Provision of Non-audit Services by Auditors: Economic Efficiency or Managerial Opportunism

Aloke Ghosh, Baruch College, The City University of New York
Sanjay Kallapur, Purdue University and Indian School of Business
Doocheol Moon SUNY - Oldwestbury

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Aloke Ghosh
Stan Ross Department of Accountancy
Baruch College, The City University of New York
Aloke_Ghosh@baruch.cuny.edu
Ph.: (646) 312-3184; Fax: (646) 312-3161

Sanjay Kallapur
Krannert School of Management
Purdue University
and
Indian School of Business
Gachibowli, Hyderabad 500019
Phone: +91 40 2318 7138
sanjay_kallapur@isb.edu

and

Doocheol Moon
SUNY - Oldwestbury
moond@oldwestbury.edu
Ph.: (516) 876-3163; Fax: (516) 876-3360

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Abstract

This paper examines the relative importance of proxies for economic efficiency and managerial opportunism as determinants of non-audit services (NAS), and thereby contributes to the debate on whether the provision of NAS by auditors impairs independence or is economically efficient. We find that NAS is positively related to auditor tenure, and clients purchase more NAS from industry-specialist auditors, suggesting that economic efficiency factors are associated with NAS purchases. To examine managerial opportunism we use proxies for the strength of corporate governance (percentage of independent directors on the board and audit committee, board and audit committee size, and number of board and audit committee meetings) and client incentives to manage earnings (CEO ownership, bonus and stock compensation, and leverage). While the statistically significant coefficients on board independence and bonus and stock compensation are consistent with managerial opportunism (firms with less independent boards purchase more NAS, and firms with more bonus and stock compensation purchase more NAS), those on audit committee size and number of board meetings are inconsistent with managerial opportunism, but consistent with efficient contracting (firms with larger audit committees and with less frequent board meetings purchase less NAS). Overall, the sum of the managerial opportunism variables does not differ significantly from zero. Thus we conclude that the evidence is consistent with NAS purchases being driven by economic efficiency rather than managerial opportunism.

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1. Introduction

It is controversial whether the provision of non-audit services (NAS) by auditors impairs auditor independence, or is instead economically efficient (because of benefits from knowledge spillovers, reduction of search costs, or mitigation of contracting frictions). Many recent studies examine whether non-audit services impair auditor independence.[1] However, the evidence from these studies is mixed. Moreover, existing studies concentrate on the potential harm caused by NAS, but do not examine its potential benefits. Thus existing studies do not provide evidence on the potential effect of a blanket ban on NAS that some (e.g., Biggs, 2000, and some members of the Panel on Audit Effectiveness, 2000) have proposed.

In this study we examine the determinants of NAS purchases to shed light on the extent to which economic efficiency or managerial opportunism explains firms' decisions to acquire NAS from the auditor. If NAS primarily impairs auditor independence then managerial opportunism—that is, managers' ability and incentives to opportunistically manage accounting numbers—should explain NAS purchases. Conversely, if clients purchase NAS from auditors because it is economically efficient, then NAS purchases should be related to proxies for economic efficiency. Relying on previous studies, we use auditor tenure and auditor industry specialization as proxies for economic efficiency. Studies in the sociology of organizations (Macauley, 1963), strategy (Ring and Van de

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[1] See DeFond et al. (2002), Frankel et al. (2002), Ashbaugh et al. (2003), Bajaj et al. (2003), Chung and Kallapur (2003), Kinney et al. (2004), and Larcker and Richardson (2004). Section II provides a detailed discussion of these studies.

Ven, 1994; Gulati, 1995; Gulati and Singh, 1998; Kotabe et al., 2003), and auditing (Libby and Frederick, 1990; Ashton, 1991; Myers et al., 2003; Ghosh and Moon, 2005) suggest that contracting frictions are likely to be lower and knowledge spillovers are likely to be higher between parties that have had long-lived relationships with each other, i.e., for auditors that have audited the same client for a long period. Clients are also more likely to purchase NAS from industry-specialist auditors to avail the benefits of their specialized knowledge (Parkash and Venable, 1993).

Following recent studies (Hanlon et al., 2003; Rajan and Wulf, 2005) we use corporate governance variables (percentage of independent directors on the board and audit committee, board and audit committee size, and number of board and audit committee meetings) to proxy for managerial ability to behave opportunistically. Managers are more likely to behave opportunistically when corporate governance mechanisms are weak. Thus, managerial opportunism suggests a negative relationship between the strength of corporate governance and NAS purchases. A positive relationship, on the other hand, can be interpreted as support for efficient contracting— agency theory suggests that firms with high agency problems try to mitigate perceptions of audit quality impairment, otherwise investors will pay a lower price for the firm's stock, and other contracting parties will impose similar costs (Jensen and Meckling, 1976; Watts and Zimmerman, 1983). We use CEO ownership, bonus and stock compensation, and leverage as proxies for managerial incentives to behave opportunistically. Managerial opportunism predicts that greater the incentives, the higher the amount of NAS purchases, and efficient contracting predicts the opposite. We control for other factors that might be associated with the purchase of NAS such as Big-5

auditors, firm performance, capital raising events, growth, uncertainty (beta and return volatility), size, and number of business segments. We also include fixed effects for industries and years to control for differences in NAS across industries and over time.

We find that NAS purchases are positively associated with the economic efficiency variables: (1) firms with longer auditor tenure purchase more NAS, consistent with higher knowledge spillovers and lower contracting costs, and (2) firms purchase more NAS from industry-specialist auditors. Some of the managerial opportunism variables are significant, but in opposing directions. Some support opportunism theory (firms with less independent boards purchase more NAS, and firms with more bonus and stock compensation purchase more NAS), while others support efficient contracting (firms with larger audit committees and with less frequent board meetings purchase less NAS).

To assess the overall effect of the opportunism variables, first we add the managerial opportunism coefficients and find that the sum of the coefficients does not differ significantly from zero. Second, we replace the opportunism variables by their principal factor, as in Ali and Hwang (2000), and find that the coefficient on the principal factor does not differ significantly from zero. Thus the evidence does not support the conclusion that opportunism variables as a group affect NAS purchases. These results are robust to the inclusion of firm fixed effects as controls for correlated omitted variables, except that the auditor industry specialization variable loses its significance, possibly because of its inadequate variation over time for a given firm.[2]

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[2] If we regard capital raising as an opportunism variable, instead of including it as a control variable, on the grounds that it gives client firms an incentive to manipulate earnings, most of the results above hold. The coefficient on the principal factor remains insignificant, and the sum of the coefficients on the opportunism

Our findings add to the debate on non-audit services by showing that NAS purchases are explained by economic efficiency rather than by managerial opportunism. Our findings also add to previous research on the determinants of non-audit services (DeBerg et al., 1991; Parkash and Venable, 1993; Firth, 1997). In addition to our study being more contemporary, we examine a comprehensive list of variables while previous studies examine only certain aspects. DeBerg et al. (1991) examine only NAS and auditor turnover, while Parkash and Venable (1993) and Firth (1997) examine only the efficient contracting perspective, not economic efficiency.

2. Institutional Background and Prior Literature

The scope of audit services has been a subject of intense policy debates at least since the 1950s.[3] Some are concerned that the provision of NAS by audit firms could threaten auditor independence[4] because NAS creates economic incentives for the auditor to preserve the auditor-client relationship (Simunic, 1984; Beck et al., 1988). An opposing viewpoint is that the provision of NAS by auditors is economically efficient because buying consulting services from the auditor can: (1) reduce client firms' search costs (Commission on Auditors' Responsibilities (Cohen Commission), 1978), (2) create "knowledge spillovers" enabling auditors to provide consulting services at a lower cost (Simunic, 1984; Palmrose, 1986; Beck et al., 1988), or (3) mitigate the effect of contracting frictions (Antle and Demski, 1991).

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variables is insignificant in the specification that includes firm fixed effects. However, when firm fixed effects are excluded, the sum of the coefficients on the opportunism variables is positive and statistically significant.

[3] See, for example, Securities and Exchange Commission (1957, 2000), United States Congress (1977), American Institute of Certified Public Accountants (1994b), and the Sarbanes-Oxley Act, 2002.

Many recent studies examine the association between NAS and auditor independence using different proxies for audit quality. Proxies used include earnings quality (accruals or the propensity to meet or beat benchmarks), propensity to issue going concern opinions, restatements, or allegations of audit failure in litigation.

In a study using earnings quality as a proxy for audit quality, Frankel et al. (2002) find that firms' purchase of NAS is positively associated with proxies for earnings management, which suggests that NAS impairs auditor independence. However, other studies (Ashbaugh et al., 2003; Chung and Kallapur, 2003; Larcker and Richardson, 2004; Reynolds et al., 2004) question Frankel et al.'s findings and interpretation. Moreover, as Becker et al. (1998) and Nelson et al. (2002) argue, earnings quality is the joint product of managers' and auditors' actions, and it is hard to disentangle the auditors' actions separately. For example, in one case earnings quality could be low because clients attempted aggressive earnings management and the auditor prevented most but not all of it, and in another case earnings quality could be high because the client did not attempt any earnings management although the auditor was willing to permit them.

Other studies use more direct measures of audit quality that are not subject to the criticism that they are the joint products of managers' and auditors' actions. DeFond et al. (2002) use audit qualifications as a proxy for audit quality and fail to find evidence supporting the argument that auditors are less likely to qualify audits of clients purchasing more NAS. Similarly, Raghunandan et al. (2003) and Kinney et al. (2004) fail

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[4] See United States Congress (1977), American Institute of Certified Public Accountants (1994a, 1994b), Securities and Exchange Commission (1994, 2000), and Panel on Audit Effectiveness (2000).

to find evidence of a link between NAS and restatements, although Kinney et al. find weak evidence of a positive relation between unspecified non-audit fees (i.e., non-audit fees that are not audit related or for internal audit, financial information systems design and implementation, or tax services) and restatements. Finally, Bajaj et al. (2003) examine NAS fees for firms subject to shareholder class action litigation involving allegation of audit failure and a set of control firms matched by industry and size, and fail to find any relationship overall; but they do find that NAS fees are higher for a subset of 33 companies with the highest market price decline during the class period. Thus evidence using direct measures of audit quality also is mixed. Moreover, as Nelson et al. (2002) argue, and several of the studies acknowledge, the settings examined in these studies are specialized, and the results may not be generalizable to the more common but less egregious instances of earnings management.

These studies, moreover, leave unanswered the question of whether there would be any harm of a blanket ban on NAS. Some members of the Panel on Audit Effectiveness (2000), for example, urged a ban on NAS as a "cheap insurance." That is, they consider the ban on NAS as harmless even if it does not positively enhance auditor independence. Antle and Demski (1991), on the other hand, argue that a ban on NAS could destroy benefits that are potentially large. To evaluate such an argument, one needs evidence on the benefits of the provision of NAS by auditors. In this paper we begin to do so by showing that economic efficiency drives the purchase of NAS. Our evidence is important because regulators and Congress have imposed restrictions on NAS (Securities and Exchange Commission, 2000; Sarbanes-Oxley Act, 2002).

3. Determinants of Non-audit Services

3.1. Measures of economic efficiency

Auditor tenure

We use auditor tenure and auditor industry specialization as proxies for economic efficiency. Several studies suggest that contracting costs decrease and knowledge spillovers increase as the duration of a business relationship increases. Long-standing relationships between contracting parties enable them to communicate and collaborate more effectively (Macauley, 1963; Levinthal and Fichman, 1988; Asanuma, 1989), i.e., long-standing relationships reduce contracting costs.[5]

Gulati (1995) and Gulati and Singh (1998) find that the number of prior strategic alliance relationships between two parties is positively associated with their next alliance being contractual rather than hierarchical, again indicating that contracting costs are lower for parties in long-standing relationships. Also, inter-firm trust reduces the need for formal contracts (Larson, 1992) and facilitates dispute-resolution (Ring and Van de Ven, 1994); and relationship duration is positively associated with the level of trust (Gulati, 1995). The benefit from knowledge transfers in buyer-supplier vertical partnerships also increases with relationship duration (Kotabe et al., 2003). In auditing, experimental studies find that auditor expertise improves with experience (Libby and Frederick, 1990; Ashton, 1991). Archival studies such as Johnson et al. (2002), Myers et al. (2003), and Ghosh and Moon (2005) find that actual and perceived audit quality improve as the auditor-client relationship duration, i.e., auditor tenure, increases. Myers et al. (2003) and Ghosh and Moon (2005) attribute this improvement to client-specific expertise developed

by the auditor. Such client-specific expertise is likely to result in knowledge spillovers for NAS. Hence, a positive relation between auditor tenure and NAS is likely to be indicative of economic efficiency.[6]

We define *Auditor tenure* as the length of the auditor client relationship in years starting from 1974, as in Myers et al. (2003) and Ghosh and Moon (2005) (computed using *Compsutat* Data#149).

Auditor specialization

Our second proxy for economic efficiency is auditor industry specialization. Industry specialist auditors have greater expertise in the client's industry (Craswell et al., 1995; Hogan and Jeter, 1999; Solomon et al., 1999; Gramling and Stone, 2001); if clients purchase more non-audit services from industry specialist auditors, the likely reason is to obtain benefits of the auditor's expertise (Parkash and Venable, 1993).

We define *Auditor specialization* as an indicator variable for audit firms with the largest market share. Market share is measured as client firm's sales to total industry sales, where industry is defined using a two-digit SIC code.

3.2. Measures of managerial opportunism

If managers purchase NAS from auditors with the intention of inducing auditors to be more lenient, we are more likely to observe such problems in cases where managers' ability and incentives to do so are higher. Managers are likely to have greater

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[5] The sociology of organizations literature argues that these relationships develop among individuals (Macauley, 1963), and, more importantly for this study, among institutions as well (Van de Ven, 1976; Gulati, 1995).
[6] In the "Discussion" subsection of section V, we discuss potential alternative explanations for the association between auditor tenure and the provision of NAS.

ability to behave opportunistically if corporate governance is weak. They have greater incentives to influence auditors opportunistically when the CEO owns a smaller percentage of the firm's shares, higher amounts of compensation are contingent on earnings or share price, or the firm is in danger of violating accounting-based covenants (leverage is high). Our proxies for the above factors are as follows.

Corporate governance. Outside directors monitor managers (Hermalin and Weisbach, 2003) and hence managers are less likely to opportunistically influence auditors when the percentage of outside directors is high. Auditor independence increases with the percentage of independent directors on audit committees (Carcello and Neal, 2000, 2003). Smaller boards are associated with higher value (Yermack, 1996). Also, the number of board meetings and audit committee meetings increases board independence (Vafeas, 1999; Xie et al., 2003).

Managers' incentives. High ownership by CEOs aligns their interests with those of stockholders (Jensen and Meckling, 1976) and thus CEOs owning high percentages of stock are less likely to opportunistically influence auditors. The presence of bonus plans increases managers' incentives to manipulate earnings (Healy, 1985) and hence to influence auditors inappropriately. Similarly, managers have an incentive to influence stock prices by manipulating accounting numbers when they have high stock compensation (Efendi et al., 2005; Jensen, 2005). Firms with high leverage are likely to be closer to violating their covenants and thus to want to influence auditors opportunistically (DeFond and Jiambalvo, 1994).

Using three databases, IRRC (*Investor Responsibility Research Center*), ExecuComp, and Compustat, we measure the above variables as follows:

Board independence = Percentage of outside directors on the board (IRRC).

Audit independence = Percentage of outside directors on the audit committee (IRRC).

Board size = number of directors on the board (IRRC).

Audit size = number of audit committee members (IRRC).

Board meetings = number of times the board met during the year (IRRC).

Audit meetings = number of times the audit committee met during the year (IRRC).

CEO ownership = Percentage of equity owned by the CEO (ExecuComp).

Bonus compensation = Ratio of bonus compensation to total compensation of the CEO, where total compensation is the sum of bonus, stock options grants, restricted stock grants, and salary (ExecuComp).

Stock compensation = Ratio of the sum of the options grants and restricted stock grants to total compensation, where total compensation is the sum of bonus, options grants, restricted stock grants, and salary (ExecuComp).

Leverage = Ratio of total debt to total assets, where total debt is the sum of short and long-term debt (Compustat Data#9+34).

3.3. Control variables

As data limitations prevent us from observing clients' purchase of services from consultants other than their statutory auditors, we control for client characteristics that might explain the demand for non-audit services. Drawing on prior literature, we control

for the following factors: (1) Big 5 audit firms offer a broader scope of services than do non-Big 5 audit firms, (2) a poorly performing company is expected to demand more external consulting services to improve profitability (Parkash and Venable, 1993; DeFond et al., 2002; Abbott et al., 2003; Whisenant et al., 2003), (3) special situations like raising capital through new equity or debt issuance increase the demand for consulting services (Firth, 1997; Abbott et al., 2003), (4) high growth often implies a rapid expansion in activities and therefore growing firms are more likely to demand non-audit services to exploit their abundant growth opportunities, (5) client firms need to protect themselves from business and financial risk and therefore firms with greater risk (high beta and return volatility) have a greater demand for joint services, (6) large client firms differ from small firms in their need for non-audit services: they have greater in-house capabilities, but being complex they also have a greater need for NAS, and (7) firms with more business segments are complex and may need more NAS. We also control for industry and year fixed effects. Our proxies for the control variables are as follows.

Big 5 = a dummy variable which equals 1 for Big 5 auditors and 0 for other auditors (Compustat).

Performance = Cumulative stock returns measured over the current fiscal year (CRSP).

Raised capital = Sum of amount of debt and equity issued for the current year (Compsutat Data#111+108) deflated by total assets.

Growth = Sum of the market value of equity (Compsutat Data#199*25) and the book value of liabilities (Compsutat Data# 181) deflated by total assets.

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Beta = Systematic risk computed from the market model using stock returns data for the

      past 12 months (CRSP).

Return volatility = Idiosyncratic risk computed as the residual from the market model; the

      market model is estimated using stock returns data for the past 12 months

      (CRSP).

Client size = total assets at the end of the previous year (Compustat).

Business segments = number of business segments reported by the firm (Compustat).

4. Sample Selection and Descriptive Statistics

We obtain information on audit and non-audit fees from Standard and Poor's

database (which collects them from proxy statements) for the years 2000-2002. The

database has 14,398 firm-years' data on audit and non-audit fees. We lose 4,023

observations because we are unable to match them with Compustat, and another 1,457

observations because we are unable to match them with CRSP. Thus we have 8,918

observations with data on the economic efficiency variables and control variables. We

obtain governance and compensation data from IRRC and ExecuComp; this results in a

loss of another 6,014 observations and we are left with a sample of 2,904 observations for

tests involving managerial opportunism variables. We describe the sample selection

process in Table 1.

In Tables 2 and 3 we provide descriptive statistics on, and correlations among, the

independent variables, respectively. To control for outliers, we winsorize *Leverage*,

Performance, *Raised capital*, *Growth*, *Beta*, and *Return volatility* in the top or bottom 0.5

percent. The median (across firm years) audit firm tenure is 9 years (tenure measured

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from in 1974); the mean is 11.26. Auditors in 29 percent of the firm years are the specialists in their respective industries. At median, independent directors form 67 percent of the board and 100 percent of the audit committee. The median board and audit committee sizes are 9 and 3 respectively, and the median board and audit committee meetings per year are 6 and 5. The median CEO ownership is 0.33 percent; the mean is much higher at 2.56 percent. Median CEO bonus and stock compensation are 13 percent and 55 percent respectively. Median debt to total assets ratio (leverage) is 23 percent.

Regarding the control variables, 98 percent of the firm years are audited by Big 5 audit firms. Median current-year stock returns are 8 percent. At median, firms raise 4 percent of total assets by issuing debt or equity; the mean is much higher at 12 percent. The median ratio of market to book value of assets (proxy for growth opportunities) is 1.43; the mean is 1.96. Median beta is 0.82 (the mean is 1.03), and the median return volatility is 0.01. The median firm size is $1.32 billion in total assets (the mean is $8.15 billion) and median number of business segments is 3.

The highest correlations among the independent variables (reported in Table 3) are among corresponding variables for the full board and the audit committee: correlation between the percentage of independent directors on the board and the audit committee is 0.52, between the logarithms of board size and audit committee size is 0.48, and between the logarithms of board meetings and audit committee meetings is 0.25. Another notably high correlation is -0.53 between bonus and stock compensation.

In Table 4 we provide univariate differences in non-audit fee ratios (defined as the ratio of non-audit fees to total fees) for the highest and lowest terciles formed for each independent variable (for the binary variable, auditor specialization, we form two groups

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that have possibly unequal sizes) and report Student's t- and Wilcoxon's z-statistics for differences. The mean non-audit fee ratio for firms with high auditor tenure is 0.463, that for firms with low auditor tenure is 0.417, and the difference is statistically significant. Similarly, non-audit fee ratios are higher for audit firms that are industry specialists. These statistics support the proposition that non-audit service purchases are driven by economic efficiency.

A lower proportion of independent directors on audit committees is associated with higher ratios of non-audit fee percentages, and high board and audit committee size is associated with higher ratios of non-audit fees; but only the coefficient on audit committee size is significant in multivariate tests reported in the next section. Similarly, firms whose CEOs own high percentage of shares purchase less NAS; but multivariate tests in the next section show that this effect is insignificant. Also, high stock compensation and high leverage are associated with higher NAS. All of the above results support managerial opportunism. On the other hand, more frequent meetings of board and audit committees are associated with higher purchases of non-audit services, which is inconsistent with managerial opportunism; instead it is consistent with efficient contracting.

5. Results

5.1. Main tests

In Table 5 we present results of estimating regressions of non-audit fee ratios (dependent variable) on the independent variables. We also include industry and year dummies to control for common effects in industries and in years.

The coefficients on efficiency variables in Column (1) are positive and significant; this result supports the proposition that efficiency considerations influence purchases of non-audit services. Coefficients on several of the managerial opportunism variables are significant, but not always in the same direction; higher proportion of independent directors on the board is associated with smaller NAS purchases consistent with managerial opportunism. Similarly, higher proportion of bonus and stock compensation are associated with higher NAS purchases. However, other variables have the signs opposite to that predicted by managerial opportunism—higher audit committee sizes are associated with smaller NAS purchases, which is inconsistent with managerial opportunism if smaller audit committees, like smaller boards, perform a better monitoring role (Yermack, 1996). Also, more frequent board meetings, which are associated with more board independence (Vafeas, 1999; Xie et al., 2003), are associated with higher NAS purchases.

The coefficients on the control variables are of the expected sign. Big 5 auditors provide more NAS. Firms with weak performance, firms that raise capital, or have higher growth, all purchase more NAS. Large firms purchase more NAS consistent with their need for NAS dominating the availability of in-house expertise. The coefficients on beta, return volatility, and log(business segments) are statistically insignificant.

Coefficients in a linear regression represent the partial derivative of the dependent variable with respect to each independent variable, i.e., the change in the dependent variable resulting from a one-unit change in the independent variable. However, because one-unit changes in different variables are not necessarily comparable (a one-unit change in auditor specialization is its range, but a one-unit change in auditor tenure is under 10

percent of its inter-quartile range), the coefficients do not provide evidence on the relative importance of the different independent variables' effect on the dependent variable. In order to compare the relative economic significance of each of the determinants of non-audit services, we present standardized regression coefficients in Column (2) of Table 5. Standardized coefficients are calculated by standardizing each regression variable (dependent and independent) by subtracting its mean and dividing by its standard deviation. Thus the coefficient represents the partial derivative of the standardized dependent variable with respect to the standardized independent variable. That is, it is the change in the standardized dependent variable for a one standard deviation change in the independent variable; and one-standard-deviation change in each variable is arguably comparable.

The efficiency variables have 0.067 and 0.041 coefficient values. Among the opportunism variables, the highest coefficient values are on log(board meetings), 0.100; log(audit committee size), -0.065; stock compensation and bonus compensation, 0.065 and 0.058; and board independence, -0.048. The signs of the coefficient on log(board meetings) and log(audit committee size) are consistent with efficient contracting as explained above; those on stock and bonus compensation and board independence are consistent with managerial opportunism. Thus the coefficients on the managerial opportunism variables present a mixed picture not only in terms of their signs but also in terms of their magnitude.

We perform two tests to evaluate the overall direction and significance of these variables. First we test for the effect on the dependent variable when each managerial opportunism variable increases by one standard deviation in the direction of greater

opportunism. That is, we add the coefficients in the standardized regression using negative or positive signs depending on whether the variable is associated with decreased or increased opportunism, respectively. The sum of the coefficients equals 0.086 and is insignificant (p = 0.18). Thus, the opportunism variables overall do not have a statistically significant effect on NAS purchases.

The test on the sum of the coefficients can be criticized on the grounds that correlation among the opportunism variables could make it impossible for each one of them to increase by one standard deviation. To address this criticism we perform an alternative test by replacing the individual opportunism variables by their principal factor, as in Ali and Hwang (2000). Like Ali and Hwang (2000) we find that only one principal factor has an eigenvalue exceeding 1. When we regress the dependent variable on the efficiency variables, control variables, and the principal factor, its coefficient does not differ significantly from zero (coefficient on principal factor =-0.002, t=-0.47).

5.2. Sensitivity analysis

One concern with cross-sectional regression specifications is the correlated omitted variables problem. For example, auditor tenure and NAS could be related because certain types of firms tend to retain their auditors for longer periods and also purchase more NAS (i.e., the existing control variables may not capture the effects of the omitted variables). One way to control for firm-specific correlated omitted variables is to use fixed firm effects (Himmelberg et al., 1999).[7]

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[7] This approach controls for any omitted variables that are constant for a given firm over time. However, any experimental variable which is constant for a given firm over time is also correlated with the fixed firm effects; the disadvantage of this approach, therefore, is that we cannot detect the effect on the dependent variable of any experimental variable that is constant over time. Given that the effect of variables that are

In Column (3) of Table 5 we present the results (standardized regression coefficients) of estimating the regression with fixed firm effects. The coefficient on auditor tenure remains positive and significant—thus the positive coefficient observed in Column (1) of Table 5 is not because firms with high NAS purchases also keep their auditors over longer periods; rather, NAS purchases increase as auditor tenure increases.

The coefficient on board independence remains negative and significant, and that on log(board meetings) remains positive and significant, as in Column (1) of Table 5. However, the coefficient on log(audit committee meetings) is negative and significant, in contrast to the coefficient on log(board meetings). All other coefficients become insignificant. Finally, the sum of the standardized coefficients on opportunism variables remains insignificantly different from zero. Thus the result of controlling for fixed firm effects is consistent with the results in Column (1) of Table 5, except that auditor industry specialization loses its significance, possibly due to insufficient variation in that variable for the same firm over time.

Auditor specialization is measured in different ways in prior research. Following Balsam et al. (2003), we use continuous market share (based on client sales) as an alternative measure of auditor specialization. We find that the results reported in Table 5 are not affected. For instance, the coefficient on auditor specialization is 0.087 (t-statistic=3.07) for the regression using non-standardized variables.

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constant over time cannot be detected using the specification with fixed firm effects, the fixed-firm-effects specification is effectively a changes specification.

5.3. Discussion

Our results show that (1) firms purchase more NAS as their audit firm's tenure increases, (2) firms purchase more NAS from industry-specialist auditors, although this result is not robust to the control for fixed firm effects, and (3) the managerial opportunism variables as a group do not have a statistically significant effect on NAS purchases. We interpret these results as being consistent with economic efficiency but inconsistent with managerial opportunism. Below we discuss several alternative interpretations of our results.

First, greater NAS purchase from longer-tenure auditors could represent an attempt to influence them inappropriately—longer-tenure auditors need higher bribes because they are no longer under pressure to recoup their initial losses from low-balling. However, DeAngelo (1981) and Lee and Gu (1998) show theoretically that auditor independence is unaffected by low-balling; it is instead a decreasing function of expected future quasi-rents. Future quasi-rents depend on expected future tenure, and evidence in Levinthal and Fichman (1988) indicates that expected future tenure is increasing in past tenure. Longer-tenure auditors should therefore be less independent; greater NAS purchases from longer-tenure auditors are therefore unlikely to represent an attempt to bribe them. Moreover, Johnson et al. (2002) and Myers et al. (2003) show that abnormal accruals decrease and Ghosh and Moon (2005) show that earnings response coefficients increase with auditor tenure. Thus audit quality seems to improve with longer auditor tenure, which is inconsistent with the NAS purchases influencing auditors inappropriately.

Empirically, we tested whether NAS is being purchased from longer-tenure auditors for the sake of influencing them inappropriately by interacting opportunism variables and tenure. We find that the sum of the standardized opportunism variables' interaction (with positive or negative signs depending on whether the variable is associated with more or less opportunism) does not differ significantly from zero (sum=0.06, F-stat=1.14). Therefore we feel it is unlikely that the positive relation between auditor tenure and NAS purchases reflects opportunism.[8]

Second, some could argue that raised capital is an opportunism variable. Teoh et al. (1998) find evidence that firms making seasoned equity offerings have higher discretionary current accruals than do matched firms, suggesting that firms manage earnings at the time of raising capital. However, as Kothari et al. (2001) point out, higher discretionary current accruals in the year of the seasoned equity offering could result from investment of the proceeds in current assets such as inventory. Also, auditors are subject to stricter legal liability under section 11 of the Securities Act of 1933 (Ratner and Hazen, 2005) in connection with public issuances; this reduces the likelihood that they will compromise their independence. Empirically, when we repeated the principal-factor and the sum-of-coefficients tests after reclassifying capital raising as an opportunism variable, the results of the principal factor test remain unchanged—the coefficient on the principal factor does not differ significantly from zero. The sum of the coefficients in the standardized regressions (corresponding to Column (2) of Table 5)

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[8] Arguments in favor of auditor rotation might make it seem that tenure is an opportunism variable— auditor rotation is based on the belief that long tenure makes auditors complacent and decreases audit quality. Empirical results in Johnson et al. (2002), Myers et al. (2003) and Ghosh and Moon (2005) contradict this possibility. Moreover, even if the arguments for auditor rotation were correct, a positive relationship between auditor tenure and NAS purchases would not support managerial opportunism. If

becomes positive and significant (sum=0.169, *F*-value=7.18) supporting the opportunism story, but when fixed firm effects are included (corresponding to Column (3) of Table 5), the sum of the coefficients remains insignificant (sum=0.053, *F*-stat=0.22). Thus if capital raising were regarded as an opportunism variable, the evidence that opportunism drives NAS purchases is, at best, weak.

6. Summary and Conclusions

Many recent studies examine the relationship between non-audit services (NAS) and audit quality. These studies use audit quality proxies that have been criticized on the grounds that they are either the joint products of managers' and auditors' actions and hence cannot be attributed to auditors' decisions alone, or relate to special situations such as client bankruptcy, restatements, or litigation and may not generalize to the more common but less egregious cases of earnings management. Moreover, the evidence in these studies is mixed. Despite the mixed evidence, however, regulators and Congress have recently imposed restrictions on the provision of NAS by auditors.

In this study we provide evidence on the relative importance of economic efficiency and managerial opportunism as determinants of NAS. If NAS primarily impairs audit quality, then it should be the result of opportunistic managers inappropriately using NAS to influence auditors. However, if NAS purchases are primarily explained by economic efficiency rather than factors associated with managerial opportunism, then restrictions on NAS could hurt client firms.

long-tenure auditors are complacent, clients would not need to purchase more NAS to influence them inappropriately.

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We find that clients purchase more NAS from auditors who have audited the client longer, and from industry specialist auditors. Because contracting frictions are likely to be lower with longer-tenure auditors, and such auditors are likely to have greater knowledge of the client's business, we interpret the positive relation between NAS and auditor tenure as support for economic efficiency. An alternative explanation is that clients purchase more NAS from longer-tenure auditors in an attempt to influence auditor independence. Longer-tenure auditors might need higher bribes because they have already recouped their losses from initial low-balling. However, this explanation is unlikely because of theoretical and empirical reasons. Theoretically, DeAngelo (1981) and Lee and Gu (1998) show that low-balling does not impair independence. Empirically, Johnson et al. (2002), Myers et al. (2003), and Ghosh and Moon (2005) find a positive relation between auditor tenure and audit quality. As for industry-specialist auditors, they have greater expertise; the positive relation between NAS and industry specialization therefore supports the proposition that clients purchase NAS from such auditors to benefit from their expertise.

To test managerial opportunism we use corporate governance variables (percentage of independent directors on the board and audit committee, board and audit committee size, and number of board and audit committee meetings) as proxies for the client's ability to influence auditors inappropriately, and CEO ownership, bonus and stock compensation, and leverage as proxies for the client's incentives to manage earnings. The sum of the coefficients on the managerial opportunism variables does not differ significantly from zero (unless capital-raising is regarded as an opportunism variable, and even then, only in the specification that excludes firm fixed effects). When

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we replace the opportunism variables by their principal factor, the coefficient on the principal factor is insignificant (regardless of whether or not capital-raising is included among the opportunism variables). Therefore the evidence to support the proposition that NAS purchases are influenced by opportunism variables as a group is weak at best.

Our results are robust to the use of fixed firm effects to control for firm-specific omitted variables, except that the coefficient on auditor industry specialization becomes insignificant. We conclude that the evidence is consistent with NAS purchases being driven by economic efficiency rather than managerial opportunism. Our results contribute to the debate on whether NAS impairs auditor independence or is instead economically efficient by providing evidence in support of economic efficiency; previous studies only focus on the potential harm from NAS.

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Table 1

Sample selection: Number of observations by year having different types of data.

| | | Number of observations | | |
| | | | Year | |
Type of Data	Total	2000	2001	2002
Fees (audit and non-audit)	14,398	3,428	5,988	4,982
Fees and Compustat	10,375	2,465	4,215	3,695
Fees, Compustat, and CRSP	8,918	2,155	3,580	3,183
Fees, Compustat, CRSP, and Governance	2,904	809	1,096	999

Notes: Audit and non-audit fee data from *Standard & Poor's* are as disclosed in the proxy statements for the fiscal years 2000 to 2002. We match audit and non-audit fee data with financial data from the *Compustat* annual files and stock return data from the *CRSP* files. Finally, we obtain corporate governance data from *IRRC* and *ExecuComp* database.

Table 2

Descriptive statistics for firm-year observations (*N*=2,904)

	Mean	First quartile	Median	Third quartile
Efficiency variables				
Auditor tenure (years)	11.26	4.00	9.00	15.00
Auditor specialization	0.29	0.00	0.00	1.00
Managerial opportunism variables				
Board independence (%)	66.65	55.55	66.66	80.00
Audit independence (%)	90.68	80.00	100.00	100.00
Board size	9.08	7.00	9.00	11.00
Audit size	3.67	3.00	3.00	4.00
Board meetings	7.06	5.00	6.00	8.00
Audit meetings	5.22	4.00	5.00	6.00
CEO ownership (%)	2.56	0.10	0.33	1.55
Bonus compensation	0.17	0.01	0.13	0.27
Stock compensation	0.49	0.25	0.55	0.75
Leverage	0.23	0.05	0.23	0.35
Control variables				
Big 5	0.98	1.00	1.00	1.00
Performance	0.08	-0.16	0.08	0.33
Raised capital	0.12	0.01	0.04	0.13
Growth	1.96	1.11	1.43	2.18
Beta	1.03	0.25	0.82	1.60
Return volatility	0.01	0.00	0.01	0.02
Client size ($billion)	8.15	0.49	1.32	4.34
Business segments	3.31	1.00	3.00	5.00

Notes: Auditor tenure is the length of the auditor-client relationship in years starting from 1974. *Auditor specialization* is an indicator variable for audit firms with the largest market share (based on sales) in the client firm' industry. *Board* (*Audit*) *independence* is the percentage of independent directors on the board (audit committee). *Board* (*Audit*) *size* is the number of members on the board (audit committee). *Board (Audit) meetings* are the annual number of board (audit committee) meetings. *CEO ownership* is the percentage of common stocks held by the CEO at the fiscal year-end. *Bonus (Stock) compensation* is the ratio of bonus compensation (the sum of the stock options and restricted stock grants) to total compensation of the CEO. *Leverage* is the ratio of total debt to total assets. The control variables are: *Big 5* is an indicator variable for the Big 5 audit firms; *Performance* is cumulative stock returns measured over the current fiscal year; *Raised capital* is the sum of amount of debt and equity issued for the current year deflated by total assets; *Growth* is the sum of the market value of equity and the book value of liabilities scaled by the book value of total assets; *Beta* and *Return volatility* are systematic risk and idiosyncratic risk computed from the market model residuals using stock returns data for the current fiscal year; *Client size* is total assets at the end of the prior fiscal year in billion dollars; and *Business segments* are the number of business segments reported by the client firm. *N* is the number of firm-year observations.

Table 3

Pearson correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12
Efficiency variables												
1. *log(Auditor tenure)*	1.00											
2. *Auditor specialization*	-0.06	1.00										
Managerial opportunism variables												
3. *Board independence*	0.00	0.03	1.00									
4. *Audit independence*	-0.01	-0.01	0.52	1.00								
5. *log(Board size)*	0.11	0.07	0.09	0.01	1.00							
6. *log(Audit size)*	0.08	0.07	0.27	0.05	0.48	1.00						
7. *log(Board meetings)*	-0.01	0.05	0.16	0.02	0.14	0.14	1.00					
8. *log(Audit meetings)*	-0.17	0.04	0.09	0.02	0.09	0.05	0.25	1.00				
9. *CEO ownership*	-0.02	0.01	-0.27	-0.05	-0.16	-0.17	-0.15	-0.08	1.00			
10. *Bonus compensation*	0.00	-0.01	-0.04	-0.01	0.11	0.06	-0.05	-0.01	0.01	1.00		
11. *Stock compensation*	-0.00	0.06	0.13	0.03	0.04	0.02	0.09	0.08	-0.23	-0.53	1.00	
12. *Leverage*	0.04	0.04	0.12	0.02	0.27	0.17	0.13	0.01	-0.14	0.05	-0.00	1.00

Notes: This table reports the Pearson correlation matrix between the efficiency and agency variables for 2,904 firm-year observations. *Auditor tenure* is the length of the auditor-client relationship in years starting from 1974. *Auditor specialization* is an indicator variable for audit firms with the largest market share (based on sales) in the client firm' industry. *Board (Audit) independence* is the percentage of independent directors on the board (audit committee). *Board (Audit) size* is the number of members on the board (audit committee). *Board (Audit) meetings* are the annual number of board (audit committee) meetings. *CEO ownership* is the percentage of common stocks held by the CEO at the fiscal year-end. *Bonus (Stock) compensation* is the ratio of bonus compensation (the sum of the stock options and restricted stock grants) to total compensation of the CEO. *Leverage* is the ratio of total debt to total assets.

Table 4

Differences in non-audit fee ratios by each efficiency and managerial opportunism variable

	High Group		Low Group		Tests of differences	
	Mean	Median	Mean	Median	*t*-statistic	*z*-statistic
Efficiency variables						
Auditor tenure	0.463	0.473	0.417	0.414	7.83**	7.64**
Auditor specialization	0.475	0.488	0.432	0.431	7.61**	7.50**
Managerial opportunism variables						
Board independence	0.532	0.545	0.524	0.545	0.88	0.66
Audit independence	0.521	0.534	0.544	0.562	-2.70**	-2.87**
Board size	0.542	0.555	0.504	0.522	3.83**	3.56**
Audit size	0.552	0.570	0.522	0.539	3.54**	3.41**
Board meetings	0.564	0.595	0.492	0.504	7.44**	7.50**
Audit meetings	0.538	0.563	0.504	0.508	3.45**	3.51**
CEO ownership	0.505	0.518	0.549	0.565	-4.48**	-4.52**
Bonus compensation	0.516	0.531	0.530	0.549	-1.46	-1.70
Stock compensation	0.562	0.578	0.496	0.506	6.88**	6.82**
Leverage	0.541	0.555	0.513	0.525	2.92**	2.80**

Notes: Sample firms are partitioned into three equal-sized groups (Low, Middle, and High) based on each of the efficiency and managerial opportunism variables except by *Auditor specialization* where firms are partitioned into two non-equal-sized groups (industry specialist, designated as high, and non-specialist, low). We report the mean and median non-audit fee ratio corresponding to each of the High and Low Groups. *Auditor tenure* is the length of the auditor-client relationship in years starting from 1974. *Auditor specialization* is an indicator variable for audit firms with the largest market share (based on sales) in the client firm' industry. *Board (Audit) independence* is the percentage of independent directors on the board (audit committee). *Board (Audit) size* is the number of members on the board (audit committee). *Board (Audit) meetings* are the annual number of board (audit committee) meetings. *CEO ownership* is the percentage of common stocks held by the CEO as of the fiscal year-end. *Bonus (Stock) compensation* is the ratio of bonus compensation (the sum of the stock options and restricted stock grants) to total compensation of the CEO. *Leverage* is the ratio of total debt to total assets. *t*-statistics and *z*-statistics reported in the last two columns test the significance of difference in means and medians based on *t*-tests and Wilcoxon-tests, respectively. ** and * denote significance at the 0.01 and 0.05 level, respectively, for a two-tailed test.

Table 5

The determinants of NAS purchases from auditors: Cross-sectional regression analyses using ratio of non-audit to total fees as the dependent variable.

	Predicted sign			Standardized variables	
	Efficiency	Opportunism	(1)	(2)	(3)
Intercept			-0.011 (-0.22)	-0.162 (-2.42)[*]	-1.248 (-1.82)
Efficiency variables					
log(Auditor tenure)	+		0.016 (4.23)[**]	0.067 (3.69)[**]	0.181 (7.44)[**]
Auditor specialization	+		0.018 (2.33)[*]	0.041 (2.34)[*]	-0.023 (-0.76)
Managerial opportunism variables					
Board independence		–	-0.001 (-2.12)[*]	-0.048 (-2.08)[*]	-0.094 (-2.21)[*]
Audit independence		–	-0.000 (-1.21)	-0.026 (-1.28)	-0.015 (-0.50)
log(Board size)		+	0.025 (1.37)	0.034 (1.43)	-0.004 (-0.10)
log(Audit size)		+	-0.049 (-3.07)[**]	-0.065 (-3.11)[**]	-0.048 (-1.77)
log(Board meetings)		–	0.055 (5.13)[**]	0.100 (5.07)[**]	0.061 (2.32)[*]
log(Audit meetings)		–	0.002 (0.25)	0.002 (0.16)	-0.083 (-3.11)[**]
CEO ownership		–	-0.001 (-0.82)	-0.012 (-0.66)	-0.030 (-0.71)
Bonus compensation		+	0.064 (2.56)[*]	0.058 (2.61)[**]	-0.000 (-0.00)
Stock compensation		+	0.043 (2.82)[**]	0.065 (2.80)[**]	0.007 (0.28)
Leverage		+	0.008 (0.34)	0.008 (0.37)	-0.119 (-2.03)[*]
Control variables					
Big 5			0.105 (4.01)[**]	0.070 (3.97)[**]	0.009 (0.19)
Performance			-0.044 (-4.79)[**]	-0.094 (-4.90)[**]	-0.043 (-2.19)[*]
Raised capital			0.087 (4.35)[**]	0.083 (4.39)[**]	0.055 (2.47)[*]
Growth			0.013 (4.68)[**]	0.097 (4.78)[**]	0.048 (1.14)
Beta			-0.001 (-0.24)	-0.006 (-0.29)	-0.046 (-1.81)
Return volatility			0.087 (0.53)	0.016 (0.79)	0.028 (1.35)
log(Client size)			0.025 (7.47)[**]	0.200 (7.53)[**]	0.103 (0.75)
log(Business segments)			0.001 (0.25)	0.006 (0.30)	-0.028 (-0.44)
Industry dummy			Included	Included	Not Included
Firm dummy			Not included	Not included	Included
Year dummy			Included	Included	Included
Number of observations			2,904	2,904	2,904
Adjusted R^2			0.175	0.118	0.560

Notes: The dependent variable is the ratio of non-audit fees to total fees from a client. In regressions reported in columns (2) and (3), each dependent and independent variable is standardized, i.e., its mean is subtracted and the result is divided by its standard deviation. *Auditor tenure* is the length of the auditor-client relationship in years starting from 1974. *Auditor specialization* is an indicator variable for audit firms with the largest market share (based on sales) in the client firm' industry. *Board (Audit) independence* is the percentage of independent directors on the board (audit committee). *Board (Audit) size* is the number of members on the board (audit committee). *Board (Audit) meetings* are the annual number of board (audit committee) meetings. *CEO ownership* is the percentage of common stocks held by the CEO at the fiscal year-end. *Bonus (Stock) compensation* is the ratio of bonus compensation (the sum of the stock options and restricted stock grants) to total compensation of the CEO. *Leverage* is the ratio of total debt to total assets. The control variables are: *Big 5* is an indicator variable for the Big 5 audit firms; *Performance* is cumulative stock returns measured over the current fiscal year; *Raised capital* is the sum of amount of debt and equity issued for the current year deflated by total assets; *Growth* is the sum of the market value of equity and the book value of liabilities scaled by the book value of total assets; *Beta* and *Return volatility*

are systematic risk and idiosyncratic risk computed from the market model residuals using stock returns data for the current fiscal year; *Client size* is total assets at the end of the prior fiscal year in billion dollars; and *Business segments* are the number of business segments reported by the client firm. t-statistics reported in parenthesis test the significance of the estimated coefficient. [**] and [*] denote significance at the 0.01 and 0.05 level, respectively, for a two-tailed test.