Longer term audit costs of IFRS and the differential impact of implied auditor cost structures

by

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Abstract

Prior literature finds higher audit fees after the adoption of International Financial Reporting Standards (IFRS). We add to this research by documenting that the post-IFRS increase in audit fees is persistent, and not a short-term effect driven by transitional costs. In addition, early adopters have higher audit fees and this difference continues after IFRS adoption. Next, we consider the effect of increased effort required under IFRS on marginal pricing. Our results find lower (higher) marginal pricing post-IFRS for PwC and Deloitte (EY), suggesting that they have a relatively higher (lower) fixed and lower (higher) variable cost structure.

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1. Introduction

International Financial Reporting Standards (IFRS) have been found to have many benefits (e.g. Barth *et al*., 2008; Daske *et al*., 2008; Li 2010; Clarkson *et al*., 2011), but also additional costs in the form of higher audit fees (Griffin *et al*., 2009; Kim *et al*., 2012; De George *et al*., 2013). However, it has not been considered whether the post-IFRS increase in audit fees is driven by transitional costs or a post-IFRS higher equilibrium pricing structure due to requiring more effort. This paper adds to the ongoing discussion on the costs and benefits of IFRS by considering whether documented audit costs are once-off or persistent. We then utilise the New Zealand setting, where firms were given a period of time to adopt IFRS, to consider whether early adopters of IFRS have higher audit fees. Early adopters may have higher audit fees around IFRS adoption if they bore audit firms' initial IFRS learning costs. Last, we use the setting of a post-IFRS increase in audit effort and prior literature that finds specific audit firms have a fee premium from economies of scale (Simunic, 1980; Hay, 2013), to contend that IFRS would have a differential effect across audit firms based on relative cost structures. All businesses make decisions about their fixed and variable cost structure, and thus audit firms with higher fixed, but lower variable costs, would be better able to handle the shock of increased work under IFRS through lower marginal costs. We expect this higher fixed and lower variable cost structure to be reflected through lower marginal pricing post-IFRS. Thus, our paper not only contributes to the prior literature by considering the longer term cost of IFRS and adoption timing effects, but uses IFRS adoption to further the literature on audit firm cost structure, which can provide insight into audit firms' pricing decisions.

Our sample is based on New Zealand audit fee data from 2002 to 2012, with a total of 855 observations. Thus, our paper contrasts with prior studies which typically are only based on the initial post-IFRS years. New Zealand firms could voluntarily adopt IFRS from 1 January 2005, with mandatory adoption for periods commencing on or after 1 January 2007. Therefore,

the first mandatory report using IFRS in New Zealand would be released with a financial year-end of 2008. As this contrasts with jurisdictions with mandatory adoption in a single period, the New Zealand setting allows the investigation of whether early adopters face greater audit fees around IFRS adoption through bearing audit firms' learning costs. New Zealand is a good setting to examine audit firm cost structure, as its relatively small size makes it more economically viable for audit firms to have a range of cost structures than a market with large economies of scale for all firms.

As using a simple binary variable for all post-IFRS observations may bias results by pooling post-IFRS years with IFRS adoption years, we separate IFRS transition years (the year before, of and after IFRS adoption) from other IFRS years. We find higher audit fees around IFRS adoption and in the following post-IFRS years, showing that audit fees have shifted to be persistently higher post-IFRS. This confirms and extends prior research by considering a longer post-IFRS time period and controls for year fixed effects. Economically, we find that audit fees are $31,738 higher in the year after IFRS adoption relative to the IFRS adoption year, and significantly increase again in the following post-IFRS years by another $39,611, while mean sample audit fees are $279,969. Our results, of a persistently economically large increase in audit fees post-IFRS, are likely generalizable to other settings where IFRS has been adopted.[1] The findings are also of interest to regulators about the potential cost to adopting IFRS, balancing the substantial literature on the benefits of IFRS.

Next, we find that early adopters have higher audit fees across the whole sample period and in just the post-IFRS adoption period (2009–2012). Therefore, early adopters may be investing in greater audit quality, rather than bearing audit firms' IFRS adoption learning costs.[2] As our results show that giving a period of time to adopt IFRS does not place higher

[1] Whether results are weaker in countries which had harmonized accounting standards with IFRS pre-adoption is an open question.
[2] Alternatively, underlying factors that affect the choice to adopt IFRS early could be associated with higher audit fees.

costs on early adopters, they are likely of interest to regulators that allowed a window for IFRS adoption and to discussions around adoption timing in jurisdictions where IFRS has yet to be adopted.

Last, we consider whether IFRS had a differential effect across audit firms. We find evidence of PwC and Deloitte having lower marginal pricing post-IFRS, whilst EY has higher marginal pricing. We infer that PwC and Deloitte likely have a cost structure based on higher fixed and lower variable costs, while EY has lower fixed and higher variable costs. This enables a lower (higher) marginal cost, and thus marginal price, for the increase in effort required post-IFRS for PwC and Deloitte (EY). The cost structure effect on marginal pricing may flow from economies of scale, as PwC audits the most firms in our sample and EY the least of the Big 4 audit firms. Therefore, our study makes another contribution to the auditing literature by using IFRS adoption to show heterogeneity in the implied cost structure of audit firms, through differences in marginal pricing. Our fixed/variable cost model provides a useful template for examining audit issues in other settings. Areas of future interest could include the interplay of fixed and variable cost structure and related issues, such as information technology investment, industry specialisation and audit office or partner effects.

The reminder of the paper is structured as follows. Section 2 reviews the previous literature and develops the research questions. Section 3 outlines the research model and sample selection. Section 4 provides a descriptive statistics and discusses the results from our regression analysis, and Section 5 concludes.

2. Research setting and literature

2.1 Background and research setting

On 19 December 2002, the New Zealand Accounting Standards Review Board announced that all listed New Zealand companies must adopt NZ IFRS by the period

commencing on or after 1 January 2007, and firms could voluntarily adopt IFRS for periods commencing on or after 1 January 2005. Thus, the last possible year to adopt IFRS would end on 2008 before 31 December (e.g. 31 March or 30 June). This decision was influenced by Australia adopting IFRS for periods commencing on or after 1 January 2005, which itself was influenced by IFRS adoption in Europe (Bradbury and van Zijl, 2006). Although New Zealand had previously been in the process of harmonising its accounting standards with Australia (Bradbury, 1998), the harmonisation stopped after the announcement to adopt IFRS, suggesting there were a large number of changes upon the adoption of IFRS in New Zealand. Pre-IFRS accounting standards in New Zealand have been characterised as relatively less rules based than IFRS (Crawford *et al*., 2014), further suggestive of a large change to accounting in New Zealand upon the adoption of IFRS.

Over the period leading up to IFRS adoption, there were a range of other changes in the corporate governance and regulatory oversight of New Zealand listed companies. In 2003, the New Zealand Stock Exchange (NZX) required listed companies to have an audit committee with a majority of independent directors (listing rule 3.6), auditor rotation every five years (listing rule 3.6.3.f) and a minimum quota of two independent directors (listing rule 3.3). The New Zealand Securities Commission introduced a non-mandatory set of best practise corporate governance principles in 2004. New Zealand adopted International Auditing Standards for the period commencing on or after 1 January 2008. Using a self-constructed score for enforcement, Brown *et al*. (2014) find that New Zealand has the largest increase in enforcement over 2002 to 2004 in a sample of 51 countries. Therefore, the period of IFRS adoption likely represents a substantial increase in effort for auditors in New Zealand. However, Griffin *et al*. (2009) do not document any strong corporate governance effect on audit fees in New Zealand, although they do find an increase in response to IFRS adoption.[3]

[3] Our regression analysis of IFRS and audit fees controls for year fixed effects.

2.2 Literature review and research question development

IFRS are argued to be high-quality financial standards that would increase the comparability of financial statements. Prior literature has examined the benefits of IFRS adoption, finding that IFRS adopters engage in less earnings management, timelier loss recognition and have higher value relevance, suggestive of high-quality financial reporting (Barth *et al*., 2008; Clarkson *et al*., 2011). There was a positive market reaction to the adoption of IFRS (Armstrong *et al*., 2010) and higher liquidity and a lower cost of capital post-IFRS (Daske *et al*., 2008; Li, 2010), although any effect is likely dependent on strong governance and enforcement (Tarca and Brown, 2005).

However, IFRS could impose increased costs on firms. Survey evidence suggests that costs could be up to 0.31% of sales for firms with less than €700 million in sales (Jermakowicz and Gornik-Tomaszewski, 2006). Furthermore, there are higher audit fees post-IFRS in New Zealand (Griffin *et al*., 2009), Finland (Vieru and Schadewitz, 2010), the European Union (Kim *et al*., 2012), Malaysia (Yaccob and Che-Ahmad, 2012) and Australia (De George *et al*., 2013). However, it is not clear whether the increase in audit costs is a temporary price spike or has resulted in a new, higher equilibrium pricing structure. Prior studies have not answered this question, as they have only examined a few years of post-IFRS data at most.

Audit fees could be set at a newer higher equilibrium price, if auditing under IFRS is more costly. IFRS are argued to be more 'complex' (Jermakowicz and Gornik-Tomaszewski, 2006),[4] and more complex and numerous accounting rules would increase auditor costs through greater audit effort and legal liability risk (Kim *et al*., 2012). In addition, IFRS requires greater use of fair value accounting and thus revaluations, and revaluations are associated with higher audit fees (Yao *et al*., 2015). Audit fees likewise increased after the passage of the Sarbanes-

[4] For example, Crawford *et al*. (2014) document that NZ IFRS has substantially more requirements in terms of expense reporting.

Oxley Act (Griffin and Lont, 2007; Hoitash *et al*., 2008; Ghosh and Pawlewicz, 2009; Huang *et al*., 2009), and there is longer term evidence of higher audit fees after the adoption of new auditing standards in 1987 (Menon and Williams, 2001). Coster *et al*. (2014) find a positive linear trend in audit fees over the 2002–2009 period of large regulatory changes in the U.S. audit market. However, they do not control for firm or audit market characteristics in their analysis.

Alternatively, audit fees could only be higher in the years around IFRS adoption, before returning to prior levels due to learning and transitional costs associated with the regulatory change. DeAngelo (1981) notes a 'learning curve' for incumbent auditors; however, if all audit firms must learn IFRS, then presumably there would be a learning curve for all auditors in the initial years of IFRS. The learning curve is illustrated by a positive association between longer audit firm tenure and audit quality (Johnson *et al*., 2002; Myers *et al*., 2003; Ghosh and Moon, 2005). Furthermore if, as outlined above, IFRS has prompted higher-quality financial reporting, then that could offset any increased costs of auditing under IFRS in the longer term through a decrease in audit risk (Kim *et al*., 2012).

In addition, if there is an increase around IFRS adoption due to transitional costs, audit fees could remain at the alleviated price, but not further increase post-IFRS. This would suggest that audit fees have not increased to a higher equilibrium price post-IFRS, but rather audit fees increased in response to transitional costs and did not decrease once transition costs dissipated. Audit fees may not return to 'normal' pre-IFRS levels due to audit fee stickiness, as audit firms may not immediately revise prices downwards to adjust for changed conditions (De Villiers *et al*., 2012). Thus, we consider whether audit fees further increase in the post-IFRS period after the initial transition period.

Considering the lack of longer term empirical evidence, we view it an open question whether audit fees are persistently higher post-IFRS. Our first research question is stated as:

RQ1: Are audit fees persistently higher post-IFRS?

New Zealand had voluntary adoption of IFRS from 2005, with mandatory adoption for periods commencing on or after 1 January 2007. As the most common financial year-end in New Zealand is 31 March, it was permissible for the majority of firms to adopt IFRS for the financial year ending 31 March 2008. This contrasts with other jurisdictions where all firms must adopt IFRS in one year (a big-bang approach). We distinguish our setting, where firms adopt IFRS within the first year of an adoption period (early adopters), from other studies focusing on firms that voluntarily report using IFRS (voluntary adopters). If IFRS increased audit fees, then any associated learning costs of IFRS may have been borne mainly by early adopters only around the transition to IFRS. Alternatively, if early adopters invest in higher financial reporting quality, including greater audit monitoring, then we expect early adopters to have persistently higher audit fees. However, Stent *et al*. (2015) do not find that early adopters have higher audit fees as a ratio of total assets for a small number of New Zealand companies. Furthermore, Stent *et al*. (2010) report descriptive evidence of IFRS having a smaller impact on the financial ratios of early adopters, suggesting that they may not have higher audit fees if their transition to IFRS was less complex. There is some survey evidence that early adopters were more positive about the benefits of adopting IFRS and less uncertain about its impact (Stent *et al*., 2015). Thus, we believe it is an empirical question whether audit fees varied based on the timing of IFRS adoption for the broader market, leading to our second research question:

RQ2: Do audit fees vary dependent on IFRS adoption year?

Next, we investigate whether any IFRS audit fee increase is homogenous across audit firms. Although both meta-analyses of prior literature (Hay *et al*., 2006a; Hay, 2013) and some New Zealand specific studies (Johnson *et al*., 1995; Hay *et al*., 2006b; Hay and Knechel, 2010) find a Big N and a firm specific fee premium, it is not clear that such a fee premium would differ after IFRS adoption. Building on literature that notes that larger audit firms may have lower costs from economies of scale (e.g., Simunic, 1980; Hay, 2013), we argue that different firms' cost structures may be less able to absorb the post-IFRS shock of increased effort, which implies that firms have heterogeneous marginal costs.[5]

Marginal costs will differ in response to increased effort, as audit firms likely have different cost structures, in terms of relative fixed and variable cost levels. Broadly, traditional cost accounting categorises costs into fixed and variable. Variable costs vary in response to changes in activity, whilst fixed costs are assumed to be independent. Firms can make decisions about their relative fixed and variable cost structure level (Cooper and Kaplan, 1999). One simple example is investment in greater automation, which increases fixed but decreases variable costs. All else equal, firms with higher operating leverage (relatively higher fixed and lower variable costs) have a lower marginal cost per unit (higher contribution margin) and thus are more profitable for every extra unit of work.[6] This is graphically illustrated in Figure 1, where we show total costs in response to volume/effort for firms with higher and lower fixed cost levels. Figure 1 outlines that firms with higher fixed costs have a smaller increase in total costs for increased volume/effort. In our setting, IFRS is a shock that moves firms along the x axis by increasing audit effort. Similar to an increase in production volume, an increase in effort will increase total costs less for firms with relatively higher fixed costs. Accordingly, firms

[5] Fung *et al*. (2012) document lower costs from economies of scale, and find that this is highly interactive with auditor specialisation. However, recall that New Zealand is a small market without strong office or industry effects.

[6] The advantage of lower operating leverage (relatively lower fixed and higher variable costs) is greater flexibility, particularly during downturns in business; furthermore, such firms can have fewer costs at lower production levels, as shown in Figure 1.

with a higher fixed cost structure are relatively better positioned to absorb the shock of more effort through a lower marginal cost.

[insert Figure 1 here]

One example of the fixed and variable cost trade-off in auditing is that different levels of information technology investment affect pricing through increasing audit efficiency (Sirois and Simunic, 2011). Prior literature argues that there are differences in audit testing methodologies across audit firms based on the use of technology (Kinney, 1986), such as firms using relatively more quantitative or qualitative methodologies (Kaplan *et al*., 1990). Differences in audit testing methodology similarly relate to a firm's cost structure, with audit methodologies that are more technology based reflecting relatively higher fixed and lower variable costs. Wotton *et al*. (2003) argue that accounting firm mergers were partly motivated to increase the customer base used to apply fixed costs, including investments in information technology. This suggests that accounting firms are concerned and make decisions reflecting fixed costs.

New Zealand is a good setting to examine this question, as its relatively small size means that audit firms likely face a more difficult choice about cost structure, since it is economically viable to have either low or high fixed costs. However, a shock of increased effort would expose those companies with higher variable cost structures. This contrasts with a U.S. setting, where all firms are likely to have relatively higher fixed costs due to the much larger audit market. This difference in size is highlighted by the fact that second-tier firms in the U.S. are much larger that the Big 4 firms in New Zealand. *Accounting Today* ranked the second-tier auditor Crowe Horwath as the eighth-largest firm in the U.S. in 2014, with a total of $US664.62 million revenue and 28 offices, whilst the largest firm in in our sample, PwC, has only seven

offices.[7] Furthermore, as New Zealand is a small market without strong office or industry effects, we can partly discount an alternate specialisation driven story (Hay and Jeter, 2011). Therefore, we assume audit firms have differences in fixed and variable costs, and those firms with higher fixed and lower variables costs would have a lower marginal price for the increase in work required post-IFRS.[8] We state this research question as:

RQ3: Did audit marginal pricing vary heterogeneously post-IFRS across audit firms?

3. Research method

3.1 IFRS and audit fees

Our basic approach uses an audit fee model with fee determinants drawn from prior literature (e.g. Hay *et al*., 2006a) and binary variables to examine whether audit fees are higher post-IFRS. In contrast to prior literature on IFRS and audit fees, which use cross-section pooled regression models (Griffin *et al*., 2009; Kim *et al*., 2012; De George *et al*., 2013), we specify the following time-series panel regression model (time and firm subscripts omitted for convenience):

$$LAF = \beta_0 + \beta_1 LTA + \beta_2 LAUDITLAG + \beta_3 ROA + \beta_4 CURRENT + \beta_5 ARINV + \beta_6 DA + \beta_7 LNAS + \beta_8 BIG4 + \beta_9 FINANCE + \beta_{10} AUDCHG + \beta_{11} DUAL + \beta_{12} OPINION + \beta_{13} YR20XX + \beta_{14} IFRS + \varepsilon \quad (1)$$

[7] For U.S. accounting firm rankings, see the *Accounting Today* online supplement, available at: http://digital.accountingtoday.com/accountingtoday/top_100_firms_supplement_2014. For data on PwC's New Zealand office, see http://www.pwc.co.nz/who-we-are/our-locations/.

[8] We acknowledge that higher marginal costs may not directly lead to higher marginal pricing if companies have the ability to shift auditors. However, as changes in auditor are costly (Griffin and Lont, 2010) and audit clients may not immediately respond to pricing changes, we assume that higher marginal costs will lead to higher marginal pricing, at least in the short term.

Where variables are defined as:

LAF = the natural log of audit fees.

LTA = the natural log of total assets.

LAUDITLAG = the natural log of the number of days between the balance date and the auditor signature date.

ROA = the ratio of earnings before interest and tax to total assets.

CURRENT = the ratio of current assets to current liabilities.

ARINV = the ratio of the sum of inventory and receivables to total assets.

DA = the ratio of long term debt to assets.

LNAS = the natural log of non-audit services.

BIG4 = a binary variable equal to one if the auditor is Deloitte, EY, KPMG or PwC and 0 otherwise.

FINANCE = a binary variable equal to one if the client is in the finance industry and 0 otherwise.[9]

AUDCHG = a binary variable equal to one if the auditor has changed from the year before and 0 otherwise.

DUAL = a binary variable equal to one if the client is dual-listed and 0 otherwise.[10]

OPINION = a binary variable equal to one if the opinion given was qualified or a going concern emphasis of matter and 0 otherwise.

YR20XX = a binary variable equal to one if the year is 20XX and 0 otherwise.

IFRS = a binary variable equal to one if the firm is using IFRS to prepare its financial statements and 0 otherwise.

[9] Our sample contains no banks.
[10] All dual listings are on the Australian Stock Exchange.

We select our control variables based on prior literature (e.g. Hay *et al*., 2006a; Causholli *et al*., 2010). In a meta-analysis of published studies, Hay *et al*. (2006a) find that client size is the most important determinant of audit fees; thus, we expect a positive sign on *LTA*. We also control for audit reporting lag, as it can measure problems arising during the audit (Knechel and Payne, 2001). Client risk and complexity are associated with higher audit fees (Simunic, 1980; Dickins *et al*., 2008). Thus, we expect a negative (positive) association between audit fees and *ROA*, *CURRENT* and *DA* (*ARINV*). We include the log of non-audit services, as prior research shows that non-audit services may be a determinant of audit fees (Turpen, 1990; Antle *et al*., 2006). Next, we control for the effect of any Big 4 fee premium (Simunic, 1980; Hay *et al*., 2006b). Following Griffin *et al*. (2009), we include a binary variable to control for different audit fees in the finance industry. There should be differences in audit fees for firms that have changed auditor, although the sign of any association is unclear (Craswell and Francis, 1999; Ghosh and Lustgarten, 2006; Griffin and Lont, 2011). In addition, we expect dual-listed firms (Choi *et al*., 2009) and firms with adverse opinions to have higher audit fees (Davis *et al*., 1995; Schelleman and Knechel, 2010). Last, our independent variable of interest is *IFRS*, which measures whether audit fees increase post-IFRS.

However, using a simple binary variable for all post-IFRS observations may bias results by pooling the transitional and learning costs of IFRS adoption years with other IFRS years. Thus, to provide insight into the longer term effects of IFRS and to separate any IFRS transitional costs, we rerun our regression replacing *IFRS* with the following variables:

PREADOPT= a binary variable equal to one if it is the year prior to IFRS adoption and 0 otherwise.

IFRSADOPT = a binary variable equal to one if it is the year of IFRS adoption and 0 otherwise.

IFRS1 = a binary variable equal to one if it is the year after IFRS adoption and 0 otherwise.

POSTIFRS = a binary variable equal to one if the company uses IFRS and it is not the year of, or year immediately following, IFRS adoption and 0 otherwise.

We expect *PREADOPT*, *IFRSADOPT* and *IFRS1* to be significantly positive to reflect higher audit fees during the transition to IFRS. Our test variable is *POSTIFRS*, which measures whether there are higher audit fees under IFRS after the transition period.

3.2 IFRS, audit fees and adoption timing

Next, to examine whether audit fees varied dependent on the timing of IFRS adoption, we re-specify equation 2 as:

$$LAF = \beta_0 + \beta_1 LTA + \beta_2 LAUDITLAG + \beta_3 ROA + \beta_4 CURRENT + \beta_5 ARINV + \beta_6 DA + \beta_7 LNAS + \beta_8 BIG4 + \beta_9 FINANCE + \beta_{10} AUDCHG + \beta_{11} DUAL + \beta_{12} OPINION + \beta_{13} YR20XX + \beta_{14} PREADOPT + \beta_{15} IFRSADOPT + \beta_{16} IFRS1 + \beta_{17} POSTIFRS + \beta_{18} MIDADOPT + \beta_{19} LATEADOPT + \varepsilon \quad (2)$$

The variables of interest in equation 2 are *MIDADOPT* and *LATEADOPT*, which test whether audit fees varied when firms adopted IFRS across the allowable period. These are specified as:

MIDADOPT = a binary variable equal to one if the company adopted IFRS in 2007 and 0 otherwise.

LATEADOPT = a binary variable equal to one if the company adopted IFRS in 2008 and 0 otherwise.

3.3 IFRS, audit fees and differences across audit firms

Last, to consider whether IFRS affected firms differently, we specify the following two time-series panel regression models (variables as defined above):

$$LAF = \beta_0 + \beta_1 LTA + \beta_2 LAUDITLAG + \beta_3 ROA + \beta_4 CURRENT + \beta_5 ARINV + \beta_6 DA + \beta_7 LNAS + \beta_8 BIG4 + \beta_9 FINANCE + \beta_{10} AUDCHG + \beta_{11} DUAL + \beta_{12} OPINION + \beta_{13} YR20XX + \beta_{14} PREADOPT + \beta_{15} IFRSADOPT + \beta_{16} IFRS1 + \beta_{17} POSTIFRS + \beta_{18} MIDADOPT + \beta_{19} LATEADOPT + \beta_{20} BIG4 * POSTIFRS + \varepsilon \quad (3)$$

$$LAF = \beta_0 + \beta_1 LTA + \beta_2 LAUDITLAG + \beta_3 ROA + \beta_4 CURRENT + \beta_5 ARINV + \beta_6 DA + \beta_7 LNAS + \beta_8 BIG4 + \beta_9 FINANCE + \beta_{10} AUDCHG + \beta_{11} DUAL + \beta_{12} OPINION + \beta_{13} YR20XX + \beta_{14} PREADOPT + \beta_{15} IFRSADOPT + \beta_{16} IFRS1 + \beta_{17} POSTIFRS + \beta_{18} MIDADOPT + \beta_{19} LATEADOPT + \beta_{20} BIG4 * POSTIFRS + \beta_{21} BIG4 * LTA + \beta_{22} LTA * POSTIFRS + \beta_{23} BIG4 * LTA * POSTIFRS + \varepsilon \quad (4)$$

In Equation 3 the variable of interest is *BIG4*POSTIFRS*, which measures if any Big 4 audit premium changed post-IFRS. Equation 4 then includes the extra interactions of *BIG4*LTA* and *BIG4*LTA*POSTIFRS*. We do not assume that *LTA* directly measures audit effort, but rather it is a useful proxy that is related to audit effort as firm size is the main determinant of audit fees, explaining in excess of 70% of audit fees (Hay *et al*., 2006a). Prior studies have argued that firm size can measure audit effort (e.g. De George *et al*., 2013). Therefore, we interpret *BIG4*LTA* as measuring whether Big 4 firms have different marginal pricing, *LTA*POSTIFRS* as whether marginal pricing changed post-IFRS and *BIG4*LTA*POSTIFRS* as whether marginal pricing changed post-IFRS for Big 4 firms. We interact our *POSTIFRS* variable (a binary variable equal to one if the company uses IFRS and

it is not the year of, or year immediately following, IFRS adoption and 0 otherwise) to exclude any transitional effect on our results. As we assume heterogeneous cost structures across audit firms, differences in marginal pricing could reflect cost structures in terms of relative fixed and variable costs.

To provide further insight into the differential effects of IFRS across audit firms, we re-specify Equations 3 and 4 replacing *BIG4* and subsequent interactions, with individual binary variables for each Big 4 audit firm. This allows the investigation of differences across Big 4 firms. These variables are specified as:

DEL = a binary variable equal to one if the auditor is Deloitte and 0 otherwise.

EY = a binary variable equal to one if the auditor is Ernst and Young and 0 otherwise.

KPMG = a binary variable equal to one if the auditor is KPMG and 0 otherwise.

PWC = a binary variable equal to one if the auditor is PwC and 0 otherwise

We next rerun the regression on post-IFRS observations and replace *LTA*, which is a general proxy of audit effort, with an IFRS-only proxy. Specifically, we use the scaled absolute difference between IFRS and NZ GAAP profit for the year before IFRS adoption. Again, we do not assume that this directly measures increased effort, but rather may reflect underlying factors representing that the firm required more effort *per se* to audit post-IFRS. This variable is calculated as:

RECONCILE = the absolute difference between net profit as calculated under IFRS and pre-IFRS NZ GAAP for the year before IFRS adoption (as reported in the annual report in the year of IFRS adoption) divided by total assets in year *t*.

3.4 Sample

Our sample is based on all New Zealand domiciled companies listed on the NZX with audit fee data on Osiris (for 2002–2007) or on the NZX database (2008–2012). However, to better understand the longer term effects of IFRS on audit pricing, we require companies to be listed and have available data for every year during the 2002–2012 period. This allows us to compare the effect of IFRS on the audit fees of the same sample companies.[11] However, we do allow two firms that change financial year-end to remain in the sample, creating a slightly uneven sample. Where required, we supplement Osiris with hand collection of data. This results in a final sample of 855 firm-year observations from 78 firms.

4. Results

4.1 Descriptive statistics

Table 1 Panel A shows observations by year and IFRS. Only five companies had adopted IFRS in 2005, and we have both IFRS and non-IFRS observations in 2005, 2006 and 2007. We also show observations by audit firm and IFRS. PwC audits the most firms in our sample, and there does not appear to be a disproportionate change in the number of clients for any audit firm post-IFRS, although KPMG does increase the number of firms it audits post-IFRS.[12]

[insert Table 1 here]

Figure 2 shows a large increase in median audit fees immediately post-IFRS in 2006 and 2007. After this, the median audit fee decreases, but remains higher than the pre-IFRS

[11] We find broadly similar results when this restriction of continual data is eased to requiring at least one year of data pre- and post-IFRS.

[12] Although we cannot formally test the effect of IFRS on auditor change due to the small number of changes (N = 33), we note that changes in the number of audit clients could measure an auditor's ability to absorb the shock of increased effort required post-IFRS. We find that there are a large number of changes to KPMG pre-IFRS, suggestive of some 'spare' capacity. However, dismissals (resignations) could suggest over (under) charging, making any interpretation difficult.

level. One possible interpretation is that audit fees increase in the IFRS adoption year due to transitional costs, before reverting to a lower level in the longer term, which may or may not be significantly higher. Although non-audit services increase around IFRS adoption, they seem to return to more normal levels post-IFRS. Figure 3 shows that early adopters (firms that adopted IFRS in 2005 or 2006) have higher audit fees post-IFRS; however, they also have higher audit fees pre- and post-IFRS. Therefore, early adopters of IFRS may be larger firms with higher audit fees, or those firms that wish to invest in higher audit quality. Audit fees appear to remain at a consistent level post-IFRS.

[insert Figures 2 and 3 here]

In addition, we report median (mean) audit fees by accounting standard and year, for specific firms in Panel B (C). The results suggest that KPMG has the highest average audit fees. All firms appear to have higher audit fees post-IFRS, with KPMG having the largest. When we examine non-audit services in Panel D, we see an increase around IFRS adoption years, suggesting that audit firms may have provided additional advisory services around IFRS adoption. Thus, we find some descriptive evidence that the effect of IFRS on audit pricing is not homogenous across audit firms.

Table 2 presents sample descriptive statistics. Audit fees are on average $279,969, although the median is only $107,000. There is a large range in firm size, with total assets ranging from $66,000 to over $8 billion, although the mean is $733 million. The large variation in assets also explains the range in return on assets, with some small, development stage entities making large losses relative to assets. Our sample is comprised of 53.0% (453) IFRS observations, and 9.1% of observations are of the IFRS adoption year; 55.2% of all companies adopted IFRS in the last possible year (2008). The Big 4 audit 80.1% of sample observations, with PwC being the market leader with 41.4% of sample observations, followed by KPMG with 22.2%. As Deloitte and EY only audit 11.2% and 5.3% of sample firms, respectively, it

could suggest some segmentation between Big 4 audit firms. The largest industry group is consumer discretionary (23.2%), followed by industrials (18.0%) and consumer staples (12.6%).[13] To ensure normality, the outlying 1% of observations are winsorized for continuous variables.

[insert Table 2 here]

4.2 Audit fees and IFRS adoption

Table 3 Panel A presents our regression results, with log audit fees as the dependent variable (*LAF*). The models appear to be fairly robust, with adjusted R^2's between 78.0% and 80.9%, and multicollinearity is not likely to be a major concern, as the highest variance inflation factor is 6.267 on *IFRS* and the highest correlation is 0.568 between *LTA* and *BIG4*. Although they are not the focus of this study, we note that most control variables are consistent.[14]

[insert Table 3 here]

In Model 1, we run our base regression and find evidence of significantly higher audit fees post-IFRS. However, using a simple binary variable for all post-IFRS observations pools the effect of any IFRS adoption costs with other IFRS years, which may bias results. Therefore, in Model 2 we separate the *IFRS* variable into binary variables equal to one for the year before IFRS adoption (*PREADOPT*), for the year of IFRS adoption (*IFRSADOPT*), for the year after IFRS adoption (*IFRS1*) and for every other year after IFRS adoption (*POSTIFRS*), and 0 otherwise. We find evidence of higher audit fees around IFRS adoption, as shown by the significant positive sign on *PREADOPT*, *IFRSADOPT* and *IFRS1*. This result is consistent with Griffin *et al*. (2009); however, we add to prior research by considering the longer term

[13] In untabulated robustness tests, we find unchanged results when we control for industry fixed effects across all our regression analyses.
[14] One exception is *BIG4*; however, *BIG4* being insignificant is consistent with Griffin *et al*. (2009).

post-IFRS trend in audit fees. As *POSTIFRS* is significantly positive, it suggests persistently higher audit fees in the post-IFRS non-transition period.

It is important to consider any economic effect of IFRS after considering other control variables, including year fixed effects.[15] Accordingly, we report estimated marginal means in Panel B which show significantly higher audit fees post-IFRS. Specifically, audit fees are $19,684 higher for *PREADOPT* (the year before IFRS adoption) than other pre-IFRS years, but there is no significant difference between *PREADOPT* and the year of IFRS adoption.[16] This suggests that some of the transitional costs of IFRS adoption are spread across the year immediately before adoption. Furthermore, we find that audit fees are $31,738 higher in the year after IFRS adoption relative to the IFRS adoption year, and significantly increase again in the following post-IFRS years by another $39,611. Accordingly, there appear to be persistently higher audit fees post-IFRS, even after isolating the longer term IFRS effects from the IFRS transitional costs. Therefore, the audit fee pricing equilibrium seems to be permanently shifted upwards after IFRS adoption. In addition, considering the average sample audit fee is $279,969 (median is $107,000), the effect appears to be proportionally large.

4.3 Audit fees and adoption timing

Next, we utilise the voluntary IFRS adoption period to consider whether early adoption has any longer term effect on audit fees in Table 4.[17] Model 3 shows firms that adopted IFRS in 2007 (*MIDADOPT*) and 2008 (*LATEADOPT*) have lower audit fees; thus, firms that adopted IFRS earlier (in 2005 or 2006) have higher audit fees. However, this analysis does not clarify whether early adopters paid higher audit fees due to bearing audit firms' learning costs or as

[15] Results are unchanged when we do not control for year fixed effects.
[16] Our study uses nominal dollars. However, as yearly inflation in New Zealand has averaged 2.4% since 2000 (http://www.rbnz.govt.nz/statistics/key_graphs/inflation/ accessed 30 July 2015), the increase audit fees is larger than inflation alone would suggest.
[17] This contrasts with jurisdictions where all companies must adopt IFRS in a given year.

early adopters investing in higher financial reporting quality, including greater audit monitoring. Thus, we rerun the regression only on observations from 2009 onwards (Model 4). We do not control for IFRS in this analysis, as all observations are post-IFRS. We find significant negative coefficients on *MIDADOPT* and *LATEADOPT*, consistent with Model 3 and the rationale that early adopters had higher audit fees from investing in higher financial reporting quality. In an untabulated test, we interact *MIDADOPT* and *LATEADOPT* with our IFRS transition variables (*PREADOPT*, *IFRSADOPT* and *IFRS1*) and find that all the interactions are insignificant. This provides additional evidence that early adopters did not have further elevated audit fees around the transition to IFRS.

[insert Table 4 here]

To alleviate concerns around the alternative explanation that early adopters are fundamentally different, and this difference is correlated with both adopting IFRS early and persistently higher audit fees, we use a two-stage least squares approach. First, we estimate the determinants of early adoption as at 2006[18] and calculate *EARLYADOPT_PREDICT*. We include two new variables, the natural logarithms of the number of subsidiaries plus one (*LSUB*) and the number of subsidiaries that were located in jurisdictions that had mandatory adoption of IFRS by 2005 plus one (*LSUBIFRS*). These variables may control for integration into overseas markets (e.g. Australia or Europe) that had mandatory adoption from 2005, which would be categorised as 'early' in our study. However, we acknowledge that we cannot identify a strong instrumental variable, which may limit the robustness of our two-stage approach (Lennox *et al*., 2012).

Panel B reports univariate tests of differences in firm characteristics in 2006 based on when IFRS is adopted. Consistent with our regression results, we find that early adopters have

[18] Considering the majority of early adopters adopt IFRS in 2006, we use 2006 as the decision year of adoption timing and the predicted variable for all years.

higher audit fees. The result of higher non-audit services is likely due to the transition to IFRS. Early adopters are larger (*LTA*), and have more subsidiaries in jurisdictions using IFRS (*LSUBIFRS*), although not more subsidiaries in total (*LSUB*). This suggests that early adopters may have greater incentives to adopt IFRS earlier, due to integration into markets using IFRS. However, we find that *DUAL* is not significantly different, with only six of the 12 firms that are dual-listed onto the ASX adopting IFRS early. As all firms are cross-listed onto the ASX, *DUAL* also measures integration into a market using IFRS.

In Model 5, we use a parsimonious model controlling for size, performance, risk and integration into IFRS-based markets to estimate the determinants of early adoption. This model is significant, and has a Nagelkerke R^2 of 28.9%. However, only the number of subsidiaries in jurisdictions using IFRS is significant, although *LTA* is marginally so at the 10% level. When we use the predicted value of early adoption from Model 5 (*EARLYADOPT_PREDICT*) in our audit fee regression, we find consistent results of higher audit fees for early adopters across the whole sample (Model 6) and the post-2009 period (Model 7). Thus, we conclude that there are higher audit fees for early adopters even when we alleviate self-selection concerns.

4.4 Audit fees, IFRS and differences across audit firms

Having established that there are higher audit fees post-IFRS, we next consider whether there are differences across audit firms (Table 5 Panel A). In Model 8, we include the interaction of *POSTIFRS* with *BIG4*, which is insignificant. In Model 9, we interact *LTA* with *POSTIFRS* and *BIG4*. As client size is the primary determinant of audit fees, it can be used as a simple proxy for audit effort and thus marginal pricing. We find that *BIG4*LTA* is significantly positive, but that *LTA*POSTIFRS* and *BIG4*LTA*POSTIFRS* are not. This implies that Big 4 audit firms have higher marginal pricing, which did not change post-IFRS.

[insert Table 5 here]

However, there may be differences between Big 4 firms; thus, in Panel B we replace *BIG4* with binary variables equal to one if the auditor was Deloitte (*DEL*), EY (*EY*), KPMG (*KPMG*) or PwC (*PWC*), and 0 otherwise.[19] Model 10 shows that EY, KPMG and PwC earn an audit fee premium, but Deloitte has a fee discount. This suggests some audit fee differentiation across the Big 4 firms. In Model 11, we interact each individual Big 4 firm with *POSTIFRS*. EY and PwC have a significantly lower audit fee premium post-IFRS, but there is no change for Deloitte and KPMG. Accordingly, we infer that IFRS differently impacts audit pricing across Big 4 audit firms. One limitation is that there are relatively few *EY*POSTIFRS* observations, although we do address this concern in our robustness tests section.[20] The fee premium may have decreased post-IFRS for several reasons. First, in response to the greater audit effort required post-IFRS, audit firms may use economies of scale advantages (higher fixed costs and lower variable costs pricing structure) to reduce prices and increase market share. Alternatively, if companies desire a set level of overall financial reporting quality and IFRS adoption improved the underlying accounting standards, the impact of audit firm differentiation and thus any fee premium may have decreased post-IFRS.

Next, we consider the effect of cost structure by interacting *LTA*, and find that all Big 4 audit firms have higher marginal pricing than non-Big 4 firms. We find that PwC and Deloitte have significantly lower marginal pricing post-IFRS, but EY has higher marginal pricing. Therefore, PwC and Deloitte appear to favour a relatively higher fixed/lower variable cost structure and EY a higher variable/lower fixed cost structure, considering *LTA*POSTIFRS* is insignificant. We note that this finding is broadly consistent with PwC having larger economies of scale, through auditing the most firms in our sample and thus being able to better absorb the shock of increased effort post-IFRS. Furthermore, EY audits the least firms in our sample out

[19] For example, there are large differences in the number of clients between Big 4 firms in Australia over 2002 to 2004 (Ferguson and Scott, 2014).
[20] N = 14

of the Big 4 audit firms suggesting they would have smaller economies of scale and be less able to absorb the shock of increased effort post-IFRS. This is then reflected through lower marginal costs, and pricing.

In Panel C we run our regressions on post-IFRS observations and include a variable measuring the absolute difference between net profit calculated under IFRS and pre-IFRS NZ GAAP scaled by total assets (*RECONCILE*). Model 13 shows that *RECONCILE* is significantly positive, suggesting that it represents an increase in audit effort or risk post-IFRS. Next, we interact *RECONCILE* with *BIG4* to test whether the Big 4 audit firms priced the increased effort post-IFRS differently. Consistent with our result in Panel A where *LTA*POSTIFRS* and *BIG4*LTA*POSTIFRS* are not significant, we find that *RECONCILE*BIG4* is insignificant. However, when we interact *RECONCILE* with specific audit firm dummies, we find Deloitte (EY) has significantly lower (higher) marginal pricing post-IFRS. This is consistent with our *LTA* results that Deloitte appears to favour a relatively higher fixed/lower variable cost structure and EY a higher variable/lower fixed cost structure.

In summary, Big 4 firms may differently respond to increase effort required from changes in regulation due to cost structure. Therefore, we add to the existing literature on audit firm pricing differences (e.g. Simunic, 1980) by considering potential cost structures on audit pricing.

4.5 Practitioner views

To aid the interpretation of our findings, we discussed our modelling and results with several New Zealand audit partners and managers from Big 4 and mid-tier firms who had experience around the IFRS adoption period. First, there was interest in the implication of different premiums and discounts between the Big 4. One partner noted that they did not price

audits according to the fee model used by researchers, but accepted the model's ability to predict audit fees.

In relation to our fixed cost argument, there were similar responses around the theme that audit technology could vary across audit firms. Consistent with Sirois and Simunic (2011), the practitioners agreed that investment in audit technology created higher fixed costs and barriers to entry. One practitioner, now in a mid-tier firm, worked for a Big 4 firm during the IFRS adoption period and said that the Big 4 firm (globally) waited until 2009/10 before investing significantly in sophisticated audit technology to enable them to successfully develop a purposely built system. In contrast, the mid-tier firm the practitioner now works for used an off-the-shelf product. One partner confirmed that their system, immediately prior to IFRS adoption, was a global electronic version of a paper-based system. It was not until a major upgrade, around the time of the global financial crisis, that they moved to a more sophisticated system. That partner is now working in a smaller firm which largely uses a paper-based system, as their clients are much smaller, confirming our fixed/variable cost insight and that the uptake of technology is related to market share (Sirois and Simunic, 2011). However, another partner noted that the two Big 4 firms they had worked for had similar and relatively sophisticated systems, and one partner believed that fixed and variable costs would vary between the Big 4 firms only at the margin.

In addition, we explored whether audit firms highlighted their use of technology and found the following from Grant Thorton: 'Grant Thornton is a leader in the use of advanced audit technology and we have the technology to achieve a "paperless" audit where this is cost effective. Technology allows us to reduce the time that was previously spent on various routine functions and enables us to extract and analyse data with a minimal amount of effort. As a

result of this, we can concentrate our efforts on the business issues.'[21] Thus, audit firms themselves note audit technology as a feature promoting greater efficiency.

Sirois and Simunic (2011) assume differences in technology between Big 4 and non-Big 4 auditors. However, our data suggest significant differences in market share for Big 4 firms within New Zealand, and our discussion with those in practice confirms this. This is consistent with Dowling and Leech (2007), who interview five Australian partners and find variance between firms' audit support systems. The general point is still relevant—that audit firms compete on both quality and price through fixed investments in technology, but a certain level of output is required to justify this investment. Thus, our contention that different levels of fixed investments in audit technology affect the ability of New Zealand firms to respond to the increased effort required from IFRS appears supported.

Furthermore, it was confirmed that fixed costs could vary based on an audit firm's presence in the region or the quality of its office space. For example, one non-PwC partner noted PwC had a greater regional presence than other Big 4 firms and occupied more premium office space in Auckland compared with some other Big 4 firms at the time of the IFRS adoption. Another partner commented that the share of the global office costs and insurance arrangements could be significant. In addition, this partner noted that they took a three-year view to recover all the costs of IFRS adoption, confirming the importance of examining the effect of IFRS on audit fees over a longer period. They were also careful to charge non-audit services for non-audit work around IFRS adoption.[22] Overall, we conclude that practitioners support the contention that audit firms can have different fixed/variable cost structures, due to investments in information technology or overhead costs. Accordingly, audit firms' cost structure, and the interplay of other audit factors such as information technology investment

[21] http://www.grantthornton.co.nz/services/audit/index.html (accessed 30 July 2015).
[22] This might vary substantially dependent on the client's in-house expertise with IFRS. We consider the relationship between non-audit services and IFRS in our robustness section below.

and industry specialisation, seem to be a fruitful area for future research.[23] As audit partners may influence new audit technology implementation (Curtis and Payne, 2008), it would be of interest to investigate audit office or partner effects.

4.6 Robustness tests

Our multivariate analyses are robust to a variety of untabulated sensitivity tests. First, we rerun our regressions clustering standard errors by period, firm and both to avoid econometric issues regarding cross-sectional and time-series dependence (Gow *et al*., 2010). Doing so produces unchanged results. We next take the natural logarithm or inverse sine of all financial ratios (adjusted to allow transformation) to control for the non-normal distribution of tails (Ashton *et al*., 2004). As we find consistent results, our main inferences are likely not driven by 'fat' tails. Results are substantially unchanged when we run them on a continual data subsample.

Next, to alleviate concerns around the self-selection of IFRS adoption timing, we rerun regressions on samples separated by adoption timing (i.e. *EARLYADOPT*, *MIDADOPT* and *LATEADOPT*) and find consistent results of persistently higher audit fees post-IFRS. Another concern is that there are relatively few *EY*POSTIFRS* observations; thus we rerun regressions combining Big 4 accounting firms that appear to have similar cost structures. Specifically, we merge the binary variables for Deloitte and PwC, and EY and KPMG. We find that the interaction of *POSTIFRS* and *LTA* for the combined Deloitte/PwC binary variable is significantly negative, consistent with our individual audit firm results. However, the interaction of the combined EY/KPMG variable is not significant, which is consistent with the

[23] It was noted that the use of audit technology and information technology expertise may vary by auditee industry. Specifically, banks and insurance firms with high-volume, low-margin transactions would be more heavily dependent on information technology-based systems to ensure the integrity of the audit.

individual KPMG binary variable. Overall, we conclude that the result of audit firms having different cost structures is consistent.

In untabulated tests, we interact other variables with *POSTIFRS* to examine any post-IFRS change. We find that all interactions of IFRS and risk or complexity-related financial variables (*ROA*, *CURRENT*, *ARINV* and *DA*) are not significant at the 5% level. As this suggests that the effect of risk on audit pricing did not change post-IFRS, one possible interpretation is that IFRS did not decrease the risk for auditors. However, we do find that the interaction of *IFRS* and *LAUDITLAG* is significantly positive. As a longer audit lag is associated with higher audit fees, greater audit negotiations and complexity seem to have a stronger effect on audit fees post-IFRS. One reason why audit issues may be more costly post-IFRS is that audit firms may be seeking to establish reputational premiums under the IFRS framework. We also document a moderating effect of IFRS on the relationship between non-audit services and audit fees. This suggests that audit firms are less likely to bundle fees under IFRS, although any interpretation of non-audit services and bundling is problematic. The interactions of binary variables (*FINANCE*, *AUDCHG*, *DUAL* and *OPINION*) and *POSTIFRS* are all insignificant at the 5% level.

Last, we rerun the regressions reported in Table 3 with non-audit services as the dependent variable and only include observations with non-zero non-audit services. We find that non-audit services are higher post-IFRS, and persistently higher in the post-IFRS non-transition period. However, non-audit services include services that may be unrelated to IFRS adoption costs, such as tax compliance. Therefore, we rerun our regressions on the natural logarithm of audit-related and other assurance fees, and find consistent results. When we rerun Table 4 Panel A, we find that early adopters have higher non-audit services across the whole sample and post-2009. This is consistent with early adopters having higher audit fees and

investing in greater financial reporting quality. Overall, we find evidence of persistently higher non-audit services post-IFRS, although further investigation is outside the scope of this paper.

5. Conclusion

This study examines the effect of IFRS on audit fees in New Zealand, and finds that audit fees are persistently higher post-IFRS, even after excluding once-off transitional costs. Thus, we confirm Griffin *et al*. (2009) that there are higher audit fees post-IFRS, but extend prior analysis by considering a longer sample period. In addition, early adopters have higher audit fees. However, as early adopters have higher audit fees after IFRS adoption in the 2009–2012 period, they may have higher audit fees due to being different firms, who invest in greater audit quality, rather than solely bearing the IFRS learning costs of audit firms.

Next, we consider the effect of IFRS across audit firms, and dependent on implied cost structure. As IFRS requires more audit effort and audit firms likely have different cost structures, we expect a varying impact on firms' marginal price. We find that PwC and Deloitte have lower marginal pricing post-IFRS. Lower marginal pricing could reflect that these Big 4 firms have relatively higher fixed and lower variable costs (greater economies of scale), as they incur lower marginal costs after the post-IFRS increase in audit effort. In contrast, EY has higher marginal pricing post-IFRS, suggestive of lower fixed and higher variable costs (smaller economies of scale). These results are intuitively consistent, as PwC (EY) is the biggest (smallest) Big 4 audit firm in our sample. Thus, we show that audit firms have potentially different cost structures, and this affects marginal pricing where audit effort increases under IFRS.

Our paper makes several contributions to the auditing literature. We demonstrate that audit fees are persistently higher post-IFRS and add to the discussion on the benefits and costs of IFRS by focusing on the longer term costs. Our findings show that new accounting standards

can have persistent in addition to transitional costs, and are salient to future discussions on global accounting regulation. This contribution is globally relevant to company boards and investors who may expect a higher level of audit quality in response to increased audit fees. Next, we find that allowing a period of time to adopt new standards does not result in learning costs, through higher audit fees, being placed on early adopters. This is likely of interest to regulators around the decision to allow a window to adopt new standards, and particularly in those jurisdictions which have not yet adopted IFRS. We also provide insight into audit firm implied cost structure by showing how firm marginal pricing changed post-IFRS in response to a required increase in effort. The fixed/variable cost model provides a template for considering audit fee pricing that can be further explored. Using a fixed/variable cost template may further understanding into how audit pricing would respond to other changes in the audit environment. In New Zealand, the Auditor Regulation Act of 2011 now requires audits of listed companies to be conducted by registered firms.[24] Our framework suggests this would increase the fixed costs of audit firms, which may be unable to be absorbed by firms with a higher variable cost structure. Accordingly, smaller audit firms may exit the market. As one limitation of our study is the small sample size, it would be of interest to consider fixed/variable costs in response to changes in the audit environment in larger jurisdictions, for example, the adoption of Sarbanes-Oxley. Other fruitful areas to investigate fixed/variable costs in auditing would include information technology investment, industry specialisation and audit office or partner effects.

[24] The Financial Markets Conduct Act of 2013 defines an FMC reporting entity, which includes issuers of regulator products and financial institutions.

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Figure 1: Fixed and variable costs

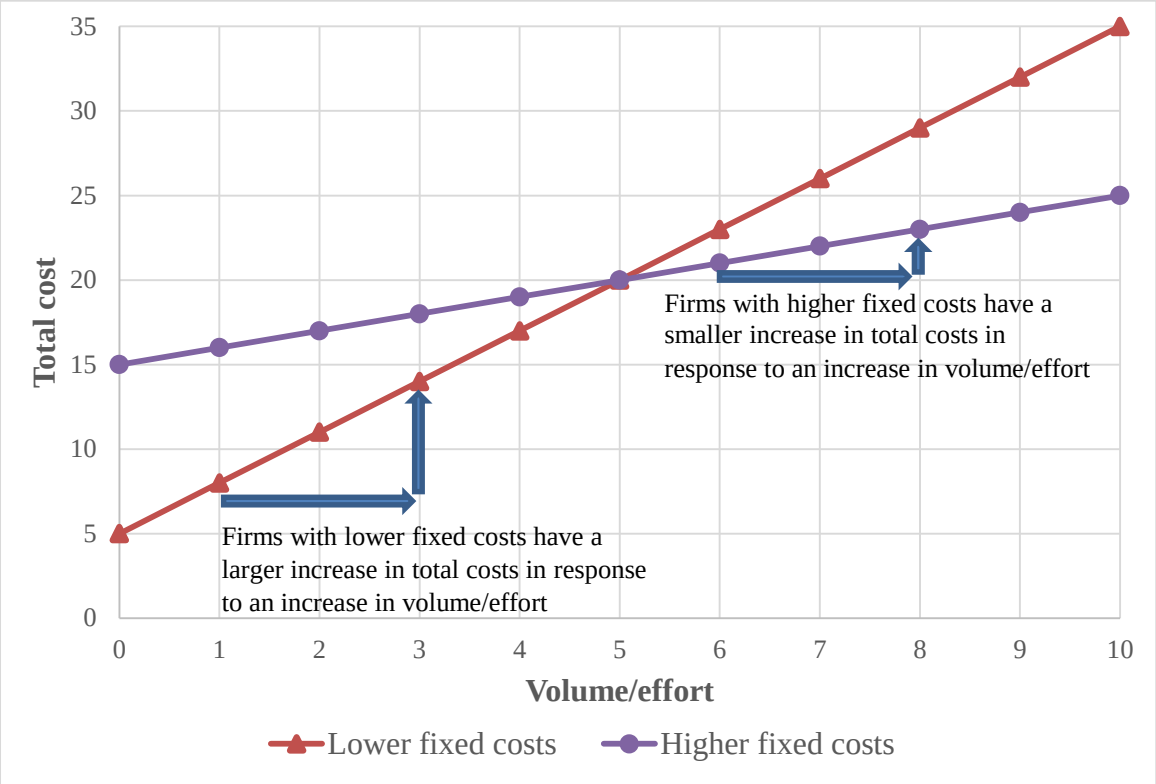

Figure 2: Median audit fees and non-audit services by accounting standard

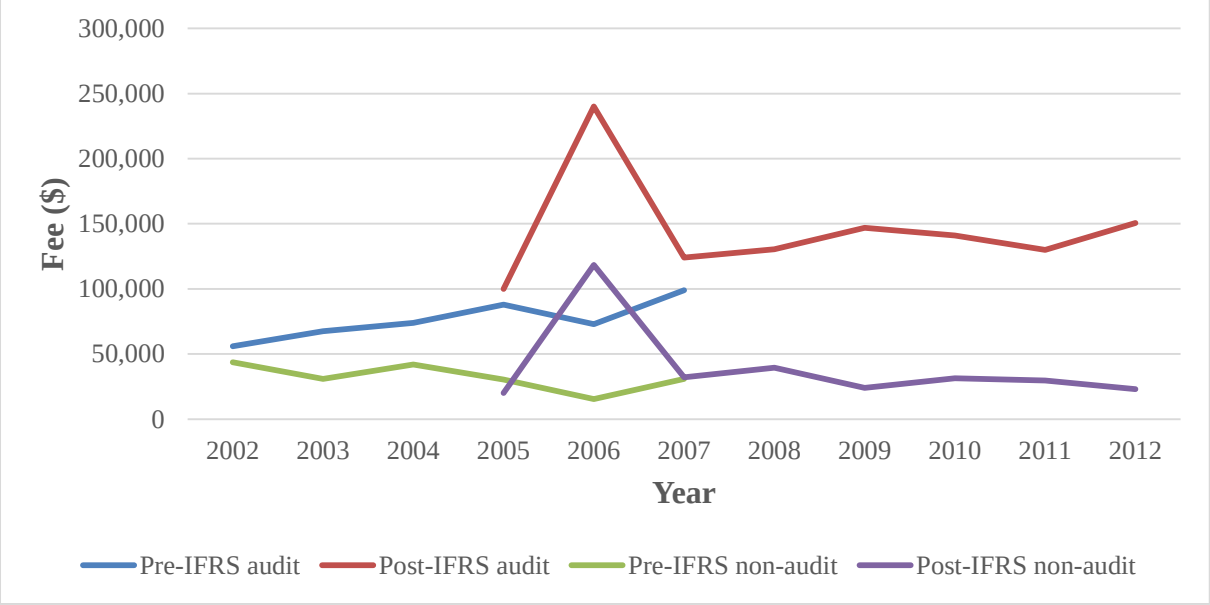

Figure 3: Median audit fees by year of IFRS adoption and accounting standard

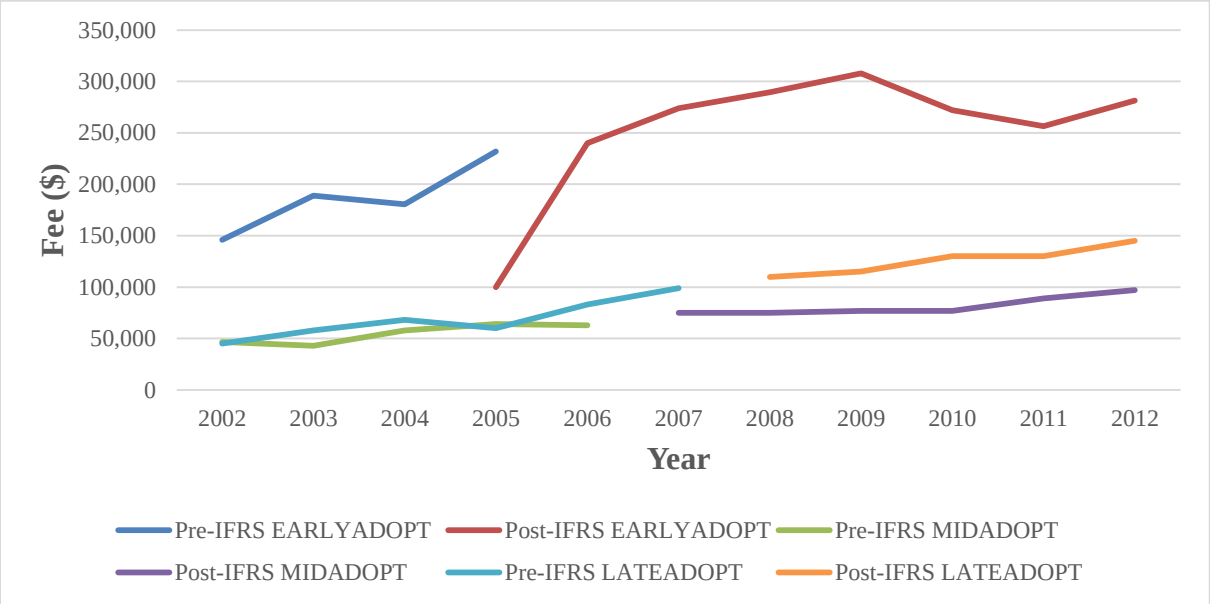

Table 1: Sample statistics by year and IFRS

Panel A: Sample observations

Observations		**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
All	*Pre-IFRS*	78	78	78	72	54	42					
All	*Post-IFRS*				5	24	35	78	77	78	78	78
DEL	*Pre-IFRS*	10	9	9	9	8	7					
DEL	*Post-IFRS*					1	2	8	8	8	8	9
EY	*Pre-IFRS*	5	5	5	3	3	2					
EY	*Post-IFRS*						1	4	4	4	4	5
KPMG	*Pre-IFRS*	13	14	14	15	11	9					
KPMG	*Post-IFRS*				2	7	9	20	19	19	19	19
PWC	*Pre-IFRS*	34	34	34	32	20	16					
PWC	*Post-IFRS*				1	13	17	31	31	31	31	29
Non-Big4	*Pre-IFRS*	16	16	16	13	12	8					
Non-Big4	*Post-IFRS*				2	3	6	15	15	16	16	16

Panel B: Median audit fees

Audit fees		**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
All	*Pre-IFRS*	56,000	67,500	74,000	88,000	73,000	99,000					
All	*Post-IFRS*				100,000	240,000	124,000	130,500	147,000	141,000	130,000	150,500
DEL	*Pre-IFRS*	45,000	53,000	57,000	60,000	58,500	42,000					
DEL	*Post-IFRS*					200,000	162,500	120,000	96,000	96,000	104,500	120,000
EY	*Pre-IFRS*	260,000	382,000	395,000	188,000	336,000	523,000					
EY	*Post-IFRS*						55,980	159,450	183,250	169,613	213,500	332,000
KPMG	*Pre-IFRS*	79,000	111,000	116,500	138,000	95,000	147,000					
KPMG	*Post-IFRS*				251,500	547,000	327,000	143,500	181,000	214,000	165,000	173,000
PWC	*Pre-IFRS*	86,000	90,000	98,500	115,000	93,500	161,000					
PWC	*Post-IFRS*				419,000	242,000	195,000	198,000	204,000	200,000	200,000	200,000
Non-Big4	*Pre-IFRS*	19,500	21,575	20,500	25,000	30,500	39,500					
Non-Big4	*Post-IFRS*				35,064	30,000	35,500	45,000	31,000	36,000	44,500	39,150

Panel C: Mean audit fees

Audit fees		**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
All	*Pre-IFRS*	172,230	212,246	211,210	262,337	157,237	197,648					
All	*Post-IFRS*				198,425	548,981	430,919	319,056	347,423	324,426	323,328	330,994
DEL	*Pre-IFRS*	260,453	131,837	152,090	167,950	177,007	199,214					
DEL	*Post-IFRS*					200,000	162,500	221,688	235,438	238,332	241,309	276,000
EY	*Pre-IFRS*	211,315	353,638	346,344	340,053	346,323	523,000					
EY	*Post-IFRS*						55,980	231,725	282,375	275,806	380,250	426,796
KPMG	*Pre-IFRS*	181,923	333,429	335,000	516,600	189,691	230,889					
KPMG	*Post-IFRS*				251,500	994,000	1,040,222	649,955	717,611	657,132	631,900	626,288
PWC	*Pre-IFRS*	202,662	245,765	236,765	250,828	166,825	208,156					
PWC	*Post-IFRS*				419,000	453,308	298,118	265,921	299,408	279,935	276,855	284,122
Non-Big4	*Pre-IFRS*	32,335	36,030	39,615	44,694	51,055	56,525					
Non-Big4	*Post-IFRS*				35,064	41,515	45,199	62,886	54,820	70,739	73,721	66,281

Panel D: Median non-audit services

Non-audit services		**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
All	*Pre-IFRS*	43,564	31,000	42,000	30,500	15,500	31,000					
All	*Post-IFRS*				20,000	118,500	32,000	39,500	24,000	31,500	29,598	23,000
DEL	*Pre-IFRS*	43,140	43,096	11,000	7,000	0	17,000					
DEL	*Post-IFRS*					51,000	50,000	33,000	12,795	37,491	44,598	19,000
EY	*Pre-IFRS*	56,000	27,680	44,000	41,000	49,000	213,000					
EY	*Post-IFRS*						3,256	82,106	138,500	127,500	80,000	100,000
KPMG	*Pre-IFRS*	62,000	68,000	76,000	61,000	58,187	55,000					
KPMG	*Post-IFRS*				202,000	291,000	56,000	75,000	35,000	31,000	39,000	70,000
PWC	*Pre-IFRS*	67,500	68,500	94,288	113,500	38,500	46,000					
PWC	*Post-IFRS*				296,000	126,000	50,000	47,000	34,000	50,000	65,000	47,000
Non-Big4	*Pre-IFRS*	0	0	0	0	0	500					
Non-Big4	*Post-IFRS*				0	0	7,198	0	8,000	7,500	10,500	0

Table 1 reports sample observations, median audit fees, mean audit fees and median non-audit services by year and IFRS in Panels A, B, C and D, respectively. We report the results for all observations, and companies audited by Deloitte, EY, KPMG, PwC and non–Big 4 firms separately.

Table 2: Sample statistics

Continuous variables	**Mean**	**Median**	**Std. Dev.**	**Min.**	**Max.**
Audit fees	279,969	107,000	516,695	540	4,463,000
LAF	11.658	11.581	1.293	8.780	14.914
Total assets (000's)	732,556	158,691	1,441,571	66	8,276,003
LTA	18.646	18.882	2.207	12.581	22.578
Audit lag	63	56	27	24	379
LAUDITLAG	4.083	4.025	0.297	3.466	5.170
ROA	0.026	0.073	0.406	-2.877	1.639
CURRENT	2.641	1.502	4.391	0.089	29.057
ARINV	0.216	0.152	0.199	0	0.747
DA	0.169	0.133	0.174	0	0.844
Non-audit services	157,356	31,000	356,744	0	3,441,000
LNAS	8.587	10.342	4.772	0	14.303
RECONCILE	0.022	0.002	0.095	0.000	1.315
Binary variables	***N***	**Per cent**			
BIG4	685	80.1%			
FINANCE	88	10.3%			
AUDCHG	33	3.9%			
DUAL	133	15.6%			
OPINION	17	2.0%			
IFRS	453	53.0%			
PREADOPT	77	9.0%			
IFRSADOPT	78	9.1%			
IFRS1	78	9.1%			
POSTIFRS	297	34.7%			
EARLYADOPT	263	30.8%			
MIDADOPT	120	14.0%			
LATEADOPT	472	55.2%			
DEL	96	11.2%			
EY	45	5.3%			
KPMG	190	22.2%			
PWC	354	41.4%			
Energy (10)	22	2.6%			
Materials (15)	55	6.4%			
Industrials (20)	154	18.0%			
Cons. Disc. (25)	198	23.2%			
Cons. Staples (30)	108	12.6%			
Healthcare (35)	88	10.3%			
Financials (40)	99	11.6%			
Info. Tech. (45)	54	6.3%			
Telecom. (50)	11	1.3%			
Utilities (55)	66	7.7%			

Table 2 reports sample descriptive statistics. Where *Audit fees* is the reported audit fee; *LAF* is the natural log audit fees, *Total assets (000's)* is reported total assets in thousands of New Zealand dollars; *LTA* is the natural log of total assets; Audit lag is the number of days between the balance date and the auditor signature date; *LAUDITLAG* is the natural log of Audit lag; *ROA* is the ratio of earnings before interest and tax to total assets; *CURRENT* is the ratio of current assets to current liabilities; *ARINV* is the ratio of the sum of inventory and receivables to total assets; *DA* is the ratio of long term debt to assets; *Non-audit services* is reported non-audit services; *LNAS* is the natural log of non-audit services; RECONCILE is the absolute difference between net profit as calculated under IFRS and pre-IFRS NZ GAAP for the year before IFRS adoption (as reported in the annual report in the year of IFRS adoption) divided by total assets in year *t*; *BIG4* is a binary variable equal to one if the auditor is Deloitte, Ernst and Young, KPMG or PwC and 0 otherwise; *FINANCE* is a binary variable equal to one if the client is in the finance industry and 0 otherwise; *AUDCHG* is a binary variable equal to one if the auditor has changed from the year before and 0 otherwise; *DUAL* is a binary variable equal to one if the client is dual-listed and 0 otherwise *OPINION* is a binary variable equal to one if the opinion given was qualified or a going concern emphasis of matter and 0 otherwise; *IFRS* is a binary variable equal to one if the firm is using IFRS to prepare its financial statements and 0 otherwise; *PREADOPT* is a binary variable equal to one if it is the year prior

to IFRS adoption and 0 otherwise; *IFRSADOPT* is a binary variable equal to one if it is the year of IFRS adoption and 0 otherwise; *IFRS1* is a binary variable equal to one if it is the year after IFRS adoption and 0 otherwise; *POSTIFRS* is a binary variable equal to one if the company uses IFRS and it is not the year of, or year immediately following, IFRS adoption and 0 otherwise; *EARLYADOPT* is a binary variable equal to one if the company adopted IFRS in 2005 or 2006 and 0 otherwise; *MIDADOPT* is a binary variable equal to one if the company adopted IFRS in 2007 and 0 otherwise; *LATEADOPT* is a binary variable equal to one if the company adopted IFRS in 2008 and 0 otherwise; *DEL*, *EY*, *KPMG* and *PWC* are binary variables equal to one if the auditor is Deloitte, Ernst and Young, KPMG and PwC, respectively, and 0 otherwise. We also report the number of observations in each two-digit GICS classification.

Table 3: Audit fees and IFRS

Panel A: Regression results

	Dependent variable = *LAF*					
Variables	**Model 1: IFRS**			**Model 2: IFRS and longer term effects**		
	Coeff.	*t-stat*		*Coeff.*	*t-stat*	
Constant	0.753	1.501		0.653	1.339	
LTA	0.414	25.635	***	0.409	26.007	***
LAUDITLAG	0.500	5.882	***	0.541	6.528	***
ROA	-0.248	-4.143	***	-0.259	-4.445	***
CURRENT	-0.023	-4.444	***	-0.024	-4.908	***
ARINV	1.230	10.542	***	1.210	10.668	***
DA	0.223	1.664		0.258	1.974	*
LNAS	0.042	7.924	***	0.043	8.397	***
BIG4	0.079	1.099		0.096	1.375	
FINANCE	-0.072	-0.911		-0.084	-1.096	
AUDCHG	0.148	1.331		0.221	2.024	*
DUAL	0.642	9.450	***	0.636	9.626	***
OPINION	0.364	2.227	*	0.376	2.366	*
YR2003	0.155	1.578		0.155	1.623	
YR2004	0.282	2.845	**	0.264	2.738	**
YR2005	0.311	3.105	**	0.216	2.129	*
YR2006	0.261	2.537	*	0.171	1.623	
YR2007	0.227	2.107	*	-0.157	-1.159	
YR2008	-0.010	-0.074		-0.348	-2.343	*
YR2009	0.065	0.473		-0.538	-3.303	***
YR2010	0.095	0.687		-0.697	-3.972	***
YR2011	0.112	0.812		-0.681	-3.879	***
YR2012	0.167	1.212		-0.626	-3.567	***
IFRS	0.422	4.367	***			
PREADOPT				0.400	3.888	***
IFRSADOPT				0.477	4.054	***
IFRS1				0.877	6.444	***
POSTIFRS				1.222	8.247	***
F-stat		132	***		126	***
Adj. R^2		0.780			0.798	
N		855			855	

Panel B: Marginal means

	Marginal mean			**Marginal mean**		**Diff.**	**Significance**	
PREADOPT	10.997	59,708	*PREIFRS*	10.597	40,024	19,684	0.000	***
IFRSADOPT	11.074	64,498	*PREADOPT*	10.997	59,708	4,791	0.491	
IFRS1	11.475	96,236	*IFRSADOPT*	11.074	64,498	31,738	0.000	***
POSTIFRS	11.819	135,847	*IFRS1*	11.475	96,236	39,611	0.001	***

Table 3 Panel A presents regressions on the natural log of audit fees. Panel B presents pairwise comparisons for estimated marginal means from Model 2. *PREIFRS* is pre-IFRS observations that are not the year immediately prior to IFRS adoption. *YR20XX* is a binary variable equal to one if the year is 20XX and 0 otherwise. Other variables are as defined earlier. Two-tailed test of significance: *** = less than 0.001, ** = less than 0.01 and * = less than 0.05.

Table 4: Audit fees and adoption timing

Panel A: Regression results

	Dependent variable = *LAF*					
Variables	**Model 3: IFRS and voluntary adoption timing**			**Model 4: Voluntary adoption timing (2009-12)**		
	Coeff.	*t-stat*		*Coeff.*	*t-stat*	
Constant	1.303	2.744	**	1.956	2.347	*
LTA	0.392	25.733	***	0.373	15.229	***
LAUDITLAG	0.552	6.925	***	0.626	4.149	***
ROA	-0.195	-3.424	***	0.077	0.638	
CURRENT	-0.029	-6.015	***	-0.052	-5.033	***
ARINV	1.082	9.865	***	0.923	4.890	***
DA	0.114	0.904		-0.038	-0.162	
LNAS	0.043	8.845	***	0.043	5.642	***
BIG4	0.098	1.465		0.143	1.232	
FINANCE	-0.061	-0.817		-0.037	-0.324	
AUDCHG	0.221	2.110	*	0.259	1.005	
DUAL	0.593	9.316	***	0.464	4.617	***
OPINION	0.425	2.788	**	0.360	1.458	
YR2003	0.167	1.822				
YR2004	0.290	3.136	**			
YR2005	0.326	3.308	***			
YR2006	0.372	3.566	***			
YR2007	0.278	1.950				
YR2008	0.266	1.620				
YR2009	0.208	1.124				
YR2010	0.193	0.935		0.003	0.039	
YR2011	0.211	1.023		0.020	0.228	
YR2012	0.268	1.301		0.080	0.912	
PREADOPT	0.114	1.078				
IFRSADOPT	0.032	0.249				
IFRS1	0.275	1.791				
POSTIFRS	0.338	1.829				
MIDADOPT	-0.532	-7.586	***	-0.598	-5.583	***
LATEADOPT	-0.451	-7.703	***	-0.402	-5.634	***
F-stat		130	***		76	***
Adj. R^2		0.809			0.804	
N		855			311	

Panel B: Univariate statistics by adoption year

Continuous variables	***EARLYADOPT* = 1**					
	Mean diff.	*t-stat*		*z-score*		*N*
LAF	1.073	3.636	**	3.085	**	78
LTA	1.233	2.390	*	2.279	*	78
LAUDITLAG	-0.040	-0.576		0.817		78
ROA	0.145	1.466		1.526		78
CURRENT	0.450	0.391		1.050		78
ARINV	0.018	0.363		0.038		78
DA	-0.013	-0.265		0.125		78
LNAS	2.370	1.996	*	3.031	**	78
LSUB	0.332	1.584		1.386		78
LSUBIFRS	0.605	3.691	**	2.625	**	78
Binary variables	***EARLYADOPT* = 1**					
	Mean diff.	*Chi-square*				*N*
BIG4	0.111	1.011				78
FINANCE	-0.028	0.139				78
AUDCHG	-0.017	0.912				78
DUAL	0.132	2.462				78
OPINION	-0.018	0.450				78

Panel C: Two-stage regression results

	Dependent variable = *EARLYADOPT*			**Dependent variable = *LAF***					
Variables	**Model 5: Stage 1**			**Model 6: Stage 2**			**Model 7: Stage 2 (2009-2012)**		
	Coeff.	*p-stat*		*Coeff.*	*t-stat*		*Coeff.*	*t-stat*	
Constant	-7.356	0.041	*	0.845	1.715		1.552	1.756	
LTA	0.407	0.066		0.400	24.809	***	0.379	14.294	***
LAUDITLAG				0.533	6.448	***	0.599	3.752	***
ROA	0.784	0.365		-0.260	-4.472	***	0.042	0.336	
CURRENT	0.070	0.240		-0.026	-5.256	***	-0.045	-4.114	***
ARINV				1.162	10.115	***	1.011	4.996	***
DA	-1.830	0.276		0.282	2.157	*	0.199	0.818	
LNAS				0.043	8.330	***	0.042	5.262	***
BIG4	-0.909	0.352		0.085	1.225		0.111	0.901	
FINANCE				-0.081	-1.056		-0.059	-0.489	
AUDCHG				0.215	1.976	*	0.320	1.169	
DUAL	-1.183	0.242		0.625	9.465	***	0.502	4.703	***
OPINION				0.367	2.315	*	0.349	1.343	
YR2003				0.157	1.648				
YR2004				0.270	2.809	**			
YR2005				0.230	2.269	*			
YR2006				0.193	1.832				
YR2007				-0.110	-0.807				
YR2008				-0.283	-1.884				
YR2009				-0.463	-2.802	**			
YR2010				-0.604	-3.376	**	0.017	0.179	
YR2011				-0.587	-3.281	**	0.031	0.338	
YR2012				-0.533	-2.977	**	0.086	0.926	
PREADOPT				0.371	3.588	***			
IFRSADOPT				0.436	3.683	***			
IFRS1				0.820	5.949	***			
POSTIFRS				1.135	7.466	***			
LSUB	-0.752	0.193							
LSUBIFRS	1.836	0.004	**						
EARLYADOPT_PREDICT				0.133	2.455	*	0.184	2.127	*
Chi-square or F-stat		18	*		122	***		69	***
Adj. or Nagelkerke R^2		0.289			0.793			0.779	
N		78			855			311	

Table 4 Panel A presents regressions on the natural log of audit fees. Panel B tests differences in the firm characteristics by the year of IFRS adoption (*EARLYADOPT*), with Student *t*-tests and paired Mann-Whitney *U* rank tests on continuous variables, and the *Chi*-square test for binary variables. Panel C presents the first stage of a two-stage least squares with *EARLYADOPT* as the dependent variable and Model 6 the second stage with the natural log of audit fees as the dependent variable and predicted early adoption (*EARLYADOPT_PREDICT*) as the variable of interest. *LSUB* is the natural logarithm of the number of subsidiaries plus one, *LSUBIFRS* is the natural logarithm of the number of subsidiaries that were located in jurisdictions that had mandatory adoption of IFRS by or in 2005 plus one and all other variables are as defined earlier. Two-tailed test of significance: *** = less than 0.001, ** = less than 0.01 and * = less than 0.05.

Table 5: Audit fees, IFRS and differences across audit firms

Panel A: Big 4 and marginal pricing

	Dependent variable = *LAF*					
Variables	**Model 8: IFRS and Big 4**			**Model 9: IFRS, Big 4 and cost structure**		
	Coeff.	*t-stat*		*Coeff.*	*t-stat*	
Constant	1.251	2.627	**	3.186	4.640	***
LTA	0.395	25.723	***	0.273	7.929	***
LAUDITLAG	0.545	6.825	***	0.546	6.928	***
ROA	-0.203	-3.559	***	-0.181	-3.172	**
CURRENT	-0.028	-5.857	***	-0.027	-5.637	***
ARINV	1.094	9.948	***	1.150	10.519	***
DA	0.112	0.887		0.043	0.342	
LNAS	0.043	8.665	***	0.041	8.253	***
BIG4	0.145	1.938		-2.645	-4.215	***
FINANCE	-0.064	-0.868		-0.070	-0.949	
AUDCHG	0.233	2.217	*	0.212	2.046	*
DUAL	0.591	9.293	***	0.543	8.457	***
OPINION	0.450	2.936	**	0.397	2.603	**
YR2003	0.163	1.780		0.162	1.793	
YR2004	0.287	3.095	**	0.287	3.139	**
YR2005	0.321	3.261	**	0.341	3.498	***
YR2006	0.370	3.544	***	0.384	3.719	***
YR2007	0.274	1.923		0.303	2.154	*
YR2008	0.270	1.641		0.302	1.858	
YR2009	0.211	1.143		0.231	1.264	
YR2010	0.192	0.931		0.210	1.032	
YR2011	0.210	1.018		0.232	1.140	
YR2012	0.267	1.295		0.285	1.399	
PREADOPT	0.114	1.074		0.081	0.770	
IFRSADOPT	0.028	0.217		-0.008	-0.063	
IFRS1	0.271	1.765		0.230	1.515	
POSTIFRS	0.453	2.236	*	-0.142	-0.155	
MIDADOPT	-0.530	-7.569	***	-0.443	-6.115	***
LATEADOPT	-0.452	-7.714	***	-0.430	-7.393	***
BIG4 POSTIFRS*	-0.146	-1.387		0.977	0.948	
*BIG4*LTA*				0.166	4.442	***
*LTA*POSTIFRS*				0.036	0.652	
*BIG4*LTA*POSTIFRS*				-0.065	-1.068	
F-stat		126	***		117	***
Adj. R^2		0.809			0.814	
N		855			855	

Panel B: Individual Big 4 firms and marginal pricing

	Dependent variable = *LAF*								
Variables	**Model 10: Individual Big 4 firms**			**Model 11: IFRS and Big 4 firms**			**Model 12: IFRS, Big 4 firms and cost structure**		
	Coeff.	*t-stat*		*Coeff.*	*t-stat*		*Coeff.*	*t-stat*	
Constant	1.787	3.744	***	1.728	3.627	***	3.728	5.708	***
LTA	0.379	24.833	***	0.379	24.791	***	0.257	7.915	***
LAUDITLAG	0.497	6.301	***	0.495	6.290	***	0.485	6.406	***
ROA	-0.204	-3.668	***	-0.208	-3.722	***	-0.106	-1.892	
CURRENT	-0.033	-6.772	***	-0.033	-6.752	***	-0.029	-6.143	***
ARINV	1.081	9.930	***	1.105	10.164	***	1.164	11.113	***
DA	0.065	0.522		0.063	0.511		-0.047	-0.396	
LNAS	0.039	8.118	***	0.039	8.092	***	0.036	7.703	***
FINANCE	-0.063	-0.871		-0.069	-0.956		0.024	0.340	
AUDCHG	0.205	1.995	*	0.239	2.318	*	0.195	1.987	*
DUAL	0.657	10.407	***	0.654	10.394	***	0.661	10.653	***
OPINION	0.424	2.841	**	0.463	3.096	**	0.395	2.747	**
YR2003	0.158	1.765		0.154	1.726		0.144	1.686	
YR2004	0.286	3.154	**	0.283	3.137	**	0.265	3.078	**
YR2005	0.326	3.388	***	0.326	3.402	***	0.336	3.668	***
YR2006	0.374	3.660	***	0.376	3.700	***	0.381	3.926	***
YR2007	0.287	2.058	*	0.278	2.000	*	0.304	2.293	*
YR2008	0.274	1.700		0.271	1.688		0.302	1.965	*
YR2009	0.213	1.178		0.213	1.180		0.233	1.353	
YR2010	0.199	0.988		0.193	0.961		0.197	1.025	
YR2011	0.217	1.073		0.210	1.044		0.211	1.100	
YR2012	0.275	1.361		0.269	1.339		0.258	1.344	
PREADOPT	0.108	1.038		0.114	1.107		0.073	0.739	
IFRSADOPT	0.028	0.223		0.033	0.264		-0.010	-0.086	
IFRS1	0.264	1.759		0.273	1.820		0.224	1.557	
POSTIFRS	0.325	1.795		0.458	2.320	*	-0.451	-0.525	
MIDADOPT	-0.537	-7.720	***	-0.537	-7.751	***	-0.474	-6.740	***
LATEADOPT	-0.434	-7.429	***	-0.427	-7.336	***	-0.393	-6.976	***
DEL	-0.177	-2.156	*	-0.152	-1.625		-2.102	-2.954	**
EY	0.398	3.681	***	0.556	4.449	***	-2.410	-1.467	
KPMG	0.200	2.577	*	0.186	2.102	*	-5.380	-6.519	***
PWC	0.149	2.191	*	0.234	3.022	**	-1.750	-2.698	**
*DEL *POSTIFRS*				-0.063	-0.405		2.549	1.995	*
*EY*POSTIFRS*				-0.498	-2.488	*	-17.187	-4.226	***
*KPMG*POSTIFRS*				0.023	0.185		1.978	1.528	
*PWC*POSTIFRS*				-0.236	-2.110	*	2.236	1.992	*
*DEL*LTA*							0.122	2.935	**
*EY*LTA*							0.174	2.002	*
*KPMG*LTA*							0.305	6.673	***
*PWC*LTA*							0.124	3.257	**
*LTA*POSTIFRS*							0.055	1.076	
*DEL *LTA*POSTIFRS*							-0.145	-2.009	*
*EY*LTA*POSTIFRS*							0.866	4.043	***
*KPMG*LTA*POSTIFRS*							-0.113	-1.589	
*PWC*LTA*POSTIFRS*							-0.136	-2.113	*
F-stat		124	***		111	***		100	***
Adj. R^2		0.817			0.819			0.836	
N		855			855			855	

Panel C: IFRS reconciliation and marginal pricing

	Dependent variable = *LAF*								
Variables	**Model 13: IFRS reconciliation**			**Model 14: IFRS reconciliation and Big 4 cost structure**			**Model 15: IFRS reconciliation and Big 4 firms cost structure**		
	Coeff.	*t-stat*		*Coeff.*	*t-stat*		*Coeff.*	*t-stat*	
Constant	1.744	2.450	*	1.773	2.487	*	1.577	2.197	*
LTA	0.388	18.615	***	0.386	18.378	***	0.382	18.071	***
LAUDITLAG	0.669	5.464	***	0.670	5.474	***	0.728	5.976	***
ROA	0.082	0.757		0.072	0.657		0.079	0.758	
CURRENT	-0.033	-4.642	***	-0.033	-4.658	***	-0.037	-4.836	***
ARINV	0.857	5.606	***	0.858	5.611	***	0.836	5.545	***
DA	-0.061	-0.310		-0.060	-0.305		-0.147	-0.764	
LNAS	0.043	6.416	***	0.043	6.430	***	0.042	6.372	***
BIG4	0.122	1.254		0.112	1.148				
FINANCE	-0.160	-1.627		-0.168	-1.706		-0.203	-2.106	*
AUDCHG	0.020	0.123		0.028	0.171		0.017	0.110	
DUAL	0.491	5.724	***	0.500	5.780	***	0.581	6.857	***
OPINION	0.344	1.489		0.332	1.432		0.283	1.272	
YR2003									
YR2004									
YR2005									
YR2006	-0.420	-1.524		-0.414	-1.500		-0.408	-1.549	
YR2007	-0.517	-1.823		-0.511	-1.800		-0.502	-1.851	
YR2008	-0.544	-1.964		-0.537	-1.938		-0.521	-1.966	*
YR2009	-0.625	-2.086	*	-0.619	-2.063	*	-0.603	-2.106	*
YR2010	-0.692	-2.204	*	-0.684	-2.177	*	-0.663	-2.209	*
YR2011	-0.659	-2.096	*	-0.652	-2.073	*	-0.636	-2.117	*
YR2012	-0.604	-1.922		-0.597	-1.898		-0.577	-1.919	
PREADOPT									
IFRSADOPT									
IFRS1	0.284	2.446	*	0.284	2.446	*	0.281	2.542	*
POSTIFRS	0.394	2.810	**	0.394	2.811	**	0.380	2.846	**
MIDADOPT	-0.516	-5.624	***	-0.514	-5.595	***	-0.463	-5.140	**
LATEADOPT	-0.353	-4.487	***	-0.363	-4.558	***	-0.321	-4.155	***
RECONCILE	0.710	2.347	*	0.635	2.010	*	0.659	2.185	*
*BIG4*RECONCILE*				0.019	0.818				
DEL							0.065	0.526	
EY							-0.077	-0.456	
KPMG							0.319	2.780	**
PWC							0.115	1.164	
*DEL*RECONCILE*							-28.991	-4.429	***
*EY*RECONCILE*							3.345	2.225	*
*KPMG*RECONCILE*							0.193	0.034	
*PWC*RECONCILE*							1.565	0.767	
F-stat		76	***		73	***		66	***
Adj. R^2		0.798			0.798			0.817	
N		453			453			453	

Table 5 presents regressions on the natural log of audit fees. Panel A examines the differential impact of IFRS on the Big 4 and individual Big 4 firms, respectively. Panel C examines the effect of IFRS reconciliation on audit fees for post-IFRS observations. Variables are as defined earlier. Two-tailed test of significance: *** = less than 0.001, ** = less than 0.01 and * = less than 0.05.