

# **Agency-Based Demand for Audit Quality: The Impact of Disclosure-Imposed Agency Costs on Non-Audit Services**

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## **Abstract:**

We investigate whether firms limited their purchase of non-audit services in response to disclosure-imposed agency costs resulting from the SEC's Auditor Independence Rules of 2000. The SEC's Auditor Independence Rules of 2000 sought to let 'the market determine' the optimal amount of non-audit services (NAS) purchases by forcing registrants to disclose formerly private NAS information. As such, rather than the outright ban on the supply of NAS, the SEC sought to allow the securities market to react to the NAS disclosures and, in so doing, potentially create a agency-based demand set of incentives concerning the purchases of NAS from the incumbent auditor. Our results support the efficacy of the SEC's *demand-side* market approach that was substantially eliminated by the *supply-side* approach imposed by restrictions contained in the Sarbanes-Oxley Act of 2002 for limiting NAS. With respect to the agency-based demand for audit quality, our study demonstrates that disclosure-imposed agency costs became a significant determinant of non-audit service purchase patterns.

## 1. Introduction

The impact of non-audit service (NAS) disclosures on perceived and/or real auditor independence has been the focus of numerous recent studies (Gaynor, McDaniel and Neal 2006; Francis and Ke 2006; Dhaliwal et al. 2006; Mishra et al. 2005; Abbott et al. 2003). While this research has yielded mixed results, the overwhelming majority of studies in this area focus on the initial year of NAS disclosure. We believe this issue continues to warrant examination for three reasons. First, the impact of NAS on perceived auditor independence and the use of NAS disclosures by other market participants are vitally important to the conduct of financial markets (Francis and Ke 2006). In particular, while recent research has documented the market's response to the initial year NAS disclosures, there is a scarcity of research concerning how and why registrants adapted their behavior subsequent to the market's initial year response.<sup>1</sup> Second, the NAS purchase environment in the year subsequent to the initial disclosure represents a unique test setting to investigate the demand for publicly-available signals of unobservable audit quality. Our NAS purchase model is a function of an agency-based demand for audit quality, a model that has also generated only mixed results in recent research (Kohlbeck et al. 2006; Blouin et al. 2006; Barton 2005).

Finally, and most importantly, the SEC's original intent with respect to the NAS disclosures was to provide a 'market-based' approach to the NAS issue. In particular, the SEC sought to let 'the market determine' the optimal amount of NAS purchases by forcing registrants to disclose formerly private NAS information (SEC 2000b). As such,

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<sup>1</sup> Audit fee disclosures began with proxy statements issued after February 4, 2001. Regulatory consideration of a disclosure rule was not made public until late in calendar 2000 and thus firms had little opportunity to alter use of their financial statement auditor for nonaudit services in the initial year covered by disclosures.

rather than the outright ban on the supply of NAS, the SEC sought to allow the securities market to react to the NAS disclosures and, in so doing, potentially create an agency-based demand set of incentives concerning the purchases of NAS from the incumbent auditor. Our approach allows us to provide evidence concerning the efficacy of the SEC's *demand-side* market approach that was substantially eliminated by the *supply-side* approach imposed by restrictions contained in the Sarbanes-Oxley Act of 2002 (SOX).

In this paper, we argue that the initial year (2001) capital market reaction imposed economically significant, but largely unanticipated costs on SEC registrants. The costs came in the form of reduced earnings-response coefficients for high-NAS purchasers (Francis and Ke 2006; Higgs and Skantz 2006), higher debt placement costs (Dhaliwal et al. 2006) and a higher cost of capital for equity issuers (Nam 2005). We posit that these costs were largely unanticipated based upon a review of prior literature and comments and actions of SEC officials and others. As a result of these costs, the subsequent year behavior of management provides a natural experiment to test an agency-based model of audit quality demand with respect to NAS purchases. It also provides a unique and powerful setting to examine the impact of the SEC's Auditor Independence Rules of 2000 prior to the Sarbanes Oxley Act of 2002 (SOX). SOX represented a departure from the prior auditor independence regime in that it took a supply-side approach by prohibiting many NAS services formerly allowed under the SEC's Auditor Independence Rules of 2000 (SEC 2000b).

In order to address our research question, we utilize a sample of 338 firms with NAS disclosures in 2001 (the initial NAS disclosure year, covering auditor use in fiscal 2000) and 2002 (the subsequent NAS disclosure year, covering auditor contracting for

services in 2001), respectively. We then examine the explanatory power of an agency-based model of NAS purchases for both the initial year (in which the disclosure was unanticipated) and subsequent disclosure years. We augment our agency-based demand model with another key stakeholder in the NAS decision, the audit committee. While we find little support for our agency-based model in the initial disclosure year, we find strong support in the subsequent disclosure year. In particular, whereas we fail to document any relation between financing activities and the NAS/audit fee ratio in the initial disclosure year, we find a significant, negative relation between financing activities and the NAS ratio in the subsequent disclosure year. Moreover, we also document a similar pattern for our managerial ownership variable in which the variable is not significant in 2000 and positive and significant in 2001. Finally, we find that our variable representing effective audit committees is more negatively related to the NAS/audit fee ratio in the subsequent year than in the initial year of disclosure.

The evidence provided herein has several implications. First, our results suggest that the SEC's Auditor Independence Rules of 2000 had their intended effect. In particular, the initial year stock market reaction appeared to create market-based incentives to reduce the subsequent year NAS/audit fee ratio. As such, the SOX supply-side approach of banning certain NAS may have hurt some registrants if those banned NAS services previously served to increase overall audit quality (Omer et al. 2006; Gaynor et al. 2006; Abbott et al. 2006). Second, our study suggests that the mixed results of some prior NAS studies using only the initial year disclosures could be related in an incomplete equilibrium in the initial year of disclosure. Third, a necessary pre-condition for an agency-based demand model to work is economically significant agency costs that

are imposed on registrants. Without such costs, the efficacy of agency-based demand model for audit quality may be questionable. This may explain the inability of prior studies to document a relation between some agency costs and the selection of an industry auditor or the use of the auditor for nonaudit services during the previous disclosure regime in the late 1970s. Our setting allows us to explore one particular public signal of audit quality in which registrant costs are present.

Finally, our results provide archival, empirical support for the arguments of Gaynor et al. (2006), who posit that the NAS disclosures and concomitant scrutiny may cause audit committees to lower the NAS/audit fee ratio – at the expense of overall audit quality - in order to reduce perceived litigation exposures associated high NAS/audit fee ratios.

The remainder of our paper is organized as follows. Section two reviews the institutional background and prior research, as well as generating our hypotheses. Section three presents sample selection, while section four describes our research design and results. Section five concludes.

## **2. Institutional Background and Prior Research**

### *2.1 Auditor Independence Rules of 2000 and the Sarbanes-Oxley Act of 2002*

The impact of non-audit services (NAS) on auditor independence in fact and in appearance has been an academic and regulatory concern for some time. However, it reached the apex of regulatory scrutiny during the tenure of SEC Chairman Arthur Levitt in the late 1990s. Levitt (2000) frequently voiced his concerns that consulting and other services ‘shorten the distance between the auditor and ‘management’ and that

‘independence – if not in fact, then certainly in appearance – becomes a more elusive proposition.’ Levitt originally proposed banning *all* NAS consulting engagements (SEC 2000a).

The AICPA and Big 5 auditors strenuously objected to these proposals and contended that there were many benefits to the joint supply of NAS and audit services (SEC 2000d). Most pointed to an increase in audit quality as a result of knowledge spillovers arising from the provision of NAS. After a heated debate, a compromise was brokered in November of 2000. FRR No. 56, *Revision of the Commission’s Auditor Independence Requirements* required all proxy statements filed after February 4, 2001 to contain disclosures about audit fees and non-audit fees (SEC 2000b). This regulation represented a ‘market-based’ approach to the NAS issue. In particular, instead of prohibiting the supply of NAS, the SEC allowed the market to be the ultimate arbiter of NAS’ impact on auditor independence. The SEC summarized its position as such:

“Investors should have enough information to enable them to evaluate the independence of a company’s auditors. The proposed rules would bring the benefits of sunlight to the auditor independence by requiring companies to disclose...the nonaudit services provided by their auditors” (SEC 2000b).

The initial year disclosures proved to be enlightening to many interested parties. Most of investing public appeared to be taken aback by both the frequency and magnitude of NAS services (Weil 2001). In particular, then SEC Commissioner Laura Unger stated “we were all quite surprised to learn this...in fact, the numbers appear to demonstrate the problem may be larger than we originally thought” (Unger 2001). In a response to these disclosures and perhaps to the market’s initial reaction to them, the Big 5 audit firms intensely lobbied the SEC to change the definitions of audit and non-audit services. The lobbying efforts were successful such that beginning with the 2003 proxy

season, the corresponding definitions of audit (non-audit) services was widened (narrowed) (SEC 2003). The net effect proved to be a public relations boon to the accounting industry, as it essentially reduced the NAS/audit fee ratio without curtailing the supply of NAS provided (Weil 2003).

These developments have three important implications for the current study. First, given the date that the disclosure rules were enacted (November 15, 2000) and the lack of publicity about the proposed regulation, it is very unlikely that NAS purchase decisions made by firms with late 2000 fiscal year-ends incorporated the potential for negative market reaction to the NAS disclosures. This is because most NAS contracts were already agreed upon by November 15, 2000 and contracting parties (i.e. management, audit committees and auditors) could not have anticipated the market's reaction – if any - to the disclosures.<sup>2</sup> Second, NAS purchase decisions made in 2001 most likely did incorporate the impact – or the potential thereof - of the market's reaction to the NAS disclosure. Third, the Big 4 NAS providers noted the unfavorable, initial year reaction to the NAS disclosures and believed the impact was economically significant enough to expend resources in an effort to quell the damage by lobbying for a change in the nature of the disclosure to categorize more services as audit-related.<sup>3</sup>

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<sup>2</sup> In terms of the ability to predict the market's response to the disclosures, three factors must be considered. First, the last disclosure regime of ASR 250 ended in 1982, 18 years prior to the enactment of FRR. No. 56. Second, the magnitude of NAS purchases during the ASR 250 regime was much smaller than that documented in 2001. Specifically, Parkash and Venable (1993) find a mean (median) NAS/audit fee ratio of 0.24 (0.17) for their sample of Fortune 500 firms in 1979 – 1981. In contrast, Abbott et al. (2003) document a mean (median) NAS/audit fee ratio of 1.60 (0.96), which represents a growth in NAS purchases (relative to audit fees) of at least 500%. Third, Francis and Ke (2006) conclude the NAS/audit fee ratio did supply new information to the market, in that these ratios were not previously anticipated by the market.

<sup>3</sup> This does not necessarily imply that the Big 4 performed market-reaction studies to the NAS disclosures. There were, however, numerous press articles that pointed to NAS as a potential factor in the Enron debacle, as well as to the demise of Arthur Andersen (McNamee 2002; Liesman et al. 2002; Weil 2001). The SEC did amend the definitions used in the disclosure regulation with the issuance of FTC release 33-8183.

While the efforts of the Big 5 to alter the audit/NAS definitions were successful, mounting accounting scandals hastened the passage of the Sarbanes-Oxley Act of 2002 (SOX) and accelerated the demise of Arthur Andersen. SOX took a more aggressive, supply-side approach to the NAS issue by prohibiting eight types of NAS, most notably internal audit outsourcing (Abbott et al. 2006.). Nonetheless, the SEC has retained the disclosure aspect of the prior regime and still allowed for limited services, including tax, to be offered.

## *2.2 Prior Research on NAS purchases*

Prior research on NAS purchases has generally taken an agency-based approach (Abbott et al. 2003; Parkash and Venable 1993). In particular, Jensen and Meckling (1976) suggest that the demand for auditing – and audit quality – stems from a desire to reduce management shirking resulting from information asymmetries arising from the separation of ownership and control. Because of these information asymmetries, agency costs are imposed on auditees (management). Jensen and Meckling (1976) demonstrate that management can reduce these agency costs by voluntarily increasing the observability of their actions by hiring independent auditors to monitor their actions. DeFond (1992) notes that within the agency relationship there are two aspects that, in combination, create the agency problem: (1) the divergence in preferences between management and shareholders, and (2) the imperfect observability of managerial actions. Increases in either one or both aspects dictate a greater degree of agency costs and, in turn, a greater demand for audit quality (DeFond 1992).

DeAngelo (1981) defines audit quality as the joint probability that an auditor will detect a material misstatement and require the correction of it. Generally speaking, prior

research has used auditor type (Big 4/non-Big 4; industry specialist) as a publicly-available proxy for audit quality, an unobservable construct (Kohlbeck et al. 2006; Blouin et al. 2006). With the disclosure of NAS, a third, publicly-available audit quality proxy can be utilized, namely the NAS/audit fee ratio (Francis and Ke 2006; Higgs and Skantz 2006; Abbott et al. 2003; Parkash and Venable 1993). More specifically, high NAS are not thought to necessarily impair an auditor's ability to detect a material misstatement, but are hypothesized to reduce the auditor's willingness to demand a correction of a misstatement should one occur (Beck et al. 1988).

Using an agency-based model of audit quality demand, Parkash and Venable (1993) examine the relation between recurring NAS fees and proxies for agency costs. Parkash and Venable (1993) are able to partition NAS into recurring and non-recurring categories because ASR 250 – effective in 1979, dissolved in 1981 – required this distinction. Parkash and Venable (1993) document a statistically significant, positive relation between the recurring NAS/audit fee ratio and proxies for agency cost such as managerial ownership and outside investment concentration. The authors also document a negative relation between the ratio and leverage. Interestingly, Parkash and Venable (1993) do not find any inter-period differences in slope coefficients between the initial year of study (1979) and the subsequent year (1980). Parkash and Venable (1993) also do not test for the relation between securities issuances and the NAS fee ratio.

Using the initial year of the more recent NAS disclosure regime, Abbott et al. (2003) extend Parkash and Venable (1993) by examining the impact of audit committee involvement in the NAS purchase decision. Abbott et al. (2003) posit that an effective

audit committee's demand for audit quality will result in a reduced NAS/audit fee ratio.<sup>4</sup>

Abbott et al. (2003) find a negative relation between the presence of an effective audit committee and the NAS/audit fee ratio. However, unlike Parkash and Venable (1993), Abbott et al. (2003) find little support for an agency cost demand for a lower NAS/audit fee ratio. Abbott et al. (2003) state 'Given the time-frame and speed of the (disclosure) rule's enactment, the ability of managers to adjust the level of NAS... may have been limited. This may explain why some of agency cost-based variables are not significant.'

Note that unlike Parkash and Venable (1993), Abbott et al. (2003) do not test the subsequent year relation between agency cost variables and the NAS/audit fee ratio.

Abbott et al. (2003) conclude 'In subsequent periods, we may see a greater adjustment of NAS purchases in response to... the response of the market to high NAS fee ratios.'

### *2.3 The Market's Reaction to the Initial Year NAS disclosures*

The SEC's original intent with respect to the NAS disclosures was to provide investors with information to better evaluate the independence of the auditors of the companies in which they invest. Several recent studies have examined whether the NAS disclosures provided new information to the market, as well as the market's general favorable or unfavorable reaction to the contents of the disclosures (Higgs and Skantz 2006; Francis and Ke 2006; Nam 2005; Dhaliwal et al. 2006). As with much of the NAS literature, these studies have focused on the initial years of disclosure and all of them suggest that the NAS disclosures provided new information to the market.

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<sup>4</sup> Note that the audit committee's desire to reduce the NAS/audit fee ratio is not contingent upon the public disclosure of the NAS. Rather, the potential for disclosure in the context of litigation or SEC investigation should allegations of a misstatement occur is what motivates an effective audit committee to seek a reduction in the NAS/audit fee ratio (Abbott et al. 2003).

In terms of the market's reaction to the contents of the disclosures, the studies generally find that costs are imposed on registrants with high NAS/audit fee ratios. To wit, Francis and Ke (2006) document a 26 percent reduction in the market's valuation of earnings surprises in the initial disclosure year for the median high NAS sample firm. Dhaliwal et al. (2006) find that the amount of NAS purchased by a firm is negatively related to its bond ratings. Finally, Nam (2005) provides evidence of a positive relation between NAS and a firm's cost of capital. In sum, this stream of research suggests the market viewed the NAS disclosures to be incrementally useful in assessing auditor independence and, in some cases, imposed economically significant costs on those firms with relatively high NAS purchases. Furthermore, the market's reaction was consistent with a perception of high NAS compromising auditor independence and audit quality.

#### *2.4 Hypotheses*

The prior sections suggest that the parties responsible for NAS purchases most likely could not have anticipated nor incorporated the market's reaction to NAS purchases during 2000. However, after witnessing the market's generally unfavorable reaction to the disclosures in the initial year, we argue that subsequent year (2001) NAS purchases could incorporate the market's reaction. We hypothesize that the market's unfavorable reaction to NAS imposed additional economically significant agency costs on registrants and that the market used the NAS/audit fee ratio as a proxy for audit quality. Consequently, the market provided registrants with greater agency conflict or costs (low managerial ownership, high leverage and outside ownership) economically significant incentives to lower their subsequent year NAS purchases, leading to our first hypothesis (stated in alternative form):

*Hypothesis one: There is a negative, subsequent year relation between agency costs and the NAS/audit fee ratio.*

In terms of our second hypothesis, we turn primarily to the results of Nam (2005) and Dhaliwal et al. (2006). Both studies suggest that the cost of capital is positively associated with high NAS fees. As a result, the market also provided incentive for firms issuing securities to lower their subsequent year NAS purchases. Note that neither Parkash and Venable (1993) nor Abbott et al. (2003) find any relation between securities issuances and the NAS/audit fee ratio. In the case of Parkash and Venable (1993) the NAS/audit fee ratios could have been too small for the market to impose economically significant costs on registrants issuing securities. For Abbott et al. (2003), these authors did not examine subsequent year NAS purchases. As a result, this leads to our second hypothesis (stated in alternative form):

*Hypothesis two: There is a negative, subsequent year relation between securities issuances and the NAS/audit fee ratio.*

Our third hypothesis concerns the audit committee, a key stakeholder in the NAS purchase decision (Gaynor et al. 2006; Abbott et al. 2003). Consistent with effective audit committees being more responsive to the market imposed agency costs associated with non-audit service purchases we expect effective audit committees to curtail NAS purchases to a greater degree in the subsequent year of NAS disclosures. Abbott et al. (2003) examine the NAS purchase decision and document a negative relation between their measure of audit committee effectiveness and the initial year NAS/audit fee ratio. Abbott et al. (2003) posit that litigation concerns arising from misstatement and the potential for NAS disclosure – rather than the disclosure themselves – compel effective audit committees to lower the NAS/audit fee ratio. Abbott et al. (2003) argue that their

results are not dependent upon the mandatory disclosure of NAS and do not consider subsequent year purchases. Gaynor et al. (2006) specifically investigate the impact of disclosure on the propensity of audit committee members to lower the NAS/audit fee ratio. Gaynor et al. (2006) document a significantly larger reduction in the NAS/audit fee ratio in a disclosure, rather than non-disclosure setting. Gaynor et al. (2006) attribute their results to the increased scrutiny by shareholders (and potential litigants) resulting from the public dissemination of NAS information. However, Gaynor et al. (2006) utilize a laboratory setting and thus do not provide archival evidence. The lack of archival evidence on the audit committee's impact on subsequent year NAS purchases leads to our final hypothesis (stated in alternative form):

*Hypothesis three: There is an incrementally larger, negative association between audit committee effectiveness and the subsequent year the NAS/audit fee ratio.*

### 3. Method

#### *Regression model and variable definitions*

Consistent with Firth (1997), we use the multivariate regression below to address our research question.

$$\begin{aligned}
 NASAFRATIO = & \beta_0 + \beta_1 INOWN + \beta_2 LEVERAGE + \beta_3 FINANCE + \beta_4 ACE + \\
 & \beta_5 BLOCK + \beta_6 SIZE + \beta_7 BIG4 + \beta_8 ACQ + \beta_9 CHGCEO + \\
 & \beta_{10} RESTR + \beta_{11} RETURN + \varepsilon
 \end{aligned}$$

*NASAFRATIO* = the ratio of total non-audit services fees (including non-audit fees and any information technology implementation fees) to total audit fees;

*INOWN* = the cumulative percentage of voting control held by managers and directors;

*LEVERAGE* = the ratio of long-term debt to total assets;

<i>FINANCE</i>	= the net cash flows derived from external financing in the subsequent to the NASFEERATIO year, deflated by total assets;
<i>ACE</i>	= a dummy variable equal to 1 if the audit committee is comprised entirely of independent directors and meets at least 4 times during the year and 0 otherwise;
<i>BLOCK</i>	= the cumulative ownership percentage of voting control held by blockholders holding at least 5 percent of the outstanding common shares and who are unaffiliated with management;
<i>SIZE</i>	= the natural log of total assets;
<i>BIG4</i>	= a dummy variable equal to 1 if the company employs a Big 5 auditor and 0 otherwise;
<i>ACQ</i>	= the number of acquisitions made by the company during the year or in the prior two years;
<i>CHGCEO</i>	= a dummy variable equal to 1 if a new external CEO has been appointed during the year or in the previous two years and 0 otherwise;
<i>RESTR</i>	= a dummy variable equal to 1 if a company restructuring has occurred during the year or in the previous two years and 0 otherwise;
<i>RETURN</i>	= the total stock return (stock appreciation plus dividends) for the prior year.

Table 2 describes the variables in detail. Our research design compares data from the year 2000 (derived from proxy statements issued in 2001 and Compustat data from 1998-2001) to data from 2001 (derived from proxy statements issued in 2002 and Compustat data from 1999-2002). For example, for the year 2000 results, NASFEERATIO, INOWN, LEVERAGE, ACE, BLOCK, SIZE and BIG4 are measured in the year 2000. RETURN is measured for 1999. ACQ, RESTR and CHGCEO are measured for 1998-2000. FINANCE is measured in 2001, as the decisions made as to the NASFEERATIO in year 2000 will be disclosed in the 2001 proxy statement and be available to market participants during 2001.

### *Dependent and Test Variables*

Our dependent variable (*NASAFRATIO*) is the ratio of total NAS fees (including information technology, or IT, fees) to audit fees. The variables of interest in hypothesis 1 are those related to agency costs i.e. inside ownership, leverage and blockholdings. Firms with greater agency costs are more likely to demand a higher quality audit and thus have lower NAS fee ratios (Firth 1997; Parkash and Venable 1993). Higher levels of insider ownership (*INOWN*) align the interests of managers and owners (Jensen and Meckling 1976) and thus lower agency costs, so we expect a positive coefficient for this variable. Consistent with prior research, we expect higher leverage to increase agency costs and thus to be negatively related to the NAS fee ratio. With respect to the level of blockholder ownership, Parkash and Venable (1993) suggest that when ownership is concentrated, there are incentives for direct monitoring that reduce the demand for the auditor-provided reduction of agency costs. On the other hand, Bushee and Noe (2000) note that outside blockholders depend on the quality of audited financials to facilitate their monitoring. As a result, we do not make a directional prediction for the level of block-holdings.

Hypothesis 2 relates to the issuance of securities. We measure securities activities following the method in Bradshaw et al. (2006), which uses Compustat data to measure net cash flows from equity and debt issuance for fiscal year subsequent to the NAS fee ratio measure year. We use subsequent year cash flows because firms will likely be aware of the need for future equity or debt issuance far enough in advance to alter the signal sent by the NAS fee ratio.

The third independent variable of interest is audit committee effectiveness (*ACE*). Audit committee effectiveness variable coded '1' for an audit committee composed entirely of outside directors and meets at least four times annually; 0 else. A number of regulations, including those of the NYSE and NASD, and the Sarbanes-Oxley Act, emphasize the independence of the audit committee. In addition, the Treadway Commission (1987) and Public Oversight Board (1993) emphasize the need for frequent meetings of the audit committee. We chose four meetings as the cut-off based on the recommendations of the National Association of Corporate Directors (NACD 1999) and public materials provided by Big 4 public accounting firms. Consistent with hypothesis three, we expect effective audit committees to curtail NAS purchases to a greater degree in the subsequent year of NAS disclosures.

### ***Control variables***

In addition to our test variables, we control for other factors that Firth (1997) found to be significant in explaining the relative magnitude of NAS fees. Firth (1997) notes that a poorly performing company can be expected to demand more external consulting services to improve profitability. Firth (1997) finds significantly higher NAS fee ratios when stock returns are lower, and therefore we expect a negative association between the NAS fee ratio and prior-period stock returns. In addition, Firth (1997) notes that certain situations, such as new acquisitions and restructuring give rise to increased demand for consulting services, as does the recruitment of a new CEO. Hence, we predict a positive association between the NAS ratio and such special situations.

Palmrose (1986) and Barkess and Simnett (1994) found that larger companies were more likely to purchase non-audit services, owing to more complex systems and a wider range of activities. The Big 4 auditors offer a wider array of expertise, and have more aggressively expanded into consulting services. As in Firth (1997), we expect the Big 4 and size variables to be positively related to our dependent variable.

### *Sample selection and descriptive statistics*

We have extended a sample previously used in Abbott et al. (2003). That sample originally consisted of the 310 non-financial firms filing proxies with the SEC between February 5, 2001 and March 16, 2001, plus an additional randomly chosen sample of 250 firms filing proxies from March 19, 2001 to June 30, 2001. Of this original sample, Abbott et al. gathered sufficient information to include 538 firms in their regressions. Table 1 (panel A) shows the results of sample extension for these firms for fiscal 2001. A total of 47 firms had merged, become private or disappeared prior to the release of the 2001 proxy statement, leaving 491 firms potentially available for inclusion. We also deleted the 107 firms which were audited by Arthur Andersen. We believe that the proxy disclosures for 2001 may have been affected by early defections of Andersen clients and may not accurately reflect the contracting decisions made by the firms. Lastly, an additional 46 firms did not have sufficient information on Compustat for our additional finance variable.

Table 1 (panel B) provides information about the distribution of industries in our sample, compared with the Compustat population. Our sample contains a higher proportionate representation of consumer products and food, energy and manufacturing.

Our sample also contains very few firms classified as financial services firms, as Abbott et al. excluded any banking-related firms, due to their differing regulatory and financial structures.

Table 3, panels A and B, show a comparison of the descriptive statistics for the firms used in our sample for fiscal years 2000 and 2001. Fees were somewhat higher in all categories in 2001, compared to 2000, while the mean NAS fee ratio dropped from 1.98 to 1.74. Our sample firms experienced a slightly higher level of restructurings (mean of .10 in 2001 versus .086 in 2000) and a slightly lower incidence of CEO change (mean of .044 in 2000 and .029 in 2001). In 2000, 44% of the sample firms had audit committees that were entirely independent and met at least 4 times during the year covered by the proxy statement. In 2001, 48% of committees met these criteria. In 2000, the mean (median) total assets of our sample companies were \$4.2 billion (\$612 million), and in 2001 the mean (median) was \$4.5 billion (\$621 million). Non-Big 4 auditors account for 9.4% (9.3%) of the sample in 2000 (2001). Other variables showed little change between years.

## **4. Results**

### **Univariate Results**

Table 4 provides the univariate results, when the sample is partitioned into two groups based on whether or not the NAS fee ratio was above or below the median observation value. In addition to examining the differences in a specific year (2000 or 2001), further tests investigate whether these differences change in the second year of disclosure (2000 vs. 2001).

With respect to the agency costs prediction of the first hypothesis, insider ownership (INOWN) levels showed important changes from the first to the second year of disclosure. In year 2000, insider ownership (INOWN) exhibits a significant negative association (less ownership, greater non-audit services). However, in 2001 the association bears a significantly positive sign (more ownership, greater non-audit services). This change in pattern from 2000 to 2001 supports the agency cost model posited in the hypothesis section. The results are consistent with a behavioral change on the part of those firms facing the greatest potential agency costs. We speculate that once it became clear that the market would impose costs on firms disclosing the purchase of large amounts of non-audit services, those firms facing the greatest amount of potential agency costs (lowest insider ownership) altered their purchasing patterns. Whereas those firm facing the lowest amount of potential agency costs (highest insider ownership) face lower incentives to curb non-audit services purchases.

The univariate results support the view that blockholder ownership appears to curb potential agency problems resulting from non-audit services by constraining the purchase of these services relative to audit fees. However, this impact does not differ from year 2000 to year 2001. This pattern is consistent with the results of Parkash and Venable (2003) who posit that concentrated ownership imposes more direct monitoring and reduces the marginal impact of auditor-provided services aimed at reducing agency cost imposed by the separation between management and ownership. In other words, even though block-holders appear to impose limits non-audit services, the additional external monitoring effect of blockholders potentially offsets the market-imposed

concerns or costs regarding the purchase (disclosure) of NAS services. Thus we do not see a change in the ratio patterns from 2000 to 2001.

With respect to the second hypothesis, the finance variable's (FINANCE) univariate results complement the results of Nam (2005) and Dhaliwal et al. (2006). While the finance variable in year 2000 was insignificant, year 2001 displays a negative correlation between the need for future financing and the purchase of NAS. Once it became clear that the market would provide incentives to lower NAS purchases for firms issuing securities, managers facing greater needs for future financing lowered their purchases of NAS. Thus, in the year subsequent to the initial disclosure of NAS, we see managers responding to the disclosure-induced agency costs by reducing their NAS purchases as the potential need for future financing increases.

The univariate results exhibited by the audit committee test variable support the third hypothesis. As expected, those firms with effective audit committees purchased significantly fewer non-audit services relative to audit fees in both years. In addition, the difference in the non-audit service fee ratio was significantly more pronounced in the second year, consistent with effective audit committees being more responsive to the market imposed agency costs of non-audit service purchases in a disclosure regime.

Of the control variables, univariate results suggest that more non-audit services relative to audit fees are purchased by larger companies that employ a Big 4 auditor, and engage in acquisition and restructuring activities. With the exception of company size, the purchasing patterns do not change from year 2000 to year 2001. Notably, the change in purchasing patterns based on company size partially supports the general agency cost views inherent in the prior hypotheses. To the extent larger firms face greater political

costs (and thus potentially greater agency costs), the results suggest that the average size of firms purchasing less (more) than the median amounts of non-audit services relative to audit fees actually increased (decreased) from year 2000 to year 2001. On average, this pattern is consistent with larger firms being more sensitive to the market imposed costs of non-audit services (and concomitant political costs) and thus curbing their purchase of non-audit service fees more than smaller firms in the following year.

### **Multivariate results**

Overall, the multivariate results corroborate the patterns documented in the univariate tests and support the stated hypotheses. With respect to the agency-based demand for audit quality, the overall models support a view that companies adjusted their non-audit service purchasing patterns once it was clear that the market would impose agency costs on companies purchasing larger amounts of non-audit services. In other words, potential disclosure-imposed agency costs become a more important determinant of non-audit service purchases in the subsequent year of disclosure. We observe a dramatic increase in the explanatory power of the agency-based demand models from the initial disclosure year 2000 ( $R^2 = 0.1702$ ) to year 2001 ( $R^2 = 0.2975$ ).

In contrast to year 2000, we observe a significantly positive association between insider ownership (INOWN) and non-audit services (year 2000 - negative but insignificant coefficient; year 2001 – positive and significant coefficient). The results confirm the univariate patterns suggesting firms who face greater (lesser) agency costs resulting from lower (greater) amounts of insider ownership, were susceptible to the greater (lowest) amount of disclosure-induced agency costs and thus purchased relatively less (more) non-audit services.

Confirming the univariate results, blockholder ownership (BLOCK) exhibits a significantly negative association with the purchase of non-audit services in both years. However this association does not appear to be impacted by the change in disclosure environment. The results are consistent with the monitoring influence of blockholders offsetting the market- imposed agency costs resulting from the disclosure of non-audit services.

The FINANCE variable also displays results consistent with the disclosure-induced agency costs discussed in the univariate results section. Firms facing future financing needs exhibit a significantly negative association with the non-audit service fee ratio in year 2001 (insignificant in year 2000). Those firms appear to be sensitive to the disclosure-induced agency costs of purchasing non-audit services and thus constrained their purchases of non-audit services once it became clear that the market would impose higher costs of capital in the presence of greater NAS (Nam 2005; Dhaliwal et al. 2006).

Although companies with effective audit committees (ACE) are less likely to purchase non-audit services in both years, Chow tests for differences confirms that this negative association is significantly greater in magnitude in the subsequent year of disclosure. This supports the hypothesis that effective audit committees were more responsive to the level of NAS in a disclosure environment.

Finally, we note the change in purchasing patterns based on company size (SIZE) continues to indirectly support the general agency-based views inherent in the prior hypotheses. Although larger firms were more likely to purchase greater amounts of non-audit services in both years, Chow tests confirm a significant decrease in the magnitude of this association in the subsequent year. The decrease in magnitude of this coefficient is

consistent with larger firms being more sensitive to political costs (and concomitant market imposed agency-costs) resulting from the disclosure of non-audit services and thus curbing their purchase of non-audit service fees to a greater extent than smaller firms in the subsequent year of disclosure.

## **5. Conclusion**

This study examines whether companies responded to the disclosure-imposed agency costs resulting from the mandated market disclosures of non-audit service fees. Our study provides a number of contributions. First, our results indicate that the audit fee disclosure rules enacted in 2000 by the SEC were effective in curbing the purchase of non-audit services prior to the Sarbanes-Oxley Act of 2002. This result was consistent with the SEC's market-based strategy for limiting the growth of non-audit services provided by registrants' external auditor. This remains an important issue as regulators face similar decisions between relying on disclosure and prohibiting activities in the future.

Second, Abbott et al. (2003) posit that mandated public disclosures and the market response to high NAS fee ratios would result in a greater adjustment of NAS purchases following the initial year of disclosure. The delayed response was primarily proposed to be a result of speed at which the disclosure rules were enacted and the lack of time companies (and auditors) had to react to the resulting disclosures. Our results support this outcome. Specifically, we find that companies facing greater agency costs incentives altered their purchase of non-audit services to a greater extent as it became clear that the market would impose costs on firms disclosing greater proportions of non-

audit service purchases. This result further suggests that studies which utilize the first year of NAS disclosures may be affected by lack of complete adjustment to the disclosure regime.

Lastly, prior literature has posited three alternatives for signaling higher audit quality to the market in attempt to reduce agency costs. The alternatives come in the form of specialized auditors, larger auditors, or more independent auditors. We note that the first two are potentially less elastic and more costly to implement than the choice to increase the perceived independence of the external auditor. Prior research suggests that the perceived independence of the external auditor is an important factor in the market's assessment of the quality of audited financial statements. In the face of mandated disclosures, our results suggest that firms effectively reacted to these incentives by varying the purchase of non-audit services relative to the agency costs facing the firm.

However, this reaction could have come at the detriment of the actual overall value of the services conveyed by the auditor. Although the markets responded negatively to the presence of non-audit services, there has been little direct empirical support for the position that non-audit services actually impair audit quality. In fact, equally credible evidence suggests that some non-audit services may improve audit quality. As a result, it is not completely clear whether the disclosure rules improved audit quality or imposed an artificial cost as a result of the mandated audit fee disclosures. If firms could have used the same signals of higher audit quality in a voluntary disclosure setting, why did we not see more firms voluntarily asserting that they place limits on the types of services employed by their external auditor? We believe more research (analytical, archival, and behavioral) is needed to understand the different incentives and

purchasing patterns exhibited in the mandated disclosure setting versus voluntary. In turn, this will give us more information about the implications and determinants of audit quality and disclosure environments.

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**Table 1**  
**Sample Selection Results**

*Panel A – Changes in current sample from Abbott et al. original*

	# of sample firms	% of original sample
Original Abbott et al. sample	538	100
Deleted firms:		
Merged or acquired	(8)	(1.5)
Ceased reporting prior to issuance of 2001 proxy statement	(32)	(5.9)
Not included on Compustat in 2001	(7)	(1.3)
Arthur Andersen clients	(107)	(19.9)
Total deleted firms	(154)	(28.6)
Firms potentially available for the current study	386	71.7
Insufficient data available on Compustat	(46)	(8.5)
Total used in regressions	338	63.0

**Panel B – Industry Composition**

<b>Focus Industry</b>	<b>Related Two-Digit SIC Codes</b>	<b># of sample firms</b>	<b>% of sample</b>	<b>Compustat Population %</b>
Construction	15 – 17	5	1.5	1.0
Consumer product & food	20 – 33	89	26.3	14.5
Energy	10 – 14, 46, 49	41	12.1	7.0
Financial Services	60 – 64, 67	3*	0.9	24.9
Information & Communication	48, 73, 78, 79, 84	54	16.0	18.3
Manufacturing	34 – 39	104	30.8	18.2
Personal services and healthcare	72, 80, 83	5	1.5	1.7
Professional, commercial services, education	75, 76, 82, 87, 89	4	1.1	2.3
Real Estate	65, 70	3	0.9	1.3
Retail and Wholesale	50 – 59	19	5.6	7.8
Transportation	40- 42, 44, 45, 47	11	3.3	1.8
All other	1, 2, 7, 8, 99	0	0.0	1.2
Totals		338	100	100

\* Firms included in this segment are from the insurance industry and non-bank financial services industry (i.e. brokerage houses, etc.). Sample does not include banks and other financial institutions that face additional regulation unique to their industry.

**Table 2**  
**Variable Definitions**

Variable Name	Description
AUDITFEE	Total audit fees (from proxy statements).
ITFEE	Total information technology implementation fees (from proxy statements).
NONAUDITFEE	Total nonaudit fees (excluding information technology fees) (from proxy statements).
NASAFRATIO	The ratio of total nonaudit service fees (including nonaudit fees and any information technology implementation fees) to total audit fees.
INOWN	Cumulative percentage of voting control held by managers and directors. (from proxy statements).
LEVERAGE	The ratio of long-term debt (Compustat item 9) to total assets (Compustat item 6).
FINANCE	Net cash flows received from external financing activities for the subsequent year. Compustat item formula (108-115-127) + (111 – 114 – 301) following Bradshaw et al. (2006).
ACE	Audit committee effectiveness variable coded ‘1’ for an audit committees that is composed entirely of outside directors and meets at least four times annually; 0 else (from proxy statements).
BLOCK	Cumulative ownership percentage of voting control held by blockholders holding at least 5% of the outstanding common shares and are unaffiliated with management (from proxy statements).
SIZE	Natural log of total assets (in millions) (Compustat item 6).
BIG4	Dummy variable set to 1 if the company employs a Big 4 auditor during the year, 0 else (Compustat item 149).
ACQ	Dummy variable set to 1 if the company made at least one acquisition during the year and two preceding years, 0 else (Based on Compustat item 129).
CHGCEO	Dummy variable set to 1 if a new external CEO has been appointed during the year and two preceding years, 0 otherwise (from proxy statements).
RESTR	Dummy variable set to 1 if the company reported restructuring costs (Compustat item 376) during the year, 0 otherwise.
RETURN	Total stock return (stock appreciation plus dividends) (Compustat items 26 and 199).

All Compustat items are from the annual information files.

**Table 3**  
**Descriptive Data**

*Panel A: Descriptive Statistics for 338 sample firms for fiscal year 2000*

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>25<sup>th</sup> %</b>	<b>75<sup>th</sup> %</b>	<b>Std. Dev.</b>
AUDITFEE	\$818,461	\$424,524	\$138,700	\$844,695	\$1,325,671
ITFEE	\$704,201	\$0	\$0	\$0	\$3,730,134
NONAUDITFEE	\$1,687,513	\$306,920	\$84,500	\$1,495,000	\$3,681,981
NASFEERATIO	1.984	1.092	0.485	2.347	2.499
INOWN	0.179	0.109	0.025	0.305	0.202
LEVERAGE	0.204	0.183	0.013	0.294	0.199
FINANCE	0.024	-0.006	-0.052	0.046	0.008
ACE	0.444	0.000	0.000	1.000	0.496
BLOCK	0.148	0.118	0.000	0.256	0.146
ASSETS (in mil)	\$4,227	\$611.805	\$114.000	\$2,861.000	\$13,123.388
BIG4	0.940	1.000	1.000	1.000	0.236
ACQ	0.236	0.000	0.000	0.000	0.599
CHGCEO	0.044	0.000	0.000	0.000	0.206
RESTR	0.086	0.000	0.000	0.000	0.280
RETURN	0.049	0.025	-0.022	0.233	0.504

*Panel B: Descriptive Statistics for 338 sample firms for fiscal year 2001*

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>25<sup>th</sup> %</b>	<b>75<sup>th</sup> %</b>	<b>Std. Dev.</b>
AUDITFEE	\$868,763	\$449,750	\$157,025	\$880,301	\$1,346,228
ITFEE	\$640,475	\$0	\$0	\$0	\$4,262,491
NONAUDITFEE	\$1,708,878	\$317,771	\$87,798	\$1,361,164	\$4,167,371
NASFEERATIO	1.738	0.986	0.493	2.311	2.109
INOWN	0.163	0.101	0.024	0.287	0.225
LEVERAGE	0.199	0.185	0.012	0.291	0.198
FINANCE	0.021	-0.006	-0.058	0.039	0.010
ACE	0.476	0.000	0.000	1.000	0.499
BLOCK	0.149	0.112	0.000	0.243	0.149
ASSETS (in mil)	\$4,540	\$621.000	\$118.000	\$2,902.000	\$13,774.554
BIG4	0.931	1.000	1.000	1.000	0.252
ACQ	0.254	0.000	0.000	0.000	0.613
CHGCEO	0.029	0.000	0.000	0.000	0.169
RESTR	0.104	0.000	0.000	0.000	0.304
RETURN	0.043	0.048	-0.031	0.133	0.778

*Note: All variables are defined in Table 2, with the exception of assets, which is denoted in millions and is logged for regression purposes.*

**Table 4**  
**Univariate Analysis**

*Panel A: Fiscal Year 2000 Univariate Comparisons*

<b>Variable</b>	<b>Mean for Firms above median NASFEERATIO</b>	<b>Mean for Firms below median NASFEERATIO</b>	<b>F-statistic</b>
INOWN	0.168	0.199	8.528**
LEVERAGE	0.191	0.236	0.411
FINANCE	0.203	0.025	0.579
ACE	0.351	0.542	12.056**
BLOCK	0.132	0.164	3.756*
ASSETS (in mil)	\$9,654,443	\$1,433,902	15.847**
BIG4	0.983	0.896	7.791**
ACQ	0.312	0.187	3.152*
CHGCEO	0.041	0.054	0.497
RESTR	0.104	0.068	4.114*
RETURN	0.007	0.001	0.554

*Panel B: Fiscal Year 2001 Univariate Comparisons*

<b>Variable</b>	<b>Mean for Firms above median NASFEERATIO</b>	<b>Mean for Firms below median NASFEERATIO</b>	<b>F-statistic</b>
INOWN	0.177	0.128	8.766**
LEVERAGE	0.204	0.193	1.007
FINANCE	0.014	0.027	6.992**
ACE	0.259	0.733	66.707**
BLOCK	0.135	0.163	5.859**
ASSETS (in mil)	\$6,626.753	\$1,829.125	7.982**
BIG4	0.974	0.888	6.853**
ACQ	0.333	0.182	2.899*
CHGCEO	0.032	0.026	0.775
RESTR	0.143	0.072	3.977*
RETURN	0.045	0.041	0.615

*Note: All variables are defined in Table 2, with the exception of assets, which is denoted in millions and is logged for regression purposes.*

**Table 5**  
**Regression Results**

$$\text{NASFEERATIO} = b_0 + b_1\text{INOWN} + b_2\text{LEVERAGE} + b_3\text{FINANCE} + b_4\text{ACE} + b_5\text{BLOCK} + b_6\text{SIZE} + b_7\text{BIG4} + b_8\text{ACQ} + b_9\text{CHGCEO} + b_{10}\text{RESTR} + b_{11}\text{RETURN} + \varepsilon$$

VARIABLE	Year 2000 PARAMETER ESTIMATE	T-STAT	Year 2001 PARAMETER ESTIMATE	T-STAT
Intercept	-2.984	-3.998**	-2.916	-3.099** <sup>ψ</sup>
INOWN	-0.461	-0.776	0.393	3.692** <sup>ψ</sup>
LEVERAGE	0.033	0.858	-0.297	-1.001
FINANCE	0.554	0.444	-0.152	-2.995** <sup>ψ</sup>
ACE	-0.687	-3.449**	-1.338	-4.985** <sup>ψ</sup>
BLOCK	-1.684	-2.446*	-1.548	-2.362*
SIZE	0.391	5.458**	0.364	4.192** <sup>ψ</sup>
BIG4	0.543	0.885	0.448	0.885
ACQ	-0.395	-0.788	-0.425	-0.598
CHGCEO	0.122	0.208	0.103	0.288
RESTR	1.063	2.003*	0.777	2.113*
RETURN	0.003	0.668	-0.081	-0.344
Observations = 338	Adj R <sup>2</sup> = 0.1702		Adj R <sup>2</sup> = 0.2975	

\*, \*\* - Significant at p-levels of less than 0.05 and 0.01.

ψ – Chow tests for differences in Coefficients (Year 2000 vs Year 2001) significant at .01

All variables per Table 2, except Size which is the natural log of total assets (in millions).