

AUDITOR PROVIDED NON-AUDIT SERVICES: Modelling Fees and Willingness to Buy

by

Keith A. Houghton

Fitzgerald Professor of Accounting, The University of Melbourne
Parkville, Victoria, Australia

and

Visiting Professor of Accounting
University of Texas at Austin, Texas, USA

and

Chris C. Ikin

Lecturer in Accounting, University of Tasmania
Hobart, Tasmania, Australia

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Correspondence to: K A Houghton, Department of Accounting,
University of Melbourne, Parkville, Victoria, Australia 3010.

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Abstract

The availability and supply of management advisory or non-audit services (NAS) is crucially important to a number of different stakeholders and has been the subject of heated debate in the US and elsewhere.

Considerable effort has been devoted to modelling the variability in *audit fees*. However, despite its importance, little is known about the determinants of the fees from auditor provided non-audit services (APNAS). We model APNAS fees arguing that there are three component parts to the supply of and demand for those services: (1) the *ex ante* need for NAS; (2) the auditor's particular skill in supplying such services to audit clients, and (3) "the willingness to appoint" the auditor to undertake these NAS services. It is this third factor that reflects the unusual characteristics of this particular market and the sensitivity of the joint supply of audit and non-audit services.

The data comprises most of the "Top 500" listed Australian companies in 1997. Results show that the *ex ante* need for NAS (in the form of a company's complexity, restructuring activities, new CEO and previous financial performance) are significant in explaining APNAS. The existence of the auditor as a specialist supplier of APNAS also significantly explains fees. The third determinant, "the willingness to appoint" shows that political costs (involving auditees' membership of certain industries), stockholder dispersion and certain corporate governance practices are all significantly related to APNAS fees. That is, the "willingness to appoint" variables significantly affect the level of APNAS purchased.

KEY WORDS: Auditing, Management Advisory Services and Non-Audit Services.

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1.0 INTRODUCTION

The issue of auditor-supplied management advisory services is seen as crucially important to a number of different stakeholders. To corporate regulators, the supply of management advisory services (or non-audit services - NAS) to audit clients is seen as a potential threat to auditor independence. To the audit profession and in particular to major accounting firms, NAS is a major and growing revenue stream that is seen as profitable and important to the ongoing viability of the profession generally. To corporate management, the ability to access NAS from their audit firm is important as it is sometimes the source of advice that is management's preferred choice. Stockholders are also interested in NAS. Their interest is likely to be similar to those of regulators and relates to the real or perceived threats to independence.

While one can identify that the issue of the joint supply of audit and non-audit services is important, little is known about the underlying determinants of the level of NAS fees. This study seeks to identify the determinants of NAS fees; and theorizes that there are three distinct components to these determinants. The first group is labeled as the '*ex ante* need' for NAS (demand side determinants). The second relates

to the supply side considerations of the market for NAS. The third group is unlike the first two in that it relates to the crucial issue of the joint supply of audit and non-audit services. We label this a company's 'willingness to appoint'. As explained below, auditees, even in the face of a demonstrated *ex ante* need, may choose not to appoint the incumbent auditor to a consulting engagement because of considerations relating to the auditee's desire to have and be seen to have an independent auditor.

1.1 The Stakeholders

The joint supply of audit and non-audit services has been a strongly debated issue and one that is of considerable interest to some corporate regulators. The debate has recently become more heated in the US, Australia and elsewhere and continues to be widely reported in the media and the financial press (see, for example, ABC, 2000; Ramsay, 2001, SEC, 2000 and Thomas, 1998 and 2000).

Regulators claim that the joint supply of audit and non-audit services to the same client is likely to impair the auditor's independence. They argue that fee dependence and conflicts of interest are unavoidable in these situations and can be damaging. Audit firms protest their innocence by claiming that they are not influenced by fee dependence, that audit and NAS work are often performed by different partners and staff and that joint supply actually enhances rather than detracts from each separate service.

Positive accounting theories have provided support for regulators' concerns through the argument that economic bonding between auditor and client is likely to be increased by the provision of NAS by an incumbent auditor, and hence lead to the

possibility of impairment of auditor independence (real or perceived).¹ However, in general, accounting researchers struggle to find consistent empirical evidence that shows joint provision of audit services and NAS impairs auditor independence. In part this could be because of design issues or the lack of availability of data.

In respect of the profession, the formal ethical guidelines of the Australian professional bodies are ambivalent about the supply of NAS to audit clients. Professional ethical standards are generally imprecise and subjective on the matter for joint supply of audit and NAS. However, there is anecdotal evidence that the supply of NAS to corporate clients (not all of which are audit clients) is a large and growing income stream for Big 5 and other accounting firms. Further as documented in Table 1 below, the supply of NAS to audit clients of the same accounting firm is growing to the point that average NAS fees are greater than those for audit.

In respect of management, the existence of theories about knowledge “spill overs” predict that there are efficiencies in the joint supply of audit and NAS to a client by a single supplier². These theories propose that the joint supply of these two services do exhibit themselves in ways that can be of benefit to the management of corporate clients. These benefits can include reduced cost, increased quality and speedier completion of work.

1.2 Development of the Research Issue

While the issue of NAS and, in particular its joint supply by an incumbent auditor is of importance and interest to a number of parties, little is known about the determinants of NAS, and especially auditor supplied NAS. This study attempts to (1)

develop a theoretical model that explains the level of NAS fees paid to an incumbent auditor, and (2) empirically test the model. In doing so it hopes to partially resolve the debate by providing explanations for the determinants of auditor provided NAS.

Specifically, the study investigates the following research question:

What are the determinants of auditor provided non-audit services (APNAS) fees?

And, in particular:

Does a client's willingness to appoint significantly impact on the purchase of auditor provided non-audit service fees?

In examining these questions a careful distinction needs to be made as to what exactly is being modelled. Typically the research literature refers to the existence of MAS (Management Advisory Services) or more correctly NAS (Non-Audit Services). The issue that motivates the discussion about NAS relates, however, only to services that are provided by an incumbent auditor, or auditor provided non-audit services (APNAS), and not non-auditor provided NAS. Hereafter this paper will refer primarily to the economic concept of APNAS, as the motivation for this work lies in the relationship between auditor and auditee and not other relationships where “audit firms” supply non-audit services to corporate clients for which they are not the incumbent auditor. Fees derived from this supply are correctly described as NAS but are outside what is the focus of (and motivation for) the present study and indeed much of the wider debate pertinent to the auditing profession.

Specifically, this study argues that there are three distinct dimensions to the determinants of APNAS:

- (1) The *ex ante* need for non-audit services (potentially from any supplier), which we model from the economic characteristics of the company (auditee).
- (2) The expertise and competence of an auditor to supply services (modelled in the form of APNAS specialist skills by a supplier); and
- (3) The auditee's "willingness to appoint" an incumbent auditor; this involves potentially a wide set of corporate governance practices influenced by agency and political costs.

Therefore, this paper is motivated by the interest of many stakeholders in the demand for and supply of NAS, and in particular APNAS. This includes not only regulators (most conspicuously in recent times), but also stockholders, corporate management, accounting firms, and the profession more generally including the public interest aspects of its mandate.

This study contributes to the literature by (1) introducing the theoretical distinction between the NAS and APNAS fees, (2) establishing a model of APNAS fees and (3) recognizing the multifaceted dimensions that underlie the modeling of such fees; demand-side considerations, supply-side considerations and most particularly the "willingness to appoint".

It is argued that there are two contributions of the paper. One contribution is to provide a platform (in the form of a fees model) to examine issues of interest to the various stakeholders. Potentially this platform has a benefit for practice and, more especially for research. The benefits for practice come from a greater understanding of the driving forces in the market for auditor provided NAS. For research, the contribution comes in the form of enhancing the contributions of other research.

For example, in a recent paper by Gul and Tsui (2001) the authors argue that the variability in NAS fees can explain variation in auditor “quality” (they argue that NAS is a measure of degree of real or perceived independence) and the informativeness of earnings numbers. While this is an interesting contribution, the present writers would argue that it is not “raw” NAS fees that are the indicators of auditor “quality” or degree of independence but those APNAS fees that are not explainable by rational economic factors. We would argue that a more direct test of the auditor quality construct Gul and Tsui (2001) develop would use the residual fees from a model of NAS fees rather than the raw fees themselves. It is the variability of NAS fees that cannot be rationally explained by conventional factors that exist in a market for professional services that is of greater interest to researchers than the variability of raw fees. If a threat to auditor independence exists it is the ability to explain the residual in the variability in fees that is of much greater interest.

The second contribution is to focus on the “willingness to appoint” construct that goes to the heart of some of the issues surrounding the threat (real or perceived) of the auditor independence debate.

2.0 DEFINITIONS AND DESCRIPTION OF NAS

2.1 Definitions

This study defines NAS fees as any fees paid for non-audit (management advisory) services, reasonably expected to be provided by a large firm of public accountants, whether paid by a company to its incumbent auditor or any other firm of consultants. APNAS is a subset of NAS and is the fees for non-audit services provided to a company by its incumbent auditor.

Unlike audit services, NAS including APNAS is not necessarily homogenous. While audit services are seen by some as being essentially products of a similar nature (but not necessarily of a similar quality), NAS is seen as being a basket of services that may be qualitatively different but also different in functionality. For example, the NAS purchased by one client may be largely tax related whereas another purchase may involve strategic planning, pricing advice or assistance in accounting policy choice. Each of the Big 5 accounting firms in their various publications claim expertise in these and other accounting and related functions. While the NAS and APNAS purchased may vary in these functional characteristics, what we model in this paper is the package that is purchased. Although this introduces a challenge in being able to model APNAS, it does not reduce the importance of the task. While we do not seek to model something as tightly defined as audit fees we are modelling all those non-audit services offered by these accounting firms.

As indicated above we choose not to model the more general NAS. In large part this is because modelling NAS is not the topic which we see as being at the centre of the current debate; and at the heart of the concerns by regulators both in the US and elsewhere. In large part the study is motivated by regulatory concerns about the level of APNAS and not NAS supplied without the concurrent supply of audit services.

2.2 Growth in Audit and APNAS Fees

APNAS fees are a growing source of revenue for audit firms. Indeed, as Table 1 shows, APNAS fees have doubled over the past decade with a faster growth rate than audit fees. On average APNAS fees are now larger than audit fees.

INSERT TABLE 1 ABOUT HERE

3.0 EMPIRICAL TESTS OF THE PRESENCE AND EXTENT OF NAS

Perhaps the earliest research into the effect of APNAS on auditor independence has been the economics of auditing literature investigating explanatory models of audit services. The inclusion of the APNAS variable in audit fee model research has been based on the theoretical notion that the provision of NAS by a company's incumbent auditor might, though cost savings gained from knowledge spillovers, keep audit fees lower than would otherwise be the case.

It was generally thought that knowledge spillovers would operate in such a way as to hold audit fees *down* in the presence APNAS fees. However US (Simunic, 1984; Palmrose, 1986; Simon and Francis, 1988; Turpen, 1990), UK (Ezzamel, Gwilliam and Holland, 1996) and Australian (Craswell, Francis and Taylor, 1995; Butterworth

and Houghton, 1993) studies all found evidence of a *positive* relationship between audit fees and APNAS fees. The main conclusion here is that auditors' cost functions for audit services and NAS *were* significantly interdependent but the nature of the relationship is not obviously consistent with knowledge spillovers. Indeed, two (survey) US studies failed to find significant evidence of any "spill-over" effect (Abdel-khalik, 1990; Davis, Ricchiute and Trompeter, 1993). One possible explanation of this indirect relationship could be that if marginal costs are reduced by knowledge spillovers, then clients may increase their demand for audit services resulting in greater fees. An implication is that while a company's decision to rely on its auditors for NAS might be profit maximising, it is not costless.

Other research has chosen to model the level of APNAS with perceived notions of auditor independence more directly. This research seeks to determine the relationship between the demand and/or supply drivers of NAS fees and the lack or otherwise of auditor objectivity. The results of these studies are mixed. Beck, Freka and Solomon (1988b) found some support using length of auditor tenure as a measure of auditor independence; Wines (1994) found evidence of a relationship between NAS fees and the frequency of qualified audit opinions but Barkess and Simnett (1994) and Craswell (1999) did not; DeBerg, Kaplan and Pany (1991) and Barkess and Simnett (1994) found little support using auditor changes/"switches" as a proxy for auditor independence.

Parkash and Venable (1993) measured auditor independence according to agency theory incentive arguments because (a) the underpinning theory is fairly robust and (b) inputs (incentives) are likely to be cleaner measures than outputs (e.g., qualified

audit reports). Agency theory posits that principal's value monitoring systems (such as audits of financial reports) that help reduce the costs of principal/agent conflicts. The inference is that the greater the potential for principal/agent conflicts, the greater will be the need for credible and independent monitoring systems and hence the greater the need for auditor independence. Their results support the hypothesis that lower levels of recurrent APNAS are associated with lower levels of managerial/director ownership, with lower levels of owner dispersion and with higher levels of leverage (as a surrogate for closeness to debt covenant limits).

A major limitation of the Parkash and Venable study (and certain of other studies noted above) is the underlying assumption that the demand for NAS is cross-sectionally and temporally homogeneous. This is unlikely to be the case in practice. The reason why an auditee purchased less NAS from its auditor in a particular period may be because it had less *need* for NAS in that period - and *not* because of agency theory related incentives for the engagement of an independent auditor.

The incidence of NAS is predicated on the *ex ante* need for such consulting/management services. That is, before any choice is made by a company to purchase expert advice from its incumbent auditor or from some other consulting firm, conditions need to be present which create an initial demand. Only one published UK study (Firth, 1997) and one unpublished Australian study (Craswell, Guz and Francis, 2000) relax the homogeneity of NAS criterion.

Firth (1997) hypothesises that a demand for NAS is likely to be a function of: (i) corporate restructuring during the period (dummy variables for reported acquisitions,

new stock issues and other reported restructurings); (ii) the installation of a new information system during the year (a dummy variable for reported installations); (iii) the recruitment of a new CEO, within the current or the previous two years, from outside the company (again, a dummy variable); (iv) high asset growth (proxied by % growth in assets during the previous three years); and (v) the financial performance of the company (proxied by return on capital employed and whether the company was profitable in the prior year).

Craswell *et al.* (2000), argue that a company's propensity to purchase APNAS fees may be driven by: (i) the same factors that drive its demand for audit fees (after Palmrose, 1986); (ii) the level of business activity within the company (measured by a Stock Exchange measure of activity and by the number of board of directors meetings); and (iii) the age of the company (two dummy variables to indicate if the company is within its first year or its second and third years of listing).

Both studies then regressed these "economic need" variables and certain other variables proxying for agency costs (which are also surrogates for incentives for auditor independence) against NAS fees. Both authors report considerable support for both the *ex ante* demand for NAS variables and the agency theory incentives for auditor independence. However, both studies have their limitations.

Firstly, neither recognises that the equilibrium level of APNAS is likely to be a function of both demand and supply side factors; and neither explicitly recognises the construct "willingness to appoint". Secondly, Firth does not model NAS (or APNAS)

directly but by deflating NAS with audit fees, is likely to have introduced noise into the measure of APNAS.

4.0 HYPOTHESES DEVELOPMENT

The theoretical model posits that companies will decide to purchase relatively more APNAS from their auditors, when (1) the companies are, *ex ante*, in need of NAS; (2) the incumbent auditor has the necessary industry-specific NAS expertise to undertake the consultancy, and (3), there is a willingness by corporate management to appoint the incumbent auditor.

4.1 *Ex Ante* Client Need for NAS

An *ex ante* need for NAS (a company's propensity to consume NAS from any supplier) is argued to be created when certain characteristics exist. These include:

4.1.1 Auditee Size

In the audit fee studies, auditee size has been shown to explain a substantial portion of the variations in those fees. This is because the *ex ante* demand for services is expected to grow as the size of the company grows: NAS is expected to be no different. Barkess and Simnett (1994) include two alternative measures for client's size in separate regressions in their study of NAS. That study found that, *ceteris paribus*, total assets exhibit a positive association with NAS fees whereas total sales does not. This study also expects the need for NAS to be positively related to size (as measured by asset size).

4.1.2 Auditee Complexity

The more complex the nature of the company's business activities, the more likely it will need to seek the advice of outside experts. The notion of complexity is meant to describe a company's exposure to diversified markets and business transactions as well as to its organisational structural complexity. Prior to Craswell *et al.* (2000) such a factor has not been tested in the NAS literature, although it was suggested by Barkess and Simnett (1994) who controlled for industry effects. Craswell *et al.* did not attempt to justify this characteristic except by noting that it has been found to be a determinant of the level of audit fees. It would seem reasonable to assume that a company's increased exposure to diversified markets (both local and overseas as well as industrial) and to a complicated organisational structure increases a demand for expert tax advice. It is also likely that other advice (eg, management information systems advice, treasury and organisational re-engineering advice) would be in greater demand in more complex companies.

This study takes the position that the total number of subsidiaries is likely to best capture the dimension of complexity - one that reflects a capacity to generate a need for NAS. The number of subsidiaries indicates the possible demand for NAS fees in areas of tax services (especially with overseas subsidiaries - transfer pricing, corporate tax havens, withholding tax, expatriate tax advice etc.), management information systems advice, internal and external amalgamations and reconstructions advice and human resource services. This complexity variable has been found to be significant in most audit fee literature and also in Craswell *et al.* (2000).

4.1.3 Auditee Restructuring

With respect to restructuring, consultants can be involved from the initial strategic planning stages, through implementation stages to post-implementation monitoring and compliance audits. In addition to strategic planning advice and implementation coordination services, consultants can provide tax advice, management information systems advice, human resource advice, acquisition and merger advice, due-diligence reports, out-sourcing advice and stock capital and treasury advice. In this study, restructurings are acknowledged when terms such as: “corporate restructuring”, “business rationalisation”, the “disposal of business segments”, the “installation of new, group-wide information systems”, “enterprise resource planning (ERP)” and/or “business process re-engineering (BPR)” are used to describe significant events, disclosed in the statement of profit and loss or elsewhere in the annual report, that have taken place during the financial year.

4.1.4 Appointment of a New CEO

The recent appointment of a new CEO can herald a “shake-up” within a company. New CEO’s have been shown to have effects on corporate accounting practices especially in their first year of incumbency when they have incentives to “take a bath” and in the last year when they have incentives to postpone expenditure.³ But new CEOs, wishing to make their mark on a company and increase its profitability, image, market share etc, may also embark on a mission of reorganising and reshaping past management and business processes. Indeed, while some CEOs are appointed to implement a new strategic direction already formulated by the existing board of directors and management, other CEOs are appointed in the hope that they will be the catalyst for a new corporate focus and direction. Either way, a change in CEO is argued to be associated with major change within a company - and change is an

opportunity for outside expert advice. Such advice may encompass any of the types listed above under complexity and restructuring as well as the “head-hunting” services involved with finding and enticing an appropriate CEO to join a company. Firth (1997) restricted the application of this variable to new CEO’s who were external appointments ie, the appointment could not have arisen from an internal promotion. However, we argue that a new CEO whether from outside or from within, can still seek to demand additional NAS - and given that a new CEO may give rise to an immediate “spike” in NAS demanded, we measure the effect in the same year as the CEO appointment.

4.1.5 New Issue of Stocks or Debt

A company issuing new stocks or new debt to the public or by placement is likely to need expert advice. Companies may need some or all of the following: prospectus services, due-diligence reports, underwriting and broking services, stock registry services and treasury services, and corporate law and regulatory advice. Firth (1997) uses a similar variable but lags the effect of new issues by up to three years. We expect the effect on APNAS to be observable in the year of the new issue.

4.1.6 Previous Operating Performance

A poorly performing company indicates, *inter alia*, ineffective and or inefficient operations, inappropriate management strategy, lack of competitiveness and/or obsolescence in product or information systems technology. Stockholders are loath to tolerate persistent poor performance. Hence it is argued here that poorly performing companies have additional incentives to engage expert advisers for they potentially can provide an expert opinion about how the company may be brought back onto a

competitive and profitable footing. While stockholders might look most closely at a return on equity, it is argued that corporate management focuses perhaps more acutely on a return on assets or investment (ROI). And it is management who generally appoints the consultants, not the stockholders. It is further argued here that while one year of poor performance might not cause management to go in search of expert consulting services, two years' poor performance probably would. The case would be stronger still if the company experienced average negative ROI over the current and previous years.

4.1.7 Audit Fees

Prior literature has consistently found an association between NAS and audit fees. Generally this relationship has been shown to be positive (e.g. Simunic, 1984 and Palmrose, 1986). That is, the incumbent auditor is generally regarded as being capable of providing more constructive NAS over competitors due to client or their ability to service the client quickly or with little start up costs due to pre-existing relationships between the firm and the client.

In the unpublished study Craswell *et al.* (2000) find support for the proposition that the positive relationship between NAS and audit fees can be attributable to *common determinants* explaining *ex ante* demand. This implies that NAS fees and audit fees are endogenously determined. If true, then the inclusion of audit fees as an explainer of NAS fees will be questionable. This study recognizes that there are common determinants of audit fees and NAS fees but that there are also some that are not. Indeed the argument above suggests that the NAS and audit fees have a direct relationship in themselves. As such the present study includes audit fees as a possible

determinant for NAS fees after removing the variation of in audit fees explainable by common determinants. Put more directly, we include the residual values of audit fees after removing those audit fees explainable by client size, complexity, and similar variables commonly found in audit fee models.

4.2 Audit Firm Characteristics

We argue that auditor NAS expertise influences the level of APNAS. It is argued that an auditor assessed as being a specialist NAS provider in the industry in which the company predominantly operates will be more likely to be engaged by the auditee to perform APNAS. This construct of NAS industry specialist is still new to the economics of auditing research having only once been tested before. Parkash and Venable (1993) suggested that auditor industry specialisation could better be specified according to NAS involvement rather than audit involvement. However, their measure of NAS industry specialist was based on industry average levels in the proportion of NAS fees to audit fees. Audit firms earning fees above industry averages were generally classified as experts in those industries. Those authors were obliged to use a relative measure because the absolute level of NAS fees was not a disclosure requirement of ASR 250 (SEC, 1978).

Research studies into audit fee premia paid to industry specialist auditors, usually define industry specialists in terms of their industry market shares. For example, Craswell et al. (1995), use two measures of industry specialist within all 23 of the Australian Stock Exchange industry classifications: “(1) the absolute number of clients audited, which is an unweighted measure of market share and (2) the accounting firm’s share of total industry audit fees which represents a size-weighted

measure of market share (weighted by audit fees).” (Craswell *et al.*, 1995, p304). A precondition to the calculations was that there should be a minimum average number of companies in each industry classification. They selected a minimum of thirty, averaged over their five-year study. Craswell *et al.* note that their definition of specialist (viz, an auditor who commands a 10% or greater share of the industry) is arbitrary. (They also note, at page 318, that their fee premia results are sensitive to this defined level of market share.)

Stokes and Ferguson (2000), in a similar audit fee premia setting, note the arbitrariness of Craswell *et al.*’s definition and propose and test an alternative definition of industry specialisation. Quoting research by Francis *et al.* and Defond *et al.*⁴, they employ a measure of market leadership. A market leader is variously defined as the top fee earner in the industry or one of the top three fee earners in the industry. This study argues that similar notions of industry specialist and industry leader can be usefully transported to the NAS fee market and defines “*NAS industry specialist*” as an audit firm that commands 15% or more of the NAS provided by all auditors in that industry. A market leader measure was also tested employing Stokes and Ferguson’s second definition. A summary of NAS fees by auditor, by industry for 1997 appears in Table 2.

INSERT TABLE 2 ABOUT HERE

4.3 Auditee’s “Willingness to Appoint” an Incumbent Auditor

4.3.1 A portfolio of corporate governance practices

The construct of a client's "willingness to appoint" the incumbent auditor is new to the literature. It is argued that the final decision to appoint the incumbent auditor to perform any or all NAS will be taken in the context of a broad portfolio of corporate governance practices by which management signals the reliability and credibility of its financial reporting to stakeholders. Perceptions about auditor independence are but one dimension of this decision. Other dimensions might include: a higher percentage of non-executive directors on the company Board; a higher number of Board meetings; a higher percentage of non-executive directors on the Audit Committee; a higher number of Audit Committee meetings; whether the position of Board chair is held by a non-executive director; a higher level of director stockholdings and a lower level of director related party transactions; a less aggressive stance in accounting policy choice etc. All these practices would signal to stakeholders that sound corporate governance is in place and hence that financial statements are likely to be more reliable. The construct of "willingness to appoint", bound up as it is in the total portfolio of corporate governance practices, is expected to result in a model that more richly explains the levels of APNAS paid by companies to their incumbent auditors.

We examine the effect on APNAS of the first four of these in a partial test of the willingness to appoint construct⁵. *Ceteris paribus*, the stronger these dimensions, the higher APNAS might be without a perceived impairment to financial statement reliability.

4.3.2 *Agency and political cost influences*

Costly contracting theory incentives to keep agency and political costs down will impact on the composition of this portfolio.

Some previous research recognizes the possible effect of contracting variables, although not in the context of willingness to appoint. Parkash and Venable (1993), Firth (1997) and Craswell *et al.* (2000) use ownership diffusion and leverage as proxies for incentives to keep agency costs down, and by implication the need for an independent auditor. This approach ignores other, and possibly compensating, corporate governance practices established within the company and in doing so, oversimplifies the model purporting to explain the level of NAS. All prior studies ignore the “political cost” incentives for the need for reliable and credible financial reporting and its impact on the “willingness to appoint” decision.

Specifically, the measures that are specified in this study to operationalize the notion of “incentives for an independent auditor” as a key part of “willingness to appoint” are as shown below.

4.3.2.1 Ownership Dispersion

Following Parkash and Venable (1993), we argue the costly contracting theory notion that companies will have incentives not to purchase NAS from their incumbent auditors because (a) the joint provision of audit services and NAS leads to bonding between auditor and auditee, (b) greater bonding heightens stakeholders concerns about impaired auditor independence, (c) impaired auditor independence reduces, in the eyes of the stakeholders, the credibility of financial information reported to them and thus (d) agency/contracting costs will be increased. The costly contracting literature (see for example, Watts and Zimmerman, 1986) commonly employs measures of ownership dispersion as a proxy for increased contracting costs between

owners and managers because it measures the degree of separation between these contracting parties.

Owner dispersion is measured by the percentage of ownership held by the company's top five stockholders. This measure is between the extremes taken in previous research where Firth (1997) takes the proportion of ownership held by the top stockholder only, and Craswell *et al.* (2000) who take the proportion of ownership held by the top 20 stockholders. We predict that the level of APNAS will decrease as the proportion of stocks held by the largest five stockholders decreases (ie, as the level of ownership dispersion increases). We measure this dispersion as a dummy variable that takes the value 1 if proportional ownership of the largest five stockholders is less than 20%. As noted below, various other percentages were used to test the sensitivity of this level.

4.3.2.2 Leverage

The costly contracting literature referred to above also employs a measure of leverage to proxy (albeit crudely) a company's proximity to debt covenant breach because high leverage and breach of debt covenants increases contracting costs between the company and debt-providers. Leverage is measured by the ratio of the book value of the client's interest bearing debt to the total book value of its stockholders' equity. Firth (1997) uses the ratio of debt to total assets while Craswell *et al.* (2000) use the ratio of long-term to total tangible assets. We predict that the level of APNAS will decrease as leverage increases.

4.3.2.3 High Political Cost Industries

High political cost industries are indicated by a variable identifying those companies operating in the banking and finance, and the resources sector. The finance industry is highly regulated and was under considerable public scrutiny because of a process of restructure (driven by a major Federal Government Inquiry known as the Wallis Commission) during 1997. The resource industry (made up of mining and extractive industries) is often associated with public scrutiny because of tax concessions given to it by successive Australian governments and because of public concern over environmental matters. It is argued that both these industry groups will be sensitive to having, and being seen to have, an unambiguously independent auditor as compared to other industries. In the case of other industries we see no *ex ante* rationale for them being particularly closely scrutinized.

4.4 Statement of Hypothesis

Hypothesis H₁ expresses the theoretical model:

Ceteris paribus, that the level of APNAS fees is determined by (1) the *ex ante* need by the auditee for NAS; (2) the incumbent auditor's APNAS industry specialization; and most especially (3) the auditee's willingness to appoint the incumbent auditor to provide NAS.

The model might be generally thought of as:

$$\text{APNAS Fee} = b_0 + b_1\text{Need} + b_2\text{NAS Specialization} + b_3\text{Willingness to Appoint}$$

5.0 RESEARCH METHODOLOGY AND DATA COLLECTION

In common with much of the audit fee model research, OLS regression is used to model the relationships hypothesised to exist between APNAS fees and operationalized constructs of the three sets of determinants. In addition, a control is used for the effect auditee size has on APNAS fees.

A formal regression equation used to test the hypothesis is set out below:

$$\begin{aligned} \text{LnAPNAS} = & b_0 + b_1\text{LnTASSETS} + b_2\text{LnALLSUBS} + b_3\text{RESTRUCT} + \\ & b_4\text{NEWCEO} + b_5\text{NEWISS} + b_6\text{NEGROI} + b_7\text{AUDITFEE(Residual)} + \\ & b_8\text{INDSPEC} + b_9\text{DISPERSION} + b_{10}\text{LEVERAGE} + b_{11}\text{POLCOSTS} + \\ & b_{12}\text{BOARDmeeting} + b_{13}\text{BOARD\%non-exec} + b_{14}\text{AUDITmeeting} + \\ & b_{15}\text{AUDIT\%non-exec} + e \end{aligned}$$

An explanation of the variables and their predicted sign appears in Table 3.

INSERT TABLE 3 ABOUT HERE

Data was collected for the “Top 500” companies listed on the Australian Stock Exchange during 1997 from Connect 4 (1997) and Huntley (1998). This group represents the most economically significant group of companies in the country. After the removal of property trusts, foreign companies and some companies with missing data, 432 companies remained. Where necessary raw data was transformed (logarithmic) to remove skewness and kurtosis. Descriptive statistics are summarised in Table 4. Table 5 discloses no serious multicollinearity between the regressed variables.

The mean of APNAS fees is affected by the presence of a number of auditees that buy little or no NAS from their incumbent auditor. In all, fifty-nine (14%) of companies in the sample purchase no APNAS or had APNAS fees less than or equal to 10% of audit fees in the year of interest.

INSERT TABLES 4 AND 5 ABOUT HERE

6.0 RESULTS

6.1 Fee Model: Testing the Three Arms of the Model

The results of the regression analysis are reported in Table 6.

INSERT TABLE 6 ABOUT HERE

The model is significant ($F = 40.9$, $p = .000$) with an explanatory power of approximately 58%. Three observations were removed because of the existence of outliers (were the residual was greater than three standard deviations)

The first “arm” of the theoretical APNAS fee model is confirmed. Four of the hypothesised variables representing the dimensions of the construct “need for NAS” are significant (at a 0.05, one-tailed, level or better) and are in the predicted direction. These dimensions are auditee size, complexity, restructuring, and audit fees (residual). One other variable (new issues of stock or debt) approaches significance at conventional levels ($p = .080$).

The second (supply side) “arm” is also supported despite limitations with the measure used (see Section 8.0). An important result is the significance of the APNAS industry expert variable in the APNAS fee model. The definition of APNAS expert introduced into the literature in this study, the APNAS industry “specialist”, proved significant (at a 0.01 level, one-tailed) in explaining APNAS. These results (not reported) do not change when an industry leader measure is used in place of industry specialist.

The results obtained from testing the third “arm”, confirms the construct of “a willingness to appoint” and is new to the literature. The variables representing the political cost incentives (associated with the Finance and Mining/Extractive industries) proved significant ($p = .001$), as is the dispersion of stockholders ($p = .006$)⁶. The variables relating to the strength of the board and its audit committee were correlated with each other, thus it was expected that not all would prove to be significant. The activity of the board of directors (as measured by the number of board meetings) and the proportion of the audit committee that were independent (not coming from the auditee’s management) are both highly significant ($p = .001$ and $.003$ respectively).

6.2 Further Testing - Uncontrolled Scale Effect

The model was respecified to test for the possibility of uncontrolled scale effect. This is done by dividing the dependent variable (NAS fees) and all independent variables that are significantly correlated with size (restructure, residual of audit fees, new issue, negative ROI, industry specialist, and number of subsidiaries) by a measure for size (total assets). The results showed a much lower level of explained variability (approximately 24%) with a number of outliers. After eliminating these outliers, the

independent variables are much the same as reported above but with generally higher p values although still significant at or close to conventional levels.

7.0 DISCUSSION

We argue that the preceding tests show that three constructs, (1) the auditee's *ex ante* economic characteristics that underlie the need to demand non-audit services generally, (2) the auditor's APNAS specialization classification and (3) the auditee's "willingness to appoint" contribute to explaining the level of auditor supplied NAS fees. Of these the third arm is potentially the most interesting and important in respect of the recent debate about auditor independence and the joint supply of NAS and audit services. The results are consistent with corporate governance playing a role in the choice of auditees to purchase NAS from their incumbent auditor. The results are also consistent with joint supply being avoided where there are agency and political costs that will be incurred with joint supply.

The fact that certain corporate governance variables have a positive coefficient in the model of APNAS is supportive of the proposition that companies have a "package" of governance factors, one of which is auditing and another is the presence and extent of APNAS.

8.0 LIMITATIONS AND AVENUES FOR FURTHER RESEARCH

Various limitations of the study should be noted.

First, the present study hypothesised that a client's "willingness to appoint" its incumbent auditor to consulting engagements was a crucial third aspect in explaining the demand for NAS. A comprehensive analysis and operationalization of such a "willingness to appoint" would include many dimensions of corporate governance that are not measured in the present study (some of which may require access to private data).

Second, a random sample of all listed Australian companies was not used. One should be cautious therefore in extrapolating the results of this study to other smaller companies or to those in other locations, particularly in locations where APNAS is not publicly disclosed and, therefore, the incentives may differ from those where disclosures are mandated.

Third, the notion of APNAS as a measure of an audit firm's market position in supplying non-audit services is noisy. It is possible that an audit firm may have considerable expertise and total market share in supplying NAS but happens to supply little of it to its own audit clients. In this respect the appropriate measure to take is NAS not APNAS. NAS fees are not (easily) observable in the Australian market.

Fourth, further work is needed in respect of the basic decision by auditors and auditees to accept APNAS engagement. In particular more work is needed on the supply side issues. One tends to forget that for APNAS to occur there must be a

decision both to buy and *to sell* a service. Unless *both* parties agree, there will be no APNAS. So an incumbent auditor who feels that the supply of non-audit services to a client auditee would be dangerous to the auditor's reputation can decline to provide the service. An auditee who is concerned about the threat to independence or the appearance of a threat to independence can decline to award a contract to the incumbent auditor. Researchers have tended to take it for granted that an audit firm would accept a NAS engagement if offered, without hesitation.

A further limitation relates to the nature of the model. As presently constructed the model uses the same structure that numerous previous audit fee models have used. That is to say, each of the identified variables explains a portion of the variability in the dependent variable. For our purposes this is probably an adequate starting point as it links much of the existing literature with the modelling of APNAS. However, it is possible that the underlying model of APNAS is both more sophisticated and subtle. For example, it is possible that the willingness to buy variables in isolation or in combination affect either or both *ex ante* need and supply as an interaction term rather than a main effect. Additionally, it is possible that a superior model specification would use a simultaneous equation of both demand and supply with a willingness to buy as a moderating variable. These alternative model specifications are the subject of ongoing research by the present authors.

9.0 FURTHER RESEARCH

The study has highlighted various opportunities for further research. Many of these represent opportunities for improving the research findings of this study by overcoming the limitations described above.

No previously published study has surveyed, nor yet modelled, the “supply side” aspect of the market for NAS in Australia. It represents a promising avenue of research; one that could provide new insights into explaining why some companies contract with their auditors for the provision of NAS while others do not. Combined with the results of research studies such as this, comprehensive NAS and APNAS fee models could be developed and empirically tested.

An extension of the current research over a number of different years would test the robustness of the model and enhance its generalizability to a multi-period setting and in different jurisdictions. There are further advantages of such a cross-temporal extension to the research. First, it would facilitate a proper lagging of some of the regression variables to determine if demand factors have a persistent (and/or a delayed) effect on a company’s level of NAS. Secondly, it would facilitate testing of a *change* in NAS purchase model.

The absence of accurate information about a company’s total annual NAS expenditure is a limitation to the derivation of a reliable NAS fee model. Future research might usefully obtain such information from a sample of listed or unlisted companies. Knowing, with certainty a company’s “propensity to consume APNAS” would enhance the reliable testing of the other two arms of the hypothesised NAS fee model.

A major question remains open as to a model of the basic buy/don't buy APNAS decision. Some companies may have a policy decision not to buy *any* amount of NAS from their incumbent auditor. This policy may be based on issues of corporate governance. Future research on the factors that underlie such a policy would add to our knowledge of the market for APNAS.

In general, explanatory models of corporate behavior such as the one described in this paper, derived solely from observations of publicly available information such as annual financial statements, will *per force* be general and run the risk of being superficial. However, if such “quantitative” research were to be supplemented and corroborated by selective in-depth case analysis of the underlying motivations for company behavior, the resulting research is likely to deliver richer and more insightful models. The research described in this study would be improved if it were supported by interviews with, and/or surveys of, corporate management in order to ascertain/confirm directly the “real business world” reasons, incentives and motivations that lie behind their decisions to engage consultants and, in particular, their decisions to appoint incumbent auditors as NAS consultants in preference to other consultants.

10.0 CONCLUDING REMARKS

This study has been concerned with developing and testing a model of the level of APNAS fees. The primary motivation comes from the importance of NAS to many stakeholders including corporate regulators, stockholder, company management as well as audit firms and the profession itself.

The theoretically developed model hypothesises that companies will decide to purchase relatively more APNAS when first, the companies are *ex ante* in need of NAS; second, the incumbent auditor has the necessary industry-specific NAS specialist knowledge to complete the consultancy, and finally, there is a willingness by corporate management to appoint the incumbent auditor.

Overall, the hypothesised APNAS fee model is found to be supported, and is able to capture well over half of the total variability in observed levels of APNAS fees paid to auditors by their “Top 500” Australian clients.

We believe that there are two important observations that need to be made. First, this study shows that a very high proportion of the fees for these services are rationally explainable by a number of variables relating to the need for these services, the ability of these services to be provided by the auditor and by the willingness of the client to buy from the auditor. If the real underlying explanation of purchase and supply of these services is related to lowering the independence of the auditor (the concern of regulators), then one would expect the variable “lowering auditor independence” to be the major driver of APNAS. If this variable were indeed as important as some would argue then the amount of APNAS explainable by the variables used in this study would be low or even zero. The amount of APNAS explainable by the model developed in this paper is not insignificant.

Second, this study has shown that a considerable amount of APNAS is explainable by a number of auditor and auditee characteristics that are theoretically defensible (that

is, by the first two “arms” of our model). Thus, it can be argued that the only portion of the variability of APNAS fees that may be of concern in relation to auditor independence is to be found in the residual in the model (and it is this residual that we partially model in our third “arm”). Put another way, that portion which is not rationally explainable by a model such as that which is developed in the present study is the portion that *may* impact on independence. The implication of this is that studies that focus on auditor independence or that argue that raw NAS or APNAS is a measure of auditor quality (through the presence or absence of independence) need to consider taking as the dependent variable the residual value of explanatory models rather than the raw NAS fees measure.

In conclusion, the present study has proposed a model to assist in our understanding of the levels of APNAS purchased by large publicly listed Australian companies. Its impact may be most significant in assisting future research by recognizing that portion of APNAS which is reasonably explainable and that which remains unexplained.

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Table 1

Growth in APNAS Fees for “Top 1,000” Australian Companies

Year	Number of Companies	Audit fees (\$'000)	APNAS fees (\$'000)	Total Fees (\$'000)	APNAS/Audit (%)
1990	1,231	178,509	106,885	285,394	60%
1991	1,095	169,043	95,375	264,418	56%
1992	998	166,184	121,500	287,684	73%
1993	1,008	179,938	130,046	309,984	72%
1994	1,117	169,235	142,509	311,744	84%
1995	1,120	168,700	150,301	319,002	89%
1996	1,112	169,787	183,265	353,051	108%
1997	1,111	175,814	181,622	357,435	103%
1998	1,140	197,358	228,839	426,197	116%
1999	1,162	189,759	226,506	416,265	119%

Source: The data for this table was kindly provided by Prof Allen Craswell, Editor, *Who Audits Australia?* Accounting Foundation, University of Sydney, 2000

Table 2

Percentage APNAS fees by Auditor and by Industry (1997 data)

ASX Code	Industry Group Name	No. of coys in industry	AA	C&L	DTT	E&Y	KPMG	PW	BDO Nelson Parkhill	All others	Total
10	Gold	61	20.7%	29.6%	6.2%	22.3%	5.6%	9.1%	1.0%	5.6%	100%
20	Other metals	28	0.5%	58.9%	0.0%	5.9%	13.6%	14.2%	0.0%	6.9%	100%
30	Diversified resources	3	68.9%	0.0%	0.0%	0.0%	31.1%	0.0%	0.0%	0.0%	100%
40	Energy	28	18.0%	16.0%	3.3%	13.0%	43.9%	2.0%	0.5%	3.3%	100%
50	Infrastructure & utilities	4	17.2%	0.0%	77.4%	5.4%	0.0%	0.0%	0.0%	0.0%	100%
60	Developers & contractors	22	0.8%	16.8%	0.2%	7.6%	69.1%	1.6%	0.0%	4.0%	100%
70	Building materials	14	6.8%	38.4%	6.7%	0.0%	44.7%	0.1%	0.0%	3.3%	100%
80	Alcohol & tobacco	9	0.0%	18.0%	0.4%	0.4%	0.6%	79.8%	0.8%	0.0%	100%
90	Food & household	14	0.0%	47.7%	0.0%	2.2%	30.8%	10.4%	1.4%	7.4%	100%
100	Chemicals	6	0.0%	15.4%	0.0%	0.0%	66.0%	13.2%	0.0%	5.4%	100%
110	Engineering	11	8.2%	21.1%	0.0%	35.6%	19.1%	0.0%	4.7%	11.2%	100%
120	Paper & packaging	4	5.4%	10.6%	0.0%	0.0%	84.0%	0.0%	0.0%	0.0%	100%
130	Retail	17	18.1%	0.0%	3.0%	16.7%	1.2%	35.5%	23.3%	2.3%	100%
140	Transport	7	0.0%	0.0%	8.4%	0.0%	90.1%	0.0%	0.0%	1.5%	100%
150	Media	19	60.8%	0.3%	2.7%	22.4%	7.5%	2.0%	0.0%	4.3%	100%
160	Banking & finance	14	0.0%	7.6%	0.0%	10.7%	77.1%	2.5%	0.0%	2.1%	100%
170	Insurance	9	20.8%	51.6%	9.6%	0.0%	10.0%	8.1%	0.0%	0.0%	100%
180	Telecommunications	7	0.0%	3.2%	21.1%	56.5%	0.0%	0.0%	0.0%	19.2%	100%
190	Investment & financial services	54	1.8%	1.2%	12.3%	22.5%	43.7%	5.5%	0.1%	13.0%	100%
210	Health care & biotechnology	16	1.2%	0.0%	12.0%	20.8%	33.8%	25.2%	3.6%	3.4%	100%
220	Miscellaneous industrials	52	6.7%	21.6%	36.5%	4.8%	8.8%	15.9%	0.6%	5.2%	100%
230	Diversified industrials	15	3.7%	0.0%	7.8%	16.2%	49.1%	22.6%	0.6%	0.0%	100%
240	Tourism & leisure	18	22.1%	22.8%	5.4%	39.2%	4.5%	4.5%	0.0%	1.5%	100%
NAS fee shares over 15% are displayed in bold .											

Table 3**Summary of Variables Used in Regression Equations**

Variable Name	Variable Type	Sign	Variable definition
LnAPNAS	Ratio		Natural log of NAS fees paid to auditor & associates (\$'000).
LnTASSETS	Ratio	+	Natural log of book value of total assets (\$'000).
LnALLSUBS	Ratio	+	Natural log of total of all subsidiaries.
RESTRUCT	Nominal (dichotomous)	+	Set to one (1) if expenditure relating to “restructurings” is disclosed in the statement of profit and loss, and/or if such activities are referred to elsewhere in the annual report as being significant events taking place in current year. Otherwise set to zero (0).
NEWCEO	Nominal (dichotomous)	+	Set to one (1) if the company has appointed a new CEO or MD during the period under review. Otherwise set to zero (0).
NEWISS	Nominal (dichotomous)	+	Set to one (1) if the company has issued stocks or equity for cash and/or has listed on another exchange during the current year. Otherwise set to zero (0).
NEGROI	Ratio	-	Takes the value of the two-year average ROI (operating profit before tax divided by book value of total assets at year end) if, and only if, that value is negative. Otherwise is set to zero (0).
INDSPEC	Nominal (dichotomous)	+	Set to one (1) if the auditor is a NAS industry specialist (defined as an audit firm that commands 15% or more of the NAS provided by all auditors to their top 500 clients in that industry). Otherwise set to zero (0).
INDLEAD	Nominal (dichotomous)	+	Set to one if the auditor is a NAS industry leader (defined as an audit firm that is the largest supplier of NAS provided by all auditors to their top 500 clients in that industry). Otherwise set to zero (0).
AUDIT FEE (residual)	Ratio	+	Residual of the audit fees when variability of fees as explained by client size, complexity, auditor specialization.
DISPERSION	Nominal (dichotomous)	-	Set to 1 if proportion of stock held by top 5 stockholders was less than 20% (also 10%, 15%, 25% and 30% were tested).
LEVERAGE	Ratio	-	Ratio of the book value of the company’s interest bearing debt to the total book value of its stockholders’ equity.
POLCOSTS	Nominal (dichotomous)	-	Set to one (1) if the company operates in a high political cost environment. Otherwise set to zero (0).
BOARD % NON-EXEC	Ratio	+	Percentage of board that are not from auditee’s management.
BOARD MEETINGS	Ratio	+	Number of times the board of directors is reported to have met in financial year 1997.
AUDIT COMM % NON-EXEC	Ratio	+	Percentage of audit committee that is not from auditee’s management.
AUDIT COMM MEETINGS	Ratio	+	Number of times audit committee is reported to have met in financial year 1997.

Table 4**Descriptive Statistics - Regression Variables (1997 Data)**

	N	Minimum	Maximum	Mean		Std. Dev.
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
APNAS (\$000)	432	0.00	22,875	329	61.2	1,271
APNAS (Ln)	432	0.00	10.04	3.99	0.099	2.06
Total ASSETS (\$000)	432	1,198	201,969,000	2,326	706	14,670
Total ASSETS (Ln)	432	7.09	19.12	12.12	0.087	1.81
SUBSIDIARIES (No.)	432	1.00	780	27.639	2.734	56.82
SUBSIDIARIES (Ln)	432	0.00	6.66	2.30	0.070	1.46
RESTRUCTURE	432	0	1	0.24	0.021	0.43
NEW CEO	432	0	1	0.010	0.014	0.30
NEW ISSUE	432	0	1	0.27	0.021	0.44
NEG ROI	432	(1.21)	0.00	(0.04)	0.006	0.12
AUDIT FEE (residual)	432	(2.73)	5.899	0.00	0.048	1.00
INDUSTRY SPECIALIST	432	0	1	0.35	0.023	0.48
INDUSTRY LEADER	432	0	1	0.20	0.019	0.40
AUDIT FEE (\$)	432	.00	5901	290.63	32.161	668.46
AUDIT (Ln)	432	(9.21)	8.68	4.56	0.073	1.54
DISPERSION 10%	432	0.00	1.00	0.018	0.006	0.14
DISPERSION 20%	432	0.00	1.00	0.043	0.009	0.21
DISPERSION 25%	432	0.00	1.00	0.090	0.014	0.29
DISPERSION 30%	432	0.00	1.00	0.155	0.017	0.36
LEVERAGE	432	0.00	1.00	0.646	0.0023	0.48
POLITICAL COSTS	432	0.00	1.00	0.465	0.024	0.50
BOARD % NON-EXEC	432	0	100	69.52	0.96	19.84
BOARD MEETINGS	432	0.00	35	12.019	0.233	4.84
AUDIT COMMITTEE % NON-EXEC	432	0	100	76.98	1.62	33.62
AUDIT COMMITTEE MEETINGS	432	0.00	12	2.979	0.097	2.02

Table 6

Regression Results Regression: Auditor Provided Non-Audit Service Fees as Explained by Auditee Need, Supplier Industry Specialization, Auditee Willingness to Appoint and Control Variable (Size)

Variables	Predicted sign	Std Coeff (Beta)	t Statistic	Probability (1-tailed)
Dependent variable LnAPNAS				
(Constant)			(6.148)	0.000
Experimental Variables				
Ex Ante Need				
LnTASSETS	+	0.451	8.694	0.000
LnALLSUBS	+	0.166	3.328	0.001
RESTRUCT	+	0.103	2.940	0.002
NEWCEO	+	0.016	0.492	0.312
NEWISS	+	0.047	1.406	0.080
NEGROI	-	(0.042)	(1.201)	0.115
AUDITFEE (Residual)	+	0.144	4.099	0.000
Supply				
INDSPEC	+	0.119	3.625	0.000
Willingness to Appoint				
LEVERAGE	-	0.010	0.283	0.388
DISPERSION	-	(0.094)	(2.564)	0.006
POLCOSTS	-	(0.111)	(3.310)	0.001
BOARD % NON-EXEC	+	0.013	0.345	0.365
BOARD MEETINGS	+	0.109	3.233	0.001
AUDIT COMM % NON-EXEC	+	0.115	2.749	0.003
AUDIT COMM MEETINGS	+	(0.013)	(0.317)	0.376
Adjusted R ²		0.584		
F statistic (significance)		40.946 (0.000)		
Durbin-Watson		1.871		
Sample size		429		

¹ See for example, Simunic (1984).

² See for example, Simunic (1984) and Beck, Frecka and Solomon (1988a)

³ See for example Dechow, P. and Sloan, R. (1991) "Executive incentives and the horizon problem", *Journal of Accounting and Economics*, 14 (March): 51-89

⁴ Francis, J., Stokes, D. and Anderson, D. (1999) "City markets as a unit of analysis in audit research and the re-examination of Big 6 market shares", *Abacus*, 35 (2) and Defond, M., Francis, J. and Wong (1998) "Auditor industry specialisation and market segmentation by Big 6 and non-Big 6 accounting firms", Unpublished Working Paper, University of Missouri.

⁵ Some early research in the US indicates that there may be a relationship between the level of NAS and both the level of independent director members of Audit Committees and the frequency of Audit Committee meetings (Abbott et al., 2001)

⁶ Note in this model dispersion is measured as a dummy variable (1 if the top 5 stockholders own 20% or more of the issued stock). The result remains significant up until that percentage reaches 25%, then becomes insignificant.