

The Impact of Audit Quality Reviews on Audit fees of New Zealand Listed Companies

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Abstract

This study examines the impact of audit quality reviews by the Financial Markets Authority (FMA) on the audit fees of New Zealand listed companies. The FMA commenced audit quality reviews in 2013. This study examines audit fees from 2009 to 2016 and compares audit fees over the three years before and the four years after quality reviews began. We find evidence of significantly higher audit fees for smaller listed companies after the introduction of audit quality reviews, with minimal impact for larger companies. The New Zealand results suggest that increased costs associated with regulation were able to be absorbed by audit firms in respect of their larger audit clients but not their smaller clients. This may be a reflection of the small and concentrated audit market for listed companies in New Zealand. In conclusion, the introduction of mandatory audit quality reviews has had greater economic consequences for smaller listed companies, which have experienced a significant increase in audit fees.

1. Introduction

This study examines the impact of audit oversight by the Financial Markets Authority (FMA) in New Zealand on the audit fees of listed companies. In 2011, the Auditor Regulation Act, requiring the FMA to undertake quality reviews of auditors and of entities with public accountability, was introduced (Auditor Regulation Act, 2011, s6). The purpose of the reviews was to provide an independent assessment of the internal quality control systems and practices of audit firms to ensure compliance with auditing and assurance standards to support a reliable audit opinion (Auditor Regulation Act, 2011, s68).

The various impacts of audit regulation have been researched extensively in the United States but are under-researched in other jurisdictions (Simnett *et al.*, 2016). In New Zealand, there has been little academic research on the effect of FMA reviews on audit practice and audit quality. According to a FMA (2015b) survey of audit market participants, it is believed by participants in the audit market that audit quality has increased while audit fees have not. This perception has not been substantiated, and the evidence is somewhat mixed. In this study we focus on audit fees and examine to what extent the introduction of audit quality reviews affected the audit fees charged by auditors of New Zealand listed companies. The study examines audit fees of listed companies from 2009 to 2011, which represents three years of data from before the quality reviews commenced, and from 2013 to 2016, which is four years of data from after the quality reviews commenced. The results show that, contrary to the survey results, the introduction of audit quality reviews has increased audit fees but the impact has been greater for smaller listed companies, with audit fees increasing by an estimated 15%. These results are inconsistent with international research where audit inspections have resulted in across-the-board increases in audit fees. The New Zealand results suggest that increased costs associated with regulation were absorbed by audit firms in respect of their larger audit clients but not their smaller clients. This may be a reflection of the small and concentrated audit market for listed companies in New Zealand.

This research is relevant to an international audience because it adds to the literature that examines the impacts of audit regulation and shows that effects can differ from country to country. Although, in international settings, audit regulatory regimes have common principles and powers (International Forum of Independent Audit Regulators (IFIAR, 2018), the structure of the audit industry and size of the audit market may differ among countries. The study will be of interest to New Zealand legislators, regulators, practitioners and academics by providing insights into the

impact of the Audit Regulation Act. The results will also be of interest to directors and shareholders of listed companies who benefit from audit services.

The paper is structured as follows. Section 2 presents a review of the relevant academic research on the impact of regulated audit inspections and provides the background of New Zealand audit regulation. Section 3 outlines the research question and Section 4 explains the data collection and empirical model. Section 5 provides the data analysis and results. Finally, Section 6 summarises and concludes the study.

2. Literature review

2.1. Audit quality and audit inspections by regulators

There is a range of definitions of audit quality from academics and standard setters but no general consensus on what audit quality is. An influential definition of audit quality originates from the work of DeAngelo (1981), who defines audit quality as ‘a market-assessed joint probability that a given auditor will both discover a breach in the client’s accounting system and report the breach’ (p. 186). The definition has two components: the first depends on auditor competence to discover a breach, while the second relies on auditor independence and objectivity to adjust or report the error (Knechel *et al.*, 2013).

Audit quality frameworks have been developed along with a series of indicators of audit quality. One of the first was the United Kingdom Financial Reporting Council (FRC, 2008) and subsequently the International Auditing and Assurance Standards Board (IAASB, 2014). Knechel *et al.* (2013) explain audit quality in the form of a balanced scorecard of four categories: inputs, process, outcomes and context. Audit quality is impacted by inputs into the audit process such as the expertise and knowledge of the auditors; the audit process is affected by the quality of risk assessments, the application of judgement, and the methods of collecting and evaluating audit evidence. Outcomes are the results of the audit process such as the audit report and the quality of financial reporting. Within this category are the results of inspections from regulators, which Knechel *et al.* (2013) state are perhaps the most direct outcome of audit quality. Oversight of audit quality by national regulators is now a feature of many countries, as highlighted by the International Forum of Independent Regulators survey of enforcement regimes (IFIAR, 2018) of its 53 members. The inspections and enforcement powers of the regulators raise research questions about the impact of the inspection processes and their effectiveness in improving audit quality.

2.1. Research findings on the impact of audit inspections on audit quality

A significant amount of research on the impact of audit inspections has occurred in the United States. However, there is a need for more research on the impact of audit inspections outside non-US settings to compare the impact of regulatory inspections on audit quality in different jurisdictions to gain a greater understanding of audit quality at an international level (Simnett *et al.*, 2016).

Audit inspections commenced in the United States with the establishment of the Public Company Accounting Oversight Board (PCAOB) to oversee auditors of publicly traded companies (Sarbanes Oxley Act (SOX) 2002). Prior to this self-regulation, peer reviews were undertaken. Audit firms with more than 100 issuers are inspected annually and firms with less than 100 issuers are inspected triennially (SOX 2002, s104(b)). The inspections include examining a limited number of audits conducted by the firm and evaluating the accounting firms' quality control systems (SOX 2002, s104(d)). The PCAOB reports publicly on audit deficiencies arising from the audit inspections of financial statements and internal controls for each accounting firm, which are available on the PCAOB website, but potential defects on quality control systems are not published if the firm addresses the weaknesses within 12 months (SOX 2002, s104(g)). The PCAOB publishes reports discussing trends in audit inspections that have been conducted and releases outlooks identifying key areas of focus for future inspections. The PCAOB has powers to undertake investigations and disciplinary proceedings against audit firms and associated persons for breach of rules and regulations and professional standards. Sanctions can be imposed and vary from deregistration, fines, permanent or temporary restriction on the type of work the firm or person can do, and direct further professional education or training (SOX 2002, s105(a) and (c)). The number of public accounting firms, both US and non-US, registered with the PCAOB is 1,860 (PCAOB, 2019).

Research on PCAOB inspections has focused on the trends in the number of regulated audit firms, the nature and frequency of audit deficiencies identified from audit inspections, and the impact on audit quality when audit firms have inspection deficiencies.

After the first round of PCAOB audit inspections, Hermansen *et al.* (2007) analysed the results of 316 audit firms and found that 60% had audit deficiencies. Compared to other audit firms, audit

firms with deficiencies were generally smaller, with fewer partners, were understaffed and had experienced faster growth (Hermansen *et al.*, 2007; Blankley *et al.*, 2014).

Researchers analysing actions that audit firms took after the first round of inspections found that some of them withdrew from the market. DeFond and Lennox (2011) found that 49% of small audit firms¹ in the United States (607 out of 1,233 firms) exited the audit market between 2001 and 2008. The exiting firms were generally of lower quality with a greater number of audit weaknesses reported. For those firms remaining in the audit market, Hermansen and Houston (2009) found that they significantly improved audit quality, as there was a large drop in audit deficiencies identified after the second inspection. Blankley *et al.* (2014) reported that after the first audit inspections, audit firms with deficiencies increased their audit effort as their audit fees increased significantly compared with non-deficient firms.

Audit firms that received reports showing inspection deficiencies were often impacted negatively. Audit firms with deficiency reports were more likely to be dismissed by their clients, resign from audits and deregister from the PCAOB. When an audit firm was dismissed, it was more likely to be replaced by an audit firm that had no reported deficiencies (Daugherty *et al.*, 2011). Small audit firms with financial reporting deficiencies were more likely to be dismissed by their clients, with the existence of an effective audit committee increasing the likelihood of dismissing the auditor of firms with GAAP financial reporting deficiencies (Abbott *et al.*, 2013). In further research, Acito *et al.* (2017) found that audit turnover is more likely if the audit client has greater exposure to the financial reporting deficiency reported. Where an auditor change occurred, it was more likely that the client selected an auditor that had lower exposure to the specific financial reporting deficiency.

Lennox and Pitman (2010) examined the change in market share of PCAOB-inspected firms. They found that the market share of audit firms with a reported weakness did not change significantly, in contrast to the previous review system where disclosure of auditor weaknesses was associated with reductions in market share. The researchers suggest that the underlying reason for the different result was that PCAOB inspection reports did not provide sufficient information to the public about deficiencies in audit quality systems. A subsequent study by Nagy (2014) found that deficiencies did make a difference. They show that audit firms with deficiencies

¹ Audit firms with 100 or fewer publicly listed clients.

in quality control systems lose significant market share following public disclosure by the PCAOB. In an international study, Aobdia and Shroff (2017) analysed changes in the market share of non-US audit firms subject to PCAOB oversight. They found that auditor market share increased after the first public inspection report, concluding that PCAOB inspections provide spillover benefits to non-US auditors.

The empirical research findings also suggest that audit inspections improve audit quality. Gramling *et al.* (2011) found that audit firms with deficiencies were more likely to issue going concern opinions after receiving a deficiency report. For US cross-listed companies, auditors subject to inspections provided higher-quality audits as they were more likely to give a greater number of going concern opinions and report more material weaknesses compared with other auditors (Lamoreaux, 2016).

PCAOB audit inspections have improved financial reporting quality for clients of Big 4 and other auditors. For Big 4 audit clients, abnormal accruals in the financial statements dropped significantly after the first and second audit inspections (Carcello *et al.*, 2011). Lower abnormal accruals were also identified for foreign companies cross-listed in the United States after first-time inspections (Krishnan *et al.*, 2017; Lamoreaux, 2016). Tanyi and Litt (2017) found that the financial reporting quality of clients of small to medium-sized audit firms inspected annually was significantly higher than that of clients of audit firms inspected triennially. Gunny and Zhang (2013) found that clients of triennially inspected auditors with deficient reports were associated with higher abnormal accruals and the likelihood of restating the financial statements. However, there are conflicting results for annually inspected auditors with deficiencies and different measures of financial reporting quality. PCAOB oversight has improved financial reporting credibility in capital markets, as the earnings response coefficients of firms with auditors subject to inspections increased significantly compared with a control group of firms (Gipper *et al.*, 2017).

Other research has examined stakeholders' perceptions of the impact of audit regulation. Daugherty and Tervo (2010) surveyed leaders of triennially inspected firms and sought their opinions on the impacts of the inspections, such as the impact on audit quality, retention of clients and staff, and the nature of the inspections process. Responses were categorised according to the size of the firm. There was some, but not overwhelming, agreement that the inspection process had improved audit quality with smaller audit firms being less positive than other firms. There was general agreement that the inspection process had increased the engagement hours

and fees billed to clients. Houston and Stefaniak (2013) examined audit partner perceptions of internal quality reviews and PCAOB inspections. Audit partners generally thought that PCAOB inspections were focused on finding deficiencies rather than improving audit quality. They also believed that internal quality reviews contributed more to improving audit quality than PCAOB inspections. In Australia, Houghton *et al.* (2013) concluded that there was no evidence from interviews with auditors, auditing standard setters and regulators, that audit regulation had improved the quality of the audit product and confidence in the capital market. It was perceived that regulation had increased costs, especially with regard to audit documentation, and there were concerns that increased time spent on documentation might compromise auditors' focus on important risk areas. Increased costs were also considered to be a barrier to entry into the Australian audit market, thus diminishing competition.

In New Zealand, the FMA (2015b) undertook a survey of organisations to evaluate the audit oversight process. There were 132 respondents, which included registered audit firms, directors, managers of issuers and professional bodies. Fifty-two per cent of respondents (56 out of 108 responses) considered FMA quality reviews improved audit quality, although 35% (38 out of 108 respondents) thought there was no change. Although audit quality was perceived to have improved, 64% of respondents (66 out of 103 responses) considered that the additional cost of auditor oversight had not increased audit fees. The other respondents indicated audit fee increases ranging from NZ\$1,000 to NZ\$10,000 per audit.

2.2. Research findings on the impact of audit inspections on audit fees

Research analysing the impact of audit inspections on audit fees has found evidence of higher fees in some circumstances. Tanyi and Litt (2017) found that audit fees charged by small to medium-sized audit firms (with 100 to 200 clients) that were inspected annually were significantly higher compared with audit fees charged by small to medium-sized audit firms (with less than 100 clients) that were inspected once every three years. They suggest that the frequency of inspections to improve audits and eliminate deficiencies increased costs and effort. Vanstraelen and Zou (2018) analysed the impact on audit fees of audit firms inspected triennially over three inspection periods. Only clients of audit firms without deficiencies significantly increased audit fees over this period. Audit firms with engagement and quality control deficiencies did not increase audit fees after the second and third inspection rounds while audit firms with quality control deficiencies decreased audit fees, indicating reputation damage.

Acito *et al.* (2017) analysed the inspection reports of Big 4 audit firms from 2005 and 2009 and estimated the relative impact the deficiency may have had on the financial statements of each of the auditors' clients. Firms with greater exposure to an accounting deficiency were found to have higher audit fees, indicating that action was taken by the Big 4 audit firms to rectify the shortcomings reported by the PCAOB.

Research findings also show that when an audit inspection is expected audit firms are likely to increase audit effort (Chi *et al.*, 2018; Lamoreaux, 2016; Lamoreaux *et al.*, 2017). Chi *et al.* (2018) found that Chinese clients perceive value in being audited by a PCAOB-registered audit firm and are willing to pay a premium for their service as their results indicated an increase in audit fees and audit quality.

Regulations such as those imposed by the FMA inspections exact costs on audit firms, which are likely to affect some companies, for example, smaller companies, differently. These increased costs appear to have had a substantial impact on capital markets. For example, an issue that has been examined is whether SOX or other regulations imposed higher costs on smaller companies. It is believed that the increased costs may have encouraged smaller companies to 'go dark' (delist) (e.g., Leuz *et al.*, 2008; Bushee and Leuz, 2005). It is therefore worthwhile to investigate this issue in the New Zealand setting, and to take account of the special features of the New Zealand regulations.

2.3. Background to audit regulation in New Zealand

In 2011, the New Zealand Government introduced legislation to oversee the quality of audits and auditors by the FMA. The legislation authorises the FMA to prescribe minimum standards for licensed auditors and registered audit firms that audit entities defined under the Financial Markets Conduct Act.²

The features of the regulatory regime are consistent with IFIAR core principles (IFIAR, 2016), including independent oversight and operation of the regulator and an audit inspections programme incorporating a risk-based approach, with recurring inspections at firm and audit file level and reporting mechanisms. The FMA is required to carry out quality reviews of registered

² An FMC reporting entity is defined in the Financial Markets Conduct Act 2013. These entities are considered to have a greater level of public accountability and include issuers of debt and equity securities to the public, listed issuers, registered banks, licenced insurance companies, credit unions and building societies (Financial Markets Conduct Act 2013, s451).

audit firms once every four years. Except in the case of Big 4 firms, which are reviewed every 18 months, in practice, the FMA undertakes quality reviews of firms every three years (FMA, 2017).

Quality reviews are undertaken to ensure that the audit systems and processes comply with auditing and assurance standards and that reasonable care, diligence and skill are demonstrated in the audit work (Audit Regulation Act, 2011, s65).

A quality review is specified in the legislation and is to include:

- i. an assessment of the design of the internal quality-control system;
- ii. reasonable compliance testing of procedures, and a review of a sufficient number of audit files to verify the effectiveness of the internal quality-control system;
- iii. a review of the systems, policies and procedures to assess compliance with legal requirements and auditing and assurance standards;
- iv. the quantity and quality of resources used; and
- v. compliance with competence programmes.

(Auditor Regulation Act 2011, s68(1)).

The audit firms are required to pay the FMA for the quality review (Auditor Regulation Act 2011, s67(4)).

A review of audit files requires evidence that legal requirements and auditing and assurance standards have been complied with and that each audit is carried out with reasonable care, diligence and skill (Auditor Regulation Act 2011, s68(3)). To provide a reliable audit opinion, an audit also has to be independent, have sufficient audit evidence and have professional scepticism applied by the auditors (FMA, 2016).

The FMA can impose penalties if audits are not carried out to the specified standards. Similar to the PCAOB, the FMA can cancel or suspend auditors' licences and audit firm registrations and can suspend or prohibit audits being performed (Audit Regulation Act 2011, s78(2)). In addition, auditors may be subject to disciplinary procedures from the relevant professional accounting body.

Unlike the PCAOB, the FMA does not release quality review reports to the public but prepares an annual Audit Quality Monitoring Report, which summarises findings from the reviews undertaken in that year.

A unique feature of the audit quality reviews in New Zealand is the small number of licenced auditor and audit firms. In 2017 to 2018 the FMA (2018) had oversight of 138 licensed auditors and 19 audit firms. The number of audit firms has dropped from 40 firms at the time the regime was introduced. The FMA (2018) attributes the drop to audit firms being unable to meet audit rotation requirements and the need for two audit partners to be involved in FMC audits.

2.4. The impact of regulation on audit fees of large and small clients in New Zealand

Alali *et al.* (2017) investigated changes in fee data from Audit Analytics for the period 2000 to 2010. They examined the Big 4 premium for large and small clients as well as the effects of specific events in the post-SOX period that may have impacted on the Big 4 premium. They found that Big 4 audit fees increased significantly from the pre-SOX period (2000–2001) to the SOX period (2002–2006). However, the Big 4 pricing premium decreased significantly from 2007 to 2010. For small clients, a Big 4 premium existed in the pre-SOX period and during the SOX period (2002–2003). This premium decreased from 2004 to 2006 but unexpectedly and significantly increased in 2007 due to the adoption of PCAOB AS5 (now AS 2201). It is speculated that this may be due to changes in the audit pricing differentials between the large and small companies. The Big 4 then decreased significantly the audit fees during the financial crisis period (2008–2010), likely a reflection of the poor economic conditions of the financial crises. The authors conclude that Big 4 audit pricing of small clients depends on the nature of competition and the pricing power of the audit firm, with Big 4 firms being able to reject small clients if they are not adequately compensated. In terms of the impact of regulation on audit fees, Ghosh and Pawlewicz (2009) show that audit fee levels rose approximately 74% in the post-SOX period after controlling for audit and client characteristics. They also found an increase in audit fees of 42% for Big 4 firms compared with smaller audit firms.

There are very few New Zealand studies on audit fees and the size of the client. One of the earliest studies was performed by Firth (1985) who indicated that audit fees were being based on costs incurred rather than monopoly pricing despite a high level of concentration within the auditing profession. Firth (1993) found the existence of an audit fee premium after New Zealand firms switched to a Big 8 brand name in 1983. Johnson *et al.* (1995) further determined that higher fees

are charged by the Big 5 in the large listed and small unlisted segments of the market. In the United States (Francis and Simon, 1987), Australia (Francis and Stokes, 1986; Carson *et al.*, 2004) and Hong Kong (Gul, 1999), price premiums were charged by large auditors to smaller clients. This is consistent with the results of the meta-regression analysis performed by Hay and Knechel (2017) who show that after controlling for publication bias, there is still a significant Big N audit fee premium. However, of interest to this study, both the Australian studies and a Hong Kong study by Lee (1996) did not find price premiums to Big 6 auditors in the large auditee segment of the market.

Carson *et al.* (2014), in their Australian study, attribute the increase in audit fees over the period from 2000 to 2011 to increased regulation which required greater audit effort. Based on these results, they surmise that New Zealand's Auditor Regulation Act 2011 was likely to result in increased market concentration and increased audit fees. Previous New Zealand studies on regulation focused on accounting issues, such as the introduction of NZ IFRS, which increased audit fees (Griffin *et al.*, 2009) or on the impact of overseas governance reforms (e.g., SOX in the United States and CLERP 9 in Australia), which did not appear to have substantially affected audit fees (Griffin *et al.*, 2009).

3. Research hypotheses

The research findings suggest that regulation of audit inspections has increased audit fees charged by audit firms. However, audit fees may not increase if the audit firm reports deficiencies (Vanstraelen and Zou, 2018).

In New Zealand, the FMA does not publicly report audit deficiencies by audit firms. However, a review of the FMA audit quality reports indicates that shortcomings in audit files have been identified. Table 1 shows the ratings given by the FMA for listed entities from 2013 to 2016.

[Insert Table 1]

The FMA rates audit files as 'good with limited improvement', 'compliant but requiring improvement' and 'requiring significant improvement'.³ From 2013 to 2016, 16 out of 47 (34%)

³ **Good or good with limited improvement required:** audit procedures have been performed around key risk areas and satisfactory audit evidence has been obtained. **Compliant but needs improvement:** sufficient and appropriate audit evidence has been obtained in key risk areas. However, a number of areas in the file show that the audit was

files required significant improvement while 23 out of 47 (49%) complied with standards but required improvement. These data suggest that audit firms of listed entities would have had to make improvements to audit procedures and carry out additional work to obtain sufficient audit evidence to meet FMA standards. The issue is whether some of these costs were passed on to the audit client if improvements were required. Evidence from the FMA (2015b) survey suggests that audit fees did not increase and any audit fee increases were modest, in the range of NZ\$1,000 to NZ\$10,000. However, this study had limitations because it was based on the perceptions of a range of stakeholders and not on the fees reported. It is also contrary to the prediction made by Carson *et al.* (2014).

Based on previous research (Acito *et al.*, 2017; Tanyi and Litt, 2017; Vanstraelan and Zou, 2018), it is expected that audit fees would increase overall. However, this evidence is nearly all from one country, the United States. Therefore, these results might not necessarily apply to New Zealand because of the unique features of the New Zealand setting, including the highly concentrated audit market and the degree of oversight such as the number of audit firm inspections.

In summary, it is unclear if the introduction of audit oversight and the compliance costs involved would be passed on to audit clients. The research hypothesis is therefore stated in the null form:

H1: The introduction of FMA audit quality reviews does not increase the audit fees of New Zealand listed companies.

The previous discussion indicates that the impact on audit fees is expected to be different for diverse sectors of the market, for example, based on client size (Carson *et al.*, 2004; Alali *et al.*, 2017). Based on studies of the impact of regulation or inspection processes (e.g., under SOX) in various countries, FMA audit quality reviews increased auditors' workload; therefore, it is expected that audit fees would increase. However, Knechel *et al.* (2009), using data envelopment analysis, show that audits of larger clients are generally more efficient due to the increase in audit effort being made up of work done by lower-cost staff accountants. Prior research indicates that an auditor's operating leverage is greatest for large clients due to manager and partner hours

not performed in accordance with auditing standards. **Significant improvements required:** the review has found insufficient audit evidence for at least one key risk area or the audit file showed a material misstatement which required restatement of the financial statements. There are a number of areas where audit work was not performed according to standards (FMA, 2016, p. 19).

reducing in proportion to the increase in all grades of labour (Dopuch *et al.*, 2003; Bell *et al.*, 1994; O'Keefe *et al.*, 1994). Previous studies in the United States have shown that the effects of regulation are greater for smaller companies (Leuz *et al.*, 2008; Bushee and Leuz, 2005). Therefore, it is expected that the introduction of regulation for audit quality reviews would have a greater impact on smaller audit clients. The research hypothesis is therefore:

H2: The introduction of FMA audit quality reviews increases the audit fees of smaller New Zealand listed companies relative to larger companies.

4. Research design

4.1. Data

FMA audit quality reviews commenced in 2013, with audit firms subject to review once every three years and Big 4 audit firms every 18 months (FMA, 2016). Table 2 reports the number of registered audit firms, and the number of audit firms and Big 4 firms inspected each year from 2013 to 2016.

[Insert Table 2]

On the basis of the FMA's selection process, all registered audit firms would have been reviewed at least once by the end of 2016. We analyse audit fee and financial data for years 2009 to 2011, three years before inspections commenced, and for years 2013 to 2016, four years after inspection commenced. Years 2012 and 2017 are excluded from the data analysis. The year 2012 is excluded as this is considered to be a year of transition to audit inspections, and 2017 is excluded because, in this year, auditor reporting changed, requiring auditors to communicate key audit matters in the audit report (ISA (NZ)701 *Communicating Key Audit Matters in the Independent Auditors Report* (NZAASB, 2015). These changes applied to all listed companies in 2017 and have had a significant impact on audit fees (Li *et al.*, 2018).

4.2. Empirical model

The audit fee model is used to examine the impact of audit quality reviews on audit fees. Based on Hay *et al.* (2006) and Hay (2013) the audit fee model is:

$$LAF = \alpha_0 + \alpha_1 POST + \alpha_2 LogAssets + \alpha_3 LogSeg + \alpha_4 Foreign + \alpha_5 InvRec + \alpha_6 ROA + \alpha_7 Loss + \alpha_8 Lev + \alpha_9 Current + \alpha_{10} Opinion + \alpha_{11} Busy + \alpha_{12} LogNasf + \alpha_{13} Big4 + Fixed\ Effects + e$$

The dependent variable is the log of audit fees. *Post* is an indicator variable of 1 if the company balance date is in the years 2013 to 2016, the period in which quality reviews were undertaken, and 0 for balance dates in years 2009 to 2011. If quality reviews have resulted in an increase in audit fees the coefficient *POST* will be positive.

LogAssets is the natural logarithm of total assets and is used to control for client size. *LogSeg* is the natural logarithm of the number of business segments and *Foreign* an indicator of 1 if the company has exports sales, 0 otherwise. These two variables control for organisational and geographic complexity of a client (Hay, 2013). *InvRec* is the sum of inventory and trade receivables and is a measure of inherent risk. Two variables are included to control for the performance of a firm: the return on assets (*ROA*) is Earnings before Interest and Taxation (EBIT) scaled by total assets and *Loss* is an indicator variable if the company has incurred a loss in the current financial year, 0 otherwise. Controls are included for leverage (*Lev*), non-current liabilities divided by total assets, and liquidity (*CurrentRatio*), measured by current assets divided by current liabilities. Three controls for audit engagement attributes are included: *Opinion* is an indicator variable of 1 if a qualified audit opinion is given, 0 otherwise; *Busy* is an indicator variable of 1 if the audit has a June balance date, 0 otherwise; and *LogNasf* is the natural logarithm of non-audit services and the indicator variable for a Big 4 audit firm.

Given that the data are from the same individual companies over the sample period, we use a panel data fixed-effects regression consistent with auditing studies by Xu *et al.* (2013), Hay and Knechel (2010) and Groff *et al.* (2017).

4.3. Sample

The sample was compiled using companies listed on the NZX Main Board in October 2017. The sample excludes property trusts, unit trusts, funds and Australian registered companies cross-listed on the NZX, and includes a total of 103 companies. Data were collected for each company over the 2009 to 2016 period. In some cases, there is an incomplete set of data for the six-year period as a result of companies listing or delisting during the period.

Table 3 classifies the sample by industry group and audit firm for 2016. Consumer staples represents 19 out of 103 (18%) companies, and industrial companies represents 18 out of 103 (17%) companies. These are followed by consumer discretionary, 15 out of 103 (14%)

companies, healthcare 12 out of 103 (12%) companies, and information technology, 11 out of 103 (11%) companies. The financial sector includes investment companies Aorere Resources Ltd and Marlin Global Ltd.

[Insert Table 3]

The Big 4 audit firms dominate the audit market, auditing 96 out of the 103 (93.2%) listed companies in 2016. PricewaterhouseCoopers (PwC) has the greater market share with 41 out of 103 (39.8%) listed company audits, followed by KPMG with 21 (20.4%) audits, Deloitte with 18 (17.4%) audits and Ernst & Young (EY) with 16 (15.5%) audits. PwC is also the dominant auditor in the healthcare, consumer discretionary and real estate industries. KPMG dominates the telecommunications audits while KPMG and Deloitte each audit three out of eight utilities audits.

5. Findings

5.1. Descriptive statistics of variables

Descriptive statistics for the audit fee model variables are reported in Table 4. The average audit fee is NZ\$306,402 and non-audit services fees average NZ\$137,229, but there is substantial variation as indicated by the standard deviations.

[Insert Table 4]

Total assets average NZ1.063 billion for the sample with 18% of the assets comprising inventory and receivables. Current assets exceed current liabilities 6.34 times on average. Non-current liabilities average 26% of total assets. The average return on assets is low at 1% with 23% of company annual results reporting operating losses. The listed companies have on average 2.8 segments and 65% generate foreign sales. Forty-six per cent of the audits had June balance dates with only 1% having qualified audit opinions.

5.2. Audit fee descriptive statistics

Descriptive statistics for audit fees are reported in Table 5. Total, mean and median audit fees are analysed by year and audit firm. In 2009, KPMG had 51.1% of the total audit fees followed by PwC (28.7%), Deloitte (10.1%), EY (7.4%) and Other auditors (2.7%). By 2016, the profile changed considerably with PwC collecting 33.5% of the total audit fees followed by EY (25.1%), KPMG (22.8%), Deloitte (16.1%) and Other auditors (2.4%). The large decline in KPMG's market

share was in large due to KPMG losing the NZ\$3,000,000 Fletcher Building Industries Ltd audit to EY in 2015. The audit market for listed companies is dominated by the Big 4, which audited 97.6% of the listed companies in 2016.

[Insert Table 5]

The average audit fee for Big 4 clients decreased from NZ\$335,447 in 2009 to NZ\$299,585 in 2016, a decrease of 10.7%. During this period the Consumer Price Index increased by 12.9% between the first quarter of 2009 (index 876.8) and the final quarter of 2016 (index 990.2) (Reserve Bank of New Zealand, n.d.). In contrast, the median audit fee increased by 21.3%.

Big 4 mean and median audit fees vary over time. Because of this variation, a constant annual compound growth rate (CAGR) in the mean and median audit fees is calculated for the 2009 to 2016 period. The overall mean audit fee declined by -1.6% . For the same period the compound average annual rate of inflation was 1.6%. Thus, during this period, mean audit fee increases do not appear to have covered inflation.

The CAGR show considerable variation by audit firm. While PwC gained market share over the 2006 to 2016 period, the CAGR for mean and median audit fees was minimal at -0.4% and 0.8% respectively. KPMG's and EY's mean and median CAGRs were affected by the Fletcher Building Industries Ltd audit switch. While EY's mean CAGR increased by 10.1% , KPMG's declined by -10.1% . Other audit firms showed increases in audit fees with CAGR mean and median audit fees of 7.4% and 5.7% respectively.

The analysis is repeated for a constant sample of audits for the same company for the seven-year period. The sample comprises 68 firms. The CAGRs (not reported) in the overall mean and median audit fees are a little higher than the full sample at 0.3% (full sample -1.6%) and 3.8% (full sample 2.8%) respectively. The growth rates are also slightly higher for the Big 4 firms but lower for Other firms (mean CAGR of 6.6% and median CAGR of 4.7%).

In contrast, Griffin *et al.* (2009), investigating audit fees in New Zealand from 2002 to 2007, found an increase in mean audit fees of 7.3% compounded annually (NZ\$142,373 in 2002 to NZ\$234,402 in 2007). In 2007, New Zealand auditors earned total audit fees of NZ\$25.3 million, with the Big 4 firms earning NZ\$24.5 million of that total and around 95% of combined audit fees

and non-audit fees. Collectively the Big 4 performed more than 82% of the audits. PwC captured the highest market share (35.9%), followed by KPMG (27.5%), Other auditors (18.3%), Deloitte (11.0%) and Ernst & Young (7.3%). The market share of all the Big 4 firms remained relatively stable over the period 2002 to 2007. When comparing the market share over time, the major change was in the share of Other auditors, which decreased from 21.9% in 2002 (Griffin *et al.*, 2009) to 2.4% in 2016.

Table 6 shows the movement in the number of listed company audits held by each firm from 2009 to 2016. Movements are classified as new company listings, switches between auditors and delistings.

[Insert Table 6]

The table shows that PwC increased its market share through new company listings in 2015 and 2016. These listings included AFT Pharmaceuticals Listed, Orion Health Group, Oceania Healthcare, NZME Ltd and Tegel Group Holdings. Other audit firms lost market share by listed companies switching to Big 4 auditors.

Table 7 reports the CAGRs for small and large companies based on the median of total assets of the sample. The CAGRs in the mean and median are negative at -2.7% and -1.2% respectively for large companies. In contrast, the CAGR in mean audit fees of small companies is 2.7% and the CAGR in the median audit fee is 10.5% .

[Insert Table 7]

Overall, the audit fee analysis shows that the audit market for listed companies is concentrated with the Big 4 earning 97.6% of audit fees. There was very little growth in the mean and median audit fees of audit firms of listed companies over the 2009 to 2016 period with the CAGR mean declining by 1.6% from 2009 to 2006. The analysis of audit fees by size of listed company shows that mean CAGR audit fees increased for small companies and decreased for large companies.

5.3. Regression results

Table 8 reports the results of the panel data fixed-effects regression audit fee model for the full sample. The regression for the full sample explains 62.1% of the variation in audit fees.

[Insert Table 8]

The coefficients of *LogAssets*, *LogSeg* and *InvRec* are positively significantly correlated with audit fees, indicating that audit fees are higher for companies that are larger, more complex and have greater inherent risk. *Foreign*, *ROA* and *CurrentRatio* are negatively associated with audit fees but are not significant. *Opinion* and *Busy* are positive and significant. *Loss* and *LogNASF* are not significant in the audit fee model. The coefficient for Big 4 is negative and significant. Industry sector was excluded as a control variable because of multicollinearity issues.

The variable of interest is *POST*. The coefficient is positive and highly significant indicating that audit fees increased after the introduction of audit regulation. The coefficient estimates that audit fees increased by 9.5% after the introduction of quality reviews. This result is consistent with international studies and indicates that increased effort of audit firms is passed on to the audit clients. The null hypothesis is thus rejected.

The sample is then split into quartiles of the total assets of each company. It is argued that larger companies have economies of scale which may reduce the impact of the introduction of regulation on audit fees. For example, if the auditors have to do more work to make sure the audit files are in good order for a review, that could be a substantial proportion of the work for a smaller company, but relatively trivial for a larger company.

[Insert Table 9]

The results in Table 9 show that *POST* is positive and highly significant for smaller companies in the first (Q1) and second (Q2) quartiles and for smaller-sized companies below the median. The coefficient for *POST* for the regression predicts that audit fees increased by 18% for companies in Q1 and by 10% in Q2. Further regression analysis (not shown) of small companies, below the median of total assets, estimates that audit fees of small companies increased by 15%. In contrast, *POST* is positive and not significant for larger companies in the third (Q3) and fourth (Q4) quartiles. The results show that the introduction of audit regulation increased audit fees for small but not large companies.

6. Summary and conclusions

The introduction of the Audit Regulation Act 2011 established the FMA as the regulatory body to oversee the audits of FMC reporting entities. This study examines the impact of the FMA's quality reviews on the audit fees charged by auditors subject to FMA quality reviews. International studies have shown that audit quality reviews of regulators increase the audit fees of clients audited by both small and large audit firms. Additional evidence suggests that firms with deficiencies increase efforts, which increases audit fees.

The impact of audit quality reviews on audit fees is examined, comparing audit fees in 2009 to 2016 three years before reviews commenced with audit fees charged from 2013 to 2016 four years after inspections commenced in 2013. The regression results show that audit fees increased by an estimated 9.5% after the introduction of quality reviews.

Further analysis shows that the audit fee increases were statistically significant for smaller but not larger companies. For smaller companies audit fees increased by an estimated 15% after the introduction of quality reviews. These economic consequences of regulatory oversight on audit firms have therefore had a greater impact on smaller companies.

The study is subject to limitations. The first limitation is that there is not a constant set of data for all listed companies over the periods examined because of listings and delistings during the periods. A second limitation is that audit fees of clients may be impacted if an audit firm receives a 'significant improvement' required on an audit file reviewed by the FMA. However, the FMA does not publicly report the results of its reviews by audit firm.

This study contributes to the international literature on the impact of audit regulation. It is also one of the few studies to have examined the economic consequences of regulatory audit quality reviews in New Zealand. Further research could look at the impact of audit regulation on other audit quality indicators such as the quality of financial reporting.

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Appendix 1 Variable Definitions

<i>LAF</i>	Natural logarithm of audit fees
<i>Post</i>	Indicator variable that takes the value one for balance dates 2013 to 2017, and zero otherwise
<i>LogAssets</i>	Natural logarithm of total assets
<i>LogSeg</i>	Natural logarithm of number of business segments
<i>Foreign</i>	Indicator variable that takes the value one if the company exports overseas, and zero otherwise
<i>InvRec</i>	Sum of inventories and trade receivables scaled by total assets
<i>ROA</i>	Earnings before interest and tax (EBIT) scaled by total assets
<i>Loss</i>	Indicator variable that takes the value one if the company incurred a loss in the current financial year, and zero otherwise
<i>Lev</i>	Non-current liabilities divided by total assets
<i>CurrentRatio</i>	Current assets divided by current liabilities
<i>Opinion</i>	Indicator variable that takes the value one if the audit has given a qualified audit opinion, and zero otherwise
<i>Busy</i>	Indicator variable that takes the value one if the company has a June balance date, and zero otherwise
<i>LogNasf</i>	Natural logarithm of non-audit service fees
<i>Big4</i>	Indicator variable that takes the value one if the audit is by a Big 4 audit firm, and zero otherwise

Table 1 FMA ratings of audit files of listed entities 2013–2016

Year	Good		Comply		Significant improvement required		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
2013	2	29	2	29	3	42	7	100
2014	1	7	9	64	4	29	14	100
2015	5	39	6	46	2	15	13	100
2016	0	0	6	46	7	54	13	100
Total	8	17	23	49	16	34	47	100

Source: FMA audit quality reports (FMA 2013, 2014, 2015a, 2016).

Table 2 Number of audit inspections 2013 to 2016

Year	No. registered audit firms	No. inspected	No. Big 4 inspected
2013	40	9	1
2014	30	17	2
2015	29	12	2
2016	24	12	2

Source: FMA audit quality reports (FMA 2013, 2014, 2015a, 2016).

Table 3 Sample by industry and audit firm 2016

	<i>n</i> (%)	PwC	KPMG	Deloitte	EY	Other
Consumer discretionary	15 (14)	8	4	1	1	1
Consumer staples	19 (18)	7	4	3	3	2
Energy	3 (3)	1	2	0	0	0
Financials	2 (2)	1	0	0	0	1
Healthcare	12 (12)	7	0	3	2	0
Industrial	18 (17)	7	1	5	4	1
Information technology	11 (11)	4	3	1	2	1
Materials	4 (4)	1	0	1	1	1
Real estate	8 (8)	4	1	1	2	0
Telecommunications	3 (3)	0	3	0	0	0
Utilities	8 (8)	1	3	3	1	0
Total	103 (100)	41	21	18	16	7

Table 4 Descriptive statistics for variables $n = 673$

	Mean	Median	SD	Minimum	Maximum
Audit fee	\$306,402	\$154,000	\$496,703	\$10,000	\$4,000,000
Non-audit services fee	\$137,229	\$32,000	\$307,467	0	\$3,070,000
Total assets	\$1,063,787,304	\$228,004,000	\$1,808,977,936	\$233,000	\$8,715,599,000
<i>InvRec</i>	18%	10%	19%	0%	98%
<i>CurrentRatio</i>	6.34	1.49	33.9	0.00	457.64
<i>Lev</i>	26%	22%	36%	0%	495%
<i>ROA</i>	1%	7%	29%	-275%	135%
<i>Loss</i>	23%	0%	42%	0%	100%
<i>Segments</i>	2.81	3.00	1.58	1.00	7.00
<i>Foreign</i>	0.65	1.00	0.48	0.00	1.00
<i>Opinion</i>	1%	0%	11%	0%	100%
<i>Busy</i>	46%	0%	50%	0%	100%

InvRec is the sum of inventory and trade receivables scaled by total assets. *CurrentRatio* is current assets divided by current liabilities. *Lev* is non-current liabilities divided by total assets. *ROA* is earnings before interest and taxation (EBIT) scaled by total assets. *Loss* is an indicator variable that takes the value one if the company has incurred a loss in the current financial year, and zero otherwise. *Segments* is the number of business segments. *Foreign* is an indicator that takes the value one if the company has exports sales, and zero otherwise. *Opinion* is an indicator variable that takes the value one if a qualified audit opinion is given, and zero otherwise. *Busy* is an indicator variable that takes the value one if the audit has a June balance date, and zero otherwise. All dollar values are in New Zealand dollars.

Table 5 Total, mean and median audit fees by year and audit firm

	2009	2010	2011	2012	2013	2014	2015	2016	CAGR
Overall									
Total	23,481,288	21,958,711	23,263,677	25,287,588	27,105,334	26,106,495	28,148,218	30,857,215	
Mean	335,447	296,739	310,182	324,200	322,683	290,072	284,325	299,585	-1.6%
Median	152,500	145,000	157,000	163,500	145,500	140,500	164,000	185,000	2.8%
SD	643,986	296,739	310,182	324,200	322,683	290,072	284,325	299,585	
% chg median		-4.9%	8.3%	4.1%	-11%	-3.4%	16.7%	12.8%	
N	70	74	75	78	84	90	99	103	
PwC									
Total	6,733,650	5,915,000	5,832,500	5,907,550	6,443,162	6,964,725	8,501,650	10,349,000	
% Total	28.7%	26.9%	25.0%	23.4%	23.8%	26.7%	30.2%	33.5%	
Mean	258,987	211,250	216,019	210,984	214,772	224,669	223,728	252,415	-0.4%
Median	198,500	174,000	197,000	155,500	143,500	140,000	185,000	210,000	0.8%
SD	199,829	159,351	164,983	181,037	186,923	203,911	182,355	214,942	
% chg median		-12.3%	13.2%	-16.2%	-12.1%	-2.4%	30.7%	13.5%	
N	26	28	27	28	30	31	38	41	
KPMG									
Total	12,009,464	10,783,180	11,198,467	12,030,070	12,224,520	10,302,760	6,858,583	7,036,205	
% Total	51.1%	49.1%	48.1%	47.6%	45.1%	39.5%	24.4%	22.8%	
Mean	706,439	634,305	658,733	668,337	643,396	490,608	342,929	335,057	-10.1%
Median	172,000	152,000	165,000	185,000	214,000	197,000	202,500	233,000	4.4%
SD	1,194,626	992,713	967,952	961,055	1,023,132	696,330	331,437	371,671	
% chg median		-11.6%	8.6%	12.1%	15.7%	-7.9%	2.8%	15.1%	
N	17	17	17	18	19	21	20	21	
Deloitte									
Total	2,374,500	2,911,652	3,000,472	3,666,000	3,751,000	4,361,000	4,613,000	4,981,857	
% Total	10.1%	13.3%	12.9%	14.5%	13.8%	16.7%	16.4%	16.1%	
Mean	237,450	264,696	272,770	305,500	267,929	272,563	256,278	276,770	2.2%
Median	152,000	192,000	210,000	163,000	130,500	125,000	115,500	143,000	-0.9%
SD	294,278	289,975	289,396	296,573	288,659	299,702	294,512	298,403	
% chg median		26.3%	9.4%	-22.4%	-19.9%	-4.2%	-7.6%	23.8%	
N	10	11	11	12	14	16	18	18	
E&Y									
Total	1,726,500	1,527,055	2,394,710	3,034,485	4,020,100	3,744,330	7,395,915	7,755,960	
% Total	7.4%	7.0%	10.3%	12.0%	14.8%	14.3%	26.3%	25.1%	
Mean	246,643	218,151	266,079	275,862	335,008	288,025	493,061	484,748	10.1%
Median	105,000	96,830	168,000	165,000	154,775	180,000	184,000	189,000	8.8%
SD	296,139	254,303	327,228	378,678	424,453	356,863	823,827	817,612	
% chg median		-7.8%	73.5%	-1.8%	-6.2%	16.3%	2.2%	2.7%	
N	7	7	9	11	12	13	15	16	
Other									
Total	637,174	821,824	837,528	649,483	666,552	733,680	779,070	734,193	
% Total	2.7%	3.7%	3.6%	2.6%	2.5%	2.8%	2.8%	2.4%	
Mean	63,717	74,711	76,138	78,448	80,855	82,768	97,383	104,884	7.4%
Median	30,500	36,000	41,000	39,150	43,500	47,000	46,000	45,000	5.7%
SD	103,394	89,893	92,951	98,035	103,540	101,951	130,890	144,177	
% chg median		18.0%	13.9%	-4.5%	11.1%	8.0%	-2.1%	-2.2%	
N	10	11	11	9	9	9	8	7	

¹Constant annual compound growth rate.

Table 6 Movement in number of listed company audits by Big 4 audit firms

	N	PwC	KPMG	Deloitte	E&Y	Other
2009	70	26	17	10	7	10
New listings	4	2	0	1	0	1
2010	74	28	17	11	7	11
New listings	1	0	0	0	1	0
Switches (net)	0	-1	0	0	1	0
2011	75	27	17	11	9	11
New listings	4	1	1	0	2	0
Switches (net)	0	0	0	1	0	1
Other ¹	-1	0	0	0	0	-1
2012	78	28	18	12	11	9
New listings	5	2	0	1	1	1
Switches (net)	0	0	1	0	0	-1
Other	1	0	0	1	0	0
2013	84	30	19	14	12	9
New listings	6	1	2	1	1	0
Switches (net)	0	0	0	1	0	0
2014	90	31	21	16	13	9
New listings	9	5	1	2	1	0
Switches (net)	0	2	-2		1	-1
2015	99	38	20	18	15	8
New listings	5	4	0	0	1	0
Delisting	-1	0	0	0	-1	0
Switches (net)	0	-1	1	0	1	-1
2016	103	41	21	18	16	7

¹ Listed company not audited 2011. In subsequent year audited by Deloitte.

Table 7 Mean and median audit fees: Large and smaller companies

		2009	2010	2011	2012	2013	2014	2015	2016	CAGR
Large	Mean	574,727	497,051	512,208	530,828	536,002	469,588	467,080	474,183	-2.7%
	Median	295,000	259,000	239,000	289,000	301,000	279,500	269,000	272,000	-1.2%
	% change median		-12.2%	-7.7%	20.9%	4.2%	-7.1%	-3.8%	1.1%	
	N	33	36	37	39	41	44	45	48	
Small	Mean	122,035	106,971	113,473	117,572	119,285	118,361	132,030	147,208	2.7%
	Median	57,000	71,000	74,138	76,000	90,000	78,500	102,500	115,000	10.5%
	% change median		24.6%	4.4%	2.5%	18.4%	-12.8%	30.6%	12.2%	
	N	37	38	38	39	43	46	54	55	

A large company has total assets greater than the median total assets of the sample, otherwise it is a small company.

Table 8 Audit fee model

Variable	Full sample		
	Coeff.	Std Error	Prob
<i>POST (2013–2016)</i>	0.095	0.026	0.000
<i>LogAssets</i>	0.286	0.027	0.000
<i>LogSeg</i>	0.280	0.057	0.000
<i>Foreign</i>	-0.129	0.141	0.360
<i>InvRec</i>	0.546	0.156	0.001
<i>ROA</i>	-0.030	0.055	0.595
<i>Loss</i>	0.004	0.042	0.915
<i>Lev</i>	0.042	0.039	0.278
<i>CurrentRatio</i>	-0.000	0.000	0.974
<i>Opinion</i>	0.252	0.105	0.016
<i>Busy</i>	0.722	0.319	0.024
<i>LogNasf</i>	0.001	0.003	0.741
<i>Big4</i>	-0.213	0.072	0.003
Constant	5.683	0.530	0.000
Observations	673		
R ²	62.1%		
F-statistic	26.1		
P value of F-statistic	0.000		

POST (2013–2016) is an indicator variable that takes the value one for balance dates 2013 to 2017, and zero otherwise. *LogAssets* is the natural logarithm of total assets. *LogSeg* is the natural logarithm of the number of business segments. *Foreign* an indicator that takes the value one if the company has exports sales, and zero otherwise. *InvRec* is the sum of inventory and trade receivables scaled by total assets. *ROA* is earnings before interest and taxation (EBIT) scaled by total assets. *Loss* is an indicator variable that takes the value one if the company has incurred a loss in the current financial year, and zero otherwise. *Lev* is non-current liabilities divided by total assets. *CurrentRatio* is current assets divided by current liabilities. *Opinion* is an indicator variable that takes the value one if a qualified audit opinion is given, and zero otherwise. *Busy* is an indicator variable that takes the value one if the audit has a June balance date, and zero otherwise, *LogNasf* is the natural logarithm of non-audit services. *Big4* is indicator variable that takes the value one if the audit is by a Big 4 audit firm, and zero otherwise.

Table 9 Audit fee model by company size: Quartiles

Variable	Q1 Quartile		Q2 Quartile		Q3 Quartile		Q4 Quartile	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
<i>POST (2013–2016)</i>	0.1807	0.005	0.103	0.002	0.0537	0.139	0.003	0.946
<i>LogAssets</i>	0.183	0.003	0.346	0.000	0.564	0.000	0.400	0.003
<i>LogSeg</i>	0.501	0.242	-0.039	0.628	0.007	0.948	0.609	0.016
<i>Foreign</i>	-0.367	0.408	-0.0632	0.730	*	*	-0.169	0.312
<i>InvRec</i>	0.680	0.021	0.319	0.532	1.040	0.024	1.153	0.017
<i>ROA</i>	0.055	0.537	-0.010	0.965	-0.664	0.044	0.714	0.193
<i>Loss</i>	0.030	0.750	0.042	0.590	0.055	-0.109	-0.159	0.113
<i>Lev</i>	0.015	0.904	0.002	0.975	-0.007	0.892	0.698	0.053
<i>CurrentRatio</i>	-0.018	0.020	0.000	0.467	-0.017	0.232	-0.029	0.500
<i>Opinion*</i>	0.361	0.024	*	*	-0.772	0.001	*	*
<i>Busy</i>	*	*	*	*	*	*	*	*
<i>LogNasf</i>	0.003	0.653	0.004	0.521	0.004	0.452	-0.006	0.248
<i>Big4</i>	0.129	0.452	0.461	0.036	0.105	0.371	*	*
Constant	7.600	0.000	4.685	0.003	0.786	0.694	3.462	0.209
Observations	169		169		169		169	
R ²	59.41%		8.08%		11.87%		50.26%	
P value of F-statistic	0.000		0.000		0.000		0.000	

*omitted because of multicollinearity issues.

POST (2013–2016) is an indicator variable that takes the value one for balance dates 2013 to 2017, and zero otherwise. *LogAssets* is the natural logarithm of total assets. *LogSeg* is the natural logarithm of the number of business segments. *Foreign* is an indicator variable that takes the value one if the company has exports sales, and zero otherwise. *InvRec* is the sum of inventory and trade receivables scaled by total assets. *ROA* is earnings before interest and taxation (EBIT) scaled by total assets. *Loss* is an indicator variable that takes the value one if the company has incurred a loss in the current financial year, and zero otherwise. *Lev* is non-current liabilities divided by total assets. *CurrentRatio* is current assets divided by current liabilities. *Opinion* is an indicator variable that takes the value one if a qualified audit opinion is given, and zero otherwise. *Busy* is an indicator variable that takes the value one if the audit has a June balance date, and zero otherwise. *LogNasf* is the natural logarithm of non-audit services. *Big4* is indicator variable that takes the value one if the audit is by a Big 4 audit firm, and zero otherwise.