

## AUDITOR INDEPENDENCE IN NEW ZEALAND: FURTHER EVIDENCE ON THE ROLE OF NON-AUDIT SERVICES

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### ABSTRACT

*Non-audit services provided by auditors to their audit clients continue to be a controversial issue around the world. While research evidence has not usually shown that auditors lose their independence when providing non-audit services, the risk that they could do so is still a concern to regulators and financial report users. However, after changes to the environment of auditing, including new regulation, it may be that the situation has changed. This paper examines whether there is a relationship between non-audit services and the loss of independence for publicly listed New Zealand companies in 2011. The results using three tests – audit fees, audit opinion and auditor tenure – show that there is no impairment of independence with respect to audit fees and auditor tenure. However, there is some evidence of impaired auditor independence in relation to the audit opinion.*

✦ Auditor Independence; New Zealand; Non-audit Services; Regulatory change

JEL codes: G18, L84, M41

### INTRODUCTION

This paper examines the effect of non-audit services on auditors' independence in a New Zealand setting. A prior study (Hay *et al.*, 2006a), investigates this issue using data from 1999 to 2001. However, since then, there have been major regulatory developments and changes in the profession. These regulatory changes in New Zealand (outlined below) strengthened independence requirements and are likely to mitigate any impairment caused by the provision of non-audit services. It is possible that as time passed and as the aftermath of the early twenty-first century

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scandals faded, the scrutiny surrounding non-audit services also subsided. Consequently, the issue of non-audit service provision may have arisen again, causing a detrimental effect on auditor independence. Moreover, non-audit services may be faced with less scrutiny in New Zealand due to the lack of similar audit failures where non-audit services were controversial. Therefore, it is insightful to re-examine the issue of non-audit services in the current New Zealand environment.

In 2002, the Sarbanes-Oxley (SOX) Act significantly altered the dynamics of audit and non-audit services by prohibiting the provision of certain non-audit services by the incumbent auditor. In October 2003, the New Zealand Stock Exchange (NZX) adopted a *Corporate Governance Best Practice Code* for all issuers (Dodd & Rainsbury, 2007). It requires the Board to monitor any other services provided by the auditor to ensure that independence has not been impaired. In 2004, the New Zealand Securities Commission (NZSC) followed suit by issuing corporate governance guidance of similar effect to the NZX listing rules (Griffin *et al.*, 2009). Similarly, the New Zealand Institute of Chartered Accountants (NZICA) strengthened independence requirements through its *Code of Ethics* in 2004 (Dodd & Rainsbury, 2007). More recently, New Zealand adopted International Financial Reporting Standards (2007), International Standards on Auditing (2008), and in 2012, the New Zealand Auditing and Assurance Standards Board is preparing to adopt the revised *Code of Ethics* set by the International Ethics Standards Board for Accountants (Griffin *et al.*, 2009; Cherry, 2012). There were also legislative reforms to the New Zealand audit environment which concentrated on registration and licensing of auditors, and independent oversight, rather than restricting non-audit services (Davis & Hay, 2012).

Non-audit services are often claimed to impair an auditor's independence (SEC, 2001). This is because the joint provision of audit and non-audit services will strengthen the economic bond between the auditor and auditee (Simunic, 1984). Such an economic bond may impair auditor independence as the auditor fails to act with the required objectivity and scepticism of an independent third party.

Our paper investigates the relationship between non-audit services and loss of independence in three ways. First, many argue that auditors lower their audit fees in order to sell more of their lucrative non-audit services (Hay *et al.*, 2006a) (the "loss leader" argument). This implies a negative relationship, however prior research has not found this to be the case. Second, auditors providing non-audit services may be less inclined to qualify or modify the audit opinion in order to avoid subsequent dismissal (Craswell, 1988) (the "soft audit opinion argument). Previous studies have provided mixed evidence on the relationship between non-audit fees and audit opinion. Finally, the provision of non-audit services may be subject to the continuation of an audit relationship with the client (Schneider *et al.*, 2006) (the "tame auditor" argument). Thus, the auditor may be more

accommodating to management's wishes and the company is less likely to switch auditors. Most studies that have investigated this issue found no relationship between auditor tenure and non-audit services.

The data consist of 99 companies listed on the NZX and New Zealand Alternative Market (NZAX) in 2011. Overall, the results show that the joint provision of audit and non-audit services do not impair an auditor's independence. Audit fees are positively related to non-audit fees. This is consistent with prior research documenting the perplexing positive relationship. However, Whisenant *et al.* (2003) showed that audit and non-audit fees are jointly determined and that single-equation models suffer from simultaneity bias. As such, a two-stage least squares regression is also conducted. Consistent with Whisenant *et al.* (2003), there is no relationship between audit and non-audit fees using a two-stage least squares regression, indicating that they are jointly determined. Results also show a statistically insignificant relationship between non-audit fees and the likelihood of a company changing auditors. Additional analysis substituting auditor change for auditor tenure also yields similar results. This indicates that an auditor's independence is not impaired in terms of audit fees and auditor change/tenure.

However, analysis of the relationship between non-audit fees and audit opinion provides evidence of a negative relationship. That is, the provision of non-audit services lowers the likelihood of an auditor qualifying or modifying the audit opinion – evidence of impaired auditor independence. Further investigation into this relationship shows that the negative association between non-audit fees and audit opinion is driven by companies audited by non-Big 4 auditors. This suggests that smaller auditors are more likely to succumb to the pressures of management by issuing clean audit opinions in order to continue to sell non-audit services. Lastly, sensitivity analyses show that the results are robust to the exclusion of outliers and alternative variable specifications.

Our study contributes to the continuing debate over whether or not non-audit services actually do have detrimental effects on auditor independence. Existing literature on this matter proves to be mixed, providing inconsistent results. Further research is necessary to provide a clearer view on how these ancillary services may affect auditor independence and whether it is possible for one side of the debate to take precedence over the other. In addition, the results of this paper can be used as one piece of evidence for evaluating the effectiveness of the regulatory reforms in the past decade. Results show that although non-audit services do not generally impair the auditor's independence, there is some evidence that smaller audit firms are more reluctant to modify or qualify the audit opinion when they receive a high level of non-audit fees in comparison to audit fees. In this respect, regulatory reforms in New Zealand fall short in mitigating the possible effects of non-audit services on an auditor's independence. This issue is of particular importance because whether or not a company receives a clean audit opinion is a key signal to

investors. Given that New Zealand is in the midst of strengthening independence requirements, it seems that more stringent professional standards may be warranted.

## **1. PAST LITERATURE AND HYPOTHESES DEVELOPMENT**

Past literature provides very mixed and inconclusive evidence on the relationship between audit and non-audit fees. It is argued that auditors will accept lower audit fees in order to sell more of their lucrative non-audit services, implying a negative relationship (Hay *et al.*, 2006a). This may impair auditor independence. It is also argued that non-audit services are used as a means to recover low-balled audit fees, essentially cross-subsidising audit services (Patel *et al.*, 2009). However, such a negative relationship may be due to knowledge attained through the provision of non-audit services which ‘spill-over’ to the audit side, leading to increased efficiency and lowering audit fees (Simunic, 1984). Wu (2006) speculates that there is a trade-off between price reductions and knowledge spill-overs. Using a model of oligopolistic competition in the audit and consulting markets, he illustrates that competitive behaviour in one market will lead to similar behaviour in the other. Wu (2006) argues that the two economic forces of price reduction and knowledge spill-overs jointly determine the relationship between audit and non-audit fees.

Regardless of the explanation for the negative association, few studies have found this to be the case. Conversely, the majority of prior research documents a positive relationship between audit and non-audit fees (Simunic, 1984; Simon, 1985; Palmrose, 1986; Firth, 1997; Hay *et al.*, 2006a). Dopuch *et al.* (2003) finds that the positive correlation between audit and non-audit fees is not caused by knowledge spill-overs. Their study shows that the provision non-audit services do not have any effect on audit hours, inconsistent with the contention that knowledge spill-overs increase audit efficiency.

Turpen (1995) summarises four potential explanations for the perplexing positive relationship observed. First, non-audit engagements consisting of systems design or modification will create changes in the client’s organisation and thus may require additional audit effort. Second, firms seeking non-audit services in addition to audit services might be experiencing unusual problems (Simunic, 1984). For example, financial distress motivates firms to seek managerial assistance. Additionally, auditors will also exert more scrutiny and require more rigorous testing for distressed firms. Third, the positive relationship might simply reflect more complex firms as they require greater audit effort and have an increased demand for non-audit services. And finally, the direction of the relationship may be dependent on the recurring or non-recurring nature of non-audit services (Beck *et al.*, 1988a).

In this respect, the lack of competition for non-recurring non-audit services may drive the positive association (Turpen, 1995).

Firth (2002) asserts that the positive relationship stems from company-specific events which cause a demand for non-audit services as well as requiring additional audit effort. This relates to the 'problem firm' explanation. Thus, when such events do not exist, Firth (2002) found no statistically significant relationship between audit fees and non-audit fees. From an audit production perspective, Hackenbrack & Knechel (1997) find that audit clients purchasing management advisory services (MAS) consume more audit hours for planning activities. Their results support the 'organisational change' explanation in which such changes (caused by MAS) require additional audit effort to adapt the audit process, resulting in additional audit fees. Hackenbrack & Knechel (1997) also discount the 'problem firm' explanation because MAS-purchasing clients did not require additional effort in terms of the actual audit fieldwork.

A study by Whisenant *et al.* (2003) makes a substantial contribution to the literature on the relationship between audit and non-audit fees. The study shows that audit and non-audit fees are jointly determined, in which neither directly influences the other. Consistent with prior research, they found a positive association using a single-equation model. However, when a simultaneous fee specification model was employed, no significant association was found. This finding is strongly suggestive that previous studies suffer from simultaneous-equations bias (Whisenant *et al.*, 2003). Two subsequent studies offer diverging results from those reported by Whisenant *et al.* (2003). Antle *et al.* (2006) and Hay *et al.* (2006a) find a positive relationship between audit and non-audit fees using a jointly determined model. They not only provide evidence of knowledge spillovers from non-audit services to audit services, but also from audit services to non-audit services. In contrast, Krishnan & Yu (2011) document a negative relationship after controlling for simultaneity bias, inconsistent with both Whisenant *et al.* (2003) and Antle *et al.* (2006).

Overall, most studies find a positive relationship between audit and non-audit fees while a few studies find no relationship or a negative relationship. This is consistent with a recent literature review (Causholli *et al.*, 2010). A meta-analysis into this relationship showed that the overall results are strongly and significantly positive (Hay *et al.*, 2006b). Despite the results of the meta-analysis, the relationship between audit and non-audit fees still remains complex and undecided. Nevertheless, this leads to the following hypothesis:

*H<sub>1</sub>: Audit fees and non-audit fees are positively related.*

Another common test of auditor independence is the propensity to issue a modified or qualified audit opinion. The joint provision of audit and non-audit services may impair auditor independence in which the auditor is less likely to disagree with management (Simunic, 1984). A modified or qualified audit opinion is often an

indication of unresolved differences between the auditor and management. Because auditors are more likely to be dismissed after modifying or qualifying the opinion (Craswell, 1988), an auditor providing large amounts of non-audit services will bear a greater economic loss upon dismissal. This suggests that auditors receiving higher non-audit fees will be less inclined to modify or qualify their audit opinions – a negative relationship.

Again, past literature provides conflicting evidence. Wines (1994), Sharma & Shidhu (2001), Firth (2002), Basioudis *et al.* (2008) and Fargher & Jiang (2008) all provide evidence of a negative relationship, consistent with the expectation that the provision of non-audit services will yield more favourable audit opinions. Alternatively, Firth (2002) argues that the documented negative relationship might be due to consultancy services clearing up problems at the firm, leading to (warranted) cleaner audit opinions. However, due to data limitations, he is unable to ascertain which explanation drives the negative relationship.

A number of studies have also found no significant association between non-audit fees and opinion modification or qualification (Barkess & Simnett, 1994; Craswell, 1999; DeFond *et al.*, 2002; Geiger & Rama, 2003; Hay *et al.*, 2006a; Callaghan *et al.*, 2009). These studies indicate that non-audit services do not have a detrimental effect on auditor independence.

At the other end of the spectrum, a few studies have actually documented a positive relationship, implying that non-audit services leads to more scrutinising audit opinions (Houghton & Jubb, 1999; Lennox, 1999; Lim & Tan, 2008; Robinson, 2008). The provision of tax services, in particular, has been linked to more accurate going concern opinions (Robinson, 2008), advocating the existence of knowledge spill-overs. Houghton & Jubb (1999) investigate the relationship from an audit production costs perspective. They argue that audit qualifications are associated with increased costs, of which sometimes are not reflected in the audit fees due to billing constraints for audit services. Conversely, the additional audit costs may be recouped through billing for non-audit services due to its more flexible and less price-sensitive nature (Houghton & Jubb, 1999). They find a positive association between opinion qualification and non-audit fees as evidence of their recoupment argument. Thus, the results from their study indicate that a positive relationship does not necessarily point to improved auditor independence, but may simply reflect the auditor's attempt to recoup their audit effort via billing for non-audit services.

In summary, the majority of extant research reports a negative relationship or an insignificant relationship. A meta-analysis of the literature concludes that there is a negative relationship between non-audit fees and the issuance of modified or qualified audit opinions, resulting in the hypothesis:

*H<sub>2</sub>: Non-audit fees and the issuance of modified or qualified audit opinions are negatively related.*

Finally, we investigate the relationship between non-audit services and auditor tenure. The joint provision of audit and non-audit services increases the economic bond between the auditor and the firm. This has two dimensions. First, non-audit services are more profitable as they are more flexible and less price-sensitive than audit services (Houghton & Jubb, 1999). Second, the firm might receive higher quality non-audit services from the incumbent auditor due to knowledge spill-overs (DeBerg *et al.*, 1991). Concerns regarding auditor independence are more related to the former aspect of the economic bond. If the provision of non-audit services by an auditor is contingent on maintaining an audit relationship with the firm (Schneider *et al.*, 2006), then the auditor may be more accommodating to managers' wishes in a bid to secure future non-audit work. This compromises the auditor's independence. Thus, firms acquiring more non-audit services are less likely to switch auditors as their auditors are more compliant. This suggests a positive relationship between non-audit services and auditor tenure.

Relatively few studies have empirically investigated this relationship. Beck *et al.* (1988b), DeBerg *et al.* (1991), Iyer & Rama (2004) and Hay *et al.* (2006a) have all failed to find a significant association between auditor tenure and non-audit fees. These papers demonstrate that the provision of non-audit services has no effect on auditor independence. On the other hand, Ghosh *et al.* (2005) and Patel *et al.* (2009) document a positive association; however, they suggest that their results show evidence of economic efficiency and knowledge spill-overs, not impairment of independence. Ye *et al.* (2011) finds that lengthy auditor tenure (amongst other factors) is associated with increased non-audit services. This gives rise to the third hypothesis:

*H<sub>3</sub>: Non-audit fees and auditor tenure are positively related.*

## **2. SAMPLE SELECTION AND RESEARCH DESIGN**

### *Sample Selection*

The sample is drawn from all companies listed on the NZX and NZAX as at 31 December, 2011. Companies in the financial services sector have been excluded from this study consistent with prevailing trends. Financial statement information for the 2011 financial year has been sourced from Compustat Global.<sup>1</sup> Audit-related information is hand collected from the companies' annual reports. Any financial statement information stated in foreign currency is translated into New Zealand dollars using exchange rates derived from Factiva. Industries to which the companies belonged were identified using SIC and GIC codes where possible, or otherwise from the industry classification on NZX Company Research.

A total of 133 companies were listed in New Zealand as at 31 December, 2011, of which 23 are listed on the NZAX. After excluding 28 financial services companies and 6 companies with missing information, the final sample for this study comprises of 99 companies, of which 15 are listed on the NZAX.

Table 1 illustrates the sample selection.

*Table 1. Sample selection*

	Number of Observations
Companies listed on the NZX	110
Companies listed on the NZAX	23
Total listed companies	133
Exclude financial services companies	(28)
Exclude companies with missing information	(6)
<b>Final Sample</b>	<b>99</b>

*Research Models*

To examine the relationship between audit fees and non-audit fees ( $H_1$ ), we estimate an audit fee model following Hay *et al.* (2006a). Control variables for firm size, risk and complexity are the norm in prior research and thus are included in the model. The variable of interest is the natural log of non-audit fees in the following multivariate regression model:

$$\ln(AF) = \beta_0 + \beta_1 \ln(NAF) + \beta_2 \ln(TA) + \beta_3 INVREC + \beta_4 SQRTSUB + \beta_5 ROA + \beta_6 TD/TA + \beta_7 CA/CL + \beta_8 BIG4 + \beta_9 OPINION + \beta_{10} NZAX + \varepsilon \quad (1)$$

where:

- $\ln(AF)$  Natural log of audit fees;
- $\ln(NAF)$  Natural log of non-audit fees plus 1;<sup>2</sup>
- $\ln(TA)$  Natural log of total assets;
- $INVREC$  Ratio of the sum of inventory and accounts receivables to total assets;
- $SQRTSUB$  Square root of the number of subsidiaries;
- $ROA$  Return on assets as calculated as the ratio of EBIT to total assets;
- $TD/TA$  Ratio of total liabilities to total assets;
- $CA/CL$  Ratio of current assets to current liabilities;
- $BIG4$  An indicator variable equal to 1 if Big 4 auditor, 0 if otherwise;
- $OPINION$  An indicator variable equal to 1 if the audit opinion is modified or qualified, 0 if otherwise.
- $NZAX$  An indicator variable equal to 1 if the company is listed on the NZAX, 0 if otherwise.



As indicated by Whisenant *et al.* (2003), audit and non-audit fees are jointly determined and thus the relationship calls for a model that considers their simultaneity. We extend the previous test by employing a two-stage least squares approach as follows:

$$\ln(N\hat{A}F) = \beta_0 + \beta_1 \ln(TA) + \beta_2 INVREC + \beta_3 SQRTSUB + \beta_4 ROA + \beta_5 TD/TA + \beta_6 CA/CL + \beta_7 BIG4 + \beta_8 OPINION + \beta_9 NZAX + \varepsilon \quad (2)$$

$$\ln(AF) = \beta_0 + \beta_1 \ln(N\hat{A}F) + \beta_2 \ln(TA) + \beta_3 INVREC + \beta_4 SQRTSUB + \beta_5 ROA + \beta_6 TD/TA + \beta_7 CA/CL + \beta_8 OPINION + \beta_9 NZAX + \varepsilon \quad (3)$$

Equation (2) is used to estimate the value of non-audit fees which is not influenced by audit fees,  $\ln(N\hat{A}F)$ . This is then used as a substitute for  $\ln(NAF)$  in equation (1), thus forming equation (3) – a jointly determined model. It is also required that one variable that is present in equation (2), is not present in equation (3) to prevent exact multicollinearity. Consequently, we follow Hay *et al.* (2006a) and eliminate *BIG4* from equation (3), as it appears to be more closely related to non-audit fees than audit fees.

To test the relationship between non-audit fees and audit opinion modification or qualification ( $H_2$ ), we employ a logistic regression to examine the effect of non-audit fees on the propensity to issue a modified or qualified opinion. The variable of interest is the ratio of non-audit fees to audit fees in the following regression:

$$OPINION = \beta_0 + \beta_1 NAF/AF + \beta_2 \ln(TA) + \beta_3 INVREC + \beta_4 FEEDEP + \beta_5 ROA + \beta_6 TD/TA + \beta_7 BIG4 + \beta_8 SQRTSUB + \beta_9 NZAX + \varepsilon \quad (4)$$

where the variables are defined as above, except:

<i>NAF/AF</i>	The ratio of non-audit fees to audit fees;
<i>FEEDEP</i>	Fee dependence as calculated as the ratio of total fees the company pays to its auditor (audit and non-audit fees), to the total fees received by the auditor (audit and non-audit fees) from all their clients (within the data examined).

In addition, we follow Hay *et al.* (2006a) by testing  $H_2$  using a model with non-audit fees as the dependent variable and audit fees and audit opinion as independent variables. An indicator variable is included for companies in the mining and exploration industry. The variable of interest is the indicator variable for audit opinion.

$$\ln(NAF) = \beta_0 + \beta_1 \ln(TA) + \beta_2 \ln(AF) + \beta_3 OPINION + \beta_4 BIG4 + \beta_5 MINING + \beta_6 NZAX + \varepsilon \quad (5)$$

where the variables are defined as above, except:

<i>MINING</i>	An indicator variable equal to 1 if the company is in the mining and exploration industry, 0 if otherwise.
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To test the relationship between non-audit fees and auditor tenure, we follow Hay *et al.* (2006a) and employ three methods. First, we estimate a non-audit fee model to examine whether a change in auditor affects the level of non-audit fees and including control variables for size, audit fees, Big 4 auditor and industry. The variable of interest is the dichotomous auditor change variable. The model is as follows:

$$\ln(NAF) = \beta_0 + \beta_1 CHANGE + \beta_2 \ln(TA) + \beta_3 \ln(AF) + \beta_4 OPINION + \beta_5 BIG4 + \beta_6 MINING + \beta_7 NZAX + \varepsilon \quad (6)$$

where the variables are defined as above, except:

*CHANGE* An indicator variable equal to 1 if the company changed auditors in the last five years (from the 2007 financial year to the 2011 financial year, inclusive), 0 if otherwise.

Second, a logistic regression is used to test the relationship between non-audit fees and auditor change. The variable of interest is the ratio of non-audit fees to audit fees in the model below:

$$CHANGE = \beta_0 + \beta_1 NAF/AF + \beta_2 \ln(TA) + \beta_3 OPINION + \beta_4 BIG4 + \beta_5 ROA + \beta_6 CA/CL + \beta_7 TD/TA + \beta_8 NZAX + \varepsilon \quad (7)$$

Third, we compare the level of non-audit fees to audit fees (*NAF/AF*) between companies that changed auditors in the last 5 years (test group) and companies that did not (control group). A company from the control group is matched to each company from the test group based on comparable size, EBIT and leverage. A paired sample t-test is employed to test the relationship between non-audit fees and auditor change.

Finally, as part of the sensitivity analyses, we substitute the dichotomous auditor change variable for a continuous auditor tenure variable in equations (6) and (7), measuring the length of auditor-client relationship in the last 5 years, where the variables are defined as above, except:

*TENURE* The length of the relationship between the current auditor and the audited company in the last five years.

### 3. RESULTS

#### *Descriptive Statistics*

Table 2 reports the descriptive statistics for the sample.

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*Table 2. Descriptive statistics*

	N	Mean	Median	Std. Deviation	Minimum	Maximum
Audit Fees (\$000)	99	270.24	120.61	476.11	9	3,066
Non-audit Fees (\$000)	99	139.90	27.00	357.62	0	2,851
NAF/AF	99	0.4331	0.2328	0.6127	0.0000	3.5000
FEEDEP	99	0.1212	0.0291	0.2175	0.0017	1.0000
Total Assets (\$000)	99	671,504	112,094	1,461,721	107	7,492,000
INVREC	99	0.2238	0.2087	0.1891	0.0009	0.7520
ROA	99	-0.0941	0.0635	0.8841	-7.0425	1.5435
TD/TA	99	0.5737	0.4715	0.7745	0.0029	6.7757
CA/CL	99	1.9304	1.4414	1.9883	0.1270	12.2019
Subsidiaries	99	10.36	6.00	10.696	0	59
TENURE	99	4.58	5.00	1.051	1	5
CHANGE	99	0.13	0.00	0.339	0	1
OPINION	99	0.14	0.00	0.350	0	1
MINING	99	0.04	0.00	0.198	0	1
BIG4	99	0.84	1.00	0.370	0	1
NZAX	99	0.15	0.00	0.360	0	1
<i>Notes:</i>						
<p>NAF/AF: the ratio of non-audit fees to audit fees; FEEDEP: fee dependence as calculated as the ratio of total fees the company pays to its auditor to the total fees received by the auditor from all their clients; INVREC: ratio of the sum of inventory and accounts receivables to total assets; ROA: return on assets calculated as the ratio of EBIT to total assets; TD/TA: ratio of total liabilities to total assets; CA/CL: ratio of current assets to current liabilities; TENURE: the length of the relationship between the current auditor and the audited company in the last 5 years; CHANGE: an indicator variable equal to 1 if the company changed auditors in the last 5 years, 0 if otherwise; OPINION: an indicator variable equal to 1 if the audit opinion is modified or qualified, 0 if otherwise; MINING: an indicator variable equal to 1 if the company is in the mining and exploration industry, 0 if otherwise; BIG4: an indicator variable equal to 1 if Big 4 auditor, 0 if otherwise; NZAX: an indicator variable equal to 1 if the company is listed on the NZAX, 0 if otherwise.</p>						

The mean (median) audit fee paid by a company is \$270,240 (\$120,610) and the mean (median) non-audit fee paid by a company to its principal auditor is \$139,900 (\$27,000). The large difference between the mean and median indicates that there are some companies paying very large amounts of audit and non-audit fees. Hence,

the natural log transformation of audit ( $\ln AF$ ) and non-audit fees ( $\ln NAF$ ) is used for the multivariate analyses. The mean (median) ratio of non-audit fees to audit fees ( $NAF/AF$ ) is 0.43 (0.23), again, demonstrating the presence of some large non-audit fees relative to audit fees. The fee dependence ratio has a mean (median) of 0.12 (0.03), indicating that a few auditors have a large dependence on the fees collected from companies within this sample.

Table 2 also provides descriptive statistics for the control variables used in this study. On average, a company has total assets of \$672 million, a ratio of inventories and accounts receivables to total assets of 0.22, return on assets of -9.4%, ratio of total liabilities to total assets of 57.4%, current ratio of 1.93:1 and has 10 subsidiaries. The average auditor tenure is 4.6 years due to the fact that only 13% of the companies in this sample changed auditors in the last 5 years and 14% of the companies received a modified or qualified audit opinion for the 2011 financial year. Four companies in the sample (4%) are in the mining and exploration industry, 84% of the companies are audited by a Big 4 auditor and finally, 15% of the companies are listed in the NZAX.

### *Correlations*

Table 3 shows the Pearson correlations between all dependent and independent variables employed in this study. There is a significant positive correlation between audit fees and non-audit fees (0.704). This provides preliminary evidence that the provision of non-audit services does not impair auditor independence ( $H_1$ ). However, this does not control for other variables or the simultaneous relationship between audit and non-audit fees.

There is a significant negative correlation between non-audit fees and audit opinion (-0.422) and  $NAF/AF$  and audit opinion (-0.246). This provides preliminary evidence supporting  $H_2$ , indicating that higher levels of non-audit fees reduce the occurrence of a modified or qualified audit opinion. This suggests that there may be some impairment of the auditor's independence. Although, no statistically significant correlation exists between non-audit fees and change in auditor (-0.153), there is a significant positive correlation between non-audit fees and auditor tenure (0.228). Thus, the preliminary evidence for  $H_3$  is mixed, with some indication that the dichotomous *CHANGE* variable may be a crude measure of the auditor-client relationship.

Non-audit fees and the number of subsidiaries are positively correlated (0.455) suggesting that as the company increases in complexity, there is a greater volume of non-audit services purchased. This appears to be consistent with the 'complex firm' explanation.  $NAF/AF$  is positively correlated with *BIG4* (0.198), indicating that Big 4 auditors sell more of their non-audit services relative to audit services to their clients than their non-Big 4 counterparts.

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*Table 3. Correlations*

Pearson Correlation														
	ln(AF)	ln(NAF)	ln(TA)	INVREC	CA/CL	TD/TA	ROA	NAF/AF	FEEDEP	SQRTSUB	BIG4	CHANGE	TENURE	OPINION
ln(AF)														
ln(NAF)	.704***													
ln(TA)	.834***	.630***												
INVREC	.170*	.003	-.083											
CA/CL	-.234**	-.135	-.212**	-.053										
TD/TA	-.227**	-.187*	-.384***	-.028	-.277***									
ROA	.208**	.233**	.368***	-.027	.004	-.449***								
NAF/AF	.134	.617***	.236**	-.178*	.034	-.117	.115							
FEEDEP	-.157	-.175*	-.286***	-.043	.143	.162	-.229**	-.139						
SQRTSUB	.675***	.455***	.536***	.055	-.137	-.040	.059	.081	-.015					
BIG4	.439***	.359***	.523***	.073	-.165	-.042	.209**	.198**	-.768***	.185*				
CHANGE	-.218**	-.153	-.207**	.041	.107	.096	-.007	-.040	.069	-.111	-.154			
TENURE	.248**	.228**	.222**	.027	.015	-.139	-.072	.085	-.062	.153	.084	-.643***		
OPINION	-.366***	-.422***	-.474***	.134	.030	.404***	-.497***	-.246**	.381***	-.177*	-.294***	.014	-.002	
MINING	-.241**	-.045	.147	-.232**	.423***	-.130	.037	.195	.266***	-.116	-.328***	-.080	.083	.064

\*\*\*, \*\*, \* denotes significance at the 1%, 5%, 10% levels respectively (2-tailed).

*Table 1. Models of Audit Fees and Non-audit Fees*

<b>Panel A: OLS Regression</b>			
$ln(AF) = \beta_0 + \beta_1 ln(NAF) + \beta_2 ln(TA) + \beta_3 INVREC + \beta_4 SQRTSUB + \beta_5 ROA + \beta_6 TD/TA + \beta_7 CA/CL + \beta_8 BIG4 + \beta_9 OPINION + \beta_{10} NZAX + \varepsilon$			
Independent variables	Coefficient	p-value	VIF
Intercept	0.055	0.904	
ln(NAF)	0.123***	0.000	1.824
ln(TA)	0.322***	0.000	3.695
INVREC	1.351***	0.000	1.164
SQRTSUB	0.171***	0.000	1.634
ROA	-0.085	0.215	1.548
TD/TA	0.056	0.518	1.898
CA/CL	-0.017	0.562	1.379
BIG4	-0.084	0.620	1.654
OPINION	-0.059	0.743	1.702
NZAX	-0.108	0.505	1.435
Adjusted R <sup>2</sup>	0.834		
F-Statistic	50.168***	0.000	
<b>Panel B: Two-stage Least Squares Regression</b>			
$ln(\hat{NAF}) = \beta_0 + \beta_1 ln(TA) + \beta_2 INVREC + \beta_3 SQRTSUB + \beta_4 ROA + \beta_5 TD/TA + \beta_6 CA/CL + \beta_7 BIG4 + \beta_8 OPINION + \beta_9 NZAX + \varepsilon$			
$ln(AF) = \beta_0 + \beta_1 ln(\hat{NAF}) + \beta_2 ln(TA) + \beta_3 INVREC + \beta_4 SQRTSUB + \beta_5 ROA + \beta_6 TD/TA + \beta_7 CA/CL + \beta_8 OPINION + \beta_9 NZAX + \varepsilon$			
Independent variables	Coefficient	p-value	
Intercept	-3.289	0.901	
ln( $\hat{NAF}$ )	-0.956	0.910	
ln(TA)	0.826	0.837	
INVREC	2.212	0.755	
SQRTSUB	0.399	0.821	
ROA	-0.137	0.770	
TD/TA	0.341	0.884	
CA/CL	0.013	0.959	
OPINION	-1.494	0.895	
NZAX	-0.232	0.855	

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Adjusted R <sup>2</sup>	0.191		
F-Statistic	3.563***	0.001	
Number of Observations	99		
<i>Notes: ***, **, * denotes significance at the 1%, 5%, 10% levels respectively (2-tailed).</i>			
ln(AF): natural log of audit fees; ln(NAF): natural log of non-audit fees plus 1; ln(TA): natural log of total assets; INVREC: ratio of the sum of inventory and accounts receivables to total assets; SQRTSUB: square root of the number of subsidiaries; ROA: return on assets calculated as the ratio of EBIT to total assets; TD/TA: ratio of total liabilities to total assets; CA/CL: ratio of current assets to current liabilities; BIG4: an indicator variable equal to 1 if Big4 auditor, 0 if otherwise; OPINION: an indicator variable equal to 1 if the audit opinion is modified or qualified, 0 if otherwise; NZAX: an indicator variable equal to 1 if the company is listed on the NZAX, 0 if otherwise.			

*Hypothesis One: Audit Fees and Non-audit Fees*

Table 4, Panel A displays the results from the OLS regression on the relationship between audit fees and non-audit fees. The variable of interest – non-audit fees, exhibits an estimated coefficient which is positive and significant (0.123). This is consistent with H1 in which audit and non-audit fees are positively related. Notably, this does not support the common contention that audit firms will lower their audit fees in order to sell more of their lucrative non-audit services. The positive relationship between audit fees and non-audit fees provides no indication of impaired auditor independence.

The adjusted R<sup>2</sup> is very high, indicating that 83.4% of the variation in audit fees can be explained by the variation in independent variables. The F-statistic is 50.17 and is significant at the 1% level suggesting that at least some of the independent variables have a relationship with audit fees. Estimated coefficients on *Ln(TA)*, *INVREC* and *SQRTSUB* are all positive and significant, consistent with prior literature. This demonstrates that company size, risk and complexity are positively related to audit fees. In particular, the positive coefficient on *INVREC* (1.351) indicates that this ratio has an increasing effect on audit fees as these accounts are considered to bear more inherent risk and thus require additional auditor effort (Simunic, 1980). Interestingly, *BIG4* and *OPINION* are both insignificant, showing that Big 4 auditors are not associated with higher audit fees and that auditors do not raise fees when there are audit problems. The indicator variable for companies listed in the NZAX is insignificant, thus they are no different from companies listed on the NZX in terms of their audit fees.<sup>3</sup>

However, as suggested by Whisenant *et al.* (2003), audit fees and non-audit fees are jointly determined and simultaneously affect one another. Thus, to examine the relationship between the two, a single-equation model might yield biased results. This creates the need for a simultaneous fee specification model. Consequently, we follow Hay *et al.* (2006a) by employing a two-stage least squares regression to take this into account.

Panel B of Table 4 presents the results from the two-stage least squares regression. The adjusted  $R^2$  has fallen substantially from 83.4% in the single-equation model to 19.1%; however the F-statistic still remains significant. The estimated coefficient on non-audit fees –  $\ln(N\hat{A}F)$ , is no longer statistically significant (p-value = 0.910). This provides evidence on the simultaneous relationship between audit fees and non-audit fees in which they are jointly determined. This result is consistent with Whisenant *et al.* (2003) but is inconsistent with both the positive association found by Antle *et al.* (2006) and Hay *et al.* (2006a) and the negative association documented by Krishnan & Yu (2011). Overall, there appears to be no support for the argument that non-audit services will incentivise auditors to reduce their audit fees thereby compromising independence.

*Hypothesis Two: Non-audit Fees and Auditor Opinion*

Table 5 reports the results from the logistic regression examining the relationship between non-audit fees and audit opinion. Here, the test variable is the ratio of non-audit fees to audit fees ( $NAF/AF$ ) and it is expected that as this ratio increases, the auditor is less likely to modify or qualify the audit opinion, implying a negative relationship. This is supported by the negative estimated coefficient on  $NAF/AF$  (-7.174), significant at the 10% level (p-value = 0.068). The result supports  $H_2$ , indicating that companies purchasing a greater amount of non-audit services from the incumbent auditor will be less likely to receive a modified or qualified audit opinion.

The model has an overall correct classification of 97%. In addition, the Cox & Snell  $R^2$  and the Nagelkerke  $R^2$  shows that between 44.7% and 80.2% of the variation in the dependent variable ( $OPINION$ ) can be explained by the variation in independent variables, providing further support for the adequacy of the model. Out of the control variables, only  $ROA$  is significant (p-value = 0.036). The coefficient is negative (-9.630) unsurprisingly, higher levels of profitability are less likely to yield audit problems which warrant audit opinion modification or qualification. The  $BIG4$  indicator variable is insignificant (0.862), indicating that Big 4 auditors are not more conservative in their audit opinions. Despite the negative relationship between audit opinion and non-audit fees,  $FEEDEP$  is not statistically significant (p-value = 0.148). The expectation is that when the auditor is more financially dependent on the fees (audit and non-audit) obtained from an individual client, they will be incentivised to act more leniently as they have a greater economic bond with them. This type of favouritism may be manifested in a lower likelihood of issuing anything other than clean audit opinions. One way to reconcile the negative  $NAF/AF$  coefficient against the insignificant  $FEEDEP$  coefficient is that auditors' opinions are only affected by non-audit fees and are not affected by the overall fees earned from a particular client. This not only provides support for  $H_2$  but is also indirect evidence of non-audit services being more profitable than audit services, thus having a greater effect on the economic bond between the auditor and the auditee. Sensitivity analyses to address the complications of measuring  $FEEDEP$  are discussed later.



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*Table 2. Logistic Regression: Audit Opinion*

$OPINION = \beta_0 + \beta_1 NAF/AF + \beta_2 \ln(TA) + \beta_3 INVREC + \beta_4 FEEDEP + \beta_5 ROA + \beta_6 TD/TA + \beta_7 BIG4 + \beta_8 SQRTSUB + \beta_9 NZAX + \varepsilon$			
Independent variables	Coefficient	p-value	VIF
Intercept	-4.345	0.408	
NAF/AF	-7.174*	0.068	1.112
ln(TA)	0.089	0.885	3.005
INVREC	3.652	0.343	1.184
FEEDEP	6.001	0.148	3.011
ROA	-9.630**	0.036	1.397
TD/TA	3.817	0.276	1.655
BIG4	0.862	0.809	4.306
SQRTSUB	-1.119	0.157	1.579
NZAX	0.314	0.853	1.375
Model Chi-square	58.653***	0.000	
- 2 log likelihood	22.036		
Overall correct classification	0.970		
Cox & Snell R <sup>2</sup>	0.447		
Nagelkerke R <sup>2</sup>	0.802		
Number of observations	99		
<i>Notes:</i>			
***, **, * denotes significance at the 1%, 5%, 10% levels respectively (2-tailed).			
OPINION: an indicator variable equal to 1 if the audit opinion is modified or qualified, 0 if otherwise; NAF/AF: the ratio of non-audit fees to audit fees; ln(TA): natural log of total assets; INVREC: ratio of the sum of inventory and accounts receivables to total assets; FEEDEP: fee dependence as calculated as the ratio of total fees the company pays to its auditor to the total fees received by the auditor from all their clients; ROA: return on assets calculated as the ratio of EBIT to total assets; TD/TA: ratio of total liabilities to total assets; BIG4: an indicator variable equal to 1 if Big4 auditor, 0 if otherwise; SQRTSUB: square root of the number of subsidiaries; NZAX: an indicator variable equal to 1 if the company is listed on the NZAX, 0 if otherwise.			

**Table 6. OLS Regression: Non-audit Fees and Audit Opinion**

$\ln(NAF) = \beta_0 + \beta_1 \ln(TA) + \beta_2 \ln(AF) + \beta_3 OPINION + \beta_4 BIG4 + \beta_5 MINING + \beta_6 NZAX + \varepsilon$			
Independent variables	Coefficient	p-value	VIF
Intercept	-2.653**	0.012	
ln(TA)	-0.028	0.841	4.272
ln(AF)	1.207***	0.000	3.476
OPINION	-1.104**	0.027	1.304
BIG4	0.429	0.406	1.586
MINING	1.587*	0.059	1.186
NZAX	-0.095	0.838	1.229
Adjusted R <sup>2</sup>	0.517		
F-Statistic	18.496***	0.000	
Number of Observations	99		
<i>Notes:</i>			
***, **, * denotes significance at the 1%, 5%, 10% levels respectively (2-tailed).			
ln(NAF): natural log of non-audit fees plus 1; ln(TA): natural log of total assets; ln(AF): natural log of audit fees; OPINION: an indicator variable equal to 1 if the audit opinion is modified or qualified, 0 if otherwise; BIG4: an indicator variable equal to 1 if Big4 auditor, 0 if otherwise; MINING: an indicator variable equal to 1 if the company is in the mining and exploration industry, 0 if otherwise; NZAX: an indicator variable equal to 1 if the company is listed on the NZAX, 0 if otherwise.			

Table 6 displays the results from the OLS regression investigating the relationship between audit opinion and non-audit fees. *OPINION* is negative (-1.104) and significant at the 5% level, providing further evidence on the negative relationship between non-audit fees and audit opinion. Consistent with the single-equation model in Table 4, Panel A, non-audit fees and audit fees are positively associated (coefficient = 1.207, p-value ≈ 0). The coefficient for *MINING* is positive (1.587) and statistically significant, suggesting that companies in the mining and exploration industry pay higher non-audit fees.

Overall, there is evidence that higher levels of non-audit fees lead to a lower incidence of audit opinion modification or qualification. This suggests that the provision of non-audit services may impair auditor independence when it comes to the auditor's final judgment on the audit.

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**Table 3. OLS Regression: Non-audit Fees and Auditor Change/Tenure**

	$\ln(NAF) = \beta_0 + \beta_1 CHANGE + \beta_2 \ln(TA) + \beta_3 \ln(AF) + \beta_4 OPINION + \beta_5 BIG4 + \beta_6 MINING + \beta_7 NZAX + \varepsilon$			$\ln(NAF) = \beta_0 + \beta_1 TENURE + \beta_2 \ln(TA) + \beta_3 \ln(AF) + \beta_4 OPINION + \beta_5 BIG4 + \beta_6 MINING + \beta_7 NZAX + \varepsilon$		
	CHANGE			TENURE		
Independent variables	Coefficient	p-value	VIF	Coefficient	p-value	VIF
Intercept	-2.703**	0.014		-2.965***	0.009	
CHANGE	0.090	0.848	1.101	-	-	-
TENURE	-	-	-	0.118	0.441	1.114
ln(TA)	-0.028	0.844	4.272	-0.034	0.808	4.286
ln(AF)	1.213***	0.000	3.522	1.181***	0.000	3.547
OPINION	-1.095**	0.030	1.316	-1.150**	0.023	1.323
BIG4	0.438	0.401	1.599	0.416	0.421	1.587
MINING	1.613*	0.060	1.216	1.488*	0.081	1.214
NZAX	-0.102	0.827	1.237	-0.127	0.787	1.238
Adjusted R <sup>2</sup>	0.512			0.515		
F-Statistic	15.693***	0.000		15.870***	0.000	
Number of observations	99			99		
Notes:						
***, **, * denotes significance at the 1%, 5%, 10% levels respectively (2-tailed).						
ln(NAF): natural log of non-audit fees plus 1; CHANGE: an indicator variable equal to 1 if the company changed auditors in the last 5 years, 0 if otherwise; TENURE: the length of the relationship between the current auditor and the audited company in the last 5 years; ln(TA): natural log of total assets; OPINION: an indicator variable equal to 1 if the audit opinion is modified or qualified, 0 if otherwise; BIG4: an indicator variable equal to 1 if Big4 auditor, 0 if otherwise; MINING: an indicator variable equal to 1 if the company is in the mining and exploration industry, 0 if otherwise; NZAX: an indicator variable equal to 1 if the company is listed on the NZAX, 0 if otherwise.						

*Hypothesis Three: Non-audit Fees and Auditor Tenure*

The results from the non-audit fee model with the dichotomous *CHANGE* test variable are presented in the first three columns of Table 7. The adjusted R<sup>2</sup> is modest at 51.2% and the F-statistic (15.693) is significant at the 1% level. The estimated coefficient on the variable of interest – *CHANGE*, however, is insignificant (p-value = 0.848). Thus, there is no relationship between non-audit fees and the likelihood of a company changing auditors in the most recent five years. The estimated coefficients on: *Ln(AF)* is positive and significant, consistent with the results from Table 4, Panel A; *OPINION* is negative and significant and *MINING* is positive and significant, both consistent with the results from Table 6.

Table 8. Logistic and OLS Regression: Non-audit Fees and Auditor Change/Tenure

	$CHANGE = \beta_0 + \beta_1 NAF/AF + \beta_2 \ln(TA) + \beta_3 OPINION + \beta_4 BIG4 + \beta_5 ROA + \beta_6 CA/CL + \beta_7 TD/TA + \beta_8 NZAX + \varepsilon$			$TENURE = \beta_0 + \beta_1 NAF/AF + \beta_2 \ln(TA) + \beta_3 OPINION + \beta_4 BIG4 + \beta_5 ROA + \beta_6 CA/CL + \beta_7 TD/TA + \beta_8 NZAX + \varepsilon$		
	Logistic Regression: CHANGE			OLS Regression: TENURE		
Independent variables	Coefficient	p-value	VIF	Coefficient	p-value	VIF
Intercept	-0.807	0.778		2.535***	0.006	
NAF/AF	-0.044	0.938	1.104	0.075	0.676	1.104
ln(TA)	-0.170	0.472	2.294	0.161**	0.025	2.294
OPINION	-1.004	0.405	1.616	0.304	0.425	1.616
BIG4	-0.170	0.859	1.529	0.062	0.859	1.529
ROA	0.691	0.427	1.536	-0.255*	0.085	1.536
CA/CL	0.209	0.232	1.377	0.036	0.558	1.377
TD/TA	0.761	0.282	1.746	-0.171	0.338	1.746
NZAX	0.985	0.264	1.379	0.375	0.273	1.379
Model Chi-square	7.666	0.467		-		
- 2 log likelihood	69.332			-		
Overall correct classification	0.879			-		
Cox & Snell R <sup>2</sup>	0.075			-		
Nagelkerke R <sup>2</sup>	0.138			-		
Adjusted R <sup>2</sup>	-			0.035		
F-Statistic	-			1.438	0.192	
Number of observations	99			99		
Notes:						
***, **, * denotes significance at the 1%, 5%, 10% levels respectively (2-tailed).						
CHANGE: an indicator variable equal to 1 if the company changed auditors in the last 5 years, 0 if otherwise; TENURE: the length of the relationship between the current auditor and the audited company in the last 5 years; NAF/AF: ratio of non-audit fees to audit fees; ln(TA): natural log of total assets; OPINION: an indicator variable equal to 1 if the audit opinion is modified or qualified, 0 if otherwise; BIG4: an indicator variable equal to 1 if Big4 auditor, 0 if otherwise; ROA: return on assets as calculated as the ratio of EBIT to total assets; CA/CL: ratio of current assets to current liabilities; TD/TA: ratio of total liabilities to total assets; NZAX: an indicator variable equal to 1 if the company is listed on the NZAX, 0 if otherwise.						

The first three columns of Table 8 show the results from the logistic regression of the relationship between auditor change and non-audit fees relative to audit fees. The overall percentage of cases correctly classified by the model is 87.9%. However, the Chi-square is only 7.666 and is not significant, indicating that the model has a low 'goodness of fit'. *NAF/AF* is the test variable and it is not statistically significant (p-value = 0.938). This provides further evidence rejecting  $H_3$  in which companies are just as likely to change auditors regardless of the level of non-audit services purchased from the incumbent auditor. Thus, there seems to be no impairment of the auditor's independence.

The final analysis of the relationship between auditor change and non-audit fees is conducted using a paired sample t-test to examine the difference in mean *NAF/AF* between companies that changed auditors against a set of matched companies that did not. Results (untabulated) showed that the mean *NAF/AF* for companies that did not change auditors in the past five years is insignificant (p-value = 0.534). A non-parametric version of the paired sample t-test is also conducted due to a violation of the normality assumption.<sup>4</sup> A Wilcoxon matched pairs signed-ranks test gives similar results (untabulated): there is no difference in the median *NAF/AF* between companies changing auditors and those that did not (p-value = 0.959). Overall,  $H_3$  is not supported as all three tests show no relationship between non-audit fees and auditor tenure. There appears to be no impairment of auditor independence in this respect.

#### **4. SENSITIVITY ANALYSES**

Some of the results reported above might be sensitive to the inclusion of particular potentially influential observations or the measurement of specific variables. Accordingly, to provide further strength to the results, selected tests from the main analyses are repeated as discussed below.<sup>5</sup>

##### *Auditor Tenure*

The dichotomous variable measuring auditor change (*CHANGE*) could be a crude measure as it does not convey the length of relationship between the auditor and the auditee. Consequently, a continuous variable (*TENURE*) is employed as an alternative test variable for testing  $H_3$ . The non-audit fee model is repeated with *TENURE* as the test (independent) variable, the results of which are displayed in the far right three columns of Table 7. There is negligible change in the adjusted  $R^2$ , from 51.2% to 51.5% when *TENURE* is used. The results remain qualitatively unchanged as *TENURE* is insignificant (p-value = 0.441). Additionally, the model with *TENURE* as the dependent variable is presented in the far right three columns of Table 8. The estimated coefficient on the variable of interest – *NAF/AF*, remains insignificant (p-value = 0.676). The adjusted  $R^2$  here is quite low at 3.5% and the F-statistic is insignificant (p-value = 0.192).  $\ln(TA)$  now becomes positively

significant (0.161) suggesting that larger companies tend to have a longer relationship with their auditor. *ROA* is now also significant but it is negatively related to *TENURE* (-0.255) indicating that more profitable companies have a shorter auditor tenure.

One concern when using *TENURE* is that it might not represent the auditor-client relationship very well when it comes to newly incorporated companies, whose auditor tenure variable is limited to the number of years since incorporation. Thus, an additional analysis is conducted using equation (6) but excluding four companies in our sample that incorporate in the last five years. The results (untabulated) remain similar. Overall, the results are qualitatively similar when auditor tenure is employed to test  $H_3$  and hence, there is remains no evidence of impaired auditor independence in this respect.

#### *Fee Dependence*

The measurement for the variable *FEEDEP* could overstate the auditor's dependence on a particular client. This is because some non-Big 4 auditors only audit one or two companies within the sample, causing their fee dependence to be as high as 100%. To reduce the effects of measurement error for *FEEDEP*, the logistic regression in Table 5 is repeated with only those companies audited by Big 4 auditors. The results show that the estimated coefficient on *NAF/AF* is no longer negatively significant (p-value = 0.998). This suggests that the negative relationship between *NAF/AF* and *OPINION* in Table 5 is driven by companies audited by non-Big 4 auditors. An implication of this is that the provision of non-audit services only impairs auditor independence for smaller auditors. This could be due to the greater reputational capital at risk for Big 4 auditors and thus they are unlikely to be more lenient (in terms of their audit opinion) towards clients purchasing more non-audit services.<sup>6</sup>

#### *Non-audit Fees*

The amount of non-audit services purchased by a client is proxied using the level of non-audit fees paid to the incumbent auditor. Because some clients do not purchase any non-audit services from their auditor at all, the level of non-audit fees plus one was used in the main analysis. However, this fails to recognise that companies that do not purchase any non-audit services at all could be different from companies simply purchasing a low level of non-audit services. To take this into account, the tests from the main analysis are repeated excluding companies where non-audit fees equal zero (non-purchasers of non-audit services). This reduces the sample to 76 companies.

The results relating to  $H_1$  remains robust. The adjusted  $R^2$  improves significantly from 19.1% to 44.8% for the two-stage least squares regression and the variable *INVREC* becomes marginally significant (coefficient = 1.093, p-value = 0.10). This supports prior literature, showing that *INVREC* is positively related to audit fees as

these accounts bear greater inherent risk. The results for  $H_3$  also remain consistent in which there is still no relationship between auditor tenure and non-audit services.

For  $H_2$ , there is now no statistically significant relationship between non-audit fees and audit opinion as  $NAF/AF$  is insignificant for equation (4) ( $p$ -value = 0.998) and  $OPINION$  is insignificant for equation (5) ( $p$ -value = 0.191). This suggests that the negative relationship found in the main analysis, is driven by companies that do not purchase non-audit services at all (i.e.  $NAF = 0$ ). Thus, non-purchasing companies have a higher likelihood of receiving a modified or qualified audit opinion while companies that purchase any amount of non-audit services (whether high or low) do not have any effect on the opinions they receive. These results seem to suggest that the auditor treats the audit-only clients more harshly than the companies that are both an audit and a non-audit client. This could potentially reflect an impairment of independence in terms of favouring those that purchase non-audit services, regardless of the amount.<sup>7</sup> However, due to the small sample size, the insignificance of the test variable is likely to be caused by low variation in this subsample. For this reason, the results excluding non-purchasing companies must be interpreted with caution.

#### *Extreme Values*

To ensure that the reported results are not driven by outliers, the tests from the main analysis are repeated excluding such observations. Specifically, outliers are assessed for each equation by generating Mahalanobis distances and identifying the observations with such distances exceeding the critical value applicable for the number of independent variables employed. The results remain qualitatively unchanged when outliers are excluded and thus are not driven by extreme values or unusual observations.

## **CONCLUSION**

Auditor independence is a prominent issue within the auditing profession. Over the years, the joint provision of audit and non-audit services has continued to cast doubt over the validity of the incumbent auditor's independence. The U.S. accounting scandals in the 2000s have further exacerbated the view that non-audit services impair the auditor's independence. Consequently, independence requirements around the world have been strengthened by policymakers. This paper re-examines the issue of non-audit services and auditor independence for New Zealand companies in 2011, a decade after Hay *et al.*'s (2006a) study, a period during which significant regulatory reforms have taken place.

This study is conducted using three tests of impaired auditor independence. A longstanding view is that audit fees are lowered in order to sell more non-audit services, that is, a negative relationship. In contrast, past literature provides

evidence of a positive relationship between audit and non-audit fees. Prior studies also suggest that the provision of non-audit services is likely to result in more favourable audit opinions. Furthermore, in bid to secure future non-audit work, auditors have incentives to be more accommodating towards management's wishes, thereby resulting in longer auditor tenure.

Using a sample of 99 publicly listed New Zealand companies, our results show that the provision of non-audit services do not generally compromise an auditor's independence. However, non-Big 4 auditors receiving higher non-audit fees are more inclined to issue clean audit opinions. This provides evidence that non-audit services might impair the auditor's independence in relation to their final judgment on the audit. This has implications for regulators, investors and practitioners. Further strengthening of independence requirements for New Zealand auditors may be necessary.

Our study is subject to the following limitations. First, we have a relatively small sample size. Thus, the tests reported in this paper (and in particular, the sensitivity analyses) could be lacking in statistical power. Another limitation of this study relates to the measurement of fee dependence (*FEEDEP*) – the extent to which the auditor is reliant on the fees generated by a particular client. Due to the lack of publicly available information (i.e. total fees received by each audit firm), the measurement for *FEEDEP* could be subject to significant measurement error. Although a sensitivity analysis is conducted to mitigate this, there are inherent limitations to measuring *FEEDEP* empirically. Finally, the negative relationship between non-audit fees and audit opinion does not provide conclusive evidence of auditor independence impairment. As suggested by Firth (2002), the provision of non-audit services might resolve problems at the client firm and thus, lead to justified cleaner opinions. Again, due to data limitations, we are unable to ascertain whether the negative relationship is driven by this explanation or due to independence impairment. This can be an area for future study.

Other areas for future research involve specifically looking at non-audit, tax services. As prior research has identified tax as a particular non-audit service that could actually improve auditor independence, this would be an interesting area to explore. Future studies could further investigate auditor independence issues between companies paying low amounts of non-audit fees and companies that abstain from purchasing non-audit services from their incumbent auditor all together. Our sensitivity analysis shows that while non-purchasing companies are more likely to receive modified or qualified opinions, they also have lower profitability and greater financial risk. Future empirical research can investigate companies that ought to receive modified opinions (more specifically, going concern opinions) and examine whether the purchase or non-purchase of non-audit services interferes with the incidence of opinion modification. Case studies specifically focusing on companies with very high ratios of non-audit fees to audit fees could also provide insightful information relevant to the independence debate.



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<sup>1</sup> Figures for EBIT are collected from NZX Company Research.

<sup>2</sup> One is added to non-audit fees to include companies where non-audit fees equal zero.

<sup>3</sup> The *NZAX* variable is insignificant in all following regressions and is not discussed further.

<sup>4</sup> The Shapiro-Wilk test provided strong evidence against the normality assumption (p-value = 0.001).

<sup>5</sup> For the sake of brevity, the analyses in this section are not tabulated, with the exception of auditor tenure.

<sup>6</sup> An extension of this test is to conduct the same analysis again, on the subsample of companies audited by non-Big 4 auditors. However, such an analysis is unviable since this reduced sample only consists of 16 companies.

<sup>7</sup> On the contrary, a multivariate analysis of variance (MANOVA) showed that non-purchasers had lower *ROA* and higher *TD/TA* when compared to purchasers of non-audit services. This implies that perhaps the higher incidence of modified or qualified opinions amongst non-purchasers are justified as they had lower profitability and greater financial risk.