Antle and Gitenstein (2000).

At best, economies of scope felt through costs show up indirectly in fees. It is difficult to specify the sign of the relation between abnormal audit and nonaudit fees that arise from a cost effect. Lower costs might induce clients to buy more services, or might enable a firm to reduce prices for nonaudit services, and lead to a reduction in fees.

There seems no particular reason why economies of scope should be related to abnormal accruals, *ceteris paribus*. Also, the effects of economies of scope could run in either direction: from AbAF to AbNAF or from AbNAF to AbAF, or both. The signs of the effects could be positive or negative. The important point here is that economies of scope suggest joint determination of audit and nonaudit fees.

Demand factors

Abnormal accruals might cause the firm to demand additional audit and nonaudit services. For example, a run up in inventory might cause a client to purchase supply-chain management services from its accounting firm. It also might cause an additional demand for audit services applied to those items. In either case, it would seem the effect should be positive.

Supply factors

Abnormal accruals might cause auditors to supply additional services. The presence of abnormal accruals might cause the accounting firm to undertake additional audit procedures to mitigate audit risk. Another possibility is that the accounting firm could be compensated for bearing additional risk by an increase in fees, either for audit or nonaudit services. We expect abnormal accruals to exert a positive effect on audit and nonaudit fees.

Bribery

Although rarely explicitly mentioned, bribery through fees would cause a positive connection between abnormal accruals and accounting firm fees. A client that wants an auditor to accept dubious or false accounting choices or estimates could simply pay a bill that had been "padded" by the accounting firm. It would seem more effective to bribe an accounting firm through audit fees than through fees for nonaudit services. Nonaudit fees would have to be shared with nonaudit partners, or would at least entail transactions costs of bargaining with them. Bribing an auditor through nonaudit fees would entail involving nonaudit partners, if the bill for nonaudit services was padded, or would entail the performance of additional services, if the bribe is in the form of an undeserved yet profitable contract for nonaudit services. However, even though it seems inefficient to bribe auditors using nonaudit fees, we cannot rule it out a priori.

The link between fees and abnormal accruals caused by bribery should only be observed when management has incentives to play financial reporting games. This suggests tests using interactions, which we leave to future work.²⁰

Influence or bias

It is possible, perhaps even inevitable (see Moore, Lowenstein and Bazerman [2002]), that close ties between auditors and their clients generate bias in auditors, perhaps even in ways of which auditors themselves are unaware. This bias could be created by both audit and nonaudit fees, and would make it easier for clients to get auditors to accept abnormal accruals. The effects might be different for one dollar in auditing or nonaudit fees, however, if the bias is created by the profits

²⁰ We do, however, try to account for the effects of incentives in a preliminary fashion by using an alternative measure of abnormal accruals. See Appendix 1 for details.

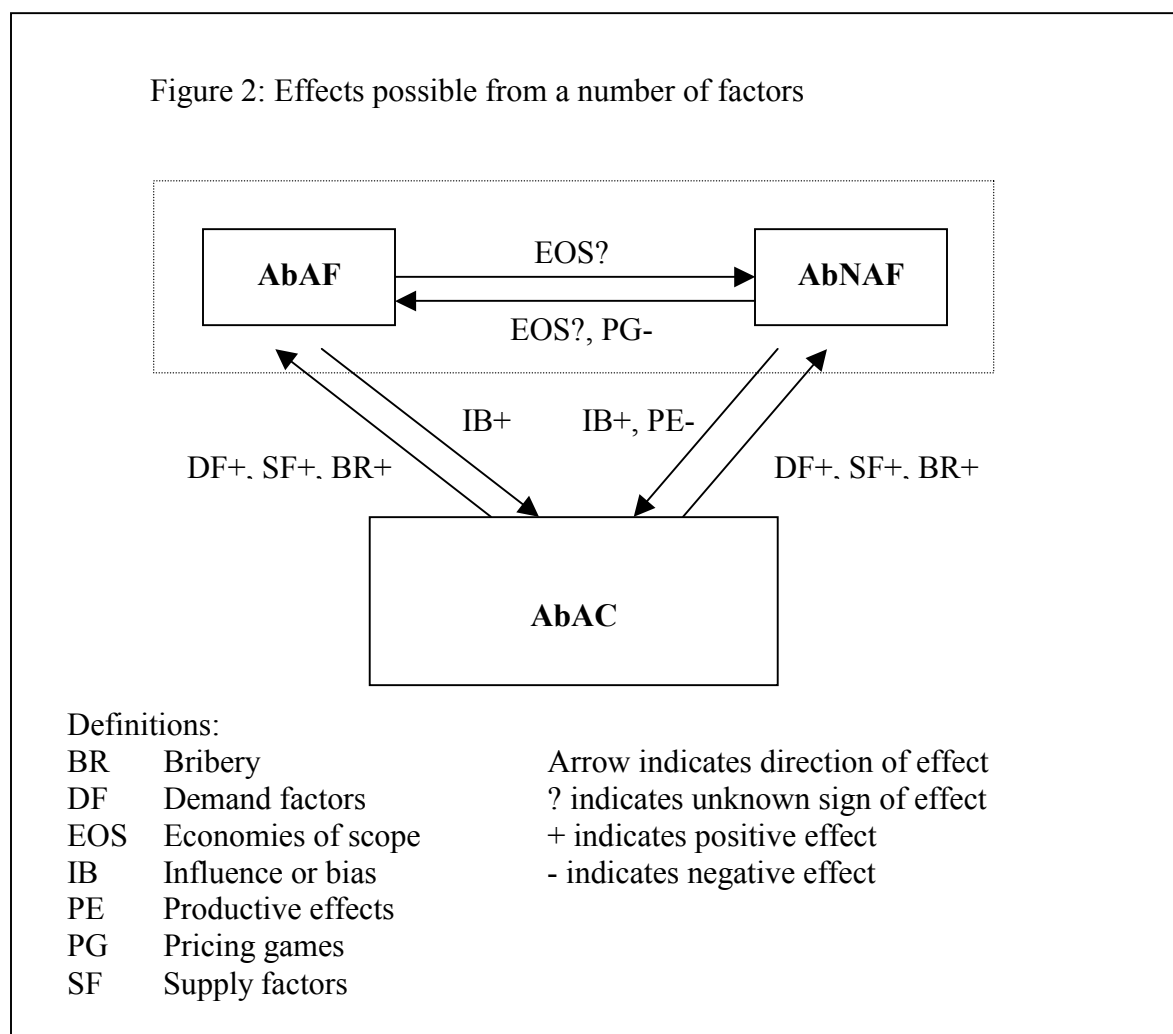
in a relationship instead of just its size. But the important points are that the direction of the effect would run from audit and nonaudit fees to discretionary accruals, and we expect the effect to be positive.

Pricing games played by accounting firms

It has been alleged that audit and nonaudit fees are related because of pricing games played by accounting firms. The typical contention is that audit prices are lowered so the firm can get a foot in the door in order to sell nonaudit services. That is, auditing is a "loss leader". If true, this would lead to lower audit fees causing higher nonaudit fees.

Productive effects

Suppose a client hires its accounting firm to install an inventory control system. If the system is effective, these nonaudit fees might lead to lower abnormal accruals. Productive effects suggest nonaudit fees cause negative abnormal accruals.



Possible effects of combinations of factors, direct effects and indirect effects

This intuitive analysis has generated many possible effects and directions of effects. We attempt to summarize them in Figure 2. The possible directions of effects are given by arrows among

audit fees, nonaudit fees and abnormal accruals. The hypothesized signs are shown next to the notation for the effects.

The factors just discussed are not mutually exclusive. In fact, it seems quite the reverse: the presence of none of the factors appears to rule out any of the others. Empirically, this implies that we will only observe their net effects. Figure 2 suggests, however, that it is still possible to differentiate among some of the factors. For example, under the economy of scope hypothesis, increased abnormal audit fees could cause increased abnormal nonaudit fees, whereas the pricing games hypothesis implies an inverse relation. Also, the bias and productive effects hypothesis predict opposite signs on the coefficient of abnormal nonaudit fees in the abnormal accruals equation. Of course, a positive coefficient on abnormal nonaudit fees in the abnormal accruals equation does not imply that there is no productive effect, only that it is outweighed by the bias effect.

In addition, the intuition discussed above concerns only the direct effects of the various factors. In a system of equations, factors can also have indirect effects. For example, consider the effect of audit fees on nonaudit fees. Audit fees might affect nonaudit fees directly through an economy of scope, both might affect abnormal accruals, which in turn might affect nonaudit fees. We specify a system of equations in the next section that is used to estimate direct effects, from which we can estimate the total effects of one variable on another.

4. Modeling the endogeneity of companies' demand for audit services, non-audit services and financial reporting

In this section, we discuss our research design which models audit fees, nonaudit fees, and abnormal accruals in a system of simultaneous equations. Following from the previous discussion, we view audit fees, nonaudit fees, and abnormal accruals as being jointly determined, where the general form of their relation is as follows (firm and year subscripts omitted):

$$AF = \alpha_{AF0} + \alpha_{AF1} NAF + \alpha_{AF2} AA + \sum_p \alpha_{AFp} \text{Control Variables} + e_{AF} \quad (1a)$$

$$NAF = \alpha_{NAF0} + \alpha_{NAF1} AF + \alpha_{NAF2} AA + \sum_q \alpha_{NAFq} \text{Control Variables} + e_{NAF} \quad (1b)$$

$$AA = \alpha_{AA0} + \alpha_{AA1} AF + \alpha_{AA2} NAF + \sum_r \alpha_{AAr} \text{Control Variables} + e_{AA} \quad (1c)$$

Where:

AF = audit fees

NAF = nonaudit fees

AA = abnormal accruals (estimation described in Appendix 1)

We make no predictions on the sign or significance of coefficients on the AF, NAF, or AA variables in the system of simultaneous equations. Rather, based on our previous discussion we interpret results as being consistent or not consistent with the factors identified. For instance, in the audit fee equation, a significant coefficient, either positive or negative, on NAF implies economies of scope derived from nonaudit services. A negative coefficient on NAF may also suggest pricing games in the determination of audit fees. A positive coefficient on AA in the audit fee equation is consistent with demand factors, supply factors or bribery influencing the audit fees.

In the nonaudit fee equation, a significant coefficient on AF implies economies of scope from the provision of the audit services. While a positive coefficient on AA in the nonaudit fee equation suggests demand factors, supply factors or bribery influencing the nonaudit fees.

In the abnormal accruals equation, a positive coefficient on AF or NAF suggests influence or bias on the auditor's part in the determination of abnormal accruals. Additionally, a negative coefficient on NAF indicates productive effects related to the provision of nonaudit services.

In each equation, we include control variables that uniquely identify the equation in the system and that control for other factors such as agency costs, risk, audit effort, auditor characteristics and company size which have been described in prior research (Simunic [1984], Palmrose [1986], Firth [1997]). In the audit fee equation, we introduce a variable to control for peak pricing in audit fees. December fiscal year-ends are busy times for auditors and we expect this to be reflected in their pricing policies. The variable, FISDEC, is an indicator variable taking the value of one for firms with a December fiscal year-end and zero otherwise.²¹

Other variables in the audit fee equation control for agency costs, risk, audit effort, auditor characteristics and company size. We include leverage (LEV) as variable to capture agency costs. Risk variables, which are expected to be positively associated with audit fees, are the quick ratio (QUICK), book-to-market ratio of common equity (BMB), and whether the firm reported a loss in the previous year (LOSS). We include a variable, LITI, to capture potential litigation risk for firms in those industries defined in Francis et al. (1994) that are more likely to beat earnings benchmarks. An additional risk variable we include is whether a firm received a qualified audit opinion, QUAL. However, we do not have an ex-ante expectation of the sign of the coefficient on QUAL. To the extent a qualified opinion is a measure of firm risk, we expect audit fees to rise in QUAL. Alternatively, to the extent the existence of a qualified opinion lowers risk for the auditor, QUAL can serve to reduce audit fees.

To control for audit effort and complexity, we include accounts receivable (LOGAR) and inventory (LOGINV). Higher levels of accounts receivable and inventory are expected to require the greater audit effort and be associated with higher audit fees. We introduce variables to control for auditor characteristics: Big Six audit firm (BIG) and auditor's tenure (TENURE). We expect a positive relation between Big Six audit firms and audit fees because Big Six audit firms can charge a premium as high quality auditors (DeAngelo [1981]). We do not have an ex-ante prediction for the sign on the tenure variable since two competing hypotheses lead to different expected signs. A positive sign on the tenure coefficient is expected if entrenched auditors can charge higher fees. Alternatively, longer tenure auditors have the benefit of prior knowledge and experience, which can lead to lower fees.

Finally we control for firm size (BLOGMV) and lagged abnormal accruals. Because firm size could capture many factors such as complexity and risk, we do not have an expectation on the sign of the coefficient. We include lagged abnormal accruals because audit fees are typically determined before the end of the year. In such a scenario, it is possible managers and auditors do not have the flexibility to adjust the audit fee depending on the extent of earnings manipulation. Hence it is possible that earnings manipulation influences the next period's audit fees. As such, we lagged abnormal accruals (LAA) in our model for the demand for audit fees.

In the non-audit fee equation, we include taxes paid to capture potential nonaudit services related to tax consulting. We expect that nonaudit tax consulting services to firms is a component of nonaudit services although UK GAAP does not require the disclosure of nonaudit fees by tax related fees and non-tax fees. We approximate the demand for nonaudit tax related services with the variable, LOGTAX. Since factors associated with the pricing of audit and nonaudit services are related, many of the control variables included in the nonaudit fees equation are similar to those in the audit fees equation.

In the abnormal accruals equation, we include risk, auditor characteristics and firm size variable plus scaled operating cash flows, SOCF, as an identification variable. Riskier firms could be more prone to making abnormal accruals, but may be subject to greater scrutiny as a

²¹ While we expect the audit fees to increase in FISDEC, there is recent research in economics (eg. Chevalier et al. (2001)) showing that prices are not necessarily the highest during periods of peak demand.

result. The net effect is uncertain. If the Big 6 auditors were more conservative than non-Big 6 auditors, we should see a negative coefficient on BIG. We are unsure what the sign on TENURE might be, as longer tenure might indicate greater knowledge of the client or an entrenched auditor. Due to the mechanical link between abnormal accruals and size, we expect a positive coefficient on the size variable.

We include scaled operating cash flows to control for operating performance and other unidentified determinants of abnormal accruals. We expect that this variable is related to abnormal accruals but not audit fees or nonaudit fees.

The estimation of abnormal accruals itself has been the subject of extensive research.²² We outline our approach to this estimation in detail in Appendix 1, as well as providing robustness checks using alternative estimates of abnormal accruals.

To summarize, to assess the joint determination of audit fees, nonaudit fees and abnormal accruals, we estimate the following systems of simultaneous equations:

$$\begin{aligned} \text{LOGAF} = & a_{AF0} + a_{AF1} \text{LOGNAF} + a_{AF2} \text{AA} + a_{AF3} \text{FISDEC} + a_{AF4} \text{LEV} + a_{AF5} \text{QUICK} \\ & + a_{AF6} \text{BMB} + a_{AF7} \text{LOSS} + a_{AF8} \text{LITI} + a_{AF9} \text{QUAL} + a_{AF10} \text{LOGAR} \\ & + a_{AF11} \text{LOGINV} + a_{AF12} \text{BIG} + a_{AF13} \text{TENURE} + a_{AF14} \text{BLOGMV} + a_{AF15} \text{LAA} + \varepsilon_{AF} \end{aligned} \quad (2a)$$

$$\begin{aligned} \text{LOGNAF} = & a_{NAF0} + a_{NAF1} \text{LOGAF} + a_{NAF2} \text{AA} + a_{NAF3} \text{LOGTAX} + a_{NAF4} \text{LEV} \\ & + a_{NAF5} \text{QUICK} + a_{NAF6} \text{BMB} + a_{NAF7} \text{LOSS} + a_{NAF8} \text{LITI} + a_{NAF9} \text{QUAL} \\ & + a_{NAF10} \text{BIG} + a_{NAF11} \text{TENURE} + a_{NAF12} \text{BLOGMV} + a_{NAF13} \text{LAA} + \varepsilon_{NAF} \end{aligned} \quad (2b)$$

$$\begin{aligned} \text{AA} = & a_{AA0} + a_{AA1} \text{LOGAF} + a_{AA2} \text{LOGNAF} + a_{AA3} \text{SOCF} + a_{AA4} \text{LOSS} + a_{AA5} \text{LITI} \\ & + a_{AA6} \text{QUAL} + a_{AA7} \text{BIG} + a_{AA8} \text{TENURE} + a_{AA9} \text{BLOGMV} + a_{AA10} \text{LAA} + \varepsilon_{AA} \end{aligned} \quad (2c)$$

Where

FISDEC = Indicator variable equal to one if fiscal year end is December 31, and zero otherwise

LEV = Leverage ratio

QUICK = Quick ratio

BMB = Book value of equity divided by market value of equity

LOSS = Indicator variable equal to one if the previous year's net income was negative and zero otherwise

LITI = Indicator variable equal to one if firm is in a high litigation risk industry and zero otherwise

QUAL = Indicator variable equal to one if opinion was qualified and zero otherwise

LOGAR = Natural logarithm of accounts receivable

LOGINV = Natural logarithm of inventory

BIG = Dummy variable equal to one if auditor was Big 6 Firm identified as Arthur Anderson, Coopers & Lybrand, Deloitte & Touche, Ernst & Young, KPMG or Price Waterhouse

TENURE = Indicator variable equal to one if the auditor was not changed during the current fiscal year and zero otherwise

LAA = Lagged abnormal accruals

BLOGMV = Natural logarithm market value of the firm at the beginning of the fiscal year

LOGTAX = Natural logarithm of taxes paid

SOCF = Operating cash flows, scaled by beginning of period market value of equity

LOG indicates the natural logarithm of the variable

The next section describes the data that is the focus of our efforts.

²² E.g., see Dechow, et al (1995), Guay, et al (1996), Subrahmanyam (1996), Thomas and Zhang (2002).

5. Data

We study data from both the United Kingdom (UK) and the United States (US). UK data on audit and nonaudit fees are available over a longer period of time than US data, and provide an opportunity to diversify away time-specific effects. The economic and legal systems of the two countries are similar enough that analyses done on one might bear on the other.²³ We develop our empirical model on UK data, and provide comparative analyses of the US data.

Audit fees and nonaudit fees have been mandatorily disclosed in UK annual reports since 1992. We have acquired this data spanning 1992 to 2000 from Financial Times (FT). Other data for the UK have been obtained from Global Vantage.

Audit and nonaudit fees have been mandatorily disclosed in the US beginning in 2000. We acquired data on these US fees from the Investor Responsibility Resource Center (IRRC). Each year, the IRRC designates 4,000 firms about which it will collect and distribute information. The designation reflects both the size of the firm and the likelihood that it is involved in activities of interest to social activists.

In all we had 4,145 UK firm years with valid FT and GV data. After we estimate abnormal accruals using the three approaches outlined in Section 4, the sample was reduced to 2,443 UK firm years. Table 2 Panel A provides the distribution of sample firms by year. They are not clustered in any particular year and are well spread out. Panel B provides the distribution of sample firms by industry. The largest group is in retail and that is less than 15% of the sample indicating the dispersed nature of the sample.

We obtained fee data on 3,196 US firms from the IRRC. 1,766 of these firms did not have sufficient Compustat data to estimate abnormal accruals, leaving us with a sample of 1,430 US firms for only one year, 2000.

Table 3 provides the summary statistics of audit and non-audit fees for our sample. Panel A shows the average (median) audit fees paid was £445,586 (£138,000) with a minimum of £5,000 and a maximum of £28 million. This variation is comparable to US firms where we find the average (median) audit fees were \$680 thousand (\$290 thousand). The average (median) non-audit fees paid in the UK sample was £485,730 (£89,000) with a minimum of zero and a maximum of £51 million. This variation is again comparable to US firms²⁴ where we find an average (median) of \$1.52 million (\$330 thousand).

Table 3 Panel B shows audit and non-audit fees by big and small auditors. The average audit fee charged by a Big Six auditor was £513,675. This is much larger than the average of £144,027 for a non- Big Six auditor. The average non-audit fee charged by Big Six auditors (£570,799) is again much larger than that charged by non-Big Six auditors (compared to £108,969). Panel C shows audit fees by industry. The average audit fee by industry varies between £100,000 and \$1,000,000 except for the chemical industry, where the average audit fees were £1,811,490. As shown in Panel D, the average non-audit fees for every industry was less than £1,000,000 except the chemical industry, where the average was £2,453,740.

Table 3 Panel A also gives a few key summary statistics describing our final sample. The average market capitalization was £1.4 billion. About 81% of the sample used a Big Six auditor. 11.8 % of the sample reported a loss in the previous year. In more than 14 % of the sample, earnings per share were the same or increased by a small fraction over the past year.

²³ Appendix 2 contains a brief comparison of the audit environments in the US and UK.

²⁴ Frankel et al. report an average (median) audit fee of \$ 511,000 (\$191,000), a minimum of \$5,000 and a maximum of \$ 48 million from 2001 proxies. They report an average (median) nonaudit fee of \$1.26 million (\$221,000), a minimum of zero and a maximum of \$79.7 million.

6. Results

The system of (2a), (2b) and (2c) was estimated using three-stage least squares. We begin the presentation of the results in the subsection 6.1 with the description and interpretation of our main findings on UK data. We have also performed a number of other analyses aimed at understanding the robustness of our findings and at tying our work to previous literature in a step-by-step fashion. Subsection 6.2 discusses the relation between the joint estimation and OLS estimation of each equation separately. Subsection 6.3 compares the results of the joint estimation of the abnormal accruals equation with an OLS estimation using the ratio of nonaudit to total fees as an explanatory variable. Subsection 6.4 presents US results and compares them to those from the UK. An appendix presents an analysis of how alternative measures of abnormal accruals affect our simultaneous estimation on UK data.

6.1 Results of Joint Estimation on UK Data

The three-stage estimation of the system of (2a), (2b) and (2c), along with OLS estimation of each equation separately, is presented in Table 4.

Audit fees: Equation (2a)

The significant coefficients are on: LOGNAF, LITI, FISDEC, LOGAR, and LOGINV. BIG is marginally significant. Our focus is on the coefficients of the abnormal accrual variables and the nonaudit fee variable. The coefficients on the abnormal accrual variables are not significant. This casts doubt on the reasoning about demand factors, supply factors and bribery given earlier.

The coefficient on the nonaudit fee variable is positive and significant, which is consistent with an economy of scope between nonaudit services and audit services. The coefficient on FISDEC is positive and significant, indicating audit prices are higher during periods of peak demand. Also, it is worth noting that the coefficient on the BIG variable is negative, indicating perhaps that the Big Six enjoy cost advantages that are passed on to their clients.

Nonaudit fees: Equation (2b)

The significant coefficients are on: LOGAF, LOGTAX, MLOGMV, LEV, and LOSS. Similar to the audit pricing equation, the coefficients on the abnormal accrual variables are not significant. Again, this casts doubt on the reasoning about demand factors, supply factors and bribery.

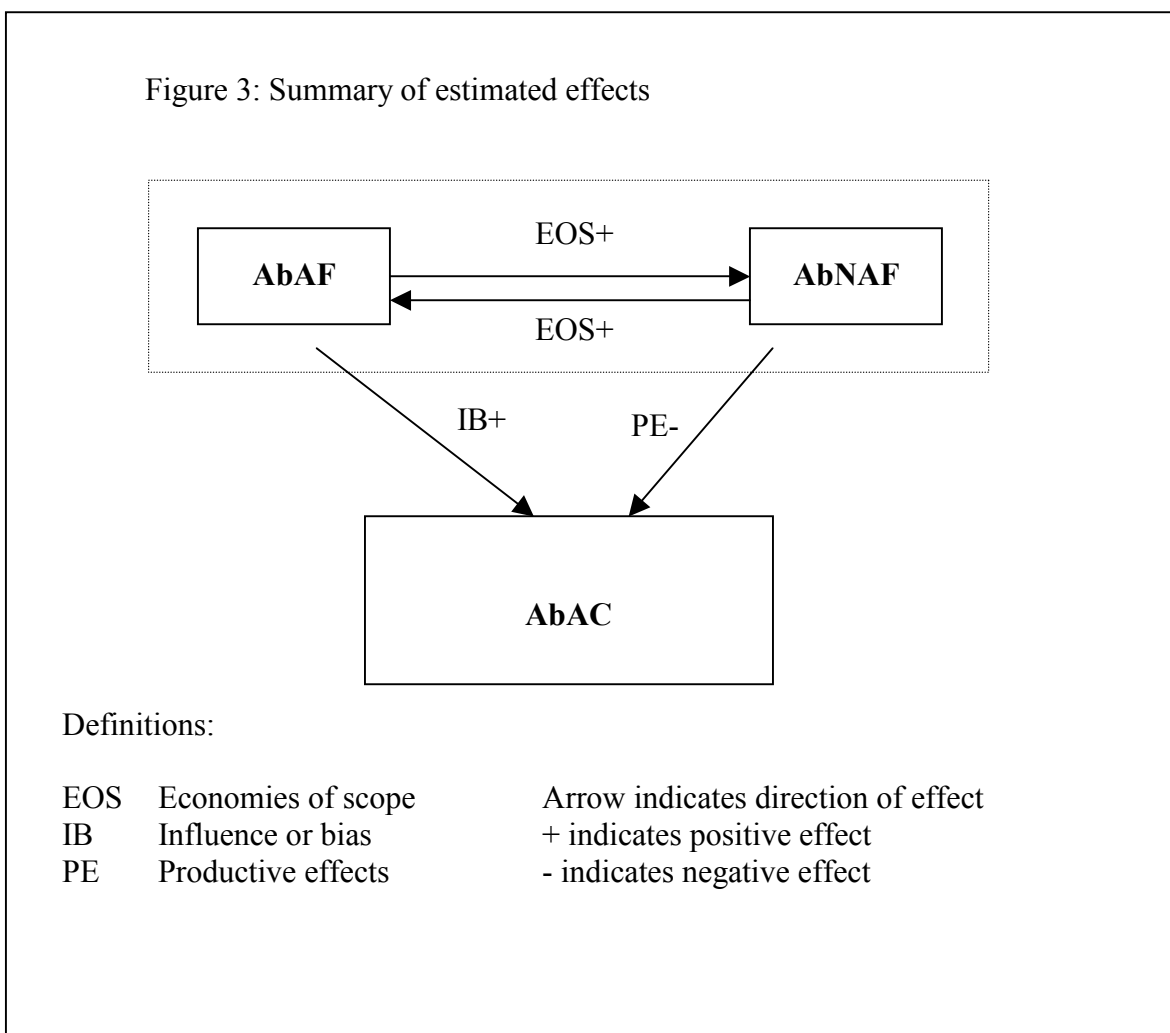
The coefficient on LOGTAX is positive and significant, indicating that a significant portion of the non-audit fees is tax related and hence, probably non-discretionary. The coefficient on LOGAF (audit fees) is significantly positive, suggesting that there are knowledge spillovers from the auditing business to the non-auditing business. The coefficient on BIG continues to be positive indicating that it is more expensive to have non-audit services performed by Big Six auditors. However, we acknowledge that we have not controlled for the nature of non-audit services. If Big Six auditors' services are more value-added than non Big Six auditors' services, it can lead to a positive coefficient on BIG. The coefficient on past performance (LOSS) is significantly positive, implying that a firm contracts for more non-audit services when its past performance has been bad.

Abnormal accruals: Equation (2c)

The significant variables are: LOGAF, LOGNAF, LAA, SOCF, BLOGMV, BIG, and LOSS. The coefficient on audit fees is positive, which is consistent with the influence or bias reasoning. The coefficient on nonaudit fees, however, is negative. This is inconsistent with the influence or bias reasoning, but is consistent with nonaudit services having a productive effect in lowering accruals.

LOSS has a positive coefficient, indicating that incurring a loss causes more abnormal accruals. BIG has a negative coefficient, indicating that Big 5 auditors cause lower abnormal accruals than other auditors.

Figure 3 provides a visual summary of our main results in terms of their relation to the effects of the several factors given in section 3. Thus, Figure 3 is the “estimated” version of Figure 2.



6.2 Comparison of Joint Estimation with Separate OLS Estimation

Table 4 also contains the results of separate OLS estimate of each equation in the system. The results for the audit fee equation are remarkably similar, with the biggest differences being the seeming significance of the coefficients on firm size (BLOGMV), the quick ratio (QUICK), and loss in the OLS estimation. Of these, the results on LOSS are most perplexing, as even the sign

of the coefficient switches from negative in the simultaneous estimation to positive in the OLS estimation.

The results for nonaudit fee equation are virtually identical. The same variables are significant, all their signs are the same, and even their magnitudes are extremely close.

The major differences in the results of the system approach to the estimation come in the abnormal accruals equation. OLS estimation shows neither audit fees nor nonaudit fees as significant, and has a coefficient on audit fees of the opposite sign. LOSS is not significant in the OLS estimation, whereas it is in the system estimation.

6.3 Comparison of Abnormal Accrual Equation Estimation Using Separate OLS Estimation and Ratio of Fees as an Explanatory Variable

Prior literature has used the ratio of nonaudit to audit fees or to total fees as an explanatory variable in the estimation of abnormal accruals. Table 5 contains the results of using the ratio of nonaudit fees to audit fee in our analysis, along with our original joint estimation of the system and an OLS estimation of the abnormal accruals equation with audit and nonaudit fees entering separately. The ratio specification achieves only marginal significance for the ratio of fees, indicates that the effect is negative, and masks the differing effects of the audit fee and nonaudit fee variables. Also, the ratio specification loses the significance of LOSS.

6.4 US Results and Comparison to UK Results

US data regarding audit and non-audit fees have been available since February 2001. In order to see if our UK results are generalizable to the US, we ran preliminary replications of our tests on the limited US data available. It is to be kept in mind that we have only one year of data available for the US. Additionally, this is the first year when the new disclosures have come in force and there has been an increased scrutiny of non-audit services provided by the auditor. Table 6 column 1 shows the joint estimation of the audit fee, non-audit fee and abnormal accruals regressions with US data for the year 2000. Comparing with the UK results in Table 4, the relations between the endogenous variables remain the same in the UK and the US. In the audit fee regression, similar to the UK, we continue to see a significant coefficient for non-audit fees. In the non-audit fee regression also, similar to the UK, the coefficient on audit fees is positive and significant. The coefficients on abnormal accruals, both current and lagged are insignificant in both regressions. Mirroring the UK results, in the abnormal accrual regression, the signs on audit fees and non-audit fees are positive and negative respectively. These are, however, not significant. The coefficients on some of the control variables are, however, not consistent across the US and the UK. For example, the coefficients on accounts receivable and inventory (LOGAR and LOGINV) in the audit fee regression are positive (similar to UK), but are not significant while in the UK they were strongly significant.

To see if the difference in control variable coefficients between the US and UK results is due to the fact that we have only year 2000 data for the US, we replicated the tests for UK observations in 2000 alone. The results are presented in column 3 of Table 6. We do find, similar to the US, that the coefficient on size in the audit fee regression is negative. Again, similar to the US, the coefficients on LOGAR and LOGINV in the audit fee equation are positive but not significant.

A possibility for the year 2000 results being different is the fact the nature of IT fees following Y2K has changed. We have data on IT fees available to us for the US. We modify the US regressions to include IT fees as an additional control variable. The results are presented in column 2 of Table 6. With this modification, US results are strikingly similar to the results

obtained for UK. The coefficient on accounts receivable and inventory in the audit fee regression are all significantly positive. The coefficients on size and LOGTAX are significantly positive in the non-audit fee regression. In the abnormal accrual regression, the coefficient on audit fee becomes significantly positive.

Thus, a preliminary replication of our tests using US data shows that most of the results for the UK outlined earlier are robust when extended to the US. The more detailed tests on the US data will be covered in Antle et al. (2002).

7. Conclusion

Prior research has estimated piecemeal the determinants of audit fees, non-audit services fees and abnormal accruals. We think there are three potential shortcomings in the previous approaches. First, many of the determinants of audit pricing and non-audit services are the same. Also, knowledge spillovers can exist between the businesses. Thus audit and nonaudit fees are jointly determined. Second, prior research treats audit fees and non-audit fees as exogenous in the estimation of abnormal accruals. It is entirely possible audit and nonaudit fees are dependent on abnormal accruals. Third, all studies linking abnormal accruals to nonaudit services use the ratio of non-audit to audit fees as a proxy for the extent of nonaudit services. In such a linkage, it is not clear whether it is nonaudit fees or audit fees that drive the reported relation.

We address the endogeneity shortcomings by modeling the confluence of audit fees, fees for non-audit services and abnormal accruals in a system of simultaneous equations. We also separate the effects of audit and non-audit fees. Using audit and non-audit fee data from the U.K. for 1994-2000, we find evidence consistent with knowledge spillovers (or economies of scope) from auditing to non-audit services and from non-audit services to auditing. While knowledge spillovers from non-audit services to auditing is a known result [e.g. see Simunic (1984)] the presence of knowledge spillovers from auditing to non-audit services is a new result. Contrary to recent results in Ferguson et al. (2001) and Frankel et al. (2002), we do not find support for the assertion that fees for non-audit services increase abnormal accruals. In fact, we find evidence that nonaudit fees *decrease* abnormal accruals. Our evidence is not consistent with audit firms playing pricing games, bribery or the demand and supply effects of abnormal accruals.

In addition to our findings about the relations among the endogenous variables, we also document new determinants of audit pricing and nonaudit fees. We found that audit prices are higher in periods of peak demand. We found that nonaudit fees are significantly higher for firms that pay more taxes, suggesting the importance of tax-related fees in the total nonaudit fees.

While our preliminary tests using US data are consistent with the UK findings, our robustness checks indicate that for data from the United States, a closer examination of information technology fees is warranted. However, the availability of future data is uncertain, since there may be drastic changes in the structure of accounting firms and the regulations that apply to them. Refining the approach to more explicitly incorporate earnings management incentives would seem at this point to be a surer avenue for future research.

REFERENCES

- Abdel-Khalik, A.R. 1990. The Jointness of Audit Fees and Demand for MAS: A Self-Selection Analysis. *Contemporary Accounting Research*, Vol. 6, Spring, pp. 295-322.
- Antle, R. 2000. Comment letter to the U.S. Securities & Exchange Commission regarding File No. S7-13-00, available through www.sec.gov.
- Antle, R. and J. Demski. 1991. Contracting Frictions, Regulation, and the Structure of CPA Firms. Supplement to the *Journal of Accounting Research*.
- Antle, R. and M. Gitenstein. 2000. Analysis of Data Requested by the Independence Standards Board from the Five Largest Accounting Firms. Available upon request from R. Antle, rick.antle@yale.edu.
- Antle, R., P. Griffin, D. Teece and O. Williamson. 1997. An Economic Analysis of Auditor Independence for a Multi-client, Multi-service Public Accounting Firm. This paper appears as Appendix B to *Serving the Public Interest: A New Conceptual Framework for Auditor Independence*, a White Paper submitted to the Independence Standards Board on behalf of the AICPA, October 20, 1997, and is available through <http://www.aicpa.org/members/div/secps/isb/white.htm>.
- Antle, R. and B. Nalebuff. 1991. Conservatism and Auditor-Client Negotiations. Supplement to the *Journal of Accounting Research*.
- Barkess, L. and R. Simmett. 1994. The Provision of Other Services by Auditors: Independence and Pricing Issues. *Accounting and Business Research*, Vol. 24, Spring, pp. 99-108.
- Beck, P J., T J Frecka, and I A Solomon. 1988a. A Model of the Market for MAS and Audit Services: Knowledge Spillovers and Auditor-auditee Bonding³. *Journal of Accounting Literature*, Vol. 7, pp. 50-64.
- Beck, P J., T J Frecka, and I A Solomon. 1988b. An Empirical Analysis of the Relationship between MAS Involvement and Auditor Tenure: Implications for Auditor Independence. *Journal of Accounting Literature*, Vol. 7, pp. 65-84.
- Chevalier, J., A. Kashyap, and P. Rossi. 2001. Why don't prices rise during periods of peak demand? Evidence from scanner data. Yale School of Management Research Paper.
- Craswell, A., J. Francis, and F. Guz. 2000. The Demand for NAS from Auditors. Working paper. University of Sydney.
- Davis, L. R., D. N. Ricchiute, and G. Trompeter. 1993. Audit Effort, Audit Fees and the Provision of Nonaudit Services to Audit Clients. *The Accounting Review*, Vol. 68, pp. 135-150.
- DeChow, P., R. Sloan, and A. Sweeney. 1995. Detecting Earnings Management. *The Accounting Review*. Vol. 70, No. 2, pp. 193-225.

- Dopuch, N. and R.R. King. 1991. "The Impact of MAS on Auditors' Independence: An Experimental Markets Study. " *Journal of Accounting Research*, Vol. 29 (Supplement 1991) 60-98.
- Firth, M A. 1997. The Provision of Nonaudit Services by Accounting Firms to their Audit Clients. *Contemporary Accounting Research*, Vol. 14, pp. 1-21.
- Frost, C. and K. Ramin. 1996. International Auditing Differences. *Journal of Accountancy*, April, pp. 62-68.
- Ferguson, M., G. Seow, and D. Young. 2000. "The Effect of Nonaudit Services on Audit Quality." Working Paper, The University of Connecticut.
- Frankel, R., M. Johnson, and K. Nelson, 2002, "The Relation between Auditors' Fees for Nonaudit Services and Earnings Quality," Stanford University GSB working paper.
- Gore, P., P. Pope, and A. Singh, 2001, "Non-audit services, auditor independence and earnings management," Working Paper, Lancaster University.
- Nelson, M., J. Elliott, and R. Tarpley. 2000. "Where Do Companies Attempt Earnings Management, and When do Auditors Prevent It?" Working Paper, Cornell University.
- LaPorta, L., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny. 1997. Law and Finance. *Journal of Political Economy*. pp. 1113-1155.
- Palmrose, Z-V. 1986. The Effect of Nonaudit Services on the Pricing of Audit Services: Further Evidence. *Journal of Accounting Research*, Vol. 24, Autumn, pp. 405-411.
- Palmrose, Z.V. 1988. "Public Accounting Firms and the Acquisition of Nonaudit Services by Public and Closely-Held Companies." *Auditing: A Journal of Practice and Theory* Vol. 8, 63-71.
- Palmrose, Z.V. and S. Scholz. 2000. "Restated Financial Statements and Auditor Litigation." Working Paper, University of Southern California.
- Pany, K. and P.M.J. Reckers. 1983. "Auditor Independence and Nonaudit Services: Director Views and Their Policy implications." *Journal of Accounting and Public Policy* Vol. 243-62.
- Parkash, M, and C Venable. 1993. Auditee incentives for auditor independence: the case of nonaudit services. *The Accounting Review*, Vol. 68, January, pp. 113-133.
- Peasnell, K., P. Pope and S. Young. 2000. Accrual Management to Meet Earnings Targets: UK Evidence Pre- and Post-Cadbury. *British Accounting Review*. 32. pp. 415-445.
- Scheiner J. 1984. "An Empirical Assessment of the Impact of SEC Nonaudit Service Disclosure Requirements on Independent Auditors and Their Clients." *Journal of Accounting Research* Vol. 22 789-797.
- Scheiner, J. and J. Kiger. 1982. An empirical investigation of auditor involvement in nonaudit services. *Journal of Accounting Research* Vol. 20, Autumn, pp. 482-96.

Simunic, D. 1984. Auditing, consulting, and auditor independence. *Journal of Accounting Research*, Vol. 22, Autumn, pp. 679-702.

Sweeney, A. 1994. Debt covenant violations and managers' accounting responses. *Journal of Accounting and Economics*. Vol. 17, pp. 281-308.

Table 1
Variable Definitions

Variable	Description
AA	Abnormal accruals estimated using the modified Jones model
AF	Audit fees
BIG	Dummy variable equal to one for a Big 6 auditor (Arthur Anderson, Coopers & Lybrand, Deloitte & Touche, Ernst & Young, KPMG or Price Waterhouse) and zero otherwise
BLOGMV	Log of the beginning of period market value of common equity
BMB	Ratio of book value to market value of common equity
FISDEC	Indicator variable equal to one if the fiscal year end is December and zero otherwise
LAA	Lagged abnormal accruals
LEV	Leverage ratio
LITI	Indicator variable which is one for certain industries defined in Francis et al. (1994) for industries in which firms are more likely to beat earnings benchmarks, zero otherwise
LOGAF	Natural logarithm of (AF plus 1)
LOGAR	Natural logarithm of (accounts receivable plus 1)
LOGINV	Natural logarithm of (inventory plus 1)
LOGIT	Natural logarithm of (financial information system installation fees paid to accounting firm plus 1)
LOGMV	Natural logarithm of the market value of common equity
LOGNAF	Natural logarithm of (non-audit fees plus 1)
LOGTAX	Natural logarithm of [income taxes plus absolute value of minimum income taxes (negative) plus 1]
LOSS	Indicator variable equal to one if reported earnings are negative, and zero otherwise
NAF	Fees for nonaudit services
QUAL	Indicator variable equal to one if audit opinion was qualified, and zero otherwise
QUICK	Quick ratio
RATIO	Fees for nonaudit services paid to the audit firm divided by audit fees
REV	Revenue
REC	Receivables
SOCF	Operating cash flow, scaled by beginning market value of common equity
TENURE	Indicator variable equal to one if auditor is same as in prior year, and zero otherwise
SWCA	Working capital accruals, scaled by beginning market value of common equity
WCA	Working capital accruals

Δ denotes change in the variable.

Table 2
Characteristics of the Sample

Panel A: Sample Distribution by Year

Year	UK		US	
	Frequency	Percent	Frequency	Percent
1994	324	13.26		
1995	347	14.20		
1996	325	13.30		
1997	341	13.96		
1998	382	15.64		
1999	530	21.69		
2000	194	7.94	1,430	100.00
Total	2,443	100.00%	1,430	100.00%

Panel B: Sample Distribution by Industry

Industry*	UK		US	
	Frequency	Percent	Frequency	Percent
agriculture and forestry	20	0.82	5	0.35
amusement	68	2.78	22	1.54
business services	181	7.41	203	14.20
chemical	132	5.40	161	11.26
construction	167	6.84	11	0.77
electrical machinery	180	7.37	235	16.43
fabricated metal	47	1.92	28	1.96
food and tobacco	121	4.95	32	2.24
furniture	35	1.43	22	1.54
health, education & other services	134	5.49	75	5.24
manufacturing machinery	118	4.83	113	7.90
mining	30	1.23	11	0.77
misc manufacturing	32	1.31	13	0.91
oil and gas extraction	29	1.19	61	4.27
paper	130	5.32	54	3.78
personal services and repair	60	2.46	17	1.19
primary metal	64	2.62	37	2.59
real estate and investment	45	1.84	11	0.77
retail	322	13.18	145	10.14
rubber and leather	36	1.47	22	1.54
stone, clay etc	100	4.09	11	0.77
textile	120	4.91	25	1.75
transit	35	1.43	18	1.26
transportation equipment	72	2.95	38	2.66
wholesale	165	6.75	60	4.20
Total	2,443	100.00%	1,430	100.00%

* Industry definitions are based on SIC codes as follows: agriculture and forestry: SIC<1000; mining: 1000<=SIC<1100, 1200<=SIC<1300, 400<=SIC<1500; oil & gas extraction: 1300<=SIC<1400; construction: 1500<=SIC<1800; food and tobacco: 2000<=SIC<2200; textile: 2200<=SIC<2400; furniture: 2400<=SIC<2600; paper: 2600<=SIC<2800; chemical: 2800<=SIC<3000; rubber and leather: 3000<=SIC<3200; stone, clay etc: 3200<=SIC<3300; primary metal: 3300<=SIC<3400; fabricated metal: 3400<=SIC<3500; manufacturing machinery: 3500<=SIC<3600; electrical machinery: 3600<=SIC<3700, 3800<=SIC<3900; transportation equipment: 3700<=SIC<3800; misc manufacturing: 3900<=SIC<4000; transit: 4000<=SIC<5000; wholesale: 5000<=SIC<5200; retail: 5200<=SIC<6000; real estate and investment: 6500<=SIC<6600, 6700<=SIC<6800; personal services and repair: 7000<=SIC<7100, 7200<=SIC<7300, 7500<=SIC<7700; business services: 7300<=SIC<7400; amusement: 7800<=SIC<8000; health, education and other services: SIC>=8000.

Table 3
Summary Statistics

<u>Variable</u>	UK			US		
	<u>Mean</u>	<u>Median</u>	<u>Std Dev</u>	<u>Mean</u>	<u>Median</u>	<u>Std Dev</u>
AF <i>(in millions)</i>	0.45	0.14	1.24	0.68	0.29	1.40
NAF <i>(in millions)</i>	0.49	0.09	2.04	1.52	0.33	4.65
AA	0.01	0.01	0.25	(0.01)	0.00	0.18
FISCED	0.41	0.00	0.49	0.74	1.00	0.44
LEV	0.12	0.08	0.14	0.20	0.09	0.24
QUICK	1.06	0.86	1.42	2.29	1.22	4.02
BMB	4.11	2.09	15.07	6.00	2.53	25.97
LOSS	0.12	0.00	0.32	0.23	0.00	0.42
LITI	0.23	0.00	0.42	0.38	0.00	0.49
QUAL	0.01	0.00	0.12	0.14	0.00	0.34
AR <i>(in millions)</i>	209.69	35.79	795.60	323.12	64.04	1,294.19
INV <i>(in millions)</i>	162.95	25.10	473.54	240.45	35.01	855.09
BIG	0.82	1.00	0.39	0.96	1.00	0.20
TENURE	0.89	1.00	0.32	0.93	1.00	0.25
LAA	0.01	0.01	0.31	0.01	0.00	0.24
MV <i>(beginning of the year in millions)</i>	1,402.67	182.13	6,690.18	4,533.95	456.15	22,598.76
TAXES <i>(in millions)</i>	37.97	5.20	161.56	82.07	10.40	429.48
SOCF	0.25	0.13	2.94	0.10	0.07	0.17

Notes:

See table 1 for variable definitions.

Amounts reported in millions are millions of pounds in the United Kingdom and dollars in the United States.

Table 4
Joint estimation and OLS estimation of audit fee, non-audit fees and abnormal accruals

	Joint Estimation			OLS Estimation		
	coefficient	t-stat		coefficient	t-stat	
Dependent variable: LOGAF						
Intercept	(0.072)	(2.95)	**	(0.250)	(14.61)	**
LOGNAF	0.771	25.39	**	0.419	35.16	**
AA	(0.016)	(0.70)		(0.021)	(1.44)	
FISDEC	0.028	5.53	**	0.031	4.14	**
LEV	(0.036)	(1.18)		(0.009)	(0.33)	
QUICK	0.003	0.95		0.006	2.37	**
BMB	(0.000)	(0.59)		0.000	0.09	
LOSS	(0.018)	(1.31)		0.031	2.70	**
LITI	(0.022)	(2.16)	**	(0.036)	(4.15)	**
QUAL	(0.039)	(1.09)		(0.016)	(0.51)	
LOGAR	0.035	8.49	**	0.054	13.65	**
LOGINV	0.012	6.59	**	0.028	9.54	**
BIG	(0.020)	(1.72)	*	(0.035)	(3.52)	**
TENURE	0.011	0.87		0.011	0.94	
BLOGMV	(0.002)	(0.42)		0.025	6.95	**
LAA	(0.000)	(0.02)		(0.007)	(0.60)	
				Adjusted R ²	0.765	
Dependent variable: LOGNAF						
Intercept	(1.956)	(8.79)	**	(1.955)	(12.97)	**
LOGAF	0.651	12.57	**	0.657	28.93	**
AA	0.030	1.09		0.005	0.28	
LOGTAX	0.330	8.63	**	0.330	12.15	**
LEV	0.094	2.55	**	0.089	2.47	**
QUICK	0.001	0.27		0.001	0.25	
BMB	0.000	0.86		0.000	0.94	
LOSS	0.071	4.47	**	0.070	4.53	**
LITI	(0.009)	(0.71)		(0.009)	(0.75)	
QUAL	0.040	0.96		0.041	0.96	
BLOGMV	0.008	0.59		0.008	0.57	
BIG	(0.005)	(0.30)		(0.005)	(0.30)	
TENURE	0.024	3.94	**	0.023	5.67	**
LAA	(0.005)	(0.31)		(0.004)	(0.25)	
				Adjusted R ²	0.330	
Dependent variable: AA						
Intercept	(0.063)	(3.15)	**	(0.059)	(3.50)	**
LOGAF	0.276	3.53	**	(0.021)	(1.13)	
LOGNAF	(0.293)	(3.92)	**	(0.018)	(1.22)	
SOCF	0.061	47.73	**	0.061	50.45	**
LOSS	0.029	2.32	**	0.017	1.51	
LITI	0.003	0.34		(0.007)	(0.84)	
QUAL	0.037	1.14		0.021	0.69	
BIG	(0.027)	(2.65)	**	(0.030)	(3.11)	**
TENURE	0.016	1.39		0.019	1.67	*
BLOGMV	0.011	2.68	**	0.014	4.71	**
LAA	0.042	3.53	**	0.043	3.78	**
				Adjusted R ²	0.512	

Notes:

See table 1 for variable definitions.

** , * denote significant at the 5% and 10% levels, respectively.

Table 5
 OLS estimation of AA equation using ratio of nonaudit to audit fees and OLS estimation of
 AA equation using log fees

	OLS with Ratio Variable			OLS with Log Fees Variable		
	<u>coefficient</u>	<u>t-stat</u>		<u>coefficient</u>	<u>t-stat</u>	
Dependent variable: AA						
INTERCEPT	(0.040)	(2.58)	**	(0.059)	(3.50)	**
LOGAF	Not Included			(0.021)	(1.13)	
LOGNAF	Not Included			(0.018)	(1.22)	
RATIO	(0.005)	(1.77)	*	Not included		
SOCF	0.061	50.42	**	0.061	50.45	**
LOSS	0.015	1.34		0.017	1.51	
LITI	(0.003)	(0.33)		(0.007)	(0.84)	
QUAL	0.021	0.66		0.021	0.69	
BIG	(0.028)	(2.88)	**	(0.030)	(3.11)	**
TENURE	0.019	1.70	*	0.019	1.67	*
BLOGMV	0.009	4.29	**	0.014	4.71	**
LAA	0.043	3.80	**	0.043	3.78	**
	Adjusted R ²	0.511		Adjusted R ²	0.512	

Notes:

See table 1 for variable definitions.

**,* denote significant at the 5% and 10% levels, respectively.

Table 6
Comparison of UK and US Results

	US 2000			US IT			UK 2000		
	coefficient	t-stat		coefficient	t-stat		coefficient	t-stat	
Dependent variable: LOGAF									
Intercept	0.267	2.27	**	(0.336)	(6.87)	**	0.104	1.04	
LOGNAF	0.748	9.13	**	0.286	12.09	**	0.712	11.14	**
AA	0.059	0.57		0.151	1.95		0.108	0.64	
FISDEC	0.000	(0.17)		0.005	0.45		(0.000)	(0.04)	
LEV	0.030	0.79		0.102	3.75	**	0.125	1.41	
QUICK	0.002	0.87		(0.000)	(0.31)		(0.010)	(1.26)	
BMB	(0.000)	(1.18)		(0.000)	(2.27)	**	(0.001)	(0.23)	
LOSS	0.020	0.95		0.072	4.97	**	(0.101)	(2.02)	
LITI	0.002	0.14		0.002	0.12		(0.020)	(0.51)	
QUAL [^]	0.008	0.36		0.059	3.64	**	Not Included		
LOGAR	0.013	1.38		0.059	11.11	**	0.014	0.91	
LOGINV	0.004	0.98		0.020	7.05	**	0.003	0.87	
BIG	(0.043)	(1.16)		(0.016)	(0.58)		(0.007)	(0.14)	
TENURE	(0.026)	(0.86)		(0.028)	(1.25)		(0.044)	(0.51)	
BLOGMV	(0.045)	(2.68)	**	0.042	6.13	**	(0.010)	(0.63)	
LAA	(0.021)	(0.68)		(0.014)	(0.62)		(0.073)	(0.59)	
Dependent variable: LOGNAF									
Intercept	(0.737)	(2.82)	**	(1.113)	(5.30)	**	(0.903)	(1.19)	
LOGAF	1.131	12.51	**	1.014	12.15	**	1.186	6.69	**
AA	(0.047)	(0.34)		(0.040)	(0.32)		(0.108)	(0.47)	
LOGTAX	0.046	1.13		0.128	4.09	**	0.127	0.96	
LEV	(0.002)	(0.04)		0.039	0.74		(0.170)	(1.40)	
QUICK	(0.003)	(0.98)		(0.002)	(0.71)		0.016	1.44	
BMB	0.000	0.93		0.000	1.04		0.001	0.28	
LOSS	(0.006)	(0.25)		(0.012)	(0.52)		0.147	2.30	**
LITI	(0.002)	(0.09)		0.003	0.14		0.025	0.46	
QUAL [^]	0.007	0.22		(0.003)	(0.13)		Not Included		
BLOGMV	0.076	5.09	**	0.060	4.51	**	0.018	0.81	
BIG	0.059	1.21		0.066	1.51		0.008	0.12	
TENURE	0.027	0.67		0.020	0.55		0.047	0.40	
LAA	0.029	0.72		0.022	0.61		0.065	0.39	
LOG_IT	Not Included			0.486	16.21	**	Not Included		
Dependent variable: AA									
Intercept	0.011	0.13		0.081	2.290	**	(0.131)	(1.36)	
LOGAF	0.257	1.27		0.133	2.840	**	0.873	2.77	**
LOGNAF	(0.163)	(0.95)		(0.041)	(1.490)		(0.595)	(2.55)	**
SOCF	(0.455)	(16.02)		(0.454)	(16.440)	**	(0.513)	(5.46)	**
LOSS	(0.049)	(4.25)	**	(0.048)	(4.320)	**	0.069	1.17	
LITI	(0.037)	(3.52)	**	(0.034)	(3.340)	**	0.031	0.79	
QUAL [^]	(0.026)	(1.89)	*	(0.028)	(2.120)	**	Not Included		
BIG	0.034	1.37		0.027	1.200		0.001	0.03	
TENURE	0.020	1.03		0.017	0.930		0.208	2.80	**
BLOGMV	(0.002)	(0.14)		(0.014)	(2.690)	**	(0.011)	(0.77)	
LAA	0.016	0.81		0.013	0.710		0.626	8.54	**

Notes:

See table 1 for variable definitions.

**,* denote significant at the 5% and 10% levels, respectively.

[^]All 2000 UK data have QUAL = 0.

Alternative Definitions of Abnormal Accruals

In this appendix we investigate the sensitivity of our results to the estimation of abnormal accruals. To estimate abnormal accruals in the paper, we use a variation of the modified-Jones model that is advocated by Dechow et al. (1995). We use three alternative definitions of abnormal accruals to check the sensitivity: 1.) the absolute value of abnormal accruals estimated using the modified Jones model, 2.) abnormal accruals using the modified-Jones Model adjusted for earnings management incentives and 3.) scaled working capital accruals.

Results of the tests, presented in Table A1, indicate that our findings relating to audit fees, non-audit fees and abnormal accruals are fairly consistent across all definitions of abnormal accruals. In the audit fee equation, non-audit fees are positive while abnormal accruals are not significant under each alternative abnormal accrual definition, consistent with our main findings in the simultaneous equation estimates in Table 4 of the paper. In the non-audit fee equation, audit fees are positive while abnormal accruals are not significant under each alternative abnormal accrual definition, also consistent with our main finding in the Table 4 of the paper. In two of the three abnormal accruals equations findings of a positive relation with audit fees and a negative relation with nonaudit fees are consistent with main findings in the paper.

To compare the results to related literature, we also estimate an OLS regression with the absolute value of abnormal accruals as the dependent variable. The results, presented in Table A2, show a positive coefficient on both audit fees and nonaudit fees whereas Frankel et al. (2002) find positive coefficients on the rank of audit fees and the rank of nonaudit fees. Similar to our findings in the OLS regressions in table 4, these results suggest that not controlling for the endogeneity of audit fees, nonaudit fees and abnormal accruals leads to inaccurate conclusions.¹

Below, we discuss the approach used to calculate abnormal accruals under each of the three alternative definitions of abnormal accruals.

Approach 1: Absolute value of abnormal accruals estimated using the modified Jones model

We use a variation of the modified-Jones model that is advocated by Dechow et al. (1995). Like Ferguson et al. (2000), we focus on working capital accruals. The model used to estimate normal working capital accruals is:

$$WCA/MV = \alpha.(1/MV) + \beta.[(\Delta REV - \Delta REC)/MV] + \varepsilon \quad (1)$$

Where:

- WCA is the current working capital accruals of the company
- MV is the market value of equity of the company in the previous year
- ΔREV is the current change in revenue
- ΔREC is the current change in receivables

¹ Frankel et al. also use the ratio of non-audit fees to audit fees in some of their analyses. When we use the ratio measure along with the absolute value of abnormal we find a positive coefficient on ratio in the OLS (similar to Frankel et. al.). However, we find a significant negative coefficient in the joint estimation.

We estimate the model separately for each industry. Abnormal working capital accruals are then calculated as the absolute value of the error term in the above regression.

Approach 2: Scaled working capital accruals (SWCA)

We assume all of the working capital accruals (scaled by market value) to be abnormal. This is a modified version of Healy (1985), who assumed that total (as opposed to working capital) accruals are abnormal.

Approach 3: Modified-Jones model adjusted for earnings management incentives

We recognize that tests using the above measures are likely to have low power since they look at the relation between earnings management proxies and auditors' services without considering earnings management incentives. In order to improve the power of these tests, we consider capital markets incentives and bonus plans.

Burgstahler and Dichev (1997) find that managers manipulate earnings to avoid losses and earnings decreases. Thus, in a sample of zero earnings (earnings decrease) and small positive earnings (and earnings decrease), we are likely to find a greater proportion of firms with positive earnings management. We operationalize this by first running a regression of abnormal accruals on dummies for proximity to zero earnings and zero earnings changes. We also include all the control variables discussed before. We get a fitted value for abnormal accruals, which we use in regression against audit and non-audit fees (and the control variables).

For getting fitted values for abnormal accruals, ABACHAT, we estimate the following regression (firm and year subscripts omitted):

$$ABAC = a_0 + a_1 NEAR0 + a_2 CHNEAR0 + a_3 SOCF + a_4 LABAC + a_5 LOSS + a_6 LOGMV + a_7 TENURE + a_8 QUAL + a_9 BIG + \varepsilon \quad (2)$$

Where:

- ABAC is a measure of abnormal accruals. The residual from equation (1).
- NEAR0 is indicator variable equal to one if reported earnings are near zero, and zero otherwise
- CHNEAR0 is an indicator variable equal to one if the change in reported earnings is near zero, zero otherwise
- SOCF is operating cash flow, scaled by beginning market value of common equity
- LABAC is lagged abnormal accruals
- LOSS is an indicator variable equal to one if reported earnings are negative, and zero otherwise
- LOGMV is the natural logarithm of the market value of common equity
- TENURE is an indicator variable equal to one if auditor is same as in prior year, and zero otherwise
- BIG is an indicator variable equal to one for a Big 6 auditor (Arthur Anderson, Coopers & Lybrand, Deloitte & Touche, Ernst & Young, KPMG or Price Waterhouse) and zero otherwise
- QUAL is an indicator variable equal to one if audit opinion was qualified, and zero otherwise

Table A1
Joint estimation on UK data using alternative definitions of abnormal accruals

	AA= ABAC			AA=ABACHAT			AA=SWCA		
	coefficient	t-stat		coefficient	t-stat		coefficient	t-stat	
Dependent variable: LOGAF									
Intercept	(0.072)	(2.66)	**	(0.071)	(2.97)	**	(0.076)	(3.09)	**
LOGNAF	0.774	24.92	**	0.779	25.90	**	0.763	24.90	**
AA	0.031	0.36		(0.022)	(0.94)		(0.009)	(0.96)	
FISDEC	0.025	4.85	**	0.024	4.94	**	0.029	5.66	**
LEV	(0.014)	(0.47)		0.014	0.50		(0.034)	(1.07)	
QUICK	0.003	1.02		0.003	1.00		0.003	1.06	
BMB	(0.000)	(0.75)		(0.000)	(0.94)		(0.000)	(0.60)	
LOSS	(0.019)	(1.35)		(0.020)	(1.46)		(0.018)	(1.27)	
LITI	(0.022)	(2.23)	**	(0.023)	(2.25)	**	(0.021)	(2.10)	**
QUAL	(0.041)	(1.13)		(0.041)	(1.14)		(0.039)	(1.08)	
LOGAR	0.034	8.24	**	0.032	8.05	**	0.037	8.89	**
LOGINV	0.012	6.32	**	0.012	6.56	**	0.012	6.44	**
BIG	(0.019)	(1.69)	**	(0.020)	(1.77)	*	(0.020)	(1.74)	*
TENURE	0.011	0.86		0.012	0.89		0.011	0.87	
BLOGMV	(0.001)	(0.22)		(0.001)	(0.16)		(0.002)	(0.48)	
LAA	(0.032)	(0.57)		0.001	0.07		(0.001)	(0.11)	
Dependent variable: LOGNAF									
Intercept	(1.889)	(8.44)	**	(1.808)	(8.34)	**	(2.028)	(9.07)	**
LOGAF	0.667	12.53	**	0.685	13.51	**	0.636	12.25	**
AA	(0.007)	(0.07)		0.036	1.32		0.017	1.57	
LOGTAX	0.318	8.35	**	0.306	8.22	**	0.342	8.91	**
LEV	0.071	1.92	**	0.038	1.11		0.093	2.46	**
QUICK	0.001	0.19		0.001	0.29		0.000	0.14	
BMB	0.000	0.99		0.000	1.18		0.000	0.85	
LOSS	0.070	4.42	**	0.070	4.40	**	0.073	4.59	**
LITI	(0.007)	(0.58)		(0.006)	(0.48)		(0.011)	(0.83)	
QUAL	0.042	1.00		0.043	1.01		0.040	0.95	
BLOGMV	0.007	0.55		0.009	0.70		0.007	0.56	
BIG	(0.004)	(0.27)		(0.005)	(0.35)		(0.004)	(0.28)	
TENURE	0.023	3.37	**	0.021	3.48	**	0.025	4.13	**
LAA	0.022	0.33		(0.006)	(0.37)		(0.002)	(0.17)	
Dependent variable: AA									
Intercept	0.145	10.65	**	(0.040)	(296.30)	**	(0.039)	(1.85)	
LOGAF	0.256	4.89	**	0.004	6.82	**	0.095	1.14	
LOGNAF	(0.161)	(3.22)	**	(0.003)	(5.60)	**	(0.100)	(1.25)	
SOCF	0.024	19.15	**	0.061	6,927.98	**	0.173	114.07	**
LOSS	0.014	1.69	**	0.013	147.80	**	0.003	0.25	
LITI	0.010	1.50		(0.003)	(51.25)	**	(0.015)	(1.50)	
QUAL	0.005	0.24		0.021	91.41	**	0.010	0.29	
BIG	0.006	0.92		(0.029)	(412.51)	**	(0.015)	(1.39)	
TENURE	(0.010)	(1.22)		0.019	236.21	**	0.021	1.67	*
BLOGMV	(0.027)	(9.76)	**	0.008	291.45	**	0.005	1.20	
LAA	0.467	37.31	**	0.043	533.13	**	(0.291)	(34.14)	**

Notes:

**,* denote significant at the 5% and 10% levels, respectively.

Variables are defined as follows: AA is one of three estimates of abnormal accruals: ABAC is abnormal accruals estimated using the modified Jones model; ABACHAT is the fitted value of abnormal accruals calculated using

the modified Jones model adjusted for incentives; SWCA is working capital accruals, scaled by beginning market value; LOGAF is the natural logarithm of audit fees; LOGNAF is the natural logarithm of nonaudit fees; FISDEC is an indicator variable equal to one if fiscal year end is December 31, and zero otherwise; LEV is the leverage ratio; QUICK is the quick ratio; BMB is the book value of equity divided by market value of equity; LOSS is an indicator variable equal to one if the previous year's net income was negative and zero otherwise; LITI is an indicator variable equal to one if firm is in a high litigation risk industry and zero otherwise; QUAL is an indicator variable equal to one if opinion was qualified and zero otherwise; LOGAR is the natural logarithm of accounts receivable; LOGINV is the natural logarithm of inventory; BIG is an indicator variable equal to one if auditor was Big 6 Firm identified as Arthur Anderson, Coopers & Lybrand, Deloitte & Touche, Ernst & Young, KPMG or Price Waterhouse; TENURE is an indicator variable equal to one if the auditor was not changed during the current fiscal year and zero otherwise; LAA is lagged abnormal accruals; BLOGMV is the natural logarithm market value of the firm at the beginning of the fiscal year; LOGTAX is the natural logarithm of taxes paid; and SOCF is the operating cash flows, scaled by beginning of period market value of equity.

Table A2
 OLS estimation of absolute abnormal accruals

Dependent variable: ABSABAC

	<u>coefficient</u>	<u>t-stat</u>	
Intercept	0.133	11.54	**
LOGAF	0.030	2.43	**
LOGNAF	0.018	1.85	*
SOCF	0.025	20.41	**
LOSS	0.010	1.25	
LITI	(0.001)	(0.15)	
QUAL	(0.005)	(0.25)	
BIG	0.003	0.48	
TENURE	(0.008)	(1.11)	
BLOGMV	(0.021)	(10.26)	**
LABSABAC	0.467	39.36	**
Adjusted R ²	0.761		

Notes:

See table A1 for variable definitions.

**, * denote significant at the 5% and 10% levels, respectively.

APPENDIX 2

Brief comparison of UK and US audit environments

Factors that influence the development of audit standards and practice, such as the nature of financing, the size and complexity of businesses and capital markets, tax laws and legal environments, are similar in the UK and the US. In both countries, large and sophisticated capital markets provide a major source of financing for public companies, which are widely held. Both are common law countries that share the English-origin of the legal system and evidence similarities in shareholder rights and rule of law as documented by LaPorta et. al. (1998).

As Frost and Ramin (1996) observe, these factors lead to shareholders' needs significantly influencing financial statements and independent audits, and private-sector bodies strongly affecting both accounting and audit standard setting. The audit profession is well established in both countries, with overlap in the largest audit firms. Both countries share a tradition of auditor independence and have similar definitions of independence.

Despite these similarities, some differences in practice exist. US audit standards are viewed as highly specific and comprehensive, whereas UK standards setters are believed to promote "principles" rather than "rules" (Frost and Ramin (1996)). Although the accounting profession has played an important role in developing audit standards in both countries, UK audit opinion comments on compliance with the Companies Act, as well as giving an opinion on whether the financial statements present a true and fair view. In contrast, the US audit opinion comments on whether financial statements present fairly in accordance with generally accepted accounting principles, but does not comment on legal compliance.

Factors that give rise to qualified opinions differ in the US and UK. In the US, a qualified opinion is issued if there are material departures from generally accepted accounting principles. In the UK, both a departure from Generally accepted accounting principles and auditor disagreement with whether the departure represents a true and fair view (or is not adequately disclosure) leads to a qualified audit opinion.

It is an empirical issue whether the UK and US settings provide similar incentives and opportunities to manage earnings. Empirical research has documented earnings management practices in the UK. Most notably, Peasnell et. al. (2000) present evidence that, although the so-called Canbury Report has altered the UK regulatory framework of corporate governance, these changes did not dilute earnings management activity by UK firms. (The Canbury Report is a voluntary Code of Best Practice issued in 1992 by the Committee on the Financial Aspects of Corporate Governance. The Committee was comprised of the Financial Reporting Council, the London Stock Exchange, and representatives of the accounting profession.)