5-23-2014

An Empirical Analysis of the Global Audit Market: International Financial Reporting Standards-Related Changes and Differences within the Big 4 Global Networks

William Riccardi III
wricc001@fiu.edu

DOI: 10.25148/etd.FI14071103

FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

AN EMPIRICAL ANALYSIS OF THE GLOBAL AUDIT MARKET: INTERNATIONAL FINANCIAL REPORTING STANDARDS-RELATED CHANGES AND DIFFERENCES WITHIN THE BIG 4 GLOBAL NETWORKS

A dissertation submitted in partial fulfillment of

the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

BUSINESS ADMINISTRATION

by

William N. Riccardi

2014

To: Dean David R. Klock
College of Business Administration

This dissertation, written by William N. Riccardi, and entitled An Empirical Analysis of the Global Audit Market: International Financial Reporting Standards-Related Changes and Differences within the Big 4 Global Networks, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

Abhijit Barua

Suchimita Mishra

Kannan Raghunandan,Co-Major Professor

Dasaratha Rama,Co-Major Professor

Date of Defense: May 23, 2014

The dissertation of William N. Riccardi is approved.

Dean David R. Klock
College of Business Administration

Dean Lakshmi N. Reddi
University Graduate School

Florida International University, 2014

ACKNOWLEDGMENTS

I would like to thank the many professors at Florida International University's School of Accounting and Department of Finance who have provided encouragement and guidance throughout the last four years as I worked toward completion of this degree. I wish to express gratitude specifically to Dr. Ruth Ann McEwen and Dr. Stephen Lin for their roles as mentors and administrators. I am greatly indebted to Dr. Abhijit Barua and Dr. Suchimita Mishra for serving on my dissertation committee. Most of all, I thank my dissertation co-chairs, Dr. Kannan Raghunandan and Dr. Dasaratha Rama, for their invaluable support and advice that made this project possible. This project greatly benefited from the financial support provided by FIU's Dissertation Year Fellowship.

ABSTRACT OF THE DISSERTATION

AN EMPIRICAL ANALYSIS OF THE GLOBAL AUDIT MARKET: IFRS-RELATED CHANGES AND DIFFERENCES WITHIN THE BIG 4 GLOBAL NETWORKS

by

William N. Riccardi

Florida International University, 2014

Miami, Florida

Professors Kannan Raghunandan and Dasaratha Rama, Co-Major Professors

Ongoing debates within the professional and academic communities have raised a number of questions specific to the international audit market. This dissertation consists of three related essays that address such issues. First, I examine whether the propensity to switch between auditors of different sizes (i.e., Big 4 versus non-Big 4) changes as adoption of International Financial Reporting Standards (IFRS) becomes a more common phenomenon, arguing that smaller auditors have an opportunity to invest in necessary skills and training needed to enter this market. Findings suggest that clients are relatively less (more) likely to switch to (away from) a Big 4 auditor if the client's adoption of IFRS occurs in more recent years.

In the second essay, I draw on these inferences and test whether the change in audit fees in the year of IFRS adoption changes over time. As the market becomes less concentrated, larger auditors becomes less able to demand a premium for their services. Consistent with my arguments, results suggest that the change in audit service fees declines over time, although this effect seems concentrated among the Big 4. I also find that this effect is partially attributable to a differential effect of the auditors' experience in

pricing audit services related to IFRS based on the period in which adoption occurs. The results of these two essays offer important implications to policy debates on the costs and benefits of IFRS adoption.

In the third essay, I differentiate Big 4 auditors into three classifications—Parent firms, Brand Name affiliates, and Local affiliates—and test for differences in audit fee premiums (relative to non-Big 4 auditors) and audit quality. Results suggest that there is significant heterogeneity between the three classifications based on both of these characteristics, which is an important consideration for future research. Overall, this dissertation provides additional insights into a variety of aspects of the global audit market.

TABLE OF CONTENTS

LIST OF TABLES

TABLE PAGE

CHAPTER 1: IFRS ADOPTION AND CHANGES IN AUDITOR SWITCHING

1.1 Introduction

In this essay, I examine the impact of widespread adoption of International Financial Reporting Standards (IFRS) on the market for audit services. Motivation for this study comes from ongoing policy debates regarding the relative costs and benefits of adoption of IFRS. Opponents of IFRS adoption in the United States (U.S.) have voiced concerns regarding the potentially adverse and unexpected outcomes following adoption. For example, Hail, Leuz, and Wysocki (2010) note that IFRS adoption could lead to an even greater gap between large and small auditors, with the "Big 4" auditors (Deloitte, PricewaterhouseCoopers, KPMG, and Ernst & Young) taking business away from smaller firms. As auditors are likely to play a key role in shaping future reporting practices related to IFRS (Ball, 2006), it is important to further our understanding of how the global audit market has been impacted as a result of a shift toward accounting standard globalization.

Recent studies have examined the associations between mandatory IFRS adoption in the European Union (E.U.) and audit market consequences, including the propensity of clients to engage large audit firms (Comprix, Muller, and Sinclair, 2011; Wieczynska, 2013). I differentiate my study from prior research in this area. First, rather than examining only the likelihood of a client to switch auditors in the year of IFRS adoption, I hypothesize that such propensities change over time due to smaller auditors' acquisition of skills and experience necessary to provide IFRS-related audit services; such actions by smaller auditors should promote a less concentrated market for such services. A change of this type would result in a market that is less concentrated among the Big 4. In

addition, using newly available data sources, I form a sample that is more comprehensive in coverage than prior related research.

Based on a sample of firms in 26 countries from 2004 through 2011, my primary results suggest that non-Big 4 audit clients adopting IFRS in more recent years are less likely to switch to a Big 4 auditor relative to firms adopting IFRS in earlier years. I similarly find that while Big 4 audit clients are less likely to switch to a non-Big 4 auditor in the year of IFRS adoption, they are relatively more likely to do so in more recent years. Thus, I find support for my hypotheses that the market for IFRS-related audit services has become less concentrated among large, global auditors over time. Similar inferences are drawn when I repeat the analysis with global auditors defined as the "Global 6," including BDO and Grant Thornton in addition to the Big 4.

This study offers a number of contributions to the literature. First, related research focuses on the mandatory adoption of IFRS in the E.U. While appealing, such a setting does not enable researchers to draw broader inferences regarding changes in the global audit market over time. Conversely, my study expands on prior research by assessing changes in these likelihoods using a more comprehensive sample. These results offer timely evidence of one potential audit market outcome associated with IFRS adoption and provide potentially policy-relevant evidence regarding how the audit market has been impacted by IFRS adoption, and such research has been called for by prior studies (Hail et al., 2010). Finally, my results add to the auditing literature in a broader sense by examining the effect of widespread and impactful accounting regime changes on an important aspect of the global audit market.

The remainder of this essay is organized as follows. Section 2 summarizes related prior research and develops my hypotheses. The third section details the research design. Section 4 describes the sample selection procedures and data employed in this study. Section five provides explanations of the empirical results and associated inferences. I conclude in Section 6 and offer suggestions for future research.

1.2 Hypothesis Development

1.2.1 Background: IFRS Adoption and Auditor Switching

Numerous papers have examined the accounting consequences and economic outcomes following both voluntary and mandatory IFRS adoption (see Soderstrom and Sun (2007) and Brüggemann, Hitz, and Sellhorn (2012) for reviews of recent literature and Hail et al. (2010) for a discussion of potential economic implications of IFRS adoption in the U.S.). While fewer papers have examined how the audit market has been affected by IFRS adoption, recent research has made advances in the area of auditor selection and auditor switching due to IFRS adoption. As research shifts in focus from an analysis of the intended benefits to the potentially unexpected outcomes associated with IFRS adoption, a recurring theme is to extrapolate inferences relevant to countries that continue to report under local accounting standards.

More broadly, there has been concern from regulatory bodies regarding the concentration of the audit market and the market share of the largest public accounting firms (e.g., U.S. Senate, 1976; U.S. House of Representatives, 1985; SOX, 2002; GAO, 2003; FRC, 2007; U.S. Department of the Treasury, 2008; European Commission, 2011; House of Lords, 2011). This problem can only be exacerbated as countries switch accounting regimes, as larger and more experienced auditors have the opportunity to

capitalize on such changes to dominate the market. Research has therefore examined the auditor choice behavior of clients during the transition to IFRS. Comprix et al. (2011) examine auditor replacements after firms switch reporting standards following the mandatory adoption of IFRS in 2005 by the E.U., treating 2007 as the "post IFRS" period and 2003 as the "pre IFRS" period. Their findings suggest that larger clients and those domiciled in countries with greater differences between their local GAAP and IFRS are more likely to engage a Big 4 auditor, leading to supply-side constraints that permit smaller auditors to pick up clients not falling into those categories. Since auditor replacements over this time period may not necessarily be caused by client firms' adoption of IFRS, Wieczynska (2013) expands on this finding and more precisely examines the timing of auditor replacements for firms that adopt IFRS. Her results suggest that auditor replacements of IFRS adopting clients are, in general, concentrated in the adoption year, and she also finds evidence that the strength of a country's regulatory quality is positively (negatively) associated with the likelihood of switching from a small to a large (large to a small) audit firm.

In summary, recent literature has examined the likelihood of auditor switches surrounding IFRS adoption and generally finds that auditor switches are more likely to occur due to client firms' adoption of IFRS. In general, these studies find that clients are more likely to engage a larger auditor during the transition to IFRS (Wieczynska, 2013), but it is possible that certain types of clients may be dropped by the Big 4 and forced to switch to a smaller audit firm (Comprix et al., 2011). Thus, the extent to which the auditor switching behavior that is associated with IFRS has changed over time has not yet

been examined. I fill this gap in the literature and examine these issues in the current study.

1.2.2 Hypotheses Related to Auditor Switching in the Year of IFRS Adoption

Mandatory IFRS adoption in the E.U. was announced in 2002, with compliance required for publicly-listed firms for fiscal years beginning after January 1, 2005.[1] Prior to this shift in reporting practices, adoption of IFRS was permitted on a voluntary basis in many countries. As a result, it should be expected that fewer audit firms possessed the necessary skillset to assist clients in their transition to IFRS and, likewise, to audit IFRS financial statements prior to the mandatory requirement. Over time, however, this knowledge should spread to smaller audit firms, and there are several explanations as to why this may occur. First, Comprix et al. (2011) posit that supply-side constraints during the mandatory adoption of IFRS in the E.U. caused the market share of the Big 4 auditors to decrease in quantity and shift to a particular type of clientele (larger companies and those in countries with greater differences between their local GAAP and IFRS). In other words, smaller clients and those from countries with fewer differences between their local GAAP and IFRS may have been forced to switch from a Big 4 to a smaller audit firm during this particular time period. This problem was exacerbated due to the mandatory adoption of IFRS in the E.U. coinciding with implementation of Section 404 of the Sarbanes-Oxley Act (SOX) in the U.S., which led to further dismissal of clients by

[1] The two exceptions to mandatory adoption of IFRS in the E.U. were for (1) companies with securities listed in other countries where other internationally-accepted accounting standards were used for the basis of preparing consolidated financial statements (e.g., U.S. Generally Accepted Accounting Principles), or (2) companies that listed only debt securities. If a company met either of these two criteria, they could defer adoption of IFRS until 2007.

the Big 4 (Rama and Read, 2006).[2] Thus, any clients cross-listed in the U.S. faced a greater risk of being dropped by the Big 4.

Second, there is a plethora of literature suggesting that larger auditors charge a premium for their services (Francis, 1984; Palmrose, 1986; Francis and Simon, 1987; Ireland and Lennox, 2002) due to higher quality audits (DeAngelo, 1981) or industry expertise (Craswell, Francis, and Taylor, 1995; Carson, 2009). Lin and Yen (2010) further argue that clients adopting IFRS face an additional fee premium due to the auditor's expertise in providing IFRS-related services and because the client has limited means to select a different auditor. To avoid higher fees related to adoption of IFRS, clients may be more likely to shift to a smaller auditor as it becomes more practical for these audit firms to provide services commensurate with client demands.

Third, smaller auditors with fewer large clients may be able to provide additional attention to individual companies that require assistance during the transition to IFRS. In earlier years, this trade-off may be outweighed by the inexperience of smaller firms. Over time, however, certain clients may find a smaller auditor to be more desirable. Finally, Atkinson, Taylor, Flesher, and Stocks (2002) suggest that clients are more likely to switch auditors as new individual reporting standards are implemented due to disagreements between the client and auditor regarding proper application of the new rules. In earlier years, especially before IFRS is mandated in a particular country, it may be expected that clients seek the guidance of relatively more experienced and

[2] This issue became significant enough that the SEC's chief accountant cautioned the Big 4 not to use SOX 404 as justification to drop their smaller audit clients (Taub, 2004).

knowledgeable auditors. As such information spreads to smaller auditors, however, this behavior may become less prudent.

Admittedly, many of these reasons to explain a change in the auditor switching behavior over time is dependent upon improvements by smaller audit firms, making them more attractive alternatives to clients. Bonner and Walker (1994) provide evidence to suggest that gains in knowledge in the audit industry are dependent on practice and experience, which smaller auditors can only obtain as the market shifts in their favor. Thus, to the extent that the market for IFRS-related audit services becomes less concentrated among large, global auditors, smaller audit firms have the opportunity to gain relevant skills and knowledge through an increasing coverage of clients. In addition, Libby and Luft (1993) outline that improvements in decision-making and performance in accounting environments is a function of ability, knowledge, motivation, and environment. As the demand for IFRS-related audit services increases, audit firms of all size have an increase in their motivation to invest in improving related skillsets and technologies and, as a result, continue to expand their knowledge of and gain experience in providing IFRS-related audit services.

Prior research documents that IFRS adoption is associated with an increase in the propensity of clients to switch auditors (Comprix et al., 2011; Wieczynska, 2013). Accordingly, I do not state formal hypotheses for the likelihood of an auditor switch in the year of IFRS adoption and expect that the results of these prior studies hold for my expanded sample. Rather, my primary interest is to determine if these propensities vary over time. Due to fluctuations in the market concentration for IFRS-related audit services, I predict that clients adopting IFRS in more recent years will be less likely to switch away

from a small auditor in favor of a large auditor, with clients of large auditors being more likely to switch to a small auditor. Thus, I state my first hypotheses as follows, in the alternative form:

> **H1A**: In more recent years, clients are less likely to switch from a small to a large auditor in the year of IFRS adoption.
>
> **H1B**: In more recent years, clients are more likely to switch from a large to a small auditor in the year of IFRS adoption.

Taken together, these hypotheses predict that clients adopting IFRS in more recent years are more (less) likely to engage (switch away from) a small auditor. I define a large (small) auditor as a Big 4 (non-Big 4) accounting firm. Note that these predictions are made only for "directional" auditor switches (i.e., from a small to a large or from a large to a small audit firm). I do not make predictions for changes in the likelihood of switching between auditors of similar size ("lateral" switches) because my expectations regarding fluctuations in the audit market apply only to switches between audit firms of different size. Clients may switch to a different auditor of similar size for reasons unrelated to changes in the market for IFRS-related services. For example, a client may switch from one Big 4 to another in order to obtain industry-specific expertise during the transition to IFRS. I therefore expect that changes in the likelihood of directional switches are different from the change in the likelihood of the corresponding lateral auditor switch, and state an additional hypothesis accordingly:

> **H1C**: In more recent years, the relative likelihood of a directional auditor switch in the year of IFRS adoption is different from the likelihood of the corresponding lateral auditor switch.

1.3 Research Design

1.3.1 Development of Multinomial Logistic Regression Model

To examine changes in the likelihood of firms to switch auditors due to IFRS adoption, I first divide the full sample into Big 4 and non-Big 4 audit clients, based on the auditor engaged prior to IFRS adoption. I then estimate a multinomial logistic regression on each subsample to model the likelihood of different types of auditor switches against the base condition of not switching auditors. This approach has several benefits. First, this allows me to assess how one aspect of the audit market has changed due to client firms' adoption of IFRS over time by examining whether clients are more or less likely to switch to a particular type of auditor. Second, this approach mitigates the concern that my classification scheme of auditor switches consists of comparisons between heterogeneous firms. Prior studies that examine auditor switching surrounding IFRS adoption pool all observations into a single model (e.g. Wieczynska, 2013). However, the decision of whether or not to switch auditors during the transition to IFRS may be different for clients of small auditors compared to clients of large auditors. Third, specifying the model in this way permits for statistical comparisons both between treatment and control groups and among alternative switching decisions for firms within the same group.

I collect data for a global sample of firms from 2004 through 2011.[3] In order to draw inferences regarding changes in the likelihood of switching auditors due to IFRS adoption, I pool observations such that the sample consists of (a) the year in which firms

[3] Results for all auditor switching tests are consistent if I use a sample period beginning in 2001. In this expanded sample period, I do not code auditor switches of Arthur Andersen clients as equal to one since these were involuntary. However, only 2.6% of firms, before eliminating observations with missing data, can be included in the treatment sample prior to 2004.

adopt IFRS (treatment group), (b) periods other than the year of IFRS adoption (control group, non-adoption years of treatment firms), and (c) firms that adopted IFRS prior to the start of the sample period (control group, non-adopting firms). After partitioning my sample based on audit firm size as previously described, I estimate the following multinomial logistic regression on each subsample to empirically test H1A and H1B:

$$AUDSWITCH_{i,t} = \beta_0 IFRS\_ADOPT_{i,t} + [(IFRS\_ADOPT_{i,t}, NON\_ADOPT_{i,t}) \times \left| \begin{array}{l} \beta_1 POST_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 NI_{i,t} \\ + \beta_4 GROWTH_{i,t} + \beta_5 LOSS_{i,t-1} \\ + \beta_6 QUAL_{i,t-1} + \beta_7 FINANCE_{i,t} \\ + \beta_8 USLIST_{i,t} + \beta_9 VOLUN_{i,t} \\ + \beta_{10} HIGHDIFF_{i,t} + \beta_{11} REGQ_{i,t} \end{array} \right| + COUNTRY + \varepsilon_{i,t} \quad (1)$$

In Equation (1), *AUDSWITCH* is an index variable coded as zero if firm *i* does not switch auditors in year *t*, one if firm *i* switches between auditors of similar size (i.e., a lateral switch) in year *t*, and two if firm *i* switches to an auditor of a different size (i.e., from a small to a large audit firm for non-Big 4 clients, or vice versa for Big 4 clients) in year *t*.[4]

IFRS_ADOPT is an indicator variable coded as one if year *t* is the IFRS adoption year for firm *i*, and zero otherwise. I collect data on accounting standards from Worldscope and define the adoption period as the first year in which a firm reports under

[4] I obtain auditor data from Thompson Reuters Fundamentals, which provides time-series data on the auditor engaged in each year, whereas Worldscope provides data only for the most recent fiscal year. The data item provided by the database is a code, rather than the name of the auditor, and this code is based on the individual, local audit firm. I am very grateful to Thomson Reuters for providing a file linking these

individual and numerous audit firm codes to the associated "Parent Auditor." To perform the analyses in this study, I use the parent auditor when coding variables based on audit firm size or other characteristics.

IFRS after switching from other reporting standards.[5] I eliminate firms that Worldscope indicates reported under non-IFRS accounting standards after the initial year of IFRS reporting, thus ensuring that treatment firms in my sample fully switched to IFRS in the period I code as the adoption year. I expect a positive coefficient on *IFRS_ADOPT* for all types of auditor switches, with the exception being switches from a Big 4 to a non-Big 4 auditor, since certain clients may be more likely to utilize a larger audit firm (Comprix et al., 2011). *NON_ADOPT* is similarly determined and is an indicator variable equal to one if firm *i* did not adopt IFRS in year *t*, and zero otherwise.

The initial increase in IFRS reporting occurred due to the mandatory requirement in the E.U. and Australia that publicly-listed firms switch from local reporting standards to IFRS for fiscal years beginning on or after January 1, 2005. Although global use of IFRS increased dramatically in 2005, a large proportion of firms in my sample have non-December 31st fiscal year-ends. Therefore, there are a significant number of adopting firms in 2006 is due to these firms' first fiscal year beginning after 1/1/2005 ending during 2006. Additionally, E.U. firms were permitted to delay adoption of IFRS in certain circumstances, and other countries began implementing IFRS reporting in later years, explaining small but nontrivial numbers of adopting firms in 2007 through 2010. The large increase in the number of adopting firms in 2011 is primarily due to adoption of IFRS in Canada and Korea.

[5] I follow the coding described in Table 1-1A, Panel A of Daske, Hail, Leuz, and Verdi (2013) in classifying accounting standards based on the numeric code extracted from Worldscope. As a robustness test, I follow the stricter coding described by Daske et al. (2013) in coding accounting standards and results are consistent.

Given this trend of IFRS adoption over time, I define *POST* as an indicator variable equal to one for firm-years ending after 11/30/2006 and zero otherwise.[6] The interaction term *POST*IFRS_ADOPT* is the primary variable of interest, capturing the likelihood of an auditor switch in the year of IFRS adoption for more recent fiscal years after the initial shock to the audit market caused by the mandatory adoption of IFRS in the E.U. and Australia. In more recent years, I expect that clients of small auditors are less likely to switch to a large auditor (negative coefficient on *POST*IFRS_ADOPT*) and that clients of large auditors are more likely to switch to a smaller auditor (positive coefficient on *POST*IFRS_ADOPT*) relative to the base condition of not switching auditors. The second variable of interest is *POST*NON_ADOPT*, capturing any changes in the likelihood to switch auditors not driven by IFRS adoption.

I include a number of variables to control for factors identified in prior research as being associated with auditor choice and switching (Simunic, 1980; Francis and Wilson, 1988; Johnson and Lys, 1990; DeFond, 1992; Chan, Lin, and Mo, 2006; Landsman, Nelson, and Rountree, 2009), and I allow the coefficients on these variables to differ for treatment and control firm-years since factors influencing the decision to switch auditors may have different implications for adopting compared to non-adopting firms.[7] *SIZE* is defined as the natural logarithm of total assets; in general, larger clients are less likely to

[6] For robustness, I consider the following alternative classifications for the time period variable, *POST*: (1) fiscal years ending after 12/31/2006; (2) fiscal years ending after 3/31/2007, by which time most audits following the initial adoption of IFRS would be complete; (3) fiscal years ending after 3/31/2007, eliminating firms with fiscal years ending between 11/30/2006 and 3/31/2007. The reported results are robust to all of these definitions.

[7] Since the expected signs of the control variables may differ depending on the type of auditor switch and depending on whether or not the firm adopts IFRS, I do not explicitly denote directional predictions of all control variables in this section.

switch auditors due to potentially higher fees driven by the new auditor's effort in becoming familiar with the client. *NI* is measured as net income scaled by total assets, controlling for the relative likelihood of more profitable firms to switch auditors. *GROWTH* is measured as the percentage change in sales, since firms may be more likely to switch auditors when expanding their operations. *LOSS* is an indicator variable equal to one if the firm reports negative net income in year *t-1* and zero otherwise; firms in poorer financial condition may undergo restructuring of operations, which could include changing to a new auditor. *QUAL* is an indicator variable equal to one if the firm receives a qualified audit opinion in year *t-1* and zero otherwise, controlling for auditor switches driven by deterioration in the auditor-client relationship after the client receives a non-clean audit opinion. *FINANCE* is an indicator variable equal to one if the firm raised debt or equity capital in year *t*, and zero otherwise, since clients that expand their business or seek additional capital are more likely to be misaligned with their current auditor. *USLIST* is an indicator variable equal to one if the firm is listed on a U.S. stock exchange and zero otherwise, controlling for the exposure of cross-listed firms to the relatively higher regulatory oversight in the U.S.[8]

Since my sample period spans a number of years and there is a possible endogeneity concern given that I do not restrict my analysis to the effects of mandatory adoption of IFRS in a specific country or region, I include several additional control variables. *VOLUN* is a control variable equal to one if the firm adopts IFRS before the mandatory requirement in its country of origin and zero otherwise, controlling for

[8] My inferences are unchanged if I include additional variables to control for the absolute value of total accruals, mergers, assets from acquisitions, and book-to-market ratios. Similarly, my results are consistent if I include a continuous measure for changes in long-term debt and equity rather than *FINANCE*.

differing incentives between voluntary and mandatory adopters of IFRS (Leuz and Verrecchia, 2000; Leuz, 2003). *HIGHDIFF* is an indicator variable equal to one if the differences between firm *i*'s previous local accounting standards and IFRS are greater than the sample median, based on the measure derived in Bae, Tan, and Welker (2008), and zero otherwise. Clients with greater differences between their previous reporting standards and IFRS may be more likely to switch auditors (Comprix et al., 2011). *REGQ* is a continuous index variable that captures the regulatory environment in firm *i*'s country of domicile, as reported by Kaufmann, Kraay, and Mastruzzi (2009).[9] This measure quantifies the ability of a government to implement and enforce regulations, which may impact the likelihood that a firm will switch auditors, especially during the transition to IFRS (Wieczynska, 2013). In addition to *HIGHDIFF* and *REGQ*, I also include country fixed-effects to capture other time-invariant differences (e.g., legal system) across countries in my sample.

1.3.2 Tests of Differences between Regression Coefficients

My research design allows for useful comparisons of the regression coefficients both between treatment and control samples and among alternative auditor switch choices for firms within the same group. After estimating Equation (1), I apply a likelihood ratio chi-square test for statistically significant differences of regression coefficients. This test indicates whether the likelihood of one type of auditor switch is less or greater than another, or whether the same type of auditor switch is more or less likely for different

[9] The sample period in Kaufmann et al. (2009) ends in 2008. Accordingly, I use the value of *REGQ* from 2008 for all subsequent years in my analysis.

groups of firms. These tests provide additional support for H1A and H1B and allow me to statistically test H1C.

To that end, I perform the following comparisons. First, for each type of auditor switch against the base condition of no auditor switch, I test whether the likelihood of switching auditors after the specified time period cutoff is different between observations coded as IFRS adoption years and non-adoption firms or years (i.e., I test for statistically significant difference between *POST*NON_ADOPT* and *POST*IFRS_ADOPT*). I expect the two coefficients to be significantly different or that the magnitude of the two coefficients, if they are the same sign, will be greater for adopting firms. Second, I perform a similar test across types of auditor switches within each subsample. In this case, my interest is in determining whether there is a statistically significant difference between the coefficients on *POST*IFRS_ADOPT* for the two possible types of auditor switches within each subsample. Again, I expect there to be a significant difference between the two and in this case, if both coefficients are signed the same, I expect the associated effect of the directional switch to be greater than that of a lateral switch.

1.4 Data and Sample Selection

I begin by obtaining a sample of publicly-listed firms available in Worldscope from 2004 through 2011. The coverage of firms in Worldscope extends to smaller companies and those listed in less regulated markets, whereas the alternative of Global Vantage contains only the largest and most prominent firms. I form my initial sample after coding the year of IFRS adoption for treatment firms based on reported accounting standards data, as described in the previous section. I do not include firms in certain East Asian countries (China, Hong Kong, Singapore, Malaysia, and Thailand), despite the use

of IFRS, for two reasons. First, for firms in China, adoption of IFRS was a gradual rather than immediate process; that is, Chinese accounting standards converged with IFRS over time. Similarly, while local GAAP in Hong Kong are nearly identical to IFRS, full conversion to IFRS took place over a number of years, so the effective implementation dates of individual standards differ from the initial reported year of IFRS adoption. Second, the reporting environment in these countries is significantly different from other parts of the world. Despite a legal system of common law origin, the incentives of managers and auditors diverge from the western world due to differences in enforcement, family ownership, and government control (Ball, Robin, and Wu, 2003).

I delete observations with missing auditor information and those with SIC codes 6000-6999 due to the differing operating characteristics of financial institutions. All data other than the firm's auditor are obtained from Worldscope, and I delete observations with missing financial data used to construct control variables. Audit firm data is obtained from Thompson Reuters Fundamentals.

Panel A of Table 1-1 summarizes the selection procedure for the sample used in the auditor switching tests. In Panel B, I provide sample distributions by country and by year. Not unexpectedly, countries with the largest capital markets (Australia, Canada, Korea, and the United Kingdom) each contribute more observations to the overall sample than other, smaller countries for both treatment and control firms. For the breakdown by year, the control sample is distributed evenly with 10-15% of the total observations in each year. For adopting firms, there are larger proportions in 2005 and 2006 due to the mandatory adoption of IFRS in the E.U. and Australia and in 2011 due to the mandatory

adoption of IFRS in Canada and Korea.[10] The final sample for testing the likelihood of auditor switching consists of 6,050 (60,381) firm-year observations included in the treatment (control) group.

In Table 1-2, I provide descriptive statistics for the variables used in my auditor switching analysis. For non-Big 4 clients, the frequency of auditor replacements is similar across treatment and control firms, though the base condition of no auditor switch is significantly ($p < 0.05$) more common for control observations. Differences in control variables between treatment and control firms in the non-Big 4 partition are, in general, not statistically significant. For Big 4 clients, the frequency of auditor replacements is greater for control observations. As clients of Big 4 auditors may be less likely to switch auditors during the transition to IFRS (compared to non-Big 4 clients), coupled with the larger number of observations in the control group, this is not unexpected. As with non-Big 4 clients, the treatment and control observations for the Big 4 sample partition appear to be composed of similar firms, based on the control variables.

1.5 Empirical Results

1.5.1 Results: Auditor Switching in the Year of IFRS Adoption

I begin by reporting the results to test for changes in the likelihood of clients to switch auditors in the year of IFRS adoption. Table 1-3 presents regression results from estimating Equation (1) after partitioning audit firm size as Big 4 and non-Big 4. In Table 1-3, the labels STB, STS, BTS, and BTB denote the following types of auditor replacements, respectively: from a non-Big 4 to a Big 4 auditor (STB); from a non-Big 4

[10] Ending the sample period in 2010 and, as a result, excluding Canada and Korea from the treatment samples does not impact my results.

to a different non-Big 4 auditor (STS); from a Big 4 auditor to a non-Big 4 auditor (BTS); and from a Big 4 auditor to a different Big 4 auditor (BTB). The likelihoods of all auditor switches are tested against the base condition of not switching auditors.

Panel A of Table 1-3 reports results for auditor switching behavior of non-Big 4 audit clients in the year of IFRS adoption. For clients switching from a non-Big 4 to a Big 4 auditor (STB), and consistent with expectations, the coefficient on *IFRS_ADOPT* is positive and marginally significant ($p < 0.10$), suggesting that clients are more likely to switch to a large auditor in the year of IFRS adoption; this is consistent with the findings of prior studies. However, the coefficient on the interaction term *POST*IFRS_ADOPT* is significantly negative ($p < 0.05$). This finding suggests that non-Big 4 client firms adopting IFRS in more recent years are relatively less likely to switch to a large auditor. On the other hand, the coefficient on *POST*NON_ADOPT* is not significant at conventional levels ($p > 0.10$), suggesting that the change in auditor switching behavior is restricted to years in which firms adopt IFRS. The finding that, in more recent years, firms are relatively less likely to switch from a small to a large auditor in the year of IFRS adoption provides empirical support for H1A.

For clients switching from a non-Big 4 to a different non-Big 4 auditor (STS), results are quite different. Again, the coefficient on *IFRS_ADOPT* is significantly positive ($p < 0.05$), supporting the prediction that auditor switches of all types are more likely in the year of IFRS adoption. However, results also suggest that auditor switches of this type are more likely in more recent years for both adopting and non-adopting clients, as the coefficients on both *POST*NON_ADOPT* and *POST*IFRS_ADOPT* are positive and significant ($p < 0.10$ and $p < 0.05$, respectively). This is contrary to the above results,

as only IFRS adopting clients are found to be less likely to switch from a non-Big 4 to a Big 4 auditor (STB). Since the above result suggests that switches between small auditors is more likely for both treatment and control firms, I cannot attribute this difference to changes in the market for IFRS-related audit services. However, as I did not make directional predictions regarding lateral auditor switches, this finding does not refute any individual hypothesis, and additional analysis is needed.

The explanatory variables included in the model suggest that the likelihood of switching from a non-Big 4 to a Big 4 auditor (STB) is negatively associated with client size (*SIZE*NON_ADOPT* and *SIZE*IFRS_ADOPT*), previously reporting a loss (*LOSS*IFRS_ADOPT*), IFRS adopting clients having previously receive a qualified audit opinion (*QUAL*IFRS_ADOPT)*, adopting clients seeking external financing (*FINANCE*IFRS_ADOPT*), and clients being listed in U.S. markets (*USLIST*NON_ADOPT*) and positively associated with client growth (*GROWTH*IFRS_ADOPT*), prior receipt of a qualified audit opinion (*QUAL*NON_ADOPT*), non-adopting clients seeking external financing (*FINANCE*NON_ADOPT*), voluntary adoption of IFRS (*VOLUN*IFRS_ADOPT*), the strength of a country's regulatory quality (*REGQ*NON_ADOPT* and *REGQ*IFRS_ADOPT*), and the magnitude of the differences between adopting clients' local reporting standards and IFRS (*HIGHDIFF*IFRS_ADOPT*).

For switches between non-Big 4 auditors (STS), there are two differences from the above results. This type of auditor switch is positively associated with lower profitability (*LOSS*NON_ADOPT* and *LOSS*IFRS_ADOPT*) and negatively associated with large differences between local reporting standards and IFRS

(*HIGHDIFF*IFRS_ADOPT*). The directional effects of all other explanatory variables are consistent across the two types of auditor switches.

In Panel B of Table 1-3, I report the results of auditor switching for Big 4 clients. For switches from a Big 4 auditor to a non-Big 4 auditor (BTS), the coefficient on *IFRS_ADOPT* is significantly negative ($p < 0.05$). This suggests that clients are less likely to switch to a smaller auditor in the year of IFRS adoption, which is consistent with expectations and prior research. However, the coefficient on *POST*IFRS_ADOPT* is significantly positive ($p < 0.001$), which suggests that Big 4 clients are more likely to switch down to a smaller audit firm in more recent years. As with the switches from a non-Big 4 to a Big auditor (STB), this result is restricted to the treatment group, as the coefficient on *POST*NON_ADOPT* is significantly negative ($p < 0.05$). Thus, as these results suggest that firms adopting IFRS in more recent years are more likely to switch from a large to a small auditor, I find support for H1B.

Results also suggest that clients are more likely to switch between Big 4 auditors (BTB) in the year of IFRS adoption, as the coefficient on *IFRS_ADOPT* is positive and marginally significant ($p < 0.10$). The coefficients on both *POST*IFRS_ADOPT* and *POST*NON_ADOPT* are also positive and significant ($p < 0.001$ and $p < 0.05$, respectively), suggesting that the likelihood of switching between Big 4 auditors is greater in more recent years. As with switches between non-Big 4 auditors (STS), I cannot attribute this finding to changes in the market for IFRS-related audit services, since non-adopting firms are also affected.

For switches from a Big 4 to a non-Big 4 auditor (BTS), the control variables suggest that switching auditors is negatively associated with client size

(*POST*NON_ADOPT* and *POST*IFRS_ADOPT*), clients seeking external financing (*FINANCE*NON_ADOPT*), the strength of a country's regulatory quality (*REGQ*NON_ADOPT*), and the differences between local standards and IFRS, for treatment observations (*HIGHDIFF*IFRS_ADOPT*), and positively associated with previously reporting a loss (*LOSS*NON_ADOPT* and *LOSS*IFRS_ADOPT*), prior receipt of a qualified audit opinion (*QUAL*NON_ADOPT*), and voluntary adoption of IFRS (*VOLUN*IFRS_ADOPT*).

There are several differences between the above results and the associations between control variables and switches between Big 4 auditors (BTB). Lower profitability of IFRS-adopting firms is positively associated with this type of auditor switch (*LOSS*IFRS_ADOPT*), as is the prior receipt of a qualified audit opinion (*QUAL*IFRS_ADOPT*). Large differences between local GAAP and IFRS are also positively associated with a switch to a different Big 4 auditor for treatment firm-years (*HIGHDIFF*IFRS_ADOPT*).

1.5.2 Results: Differences between Regression Coefficients for the Auditor Switching Model

In this section, I further test for statistically significant differences of the regression coefficients derived from estimating Equation (1), as reported in the previous section. Specifically, I perform a likelihood ratio chi-square test of the regression coefficients for the variables of interest (*POST*IFRS_ADOPT* and *POST*NON_ADOPT*). Panel A of Table 1-4 reports the tests for statistically significant differences of the regression coefficients for the non-Big 4 client sample partition. For switches from a non-Big 4 to a Big 4 auditor (STB), the coefficient of -0.073 on

*POST*IFRS_ADOPT* is significantly different ($p < 0.001$) from the coefficient of 0.033 on *POST*NON_ADOPT*. This confirms my previous inferences that the changing trend in auditor switches of this type is restricted to IFRS adopting firms. Both adopting and non-adopting firms appear to be more likely to switch between non-Big 4 auditors (STS), as the coefficients on both *POST*IFRS_ADOPT* and *POST*NON_ADOPT* are positive. However, the effect is greater for adopting firms, and the difference between the two coefficients is marginally significant ($p < 0.10$). Regarding differences between the two types of switches, the coefficient of -0.073 on *POST*IFRS_ADOPT* for switches from a non-Big 4 to a Big 4 auditor (STB) is significantly different ($p < 0.001$) from the coefficient on *POST*IFRS_ADOPT* of 0.288 for switches between non-Big 4 auditor (STS), which provides support for H1C that changes in the likelihood of directional auditor switches is different from the change in the likelihood of lateral auditor switches. There is no significant difference between the two types of auditor switches for non-adopting firms.

The tests for differences in the regression coefficients for Big 4 clients are reported in Table 1-4, Panel B. Results are similar to the non-Big 4 sample partition. Specifically, for switches from a Big 4 to a non-Big 4 auditor (BTS), the coefficient on *POST*IFRS_ADOPT* of 0.703 is significantly greater ($p < 0.001$) than the coefficient on *POST*NON_ADOPT* of -0.082. This reaffirms my finding in support of H1B that IFRS adopting clients are more likely to switch from a Big 4 to a non-Big 4 auditor in more recent years. Contrary to expectations, although the coefficients on both variables are positive for switches between Big 4 auditors (BTB), the effect is greater for firms in the control sample, and their difference of 0.125 is marginally significant ($p < 0.10$). Thus, I

fail to find evidence that there is a change in the likelihood of IFRS adopting clients to switch between Big 4 auditors. However, consistent with my predictions, the coefficient on *POST*IFRS_ADOPT* is significantly greater ($p < 0.001$) for switches from Big 4 to non-Big 4 auditors (BTS) compared to switches between Big 4 auditors (BTB), which supports H1C. For control firms, on the other hand, the likelihood of auditor switches between Big 4 auditors (BTB) is greater than the likelihood of switches from a Big 4 to a non-Big 4 auditor (BTS), and their difference of 0.642 is statistically significant ($p < 0.001$).

In summary, the above results suggest that the market for IFRS-related audit services has become less concentrated over time. My findings indicate that while clients of non-Big 4 auditors are more likely to switch to a larger auditor in the year of IFRS adoption, this type of switch becomes less likely in more recent years. Similarly, the likelihood of Big 4 clients to switch to a small auditor is lower in the year of IFRS adoption, but relatively more likely for firms adopting IFRS in more recent years. In addition, tests of differences of the regression coefficients suggest that the changes in the likelihood of directional switches are significantly different from that of the corresponding lateral auditor switches for IFRS adopting firms. I also find that, in most cases, the relative likelihood of switching auditors in more recent years is different between treatment and control firms.

Taken together, these results motivate my additional tests regarding changes in the IFRS-related fee premium. To the extent that the audit market has become less concentrated, smaller audit firms should have obtained the knowledge and experience necessary to attract clients during their transition to IFRS. Likewise, a market with lower

concentration should promote competition among audit firms. Combined, these two factors may play an important role in the fee premium charged by the auditor in relation to clients' adoption of IFRS.

1.5.3 Sensitivity Tests

I repeat my analysis based on defining large auditors as Global 6 (the Big 4, plus BDO and Grant Thornton). This makes my results comparable to prior studies (e.g., Wieczynska, 2013), and it is also possible that the second tier global auditors were similarly affected over the sample period. I report these adjusted results in Tables 5 and 6 and discuss the primary implications in this section. In these tables, the abbreviations STG and GTS replace STB and BTS, respectively.

Panel A of Table 1-5 reports results for auditor switching behavior of non-Global 6 audit clients in the year of IFRS adoption. For clients switching from a non-Global 6 to a Global 6 auditor (STG), and consistent with expectations, the coefficient of on IFRS_ADOPT is positive and marginally significant ($p < 0.10$), again suggesting that clients are more likely to switch to a large auditor in the year of IFRS adoption. However, the coefficient on the interaction term POST*IFRS_ADOPT is significantly negative ($p < 0.05$). This finding suggests that, as with non-Big 4 clients, non-Global 6 client firms adopting IFRS in more recent years are less likely to switch to a larger auditor. Conversely, the coefficient on POST*NON_ADOPT is positive and marginally significant ($p < 0.10$), suggesting that this change in auditor switching behavior is restricted to IFRS adopting firms. As with the non-Big 4 client partition, these findings support H1A. The results of switching between small auditors (STS) are somewhat different when defined in this way. The coefficient on *IFRS_ADOPT* is positive but not

significant at conventional levels. However, results suggest that auditor switches between non-Global 6 auditors are more likely in more recent years for IFRS adopting clients, as the coefficient *POST*IFRS_ADOPT* is positive and significant ($p < 0.05$). Firms in the control group, on the other hand, appear less likely to switch between non-Global 6 auditors; the coefficient on *POST*NON_ADOPT* for auditor switches of this type is negative and marginally significant ($p < 0.10$). This finding regarding changes in the likelihood of switching between non-Global 6 auditors (STS) provides support that the change in the likelihood of switching from a non-Global 6 to a Global 6 auditor (STG) is not simply caused by an increase in the likelihood of all types of auditor switches for non-Global 6 clients.

Panel B of Table 1-5 reports the results of auditor switching for Global 6 clients. For switches from a Global 6 to a non-Global 6 auditor (GTS), the coefficient on *IFRS_ADOPT* is negative and marginally significant ($p < 0.10$). Consistent with expectations, this result suggests that clients are less likely to switch down to a smaller auditor in the year of IFRS adoption. The coefficient on *POST*IFRS_ADOPT* is positive and significant ($p < 0.001$), which suggests that Global 6 clients are more likely to switch down to a smaller audit firm in more recent years. This result holds only for IFRS adopting firms, as the coefficient on *POST*NON_ADOPT* is significantly negative ($p < 0.001$) for auditor switches of this type. Again, this provides support for H1B that firms adopting IFRS in more recent years are more likely to switch to a smaller auditor in the year of IFRS adoption. Results also suggest that clients are more likely to switch between Global 6 auditors (GTG) in the year of IFRS adoption, as the coefficient on *IFRS_ADOPT* is positive and marginally significant ($p < 0.10$). The coefficient on

*POST*IFRS_ADOPT* is also positive and marginally significant ($p < 0.10$), suggesting that IFRS adopting clients are also more likely to switch between Global 6 auditors in more recent years. However, as with switches between Big 4 auditors, the coefficient on *POST*NON_ADOPT* is also positive and significant ($p < 0.001$), which suggests that the change in the likelihood of switching between Global 6 auditors is not restricted to IFRS adopting clients.

Table 1-6 provides the results of executing a chi-square test for the difference in the regression coefficients using the adjusted coding scheme. Panel A reports the results for the non-Global 6 sample partition, and results are generally consistent with the non-Big 4 client sample partition. For switches from a non-Global 6 to a Global 6 auditor (STG), the statistically significant difference ($p < 0.001$) in the coefficients of 0.395 on *POST*IFRS_ADOPT* and *POST*NON_ADOPT* provides support for H1C. Results suggest that the increased likelihood of switching between non-Global 6 auditors (STS) for treatment firms is significantly different from the corresponding change for control firms, as the difference in the coefficients on *POST*IFRS_ADOPT* and *POST*NON_ADOPT* is statistically significant. For comparisons between the types of auditor switches, only the coefficients on *POST*IFRS_ADOPT* are significantly different ($p < 0.001$). Thus, I find additional support for H1C given that the change in the likelihood to switch from non-Global 6 to Global 6 auditors (STG) is restricted to IFRS adopting firms.

Finally, Panel B of Table 1-5 reports the results of testing for statistically significant difference of the regression coefficients for the Global 6 sample partition. For switches from a Global 6 to a non-Global 6 auditor (GTS) and in support of H1B, the

coefficient of 0.597 on *POST*IFRS_ADOPT* is significantly different ($p < 0.001$) than the coefficient on *POST*NON_ADOPT* of -0.148. For Global 6 clients, the coefficients on both *POST*IFRS_ADOPT* and *POST*NON_ADOPT* are positive, but their difference is not statistically significant at conventional levels. Thus, as with Big 4 clients, I do not find evidence of a change in the likelihood to switch between Global 6 auditors (GTG) for IFRS adopting firms. Also similar to the Big 4 client partition, the coefficient on *POST*IFRS_ADOPT* is positive for both switches from a Global 6 to a non-Global 6 auditor (GTS) and between Global 6 auditors (GTG), and their difference of -0.298 is marginally significant ($p < 0.10$). Thus, as expected, the increased likelihood of IFRS adopting firms to switch auditors in more recent years is greater for switches down from a Global 6 to a non-Global 6 auditor (GTS) compared to switches between Global 6 auditors (GTG), providing support for H1C. For non-adopting firms, the likelihood of switches between Global 6 auditors (GTG) in more recent years is significantly greater ($p < 0.05$) than the likelihood from a Global 6 to a non-Global 6 auditor (GTS). In summary, although some inconsequential differences exist, the primary findings are upheld regardless of whether large and small auditors are partitioned on the basis of inclusion among the Big 4 or Global 6 auditors.

1.6 Conclusion

This essay examines how the market for IFRS-related audit services has changed over time as a result of a global shift in the accounting regime of individual countries from local standards to IFRS. My findings suggest that clients adopting IFRS in more recent years are less likely to switch away from a non-Big 4 auditor to a Big 4 auditor and, similarly, more likely to switch from a Big 4 to a non-Big 4 auditor relative to firms

that adopt IFRS in more recent years. Taken together, these results suggest that the market for IFRS-related audit services has become less concentrated among large, global auditors. These results add to the international auditing literature by providing evidence on changes in one aspect of the audit market as a result of IFRS adoption over time, which has become a popular topic in current research. Additionally, my study offers potentially policy-relevant evidence to add to the debate over whether or not the U.S. should require IFRS adoption by publicly-listed firms. While the findings of previous studies offer evidence that is consistent with these undesirable outcomes, my results suggest that gradual changes in the audit market may mitigate concerns regarding the concentration of the audit market among large, global auditors.

It is important to note that I draw these inferences based on a global sample not including U.S. firms. These results are therefore suggestive, but not definitive, of how the audit market specific to the U.S. may be affected following IFRS adoption, especially given the relatively more stringent reporting environment relative to other countries. Another important caveat of this study is that I examine auditor switching only in the year of IFRS adoption rather than employing a more general auditor choice model in the years surrounding the event. Nevertheless, it is important for regulators in the U.S. to consider changes in the global audit market, in addition to the consequences surrounding more concentrated events (e.g., mandatory IFRS adoption), in order to draw reliable inferences regarding both positive and negative outcomes of IFRS adoption in the U.S.

Table 1-1: Sample Selection and Description - Auditor Switching

Panel A: Sample Selection

Sample	Firm-Year Observations	
	Treatment	Control
Initial Sample[#]	10,052	137,542
Less:		
Missing audit firm data	(240)	(24,935)
Financial firms (SIC Code 6000-6999)	(2,609)	(35,969)
Missing financial data	(1,153)	(16,257)
Sample used in auditor switching regression analysis:	6,050	60,381

Panel B: Sample distribution by country

	Treatment		Control	
Australia	734	12.1%	8,304	13.8%
Austria	41	0.7%	861	1.4%
Belgium	128	2.1%	1,377	2.3%
Brazil	121	2.0%	915	1.5%
Canada	621	10.3%	9,668	16.0%
Chile	134	2.2%	971	1.6%
Denmark	95	1.6%	808	1.3%
Finland	68	1.1%	592	1.0%
France	396	6.5%	3,900	6.5%
Germany	254	4.2%	3,648	6.0%
Greece	217	3.6%	1,370	2.3%
Ireland	32	0.5%	219	0.4%
Israel	252	4.2%	1,908	3.2%
Italy	49	0.8%	1,333	2.2%
Korea	833	13.8%	7,196	11.9%
Luxembourg	10	0.2%	101	0.2%
Netherlands	89	1.5%	602	1.0%
New Zealand	86	1.4%	595	1.0%
Norway	151	2.5%	1,064	1.8%
Philippines	117	1.9%	768	1.3%
Portugal	38	0.6%	291	0.5%
South Africa	146	2.4%	1,405	2.3%
Spain	97	1.6%	781	1.3%
Sweden	254	4.2%	2,214	3.7%
Switzerland	52	0.9%	1,059	1.8%
United Kingdom	1,035	17.1%	8,431	14.0%
	6,050	100%	60,381	100%

Table 1-1 (Continued)

Panel C: Sample distribution by year

	Treatment		Control	
2004	144	2.4%	7,280	12.1%
2005	1,357	22.4%	6,225	10.3%
2006	1,093	18.1%	6,012	10.0%
2007	709	11.7%	7,713	12.8%
2008	541	8.9%	8,327	13.8%
2009	125	2.1%	9,044	15.0%
2010	218	3.6%	8,907	14.8%
2011	1,863	30.8%	6,873	11.4%
	6,050	100%	60,381	100%

This table summarizes the procedure to select the sample used in the auditor switching analysis. Panel A details the selection criteria for the treatment (IFRS-adopting) and control (non-adopting) firm-year observations. Panel B and Panel C provide details on the sample distribution by country and year, respectively.

[#] The initial sample consists of all publicly-listed firms available from Worldscope from 2004 through 2011 located in the countries listed in Panel B. I first identify treatment (IFRS-adopting) firms based on accounting standards data in Worldscope, and delete remaining observations with missing accounting standards data.

Table 1-2: Descriptive Statistics - Auditor Switching

	Non-Big 4 Clients (n = 29,883)				Big 4 Clients (n = 36,548)				
	Treatment Observations		*Control Observations*			*Treatment Observations*		*Control Observations*	
Variable	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**		**Mean**	**St. Dev.**	**Mean**	**St. Dev.**
Test Variables (%)					***Test Variables (%)***				
Audswitch = 0	0.6771	0.4677	0.6940 **	0.4608	*Audswitch* = 0	0.8451	0.3618	0.7829 ***	0.4123
Audswitch = STB	0.0948	0.2931	0.0875	0.2826	*Audswitch* = BTS	0.0577	0.2331	0.0702 ***	0.2555
Audswitch = STS	0.2281	0.4197	0.2185	0.4132	*Audswitch* = BTB	0.0972	0.2963	0.1469 ***	0.3540
POST	0.6134	0.4871	0.6433 ***	0.4790	*POST*	0.5235	0.4995	0.6636 ***	0.4725
Control Variables					***Control Variables***				
SIZE	18.826	3.8070	18.767	3.9466	*SIZE*	20.598	3.6161	20.756	3.5900
NI	-0.2898	1.0880	-0.2873	1.9595	*NI*	-0.0493	0.3573	-0.1847 ***	0.6055
GROWTH	0.6498	5.2697	0.2755 ***	4.2561	*GROWTH*	0.2921	2.2420	0.2681	2.4296
LOSS (%)	0.5159	0.4998	0.5218	0.4915	*LOSS (%)*	0.3315	0.4708	0.3336	0.4886
QUAL (%)	0.2780	0.4481	0.1197 ***	0.3246	*QUAL (%)*	0.1010	0.3003	0.0973	0.2923
FINANCE (%)	0.4625	0.4962	0.4501	0.4975	*FINANCE (%)*	0.5078	0.5000	0.4177 ***	0.4932
VOLUN (%)	0.0276	0.1638	0.2849 ***	0.4514	*VOLUN (%)*	0.0314	0.1743	0.2959 ***	0.4565
USLIST (%)	0.0361	0.0600	0.0951 ***	0.0771	*USLIST (%)*	0.0893	0.0941	0.0223 ***	0.1477
REGQ	1.2929	0.5162	1.3070	0.4968	*REGQ*	1.4039	0.4460	1.4106	0.4155
HIGHDIFF (%)	0.2862	0.4521	0.2746	0.4463	*HIGHDIFF (%)*	0.3864	0.4990	0.3825	0.4860

This table presents descriptive statistics for variables used in the auditor switching analysis. Treatment observations are years in which firms adopt IFRS. Control observations are firm-years for which there is no change in accounting standards. A percentage sign following dichotomous variables denotes that that mean is the proportion of firms for which the variable is equal to one. I categorize the *AUDSWITCH* separately for each sample partition. *AUDSWITCH=0* denotes firm-years in which clients did not switch auditors; *STB* indicates switches from a non-Big 4 to a Big 4 auditor; *STS* indicates switches between non-Big 4 auditors; *BTS* indicates switches from a Big 4 to a non-Big 4 auditor; and *BTB* indicates switches between Big 4 auditors. *POST* is an indicator variable equal to one for firm-years ending after 11/30/2006 and zero otherwise. *SIZE* is measured as the natural log of total assets. *NI* is equal to net income scaled by total assets. *GROWTH* is the annual percentage change in sales. *LOSS* is an indicator variable equal to one for firms reporting negative income in the prior year. *QUAL* is equal to one if the firm receives a qualified audit opinion in the previous year. *FINANCE* is an indicator variable equal to one if the firm raised debt or equity capital in the current year and zero otherwise. *VOLUN* is an indicator variable for firm-years ending before the mandatory adoption of IFRS in firm *i*'s country of domicile. *USLIST* is an indicator variable equal to one for firms cross-listed in U.S. capital markets. *REGQ* is an index variable capturing each country's regulatory quality, as measured by Kaufmann et al. (2009). *HIGHDIFF* is an indicator variable equal to one if the differences between the local reporting standards and IFRS, based on Bae et al. (2008), is greater than the sample median and zero otherwise.

All continuous variables are winsorized at the top and bottom 1% level.
*, **, *** denote statistically significant differences between treatment and control observations at the 10%, 5%, and 1% levels (based on two-tailed p-value), respectively.

Table 1-3: Auditor Switching Model for non-Big 4 and Big 4 Clients

	Panel A: Non-Big 4 (n = 29,883)				*Panel B: Big 4 (n = 36,548)*			
Variable	**STB (n = 2,467)**		**STS (n = 6,460)**		**BTS (n = 2,183)**		**BTB (n = 5,183)**	
	Estimate	Sig	Estimate	Sig	Estimate	Sig	Estimate	Sig
Intercept	-8.5295	***	-0.5488	**	4.9645	***	-3.6110	***
IFRS_ADOPT	**0.2276**	*	**0.3209**	**	**-0.3288**	**	**0.4978**	*
POST*NON_ADOPT	**0.0331**		**0.0542**	*	**-0.0823**	*	**0.5601**	**
POST*IFRS_ADOPT	**-0.0734**	**	**0.2884**	**	**0.7028**	***	**0.4355**	***
*SIZE*NON_ADOPT*	-0.2305	***	-0.0644	***	-0.2708	***	-0.0617	***
*SIZE*IFRS_ADOPT*	-0.0351	*	-0.0213	*	-0.0416	*	-0.0581	***
*NI*NON_ADOPT*	-0.0003		0.0043		0.0002		-0.0013	
*NI*IFRS_ADOPT*	0.0146		-0.0002		0.0286		0.0058	
*GROWTH*NON_ADOPT*	-0.0003		-0.0001		0.0000		-0.0004	
*GROWTH*IFRS_ADOPT*	0.0034	***	0.0043	***	0.0002		-0.0001	
*LOSS*NON_ADOPT*	0.0486		0.0708	**	0.1582	***	0.0974	***
*LOSS*IFRS_ADOPT*	-0.3154	**	0.1410	*	-0.0694		0.3073	**
*QUAL*NON_ADOPT*	0.4165	***	0.3315	***	0.6884	***	0.3844	***
*QUAL*IFRS_ADOPT*	-0.3582	**	-0.2453	**	0.0272		0.3223	**
*FINANCE*NON_ADOPT*	0.2995	***	-0.0033		-0.1801	***	-0.1222	***
*FINANCE*IFRS_ADOPT*	-0.3169	**	-0.0647		0.0996		0.1821	
*VOLUN*NON_ADOPT*	0.0291		0.0814		0.0380		0.0373	
*VOLUN*IFRS_ADOPT*	0.1479	***	0.2462	*	0.5966	*	0.1577	***
*USLIST*NON_ADOPT*	-0.2642	*	-0.2329	*	-0.3139	*	-0.5101	***
*USLIST*IFRS_ADOPT*	0.4217		-0.1512		-0.0916		-0.0534	
*REGQ*NON_ADOPT*	0.9015	***	0.0964	***	-0.1584	***	-0.0666	*
*REGQ*IFRS_ADOPT*	0.3480	**	-0.0299		0.0278		-0.4011	***
*HIGHDIFF*NON_ADOPT*	-0.0681		-0.1088		-0.0863		0.0716	
*HIGHDIFF*IFRS_ADOPT*	0.7387	***	-0.1836	*	-0.1591	*	0.6478	***
Country Fixed-Effects	Yes				Yes			
Pseudo-R^2	7.62%				11.99%			

This table presents results of estimating the multinomial logistic regression to model the likelihood of various types of auditor switches (Equation 1) for non-Big 4 (Panel A) and Big 4 clients (Panel B).

IFRS_ADOPT is an indicator variable equal to one if year *t* is the year of IFRS adoption for firm *i*, and zero otherwise. *NON_ADOPT* is equal to one if firm *i* does not adopt IFRS in year *t*, and zero otherwise. *POST* is an indicator variable equal to one for observations after 11/30/2006 and zero otherwise. *SIZE* is measured as the natural log of total assets. *NI* is net income scaled by total assets. *GROWTH* is measured as the annual percentage change in sales. *LOSS* is an indicator variable equal to one if firm *i* reported a net loss in year *t*-1, and zero otherwise. *QUAL* is an indicator variable equal to one if firm *i* received a qualified audit opinion in year *t*-1, and zero otherwise. *FINANCE* is equal to one if firm *i* raised debt or equity capital in year *t*, and zero otherwise. *VOLUN* is an indicator variable equal to one if year *t* is before the mandatory adoption of IFRS in firm *i*'s country of domicile, and zero otherwise. *USLIST* is equal to one if firm *i* is cross-listed in a U.S. capital market, and zero otherwise. *REGQ* is a continuous measure of firm *i*'s country's regulatory quality, as measured in Kaufmann et al. (2009). *HIGHDIFF* is equal to one if the difference between the local GAAP of firm *i* and IFRS is greater than the sample median, based on Bae et al. (2008), and zero otherwise.

Table 1-3 (Continued)

The labels STS, STB, BTS, and BTB denote switching between non-Big 4 auditors, switching from a non-Big 4 to a Big 4 auditor, switching from a Big 4 auditor to a non-Big 4 auditor, and switching between Big 4 auditors, respectively.

All continuous variables are winsorized at the top and bottom 1% level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels (based on two-tailed p-value), respectively.

Table 1-4: Differences in Regression Coefficients - Auditor Switching (non-Big 4 and Big 4)

	*POST*IFRS_ADOPT*	*POST*NON_ADOPT*	*Difference (Across)*
Panel A: Non-Big 4 Sample (n = 29,883)			
Switch = STB	-0.073	0.033	0.107 ***
Switch = STS	0.288	0.054	-0.234 *
Difference (Down)	0.362 ***	0.021	

	*POST*IFRS_ADOPT*	*POST*NON_ADOPT*	*Difference (Across)*
Panel B: Big 4 Sample (n = 36,548)			
Switch = BTS	0.703	-0.082	-0.785 ***
Switch = BTB	0.436	0.560	0.125 *
Difference (Down)	-0.267 ***	0.642 ***	

This table presents the results of performing a likelihood ratio chi-square test on the regression coefficients for the variables of interest (*POST*IFRS_ADOPT* and *POST*NON_ADOPT*). I test both for differences between treatment and control firms for the same type of auditor switch (*Difference across*) and differences between the two coefficients for the different types of auditor switch separately for treatment and control firms (*Difference Down*).

STS, STB, BTS, and BTB denote switching between non-Big 4 auditors, switching from a non-Big 4 to a Big 4 auditor, switching from a Big 4 auditor to a non-Big 4 auditor, and switching between Big 4 auditors, respectively.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels (based on two-tailed p-values), respectively.

Table 1-5: Auditor Switching Model for non-Global 6 and Global 6 clients

Variable	*Panel A: Non-Global 6 (n = 24,002)* STG (n = 2,663)		STS (n = 4,230)		*Panel B: Global 6 (n = 42,429)* GTS (n = 2,118)		GTG (n = 7,282)	
	Estimate	Sig	Estimate	Sig	Estimate	Sig	Estimate	Sig
Intercept	-7.8158	***	-0.6611	**	4.7478	***	-2.1451	***
IFRS_ADOPT	**0.0846**	*****	**0.0493**		**-0.3585**	*****	**0.6994**	*****
POST*NON_ADOPT	**0.0887**	*****	**-0.0744**	*****	**-0.1476**	*******	**0.1589**	*******
POST*IFRS_ADOPT	**-0.3064**	******	**0.3183**	******	**0.5971**	*******	**0.2988**	*****
*SIZE*NON_ADOPT*	-0.1806	***	-0.0719	***	-0.2571	***	-0.0029	
*SIZE*IFRS_ADOPT*	-0.0301	*	-0.0298	*	-0.1245	***	-0.0556	***
*NI*NON_ADOPT*	-0.0001		0.0005		0.0007		0.0012	*
*NI*IFRS_ADOPT*	-0.0044		0.0082		0.0423	*	0.0144	
*GROWTH*NON_ADOPT*	-0.0007		-0.0001		-0.0005		-0.0003	
*GROWTH*IFRS_ADOPT*	0.0024	**	0.0042	**	0.0004		0.0001	
*LOSS*NON_ADOPT*	0.0351		0.1349	***	0.2235	***	-0.1169	***
*LOSS*IFRS_ADOPT*	-0.1224	*	0.1283		-0.0752		-0.2819	**
*QUAL*NON_ADOPT*	0.4368	***	0.3676	***	0.4146	***	0.3731	***
*QUAL*IFRS_ADOPT*	0.0278	*	0.5044	***	0.0954		0.2186	*
*FINANCE*NON_ADOPT*	0.2583	***	0.0315		-0.1791	***	-0.0775	***
*FINANCE*IFRS_ADOPT*	-0.3506	**	-0.0975		0.0294		-0.1103	*
*VOLUN*NON_ADOPT*	0.0269		0.0682		0.0329		0.0135	
*VOLUN*IFRS_ADOPT*	1.4667	***	0.0842		-0.0554		0.1303	**
*USLIST*NON_ADOPT*	-0.0943		-0.1509		-0.6177	***	-0.3927	***
*USLIST*IFRS_ADOPT*	0.0696		-1.0252		-0.8356	**	-0.1227	*
*REGQ*NON_ADOPT*	0.8873	***	0.4164	***	-0.7608	***	-0.0455	*
*REGQ*IFRS_ADOPT*	0.5658	***	0.1042		-0.6851	***	-0.0362	**
*HIGHDIFF*NON_ADOPT*	-0.1293		-0.0619		-0.0892		0.0447	
*HIGHDIFF*IFRS_ADOPT*	0.9153	***	0.1067		-0.1414	***	0.0595	***
Country Fixed-Effects	Yes				Yes			
Pseudo-R^2	6.95%				8.92%			

This table presents results of estimating multinomial logistic regression to model the likelihood of various types of auditor switches (Equation 1) for non-Global 6 clients (Panel A) and Global 6 clients (Panel B).

IFRS_ADOPT is an indicator variable equal to one if year *t* is the year of IFRS adoption for firm *i*, and zero otherwise (i.e., treatment group). *NON_ADOPT* is equal to one if firm *i* does not adopt IFRS in year *t*, and zero otherwise (control group). *POST* is an indicator variable equal to one for observations after 11/30/2006 and zero otherwise. *SIZE* is measured as the natural log of total assets. *NI* is net income scaled by total assets. *GROWTH* is measured as the percentage change in sales. *LOSS* is an indicator variable equal to one if firm *i* reported a net loss in year *t*-1, and zero otherwise. *QUAL* is an indicator variable equal to one if firm *i* received a qualified audit opinion in year *t*-1, and zero otherwise. *FINANCE* is equal to one if firm *i* raised debt or equity capital in year *t*, and zero otherwise. *VOLUN* is an indicator variable equal to one if year *t* is before the mandatory adoption of IFRS in firm *i*'s country of domicile, and zero otherwise. *USLIST* is equal to one if firm *i* is cross-listed in a U.S. capital market, and zero otherwise. *REGQ* is a continuous measure of firm *i*'s country's regulatory quality, as measured in Kaufmann et al. (2009). *HIGHDIFF* is an indicator variable equal to one if the difference between the local GAAP of firm *i* and IFRS is greater than the sample median, based on Bae et al. (2008), and zero otherwise.

Table 1-5 (Continued)

The labels STS, STG, GTS, and GTG denote, respectively, switching between non-Global 6 auditors, switching from a non-Global 6 to a Global 6 auditor, switching from a Global 6 auditor to a non-Global 6 auditor, and switching between Global 6 auditors.

All continuous variables are winsorized at the top and bottom 1% level.
*, **, *** denote statistical significance at the 10%, 5%, and 1% levels (based on two-tailed p-value), respectively.

Table 1-6: Differences in Regression Coefficients - Auditor Switching (non-Global 6 and Global 6)

	*POST*IFRS_ADOPT*	*POST*NON_ADOPT*	*Difference (Across)*
Panel A: Non-Global 6 Sample (n = 17,109)			
Switch = STG	-0.306	0.089	0.395 ***
Switch = STS	0.318	-0.074	-0.393 ***
Difference (Down)	0.625 ***	-0.163	

	*POST*IFRS_ADOPT*	*POST*NON_ADOPT*	*Difference (Across)*
Panel B: Global 6 Sample (n = 42,429)			
Switch = GTS	0.597	-0.148	-0.745 ***
Switch = GTG	0.299	0.159	-0.140
Difference (Down)	-0.298 *	0.307 **	

This table presents the results of performing a likelihood ratio chi-square test on the regression coefficients for the variables of interest (*POST*IFRS_ADOPT* and *POST*NON_ADOPT*). I test both for differences between treatment and control firms for the same type of auditor switch (*Difference across*) and differences between the two coefficients for the different types of auditor switch separately for treatment and control firms (*Difference Down*).

The labels STS, STG, GTS, and GTG denote, respectively, switching between non-Global 6 auditors, switching from a non-Global 6 to a Global 6 auditor, switching from a Global 6 auditor to a non-Global 6 auditor, and switching between Global 6 auditors.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels (based on two-tailed p-values), respectively.

CHAPTER 2: CHANGES IN THE IMPACT OF IFRS ADOPTION ON AUDIT FEES

2.1. Introduction

This essay examines the impact of widespread IFRS adoption on auditor fees. A major concern of opponents in the U.S. has been the potentially significant financial burden associated with such a substantial shift in the accounting regime. Hail et al. (2010) provide a conservative estimate of economy-wide first-time preparation costs in excess of US$8 billion based on the results of a survey conducted in the E.U. (see ICAEW, 2007). Critics outside of the U.S. and in countries where IFRS adoption has been enacted have voiced similar concerns regarding the increased costs associated with preparing financial statements following the adoption of IFRS (AICD, 2005). Large, global auditors stand to gain additional revenues if IFRS adoption takes place in the U.S. As a direct and observable outflow of resources, audit fees are one important aspect of the costs associated with IFRS adoption, and current research has found that fees increase following mandatory adoption of IFRS (Kim, Liu, and Zheng, 2012; DeGeorge, Ferguson, and Spear, 2013). However, as these studies focus only on the fixed period of mandatory IFRS adoption, it is difficult to draw inferences regarding how auditor fees may be affected by adoption of IFRS in the future. To the extent that the structure of the audit market changes over time, as the results of the first essay suggest, this topic is of practical importance.

In the following analyses, I examine whether the change in auditor fees in the year of IFRS adoption varies over time. Specifically, I predict that audit firms with the greatest exposure to IFRS financial statements (i.e., the Big 4) become less able to demand as large a premium for their services, causing an overall decline in any fee

premiums associated with IFRS adoption. Based on a sample of firms in 26 countries from 2004 through 2011, my primary results uphold this prediction. Further tests reveal that this effect is driven at least partially by audit firms with greater experience in auditing IFRS statements increasing fees by smaller increments in more recent years, consistent with the effect of increased competition. This trend does not seem to be driven by macroeconomic conditions, as neither the audit service fees of a control group nor the total fees of the treatment group are similarly affected. When I divide the sample into clients audited by Big 4 and non-Big 4 firms, I find that the results hold only for the Big 4 subsample, suggesting that changes to the market for IFRS-related audit services may have negatively impacted the Big 4's ability to extract additional quasi-rents from clients in the year of IFRS adoption.

This study offers several contributions to the international auditing literature. First, I show that the change in audit fees in the year of IFRS adoption declines over time, which I attribute to a less concentrated market. Second, while prior studies posit that IFRS adoption leads to an increase in audit fees due, in part, to a premium charged for the auditor's expertise (Lin and Yen, 2010), I show that such a competitive advantage translates into smaller fee increases in more recent years. To the extent that my results are generalizable, I offer timely evidence of one of the costs associated with IFRS adoption, which is especially important given that the Securities and Exchange Commission (SEC) in the U.S. has yet to make a decisive ruling regarding adoption of IFRS, and concerns about the costs associated with IFRS adoption have attracted a great deal of attention from regulators, academics, and practitioners. These results are relevant to future research given that audit fees are one of the few direct costs that have been examined in the

context of IFRS adoption. In a more general sense, my results also show the importance of carefully selecting auditor fee data, as different inferences can be drawn from when auditor fees are defined based on various types of services.

The remainder of this essay is organized as follows. Section 2 summarizes related prior research and develops my hypotheses. The third section details the research design. Section 4 describes the sample selection procedures and data employed in this study. Section five provides explanations of the empirical results and associated inferences. I conclude in Section 6 and offer suggestions for future research.

2.2 Hypothesis Development

2.2.1 Background: IFRS Adoption and Audit Fees

A major argument against a shift to IFRS reporting is the significant financial burden that would be imposed on adopting firms (SEC Roadmap, 2008; Hail et al., 2010). Prior research has identified one such cost, finding that audit fees are higher after IFRS adoption, as would be expected from such a dramatic change in the reporting environment. Kim et al. (2012) develop an economic model to assess the impact of IFRS adoption on audit fees, noting that the change in audit fees is driven by changes in audit complexity and financial reporting quality, increases in the auditor's effort, and the risk of legal liability due to misapplication of the new reporting standards. Their findings from empirically testing this model suggest that the increase in total fees paid to the auditor increase for IFRS adopting firms, compared to firms in countries that did not require IFRS adoption, is positively associated with the increase in audit complexity (based on the differences between firms' local GAAP and IFRS) and negatively associated with improvements in financial reporting quality (based on changes in

discretionary accruals) and the strength of the country's legal regime. However, it is important to note that Kim et al. (2012) are unable to utilize data specifically for audit service fees.

DeGeorge et al. (2013) similarly examine the change in audit fees for Australian firms surrounding mandatory IFRS adoption. Their findings suggest that audit service fees are higher in the year of IFRS adoption, firms with greater audit complexity display higher increases in audit fees surrounding IFRS adoption, and smaller clients incur disproportionately higher costs. Additional tests reveal an economy-wide increase in audit fees of 23% in the year of IFRS adoption and an abnormal increase of 8% beyond standard yearly increases.

In summary, while previous studies find audit fees increase after IFRS adoption, no existing studies have assessed whether this change in audit fees varies over time. This is an especially interesting issue given that such a difference may be dependent on changes in competition within the audit market itself. As my first essay examines this latter topic and finds that the global audit market shifts in favor of smaller, local audit firms, it is a closely related extension to examine a quantifiable cost that could vary with changes in the market as a whole.

2.2.2 Hypotheses Related to the Change in Audit Fees in the Year of IFRS Adoption

In this essay, I assess whether the change in audit service fees in the year of IFRS adoption has decreased over time. As a continued argument against IFRS adoption in the U.S. is the financial burden imposed on firms as a result of such a change in the reporting environment, empirical evidence is needed to determine potential causes and fluctuations in audit fee changes during the IFRS transition process. Given that the SEC has yet to

make a decisive ruling on IFRS adoption in the U.S., these results based on patterns in audit fee changes should be of interest.

There are a number of reasons why the change in audit service fees surrounding IFRS adoption may change over time. First, to the extent that the market concentration changes and switching to a smaller auditor becomes a reasonable option for clients during the transition to IFRS, increased competition may lead to lower fee increases due to a reduction in ability of auditors to charge high premiums. This argument is consistent with the consequences of increased audit market competition on audit fees in other, more generalized settings (e.g., Maher, Tiessen, Colson, and Broman, 1992).

Second, audit fees are directly associated with auditor effort; as the amount of work required to complete the audit increases, the client is responsible for additional billable hours. In the early years of IFRS adoption, few audit firms have advanced knowledge of the new accounting standards and, as a result, exert additional effort for each engagement. Over time, however, auditors can apply past experience to clients more recently adopting IFRS. These arguments are consistent with learning theory (Libby and Luft, 1993; Bonner and Walker, 1994). In addition, as the market concentration shifts away from larger auditors, smaller firms have the opportunity to gain experience and similarly provide more efficient audits during the transition to IFRS.

Third, there may be an increase in audit risk due to misapplication of the new reporting standards, which in turn leads to increased audit fees (Houston, Peters, and Pratt, 1999). Although cross-country variations may persist with respect to the risk component of audit fees (e.g., different legal or enforcement environments), improvements in knowledge and skills related to the IFRS transition process could cause

the risk component of audit fees to decline over time as audit firms become more aware of potential problems arising from application of IFRS and increase their scrutiny accordingly. My analysis includes a host of variables intended to mitigate the effect of audit risk.[11]

I state my primary hypothesis related to the change in audit service fees as follows, in the alternative form:

H2: The change in audit service fees in the year of IFRS adoption is lower in more recent years.

The above hypothesis is tested using the full sample of firms with available data without distinction to potential differences that may exist between audit firms of different size. Prior research suggests that Big 4 auditors charge higher audit fees relative to small auditors (Palmrose, 1986; DeFond, Francis, and Wong, 2000; Choi, Kim, Liu, and Simunic, 2008). As the concentration of the audit market changes, audit firms with greater experience may see the sharpest decline in the IFRS-related fee premium.[12]

There are several reasons to consider the Big 4 as the firms with the most experience in auditing IFRS financial statements. First, global audit firms actively compete with other auditors both in attracting talented personnel via recruiting events at

[11] As an additional test, I also include a future financial restatement as a control variable to effectively capture this effect. My inferences are unchanged and I find a marginally significant ($p < 0.10$) positive association between future restatements and the increase in audit fees in the year of IFRS adoption, suggesting that the fee increase is greater in the year of IFRS adoption to the extent that auditors correctly assess client risk.

[12] An alternative explanation could be that the additional audit effort required after the client switches to IFRS decreases in subsequent years as the auditor's knowledge of the new reporting system increases, resulting in a detected decline in the change in audit service fees over time. My research design inherently controls for this possibility, since each treatment firm is included as only one observation (i.e., the first year of IFRS reporting).

prestigious business schools and in performing high-quality audits (McWilliams, Van Fleet, and Cory, 2009). Second, the largest audit firms financially support the International Accounting Standards Board (IASB) in the creation of IFRS and related knowledge. The IASB readily considers the comments of these large accounting firms when issuing new pronouncements. Similarly, these audit firms routinely issue handbooks and other forms of guidance to practitioners and academics to assist in interpreting individual standards. Third, the Big 4 have the largest presence globally (Carson, 2009) and therefore have the greatest potential to capitalize on knowledge-sharing with affiliates and local branches as clients switch from local reporting standards to IFRS.

While the above explanations could also apply to BDO and Grant Thornton (collectively with the Big 4, the "Global 6"), there may be significant differences between the Big 4 and BDO and Grant Thornton, and accounting researchers frequently control for differences between Big 4 and non-Big 4 auditors in various research settings in order to capture differences in audit or financial reporting quality, audit fees, going- concern reporting accuracy, etc. More specific to their involvement in creating IFRS and corresponding knowledge, the Big 4 auditors provide substantially greater financial support to the IASB than BDO and Grant Thornton. For example, the Big 4 each contributed annually from US$2 million in 2008 and 2009 (IASC Foundation, 2008; 2009) to US$2.25 million in 2010, 2011, and 2012 (IFRS Foundation, 2010; 2011; 2012), while BDO and Grant Thornton contributed only US$150,000 annually in the same years. Thus, in partitioning the sample based on the most skilled and experienced audit firms, I

segregate based on whether or not the auditor is one of the Big 4.[13] While I do not differentiate separate hypotheses, my research design considers H2 for the full sample and, separately, for Big 4 and non-Big 4 audit client sample partitions to assess any differential impact based on audit firm size.

I next examine whether a more specific measurement of the auditor's expertise in auditing IFRS financial statements, as described in more detail later, can explain the change in the IFRS-related fee premium. Part of the model employed by Kim et al. (2012) to predict changes in audit fees after IFRS adoption includes auditor effort. Salterio (1994) finds that auditor efficiency and effectiveness improve over time, despite the less than ideal nature of the audit as a learning environment. As application of IFRS becomes more widespread, there is an increase in client demand for IFRS-related audit services. If the market is highly concentrated among Big 4 auditors, the IFRS-related fee premium may be at least partially attributable to such expertise. I state the following hypothesis, in the alternative form, to test this supposition:

> **H3A**: The auditor's experience in auditing IFRS financial statements is positively associated with the change in audit service fees surrounding IFRS adoption.

On the other hand, as the market becomes less concentrated and smaller auditors acquire the skills and knowledge necessary to audit IFRS financial statements, auditors with relevant experience may adjust their pricing and pass along the benefits of this

[13] The sample size of firms that use BDO or Grant Thornton is too small to be included as a separate partition. However, untabulated univariate comparisons suggest that the change in audit fees in the year of IFRS adoption for clients of these two firms is more closely related to non-Big 4 auditors. In additional tests, I examine how my results differ if I partition audit firm size based on the Global 6.

competitive advantage to the client in the form a more efficient and, therefore, potentially less costly audit. Accordingly, I state the next hypothesis in the alternative form:

> **H3B**: In more recent years, the auditor's experience in auditing IFRS financial statements is negatively associated with the change in audit service fees surrounding IFRS adoption.

2.3 Research Design

2.3.1 Model: The Change in Audit Service Fees

In this analysis, I first test if the change in audit service fees related to IFRS adoption changes over time. To draw more reliable inferences, I then separately test for the same effect using a control group of firms that did not switch accounting standards during the sample period. The treatment group consists of the client firms' first year of IFRS reporting, determined using data from Worldscope. I then form a control sample of firms that did not switch accounting standards during the sample period. Since my analysis spans a period of time, it is impractical to form such a control sample on condition that firms apply non-IFRS accounting standards because nearly all firms will have adopted IFRS toward the end of the sample period. However, many countries, particularly in the E.U., permitted early adoption of IFRS. Therefore, I form a control sample based on firms that previously adopted IFRS.[14]

As described below, my analysis uses the change in audit service fees as the dependent variable. While major changes in accounting regulations are likely to result in increased audit fees, the results of previous studies (e.g., Kim et al., 2012; DeGeorge et

[14] Such an approach has been used in current international accounting research (e.g., Lin, Riccardi, and Wang, 2012; Barth, Landsman, Lang, and Williams, 2013).

al., 2013) do not provide insights into how many years after IFRS adoption the increased audit fees persist. Other literature examines audit fees after the introduction of SOX in the United States (e.g., Ettredge, Scholz, and Li, 2007), and the results suggest that audit fees are higher for two years after the initial regulation implementation before returning to pre-SOX levels. Following this logic, a firm-year qualifies for inclusion in the control group in my analysis if the firm has applied IFRS for at least five years.[15] By the fourth year of application of IFRS (year *t*+3, where *t* = the adoption year), audit fees should have returned to near normal levels, but the change in audit fees may still be affected by higher audit fees in the previous year (*t*+2). This effect is negated by the fifth year.

After forming the appropriate treatment and control samples, I follow DeGeorge et al. (2013) and estimate the following OLS regression model in a change-specific form as a variant of traditional audit fee models, controlling for factors found to be significant in prior audit fee research (see meta-analysis by Hay and Knechel, 2006), to empirically test H2.

$$\begin{aligned}\Delta AUDFEES_{i,t} = {} & \delta_0 + \delta_1 POST_{i,t} + \delta_2 IFRS\_EXP_{i,t} + \delta_3 POST * IFRS\_EXP_{i,t} \\ & + \delta_4 \Delta SIZE_{i,t} + \delta_5 \Delta INVREC_{i,t} + \delta_6 \Delta QUICK_{i,t} \\ & + \delta_7 \Delta ACCRUAL_{i,t} + \delta_8 \Delta DEBT_{i,t} + \delta_9 \Delta ROA_{i,t} + \\ & \delta_{10} \Delta NUMSEG_{i,t} + \delta_{11} LOSS\_NEW_{i,t} + \delta_{12} PROFIT\_NEW_{i,t} \\ & + \delta_{13} QUAL\_NEW_{i,t} + \delta_{14} CLEAN\_NEW_{i,t} + \\ & \delta_{15} BIG\_SWITCH_{i,t} + \delta_{16} SMALL\_SWITCH_{i,t} + \delta_{17} USLIST_{i,t} \\ & + \delta_{18} VOLUN_{i,t} + \delta_{19} REGQ_{i,t} + COUNTRY + \varepsilon_{i,t}\end{aligned} \tag{2}$$

[15] This approach inherently allows for firms to be included in the treatment group in an earlier year and in the control group in later years (e.g., a firm that adopts IFRS in 2004 can be in the control group beginning in 2008). Disallowing this has no effect on my results.

In Equation (2), the prefix Δ denotes that the variable is measured as the change from year *t-1* to year *t*. Audit fee data is obtained from Thompson Reuters Fundamentals, which provides detailed data on fees paid to the audit firm. Upon inspection of the annual reports for IFRS adopting firms, I find that firms disclose audit-related fees as "paid to the auditor in relation to the adoption and implementation of IFRS" or else provide similar descriptions in the footnotes of the audit fee remuneration in the years surrounding IFRS adoption. Thus, *AUDFEES* is measured as the natural log of the sum of audit service fees plus audit-related fees of firm *i* in year *t*.[16]

In Equation (2), the variables of interest are *POST, IFRS_EXP, and POST*IFRS_EXP*. *POST* is an indicator variable equal to one for firm-years ending after 11/30/2006 and zero otherwise. The coefficient on *POST* captures any time-varying trend in the change in audit service fees related to IFRS adoption. I follow the same logic for coding this variable as what is described in the first essay. For treatment firms, I predict a negative coefficient on *POST*. I interpret the difference between the associated effects of the parameter estimates of *POST* between treatment and control firms as the change in the IFRS-related fee premium over time. *IFRS_EXP* is my measure of the auditor's experience in auditing IFRS financial statements used to empirically test H3A and H3B, operationalized as the total assets of firm *i*'s auditor's clients that report under IFRS

[16] I also compare the effect of the change in audit fees with the change in total fees. It is possible that firms may classify fees related to IFRS adoption as "consulting" or "other fees." To alleviate this concern, I form a stratified random sample of 200 firms and analyze the annual reports in the year before and the year of IFRS adoption. Among firm-years with available disclosures, 68% indicate that fees paid to the auditor related to IFRS adoption are classified either separately as "audit-related fees" or are included in "audit service fees," whereas only 7% specifically state that IFRS-related fees are included as "consulting," "nonaudit," or "other" fees.

divided by the total assets of all firms reporting under IFRS.[17] A significantly positive coefficient on *IFRS_EXP* would lend support to H3A, while a negative and significant coefficient on the interaction term *POST*IFRS_EXP* supports the prediction of H3B.

I include *SIZE*, measured as the natural log of total assets, to control for client size. To control for audit complexity, I include *INVREC, ACCRUAL,* and *NUMSEG*. *INVREC* is measured as the sum of inventory and receivables scaled by total assets. *ACCRUAL* is the absolute value of total accruals, with accruals measured as net income minus cash flows from operations. *NUMSEG* is the natural log of one plus the number of geographic and business segments. I include *QUICK* and *DEBT*, measured as the ratio of current assets less inventory to current liabilities and total liabilities to total assets, respectively, to control for loss exposure. To control for audit risk, I include *ROA*, measured as net income divided by total assets, and change-specific variables for losses by the client and qualified audit opinions. *LOSS_NEW* is an indicator variable equal to one if firm *i* reports a net loss in year *t* and net income in year *t-1*, and zero otherwise. *PROFIT_NEW* is an indicator variable equal to one if firm *i* reports net income in year *t* and a net loss in year *t-1*, and zero otherwise. *QUAL_NEW* is an indicator variable equal to one if firm *i* receives a qualified audit opinion in year *t* and a clean audit opinion in year *t-1*, and zero otherwise. *CLEAN_NEW* is an indicator variable equal to one if firm *i* receives a clean audit opinion in year *t* and a qualified audit opinion year *t-1*, and zero otherwise.

[17] There are 26 countries represented in the main sample, whereas I use the data of client firms in 60 countries to construct this metric in order to effectively capture the auditors' exposure to IFRS financial statements.

I also include control variables to capture the change in fees when firms switch auditors. *BIG_SWITCH* is an indicator variable equal to one if firm *i* switched from a non-Big 4 auditor to a Big 4 auditor in year *t* and zero otherwise. *SMALL_SWITCH* is an indicator variable equal to one if firm *i* switched from a Big 4 auditor to a non-Big 4 auditor in year *t* and zero otherwise. I include *USLIST* to control for exposure to the higher regulatory environment in the U.S. I include *VOLUN* to control for any differences between voluntary and mandatory adopters of IFRS. Finally, I include variables for regulatory quality, *REGQ*, and country fixed-effects to control for country-level variability.

I expect positive coefficients on *ΔSIZE*, *ΔINVREC*, *ΔDEBT, ΔNUMSEG, LOSS_NEW, QUAL_NEW, BIG_SWITCH, ΔUSLIST,* and *REGQ* and negative coefficients on *ΔQUICK, ΔROA, PROFIT_NEW, CLEAN_NEW*, and *SMALL_SWITCH*. I do not make directional predictions for *ΔACCRUALS* or *VOLUN*.

As an additional test, I partition the sample into Big 4 and non-Big 4 audit clients. Having a global presence and collectively controlling a large share of the public audit market (Carson, 2009), Big 4 auditors are most highly qualified to provide clients with services necessary to assist in the preparation of IFRS financial statements. In all years in my sample period, Big 4 auditors rank in the top decile of *IFRS_EXP*, whereas there is much wider variation in non-Big 4 auditors. Thus, dividing the sample in this way separates the audit firms most experienced in auditing IFRS financial statements from those with less and varying levels of experience.

After dividing the sample accordingly,[18] I modify Equation (2) and estimate the following OLS regression model separately for Big 4 and non-Big 4 audit clients and separately for the treatment and control groups in order to further test H2:

$$\begin{aligned}\Delta AUDFEES_{i,t} = {} & \phi_0 + \phi_1 POST_{i,t} + \phi_2 \Delta SIZE_{i,t} + \phi_3 \Delta INVREC_{i,t} + \phi_4 \Delta QUICK_{i,t} \\ & + \phi_5 \Delta ACCRUAL_{i,t} + \phi_6 \Delta DEBT_{i,t} + \phi_7 \Delta ROA_{i,t} + \phi_8 \Delta NUMSEG_{i,t} \\ & + \phi_9 LOSS\_NEW_{i,t} + \phi_{10} PROFIT\_NEW_{i,t} + \\ & \phi_{11} QUAL\_NEW_{i,t} + \phi_{12} CLEAN\_NEW_{i,t} + \phi_{13} AUDSWITCH_{i,t} \\ & + \phi_{14} USLIST_{i,t} + \phi_{15} VOLUN_{i,t} + \phi_{16} REGQ_{i,t} + COUNTRY + \varepsilon_{i,t}\end{aligned} \quad (3)$$

In Equation (3), *POST* is the variable of interest, capturing the change in the IFRS-related audit fee premium over the specified cutoff period. I exclude *IFRS_EXP* in this model because the partition based on audit firm size effectively separates the most experienced auditors with the highest market share of IFRS clients (i.e., the Big 4). For treatment firms, I predict a negative coefficient on *POST* and expect differences in the change in audit service fees to be greater for Big 4, compared to non-Big 4, audit clients.

2.3.2 The Change in Audit Service Fees versus Total Fees

Although I employ a control sample to capture any time-varying effect in the change in audit service fees, this approach cannot completely rule out the possibility that my tests detect such an effect that is not related to changes in the audit market. A major concern, for example, is that the years included as *POST*=1 overlap the global financial crisis, which may impact the change in audit fees charged by the auditor regardless of audit firm size or client characteristics.

[18] In dividing the sample based on audit firm size for this test, I delete firms that switched from a Big 4 to a non-Big 4 auditor, or vice versa.

To further address this possibility, I perform an additional test to estimate Equations (2) and (3) for treatment firms with the dependent variable *ΔTOTFEES*, measured as the change in the natural log of total fees paid to the auditor.[19] I then compare the coefficients on the variables of interest in each sample partition between the models estimated using *ΔAUDFEES* and *ΔTOTFEES*. If there are macroeconomic shocks to the audit market over my sample period, then auditors' fees should be affected at every level, *ceteris paribus*. This approach mitigates concerns that my tests fail to control for any time-varying factors that may have resulted in a declining trend in the change in audit service fees not associated with IFRS adoption.[20]

To the extent that results differ, this also motivates my choice to use audit fee data from Thompson Reuters Fundamentals, despite the smaller coverage, rather than the alternative of using total fees reported in Worldscope. Although Kim et al. (2012) use total fees from Worldscope to infer whether or not IFRS adoption impacts audit fees, this measure may capture fees paid for services unrelated to adoption of IFRS, and the authors acknowledge this data limitation.

[19] My measure of total fees is reported in Worldscope and defined as "Total Fees Paid to the Auditor." Because Worldscope has a wider coverage of firms than Thompson Reuters Fundamentals, the sample sizes are, in some specifications, significantly different. To draw more comparable inferences, I repeat this analysis using only firms that are covered by both Worldscope and Thompson Reuters Fundamentals so that the same observations are included in both the tests of the change in audit service fees and the change in total fees. Results are qualitatively similar to those reported.

[20] An ideal approach would to be compare the model estimated using the change in audit fees against a separate test using the change in *nonaudit* fees. I collect audit service fee data from Thompson Reuters Fundamentals and total fee data from Worldscope, rendering the above approach impractical for two reasons. First, specific data on nonaudit fees is less available than that of audit service fees for the sample used in this study due to various disclosure requirements. Second, since the two types of data are extracted from different sources, the sample with coverage in both, which would allow manual computation of nonaudit fees, is relatively smaller.

2.4 Data and Sample Selection

The sample selection procedures for the tests in this essay are similar to those employed in the first essay, with two additional criteria. First, I require auditor fee data availability, and delete observations with missing data. Second, observations included in the control group must be in at least their fifth year of IFRS reporting; as a result, the control sample is much smaller than that used in the first essay.

I begin by obtaining a sample of publicly-listed firms available in Worldscope from 2004 through 2011. The coverage of firms in Worldscope extends to smaller companies and those listed in less regulated markets, whereas the alternative of Global Vantage contains only the largest and most prominent firms. I form my initial sample after coding the year of IFRS adoption for treatment firms based on reported accounting standards data. I exclude firms in certain Asian countries (China, Hong Kong, Singapore, Malaysia, and Thailand), despite the use of IFRS, for two reasons. First, for firms in China, adoption of IFRS was a gradual rather than immediate process; that is, Chinese accounting standards converged with IFRS over time. Similarly, while local GAAP in Hong Kong are nearly identical to IFRS, the effective implementation dates of individual standards differ from the initial reported year of IFRS adoption. Second, the reporting environment in these countries is significantly different from other parts of the world. Despite a legal system of common law origin, the incentives of managers and auditors diverge from the western world due to differences in enforcement, family ownership, and government control (Ball, Robin, and Wu, 2003).

I delete observations with missing auditor information, since all of my tests require this data to code auditor switches, and those with SIC codes 6000-6999 due to the

differing operating characteristics of financial institutions. All data other than the firm's auditor and audit fee data are obtained from Worldscope, and I delete observations with missing financial data used to construct control variables. Audit firm and audit fee data are obtained from Thompson Reuters Fundamentals.

Panel A of Table 2-1 summarizes the selection procedure for the sample used in subsequent analyses. In Panel B, I provide sample distributions by country and by year. Overall, the sample distributions are similar to those noted in the first essay, Australia, Canada, Korea, and the United Kingdom each contributing more observations to the overall sample than other, smaller countries due to fee data availability. For the breakdown by year, the control sample is distributed evenly with 10-15% of the total observations in each year. For adopting firms, there are larger proportions in 2005 and 2006 due to the mandatory adoption of IFRS in the E.U. and in 2011 due to the mandatory adoption of IFRS in Canada and Korea.[21] The treatment (control) sample used for the change in audit fee test consists of 2,181 (9,015) firm-year observations.

In Panel A of Table 2-2, I report descriptive statistics for variables used in the analysis of the change in audit fees for the full sample. The change in audit service fees (*ΔAUDFEES*) is significantly greater ($p < 0.001$) for treatment observations. Although the difference in the change in size is not significant between treatment and control groups, significant differences exist across other dimensions. None of these univariate results are troubling, since changes in firms' operating characteristics may be substantial in the year of IFRS adoption. There is also not a significant difference in *REGQ* between

[21] Ending the sample period in 2010 and, as a result, excluding Canada and Korea from the treatment samples does not impact my results.

the two samples, suggesting that treatment and control observations are similar in terms of this country-level characteristic. In Panel B, I report variable characteristics for the change in audit fee analysis for the non-Big 4 and Big 4 client subsamples. Inferences are similar compared to the full sample, except that Big 4 clients in the treatment group are significantly ($p < 0.001$) larger than observations in the control group.

2.5 Empirical Results

2.5.1 Results: The Change in Audit Service Fees

I next provide empirical results for the change in audit fee tests from estimation of Equations (2) and (3) separately for the treatment and control samples. Table 2-3 reports the results for comparing the trend of the change in audit fees for the full sample of treatment and control firms. The overall model is highly significant ($F = 50.33$ and $F = 77.38$ for treatment and control firms, respectively) and the explanatory power is appropriate for change-specified audit fee models ($R^2 = 44.89\%$ and $R^2 = 23.37\%$ for treatment and control firms, respectively). Results suggest that there is a decline in the change in audit service fees in the year of IFRS adoption, as the coefficient on *POST* is negative and significant ($p < 0.05$) for firms that adopt IFRS, but insignificant for control firms. For treatment firms, the coefficient on *POST* of -0.1511 translates into a -14.03% difference in the change in audit fees over the specified time period; conversely, the effect of non-adopting firms is only -4.59%.[22] These results suggest a change of -9.44% to the IFRS-related fee premium, computed as the difference between these two effects. Thus, I find support for H2 that the IFRS-related fee premium has declined in more

[22] The associated effect of the coefficients can be obtained by applying $\exp(\delta_1) - 1$.

recent years. This effect may be at least partially attributable to an increase in competition among audit firms due to changes in the market concentration, as reported in the previous essay.

The other variables of interest are *IFRS_EXP* and *POST*IFRS_EXP*, capturing the effect of the auditor's experience in auditing IFRS financial statements and changes in this effect over time, respectively. As expected, and in support of H3A, the coefficient on *IFRS_EXP* is positive and significant ($p < 0.05$) for treatment firms, providing empirical evidence that audit firms with greater exposure to IFRS financial statements charge a premium for their services in the year of IFRS adoption. However, the coefficient on *POST*IFRS_EXP* is negative and marginally significant ($p < 0.10$). This suggests that in more recent years, audit firms with greater experience in auditing IFRS financial statements attempt to reduce the change in audit service fees surrounding IFRS adoption. This is consistent with H3B that as the audit market becomes less concentrated, firms with greater knowledge of IFRS financial statements pass along this benefit to their clients in the form of lower fees in order to remain competitive. Both of these variables produce insignificant coefficients for the control sample, suggesting that the effect is attributable only to firms adopting IFRS.

For both treatment and control firms, all of the significant control variables are in the predicted direction. The annual change in audit service fees is positively associated with changes in client size (*ΔSIZE*) and complexity (*ΔINVREC*, *ΔTOTSEG*), loss exposure (*ΔDEBT*), receipt of a qualified audit opinion (*QUAL_NEW*), switches to a larger auditor (*BIG_SWITCH*), cross-listing in U.S. markets (*USLIST*), and regulatory quality (*REGQ)*, while a negative association is found for changes in liquidity

(*ΔQUICK*), changes in profitability (*ΔROA*, *PROFIT_NEW*), the receipt of a clean audit opinion after receiving a qualified audit opinion (*CLEAN_NEW*), and switches to a smaller auditor (*SMALL_SWITCH*). *ΔACCRUALS* is negatively associated with the change in audit fees. In addition, the change in audit fees surrounding IFRS adoption is lower for voluntary adopters, as the coefficient on *VOLUN* is negative and significant ($p < 0.001$) for treatment firms. This could be due to either lower levels of regulatory compliance before IFRS is mandated in a particular country or to concurrent changes in enforcement surrounding the mandatory adoption of IFRS (e.g., Christensen, Hail, and Leuz, 2013).

Table 2-4, Panel A reports the results of estimating Equation (3) for the Big 4 client sample partition. Again, the model is highly significant ($F = 30.04$ and $F = 33.71$ for treatment and control firms, respectively) and explanatory power is consistent with change-specified audit fee models in prior literature ($R^2 = 43.83\%$ and $R^2 = 16.71\%$ for treatment and control firms, respectively). For the treatment sample, the coefficient on the variable of interest, *POST*, remains negative and significant ($p < 0.05$). The same variable is not significant at conventional levels for the control sample. The parameter estimate on *POST* of -0.0745 for IFRS adopting firms translates into a -7.18% difference in the change in audit fees over the specified time period, while the same coefficient for treatment firms of -0.0245 equates to a difference of -2.42%. Thus, the decline in the annual change in audit service fees is 4.76% greater for firms that adopt IFRS relative to control firms.

Panel B of Table 2-4 reports results for the non-Big 4 client sample partition. Again, the coefficient on *POST* is negative and significant ($p < 0.001$). However, this

result applies to both treatment and control firms. Thus, there appears to be some time-varying factor impacting the change in non-Big 4 auditors' fees beyond changes in the market for IFRS-related audit services. This is also apparent when comparing the associated effects of the two parameter estimates. For treatment firms, the coefficient of -0.0518 is equal to a decline in the change in audit fees over time of -5.05%. For control firms, the coefficient of -0.0394 translates into a -3.87% difference in the change in audit fees over time. The difference between the two is only 1.18%, which is smaller than the corresponding difference for Big 4 auditors. The differentiated results suggest that H2 holds only for Big 4 auditors.

For both treatment and control firms, and for both Big 4 and non-Big 4 clients, nearly all of the significant control variables are in the expected direction and inferences are similar to those drawn from the reported results for the full sample. The only significant control variable which is contrary to expectations is *LOSS_NEW* for non-Big 4 clients in the treatment group, though the coefficient is only marginally significant ($p < 0.10$). A possible explanation is that smaller auditors may be more likely to reduce audit fees for clients in times of financial distress in order to secure payment, rather than increasing fees due to greater risk as with Big 4 auditors.

Overall, the results reported in this section support my hypotheses that the fee premium related to IFRS adoption has declined over time. Although not unexpected, this holds only for Big 4 auditors. I also find evidence that experience in auditing IFRS financial statements is positively associated with the change in audit fees in the year of IFRS adoption in earlier years, consistent with the argument that the IFRS-related fee premium is higher when these services are provided by fewer firms. Conversely, more

experienced firms charge a lower fee premium for services in the year of IFRS adoption for clients more recently adopting IFRS, which I attribute to an increase in competition among auditors.

2.5.2 Results: The Change in Audit Service Fees versus the Change in Total Fees

Although I assess the change in audit service fees over time using a control sample, there remains the possibility that some other factor influences the change in audit fees surrounding IFRS adoption over time that is not controlled for in my tests. As a means to mitigate this concern, I compare the results of the model estimated using the change in audit service fees, as reported in the previous section, with the alternative dependent variable of change in total fees paid to the auditor.

The results for the full sample are reported in Table 2-5. After changing the dependent variable to the change in total fees paid to the auditor, the coefficient on *POST* becomes positive, but insignificant. The associated effect equates to an increase of 5.08%, compared to a decrease of -14.03% for the model estimated using change in audit fees. Thus, the trend in the change in audit fees in the year of IFRS adoption appears to be restricted specifically to audit service fees, which further supports H2. Similarly, *IFRS_EXP* is not significant at conventional levels, and, interestingly, the interaction term *IFRS_EXP*POST* is positive and marginally significant ($p < 0.10$). Thus, exposure to IFRS financial statements appears to have a positive association with the change in total fees paid to the auditor for clients adopting IFRS in more recent years. This may be due to changes in fees in the year of IFRS adoption related to nonaudit services (e.g., consulting or tax compliance) that require still greater experience and expertise of IFRS not shared by all auditors.

I also compare results for the subsamples based on auditor size, as reported in Table 2-6. For Big 4 clients, the coefficient on *POST* derived from estimating Equation (3) becomes positive and significant ($p < 0.001$). Again, this may be caused by other services provided in the year of IFRS adoption for which the Big 4 audit firms do not necessarily compete with smaller auditors, such as consulting or tax compliance. The effect translates into an increase of 5.02%, which further supports H2 that the change in the IFRS related fee premium is restricted to audit services for Big 4 auditors. For non-Big 4 clients, the coefficient on *POST* remains negative and is marginally significant ($p < 0.10$). This implies that the downward trend in the change in audit fees for non-Big 4 clients is due to some factor other than changes to the market for IFRS-related audit services. Similar inferences are drawn when translating the coefficients into their respective effects, as there is only a 1.09% difference between the two effects. As with tests for the change in audit fees between treatment and control firms, I fail to find support for H2 with respect to non-Big 4 auditors.

Taken together, these results generally support my predictions. The declining trend in the change in audit fees surrounding IFRS adoption is restricted to audit fees, and this effect is driven primarily by Big 4 auditors. For non-Big 4 auditors, there is also a downward trend in the change in total fees in the year of IFRS adoption. Thus, changes in the market for IFRS-related audit services seem to have primarily affected Big 4 auditors. This is consistent with my predictions that as the market for IFRS-related audit services becomes less concentrated, the most experienced firms (i.e., the Big 4) become less able to demand a large fee premium for their services and instead offer the client a

comparably less costly audit made possible by their knowledge of IFRS financial statements.

2.5.3 Sensitivity Tests

I repeat my analyses based on defining large auditors as Global 6 (the Big 4, plus BDO and Grant Thornton). This makes my results comparable to prior studies (e.g., Wieczynska, 2013), and it is also possible that the second tier global auditors were similarly affected over the sample period. Untabulated results suggest that there are differences in the results for the tests of the change in audit service fees. For the Global 6 client partition, the coefficient on *POST* derived from estimating equation (3) for the treatment sample is equal to -0.0371 and only marginally significant ($p < 0.10$). For control firms, the coefficient of -0.0182 is also marginally significant ($p < 0.10$). Thus, there appears to be no time-varying difference between adopting and non-adopting client firms of the collective Global 6, and the difference of their associated effects is only 1.84%. Inferences drawn from the non-Global 6 partition are generally consistent with the non-Big 4 subsample. The coefficients on *POST* are more significantly negative ($p < 0.001$) for this subsample for both treatment and control firms (compared to the non-Big 4 partition), and the difference in the associated effects of these coefficients is only 1.99%. This further supports my initial classification scheme, as the fee impact of BDO and Grant Thornton appears to be more similar to other non-Big 4 auditors.

An additional concern is that my results could be overstated by measuring the change in audit service fees from the year before (year *t-1*) to the year of (year *t*) IFRS adoption. In compliance with *IFRS 1: First-Time Adoption of International Financial Reporting Standards*, the financial statements for the year prior to IFRS adoption must be

fully restated to reflect compliance with IFRS, which requires additional audit effort in the adoption year. To alleviate this concern, I adjust my tests by examining the change from year *t-1* to year *t+1*. Untabulated results yield similar qualitative inferences, although the corresponding magnitudes of all effects are reduced. Adjusting the parameter estimates to their associated effects, similar procedures to those described in the previous section suggest a decline in the IFRS-related fee premium of 7.73% for the full sample, 3.81% for the Big 4 client subsample, and 0.89% for the non-Big 4 subsample (compared to 9.44%, 4.76%, and 1.18%, respectively, when measured from year *t-1* to year *t*).

2.6 Conclusion

This essay examines how the market for IFRS-related audit services has changed over time as a result of a global shift in the accounting regime of individual countries from local standards to IFRS. I examine whether there is a change in the fee premium for these services over time. Prior studies posit that a concentrated market leads to an expert advantage in favor of large, global auditors, and that this leads to greater increases in audit fees in the year of IFRS adoption (Lin and Yen, 2010; Kim et al., 2012). However, I find a downward trend in the change in audit fees in the year of IFRS adoption. I also find that this effect is driven at least partially by a change in the association between the auditor's exposure to IFRS financial statements and the change in audit fees in the year of IFRS adoption. These results hold neither for the control sample nor for the change in total fees paid to the auditor in the year of IFRS adoption for firms in the treatment group. When I partition the sample based on audit firm size, I find that the above results hold only for Big 4 clients, suggesting that the largest auditors became less able to charge as

high a fee premium in the year of IFRS adoption as it becomes more practical for clients to utilize a smaller auditor.

The above results add to the international auditing literature by providing evidence on changes to a major cost faced by firms as a result of IFRS adoption, which has become a popular topic in current research. The results of this essay suggesting that gradual changes in the audit market have potentially reduced part of the financial impact associated with IFRS adoption should add to the debate over whether or not the U.S. should require publicly-listed companies to adopt IFRS. An important caveat of this study is that I draw these inferences based on a global sample not including U.S. firms. These results are therefore inconclusive regarding how the U.S. audit market may be affected following IFRS adoption, especially given the relatively more stringent reporting environment relative to other countries. In addition, I examine only the initial transition costs without consideration to subsequent periods. Nevertheless, it is important for regulators in the U.S. to consider changes in the global audit market over time in addition to the consequences surrounding more concentrated events (e.g., mandatory IFRS adoption) in order to draw reliable inferences regarding both positive and negative outcomes of IFRS adoption in the U.S.

Table 2-1: Sample Selection and Description - Change in Audit Fees

Panel A: Sample Selection

Sample	Firm-Year Observations Treatment	Control
Initial Sample[#]	10,052	28,422
Less:		
Mising audit firm data	(240)	(6,200)
Financial firms (SIC Code 6000-6999)	(1,088)	(5,712)
Missing financial data	(710)	(1,127)
Missing fee data	(5,833)	(6,368)
Sample used in change in audit fee regression analysis:	2,181	9,015

Panel B: Sample distribution by country

	Treatment		Control	
Australia	271	12.4%	1,366	15.2%
Austria	11	0.5%	256	2.8%
Belgium	12	0.6%	502	5.6%
Brazil	12	0.6%	19	0.2%
Canada	395	18.1%	-	0.0%
Chile	9	0.4%	265	2.9%
Denmark	70	3.2%	173	1.9%
Finland	61	2.8%	173	1.9%
France	19	0.9%	659	7.3%
Germany	37	1.7%	716	7.9%
Greece	21	1.0%	52	0.6%
Ireland	47	2.2%	55	0.6%
Israel	35	1.6%	11	0.1%
Italy	21	1.0%	435	4.8%
Korea	257	11.8%	-	0.0%
Luxembourg	27	1.2%	23	0.3%
Netherlands	34	1.6%	145	1.6%
New Zealand	67	3.1%	59	0.7%
Norway	72	3.3%	335	3.7%
Phillipines	18	0.8%	155	1.7%
Portugal	19	0.9%	64	0.7%
South Africa	28	1.3%	387	4.3%
Spain	18	0.8%	287	3.2%
Sweden	63	2.9%	542	6.0%
Switzerland	26	1.2%	459	5.1%
United Kingdom	531	24.3%	1,877	
	20.8% 2,181	100%	9,015	100%

Table 2-1 (Continued)

Panel C: Sample distribution by year

	Treatment		Control	
2004	26	1.2%	112	1.2%
2005	493	22.6%	963	10.7%
2006	445	20.4%	925	10.3%
2007	239	11.0%	891	9.9%
2008	182	8.3%	1,095	12.1%
2009	37	1.7%	1,196	13.3%
2010	76	3.5%	1,919	21.3%
2011	683	31.3%	1,914	21.2%
	2,181	100%	9,015	100%

This table summarizes the procedure to select the sample used in the auditor switching analysis. Panel A details the selection criteria for the treatment (IFRS-adopting) and control (non-adopting) firm-year observations.

[#] The initial sample consists of all publicly-listed firms available from Worldscope from 2004 through 2011 located in the countries listed in Panel B. I first identify treatment (IFRS-adopting) firms based on accounting standards data in Worldscope, and delete remaining observations with missing accounting standards data.

Table 2-2: Descriptive Statistics - Change in Audit Fees

	Panel A: Full Sample				*Panel B: Sample Partition based on Auditor Size*							
					Non-Big 4 Clients				Big 4 Clients			
	Treatment		*Control*		*Treatment*		*Control*		*Treatment*		*Control*	
	(n = 2,181)		(n = 9,015)		(n = 823)		(n = 3,225)		(n = 1,192)		(n = 5,220)	
Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Test Variables												
ΔAUDFEES	0.5112	1.0422	0.1789 ***	0.7571	0.4871	0.8869	0.1078 ***	0.6853	0.2485	0.7547	0.1202 ***	0.5539
POST(%)	0.8767	0.3288	0.8804	0.3160	0.9398	0.2380	0.9347	0.2228	0.8194	0.3848	0.8215	0.3918
Control Variables												
ΔSIZE	0.0504	0.9624	0.0431	0.7013	0.0648	1.0070	0.0918	0.8301	0.0995	0.4763	0.0399 ***	0.3575
ΔINVREC	-0.0200	0.1376	-0.0089 ***	0.1036	-0.0332	0.1749	-0.0153 **	0.1412	-0.0082	0.0923	-0.0031 **	0.0690
ΔQUICK	-2.0910	9.5533	-0.7713 ***	7.9782	-4.0795	16.700	-1.9308 ***	14.389	-0.8396	4.0549	-0.2131 ***	3.2898
ΔACCRUAL	-0.0752	0.5014	-0.0440 ***	0.4090	-0.2129	1.2484	-0.1423 **	1.0322	-0.0107	0.1807	-0.0098	0.1650
ΔDEBT	-0.0256	0.3450	-0.0140 **	0.2541	-0.1067	0.7791	-0.0374 ***	0.5709	0.0098	0.1728	-0.0046 ***	0.1366
ΔROA	-0.0399	0.5495	-0.0406	0.5526	-0.2778	1.6398	-0.1038 ***	1.3496	-0.0322	0.2455	-0.0352	0.2229
ΔNUMSEG	0.1035	0.3024	0.0318 ***	0.2077	0.0820	0.2540	0.0319 ***	0.1940	0.1155	0.3269	0.0312 ***	0.2040
LOSS_NEW(%)	0.0950	0.2932	0.0958	0.2943	0.0900	0.2863	0.0818	0.2741	0.0919	0.2889	0.0988	0.2984
PROFIT_NEW(%)	0.0932	0.2907	0.1044 **	0.3059	0.0912	0.2880	0.0911	0.2877	0.0900	0.2863	0.1107 **	0.3138
QUAL_NEW(%)	0.0938	0.2915	0.0755 ***	0.2643	0.1223	0.3278	0.0940 **	0.2919	0.0719	0.2584	0.0617	0.2406
CLEAN_NEW(%)	0.1131	0.3167	0.0730 ***	0.2601	0.1334	0.3402	0.0824 ***	0.2749	0.0806	0.2723	0.0624 **	0.2419
BIG_SWITCH(%)	0.0392	0.1941	0.0253 ***	0.1572	-	-	-	-	-	-	-	-
SMALL_SWITCH (%	0.0308	0.1727	0.0185 ***	0.1349	-	-	-	-	-	-	-	-
AUDSWITCH(%)	-	-	-	-	0.1690	0.3749	0.1359 **	0.3427	0.1690	0.3749	0.0548 **	0.2275
VOLUN(%)	0.0048	0.0693	0.0446 ***	0.4971	0.0741	0.2720	0.4993 ***	0.5001	0.0741	0.2720	0.3994 ***	0.4898
USLIST(%)	0.0814	0.0899	0.0259 ***	0.0508	0.0820	0.2540	0.0319 ***	0.1940	0.0820	0.2540	0.0399 ***	0.0630
REGQ	1.5038	0.3677	1.5407	0.3570	1.5216	0.5221	1.5687	0.4935	1.5216	0.5221	1.5249	0.4783

This table presents descriptive statistics for variables used in my analysis of the change in audit fees in the year of IFRS adoption. Treatment observations are years in which firms adopt IFRS. Control observations include years in which firms applied IFRS, having adopted at least five years earlier. I provide

data for the full sample (Panel A) and clients of non-Big 4 and Big 4 auditors (Panel B). A percentage sign (%) following the name of dichotomous variables denotes that that mean value represents the proportion of firms for which the variable is equal to one. The prefix *Δ* indicates that the variable is measured as the change from year *t-1* to year *t*.

Table 2-2 (Continued)

AUDFEE is equal to the natural log of the sum of audit plus audit-related fees. *POST* is an indicator variable equal to one for firm-years ending after 11/30/2006 and zero otherwise. *SIZE* is measured as the natural log of total assets. *INVREC* is the sum of inventory and receivables scaled by total assets. *QUICK* is the quick ratio, measured as the sum of current assets less inventory divided by current liabilities. *ACCRUAL* is total accruals, measured as net income less cash flows from operations. *DEBT* is the debt ratio, measured as total liabilities divided by total assets. *ROA* is equal to net income scaled by total assets. *NUMSEG* is measured as the natural log of one plus the number of total operating segments. *LOSS_NEW* is an indicator variable equal to one for firms reporting net income in year *t-1* and a net loss in year *t*, and zero otherwise. *PROFIT_NEW* is equal to one for firms reporting net income in year *t* and a net loss in year *t-1*, and zero otherwise. *QUAL_NEW* is an indicator variable equal to one for firms that receive a clean audit opinion in year *t-1* and a qualified opinion in year *t*, and zero otherwise. *CLEAN_NEW* is equal to one for firms receiving a clean audit opinion in year *t* and a qualified audit opinion in year *t-1*. *BIG_SWITCH* is an indicator variable for firms switching from a non-Big 4 to a Big 4 auditor in year *t*, and zero otherwise. *SMALL_SWITCH* is an indicator variable equal to one for firms that switch from a Big 4 to a non-Big 4 auditor in year *t*, and zero otherwise. *AUDSWITCH* is equal to one for firms that switched auditors from year *t-1* to year *t*. *VOLUN* is an indicator variable for firm-years ending before the mandatory adoption of IFRS in firm i's country of domicile. *USLIST* is an indicator variable equal to one for firms cross-listed in U.S. capital markets. *REGQ* is an index variable capturing each country's regulatory quality, as measured by Kaufmann et al. (2009).

All continuous variables are winsorized at the top and bottom 1% level.

*, **, *** denote statistically significant differences between treatment and control observations at the 10%, 5%, and 1% levels (based on two-tailed p-value), respectively.

Table 2-3: The Change in Audit Fees for Treatment versus Control Groups

Dep Var = *ΔAUDFEES*		Treatment Sample (n = 2,181)		Control Sample (n = 9,015)	
Variable	Exp.	Estimate	Sig	Estimate	Sig
Intercept	?	0.0279	***	0.4430	***
POST	**-**	**-0.1511**	****	**-0.0470**	
IFRS_EXP	**+**	**0.0040**	****	**-0.0026**	
POST*IFRS_EXP	**-**	**-0.0032**	*****	**0.0035**	
ΔLNTA	+	0.4984	***	0.3543	***
ΔINVREC	+	0.0183	*	0.0003	***
ΔQUICK	-	-0.0012	***	-0.0004	
ΔACCRUAL	?	-0.0799	***	-0.0007	***
ΔDEBT	+	0.0195	**	0.0002	***
ΔROA	-	-0.0817	***	-0.0012	***
ΔTOTSEG	+	-0.0054		0.1937	***
LOSS_NEW	+	-0.0599		0.0001	
PROFIT_NEW	-	-0.0711	*	-0.0262	*
QUAL_NEW	+	0.0906	**	0.1017	***
CLEAN_NEW	-	-0.1114	***	-0.0704	***
BIG_SWITCH	+	0.1946	***	0.0412	*
SMALL_SWITCH	-	-0.3974	***	-0.4557	***
US LIST	+	0.0321	*	0.0834	**
VOLUN	?	-0.2594	***	0.0125	
REGQ	+	0.1644	***	0.0849	***
Country Fixed-effects		Yes		Yes	
Model		F = 50.33		F = 77.38	
Adjusted R^2		44.89%		23.37%	

This table presents the results of estimating Equation (2) to test for the change in audit fees for treatment (IFRS adopting) and control (non-adopting) firms. The dependent variable, *ΔAUDFEES,* is measured as the change in the natural log of audit plus audit-related fees.

POST is an indicator variable equal to one for observations after 11/30/2006, and zero otherwise. *IFRS_EXP* is measured as the auditor's market share of IFRS client assets, computed using an expanded sample. *ΔLNTA* is measured as the annual change in the natural log of total assets. *ΔINVREC* is measured as the annual change in the sum of inventory plus receivables, scaled by total assets. *ΔQUICK* is measured as the annual change in the quick ratio, measured as current assets (less inventory) divided by current liabilities. *ΔACCRUAL* is measured as the annual change in total accruals, measured as net income less cash flows from operating activities. *ΔDEBT* is measured as the annual change in the debt ratio, measured as total liabilities divided by total assets. *ΔROA* is measured as the annual change in net income scaled by total assets. *ΔTOTSEG* is measured as the change in the natural log of one plus the number of total business segments. *LOSS_NEW* is an indicator variable equal to one if firm *i* reported a profit in year *t-1* and a loss in year *t*, and zero otherwise. *PROFIT_NEW* is equal to one if firm *i* reported a loss in year *t-1* and a profit in year *t*, and zero otherwise. *QUAL_NEW* is an indicator variable equal to one if firm *i* received a clean audit opinion in year *t-1* and a qualified audit opinion in year *t*, and zero otherwise. *CLEAN_NEW* is equal to one if firm *i* received a qualified audit opinion in year *t-1* and a clean audit opinion in year *t*, and zero otherwise. *BIG_SWITCH* is equal to one for switches from a non-Big 4 to a Big 4 auditor, and zero

Table 2-3 (Continued)

otherwise. *SMALL_SWITCH* is equal to one for switches from a Big 4 to a non-Big 4 auditor, and zero otherwise. *USLIST* is an indicator variable equal to one for firms cross-listed in U.S. markets. *VOLUN* is an indicator variable equal to one if year *t* is before the mandatory adoption of IFRS in firm *i*'s country of origin. *REGQ* is an index variable capturing the regulatory quality across countries (Kaufmann et al., 2009).

All continuous variables are winsorized at the top and bottom 1% level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels (based on one-tailed p-values), respectively.

Table 2-4: The Change in Audit Fees for Treatment and Control Groups, Big 4 and non-Big 4 Partitions

		Panel A: Big 4 Clients		***Panel A: Non-Big 4 Clients***	
Dep Var = *ΔAUDFEES*		Treatment Sample	Control Sample	Treatment Sample	Control Sample
		(n = 1,192)	(n = 5,220)	(n = 823)	(n = 3,225)
Variable	Exp.	Estimate Sig	Estimate Sig	Estimate Sig	Estimate Sig
Intercept	?	-0.2004 **	0.0763 *	0.6752 ***	1.0725 ***
POST	-	**-0.0745** **	**-0.0245**	**-0.0518** ***	**-0.0394** ***
ΔLNTA	+	0.6015 ***	0.4034 ***	0.1399 ***	0.2494 ***
ΔINVREC	+	-0.0134	0.0041 **	0.0085	-0.0022
ΔQUICK	-	-0.0015 *	-0.0020 ***	-0.0012 **	0.0000
ΔACCRUAL	?	0.0012	0.0152 ***	-0.0231 *	-0.0005 **
ΔDEBT	+	-0.0931	-0.0021 **	0.0021	0.0002 ***
ΔROA	-	-0.1888 ***	-0.0093 ***	-0.0231 *	-0.0009 ***
ΔTOTSEG	+	-0.0210	0.1085 ***	-0.0668	0.1545 ***
LOSS_NEW	+	0.0516 *	-0.0007	-0.1794 ***	0.0050
PROFIT_NEW	-	0.0007	-0.0190	-0.0620	-0.0394
QUAL_NEW	+	0.0227 **	0.0750 ***	0.1395 ***	0.1186 ***
CLEAN_NEW	-	-0.0233	-0.0320 *	-0.0547	-0.0858 ***
AUDSWITCH	+/-	-0.0761 *	-0.1922 ***	0.0365	-0.0813 ***
USLIST	+	0.0873 *	0.0565 *	0.1154 *	0.6117 **
VOLUN	?	-0.1823 ***	0.0087	-0.0709	0.0082
REGQ	+	0.1669 ***	-0.0469	0.1581 ***	0.0618 ***
Country Fixed-Effects		Yes	Yes	Yes	Yes
Model		*F* = 30.04	*F* = 33.71	*F* = 15.29	*F* = 21.17
Adjusted R^2		43.83%	16.71%	22.35%	16.68%

Table 2-4 (Continued)

This table presents the results of estimating Equation (3) to test for the change in audit fees for treatment (IFRS adopting) and control (non-adopting) firms separately for the Big 4 (Panel A) and non-Big 4 (Panel B) sample partitions. The dependent variable, *ΔAUDFEES,* is measured as the change in the natural log of audit plus audit-related fees.

POST is an indicator variable equal to one for observations after 11/30/2006, and zero otherwise. *ΔLNTA* is measured as the annual change in the natural log of total assets. *ΔINVREC* is measured as the annual change in the sum of inventory plus receivables, scaled by total assets. *ΔQUICK* is measured as the annual change in the quick ratio, measured as current assets (less inventory) divided by current liabilities. *ΔACCRUAL* is measured as the annual change in total accruals, measured as net income less cash flows from operating activities. *ΔDEBT* is measured as the annual change in the debt ratio, measured as total liabilities divided by total assets. *ΔROA* is measured as the annual change in net income scaled by total assets. *ΔTOTSEG* is measured as the change in the natural log of one plus the number of total business segments. *LOSS_NEW* is an indicator variable equal to one if firm *i* reported a profit in year *t-1* and a loss in year *t*, and zero otherwise. *PROFIT_NEW* is equal to one if firm *i* reported a loss in year *t-1* and a profit in year *t*, and zero otherwise. *QUAL_NEW* is an indicator variable equal to one if firm *i* received a clean audit opinion in year *t-1* and a qualified audit opinion in year *t*, and zero otherwise. *CLEAN_NEW* is equal to one if firm *i* received a qualified audit opinion in year *t-1* and a clean audit opinion in year *t*, and zero otherwise. *BIG_SWITCH* is equal to one for switches from a non-Big 4 to a Big 4 auditor, and zero otherwise. *SMALL_SWITCH* is equal to one for switches from a Big 4 to a non-Big 4 auditor, and zero otherwise. *USLIST* is an indicator variable equal to one for firms cross-listed in U.S. markets. *VOLUN* is an indicator variable equal to one if year *t* is before the mandatory adoption of IFRS in firm *i*'s country of origin. *REGQ* is an index variable capturing the regulatory quality across countries (Kaufmann et al., 2009).

All continuous variables are winsorized at the top and bottom 1% level.
*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels (based on one-tailed p-values), respectively.

Table 2-5: The Change in Audit Fees versus the Change in Total Fees, Treatment Group

		Dep Var = *Δ AUDFEES* (n = 2,181)		Dep Var = *ΔTOTFEES* (n = 2,540)	
Variable	Exp.	Estimate	Sig	Estimate	Sig
Intercept	?	0.0279	***	0.3564	**
POST	-	**-0.1511**	**	**0.0496**	
IFRS_EXP	+	**0.0040**	**	**0.0006**	
POST*IFRS_EXP	-	**-0.0032**	*	**0.0028**	*
ΔLNTA	+	0.4984	***	0.3925	***
ΔINVREC	+	0.0183	*	-0.0018	***
ΔQUICK	-	-0.0012	***	-0.0001	*
ΔACCRUAL	?	-0.0799	***	0.0051	***
ΔDEBT	+	0.0195	**	-0.0037	***
ΔROA	-	-0.0817	***	-0.0077	***
ΔTOTSEG	+	-0.0054		0.1496	***
LOSS_NEW	+	-0.0599		-0.0326	
PROFIT_NEW	-	-0.0711	*	-0.0950	**
QUAL_NEW	+	0.0906	**	0.0400	
CLEAN_NEW	-	-0.1114	***	-0.0603	
BIG_SWITCH	+	0.1946	***	0.3724	***
SMALL_SWITCH	-	-0.3974	***	-0.3336	***
US LIST	+	0.0321	*	0.1071	**
VOLUN	?	-0.2594	***	-0.0994	
REGQ	+	0.1644	***	0.1265	
Country Fixed-effects		Yes		Yes	
Model		*F* = 50.33		*F* = 13.25	
Adjusted R^2		44.89%		14.79%	

This table presents the results of estimating Equation (3) to test for the change in audit fees and the change in total fees for treatment (IFRS adopting) firms. The dependent variables, *ΔAUDFEES* and *ΔTOTFEES,* are measured as the change in the natural log of audit plus audit-related fees and the change in the natural log of total audit fees, respectively. *POST* is an indicator variable equal to one for observations after 11/30/2006, and zero otherwise. *IFRS_EXP* is measured as the auditor's market share of IFRS client assets, computed using an expanded sample.

ΔLNTA is measured as the annual change in the natural log of total assets. *ΔINVREC* is measured as the annual change in the sum of inventory plus receivables, scaled by total assets. *ΔQUICK* is measured as the annual change in the quick ratio, measured as current assets (less inventory) divided by current liabilities. *ΔACCRUAL* is measured as the annual change in total accruals, measured as net income less cash flows from operating activities. *ΔDEBT* is measured as the annual change in the debt ratio, measured as total liabilities divided by total assets. *ΔROA* is measured as the annual change in net income scaled by total assets. *ΔTOTSEG* is measured as the change in the natural log of one plus the number of total business segments. *LOSS_NEW* is an indicator variable equal to one if firm *i* reported a profit in year *t-1* and a loss in year *t*, and zero otherwise. *PROFIT_NEW* is equal to one if firm *i* reported a loss in year *t-1* and a profit in year *t*, and zero otherwise. *QUAL_NEW* is an indicator variable equal to one if firm *i* received a clean audit opinion in year *t-1* and a qualified audit opinion in year *t*, and zero otherwise. *CLEAN_NEW* is equal to one if firm *i* received a qualified audit opinion in year *t-1* and a clean audit opinion in year *t*, and zero otherwise. *BIG_SWITCH* is equal to one for switches from a non-Big 4 to a Big 4 auditor, and zero otherwise. *SMALL_SWITCH* is equal to one for switches from a Big 4 to a non-Big 4 auditor, and zero

Table 2-5 (Continued)

otherwise. *USLIST* is an indicator variable equal to one for firms cross-listed in U.S. markets. *VOLUN* is an indicator variable equal to one if year *t* is before the mandatory adoption of IFRS in firm *i*'s country of origin. *REGQ* is an index variable capturing the regulatory quality across countries (Kaufmann et al., 2009).

All continuous variables are winsorized at the top and bottom 1% level.
*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels (based on one-tailed p-values), respectively.

Table 2-6: The Change in Audit Fees versus the Change in Total Fees, Treatment Group, Big 4 and non-Big 4 Partitions

		Panel A: Big 4 Clients		***Panel A: Non-Big 4 Clients***	
		Dep Var = *Δ AUDFEES*	Dep Var = *ΔTOTFEES*	Dep Var = *Δ AUDFEES*	Dep Var = *ΔTOTFEES*
		n = 1,192	n = 1,554	n = 823	n = 826
Variable	Exp.	Estimate Sig	Estimate Sig	Estimate Sig	Estimate Sig
Intercept	?	-0.2004 **	0.2960 *	0.6752 ***	0.3402 **
POST	-	**-0.0745** **	**0.0490** ***	**-0.0518** ***	**-0.0404** *
CHG_LNTA	+	0.6015 ***	0.5296 ***	0.1399 ***	0.1973 ***
CHG_INVREC	+	-0.0134	0.0019 **	0.0085	0.0120 ***
CHG_QUICK	-	-0.0015 *	-0.0001 *	-0.0012 **	-0.0039 ***
CHG_ACCRUAL	?	0.0012	-0.0034	-0.0231 *	0.0019
CHG_DEBT	+	-0.0931	0.0271	0.0021	0.0027 **
CHG_ROA	-	-0.1888 ***	-0.0067	-0.0231 *	-0.0062 ***
CHG_SEG	+	-0.0210	0.0222 *	-0.0668	0.1993 ***
LOSS_NEW	+	0.0516 *	0.0433	-0.1794 ***	-0.1811 **
PROFIT_NEW	-	0.0007	-0.0849 *	-0.0620	-0.1940 ***
QUAL_NEW	+	0.0227 **	0.0558 *	0.1395 ***	-0.0266
CLEAN_NEW	-	-0.0233	0.1548 *	-0.0547	-0.2381 **
AUDSWITCH	+/-	-0.0761 *	-0.2381 ***	0.0365	-0.1816 ***
USLIST	+	0.0873 *	-0.0967	0.1154 *	0.3906
VOLUN	?	-0.1823 ***	0.0307	-0.0709	-0.1582
REGQ	+	0.1669 ***	0.2171 *	0.1581 ***	0.2391
Country Fixed-Effects		Yes	Yes	Yes	Yes
Model		*F* = 30.04	*F* = 10.38	*F* = 15.29	*F* = 5.81
Adjusted R^2		43.83%	16.20%	22.35%	10.31%

This table presents the results of estimating Equation (3) to test for the change in audit fees and the change in total fees for treatment (IFRS adopting) firms separately for the Big 4 (Panel A) and non-Big 4 (Panel B) sample partitions. The dependent variables, *ΔAUDFEES* and *ΔTOTFEES,* are measured as the change in the natural log of audit plus audit-related fees and the change in the natural log of total audit fees, respectively. *POST* is an indicator variable equal

to one for observations after 11/30/2006, and zero otherwise. *IFRS_EXP* is measured as the auditor's market share of IFRS client assets, computed using an expanded sample. *ΔLNTA* is measured as the annual change in the natural log of total assets. *ΔINVREC* is measured as the annual change in the sum of

Table 2-6 (Continued)

inventory plus receivables, scaled by total assets. *ΔQUICK* is measured as the annual change in the quick ratio, measured as current assets (less inventory) divided by current liabilities. *ΔACCRUAL* is measured as the annual change in total accruals, measured as net income less cash flows from operating activities. *ΔDEBT* is measured as the annual change in the debt ratio, measured as total liabilities divided by total assets. *ΔROA* is measured as the annual change in net income scaled by total assets. *ΔTOTSEG* is measured as the change in the natural log of one plus the number of total business segments. *LOSS_NEW* is an indicator variable equal to one if firm *i* reported a profit in year *t-1* and a loss in year *t*, and zero otherwise. *PROFIT_NEW* is equal to one if firm *i* reported a loss in year *t-1* and a profit in year *t*, and zero otherwise. *QUAL_NEW* is an indicator variable equal to one if firm *i* received a clean audit opinion in year *t-1* and a qualified audit opinion in year *t*, and zero otherwise. *CLEAN_NEW* is equal to one if firm *i* received a qualified audit opinion in year *t-1* and a clean audit opinion in year *t*, and zero otherwise. *BIG_SWITCH* is equal to one for switches from a non-Big 4 to a Big 4 auditor, and zero otherwise. *SMALL_SWITCH* is equal to one for switches from a Big 4 to a non-Big 4 auditor, and zero otherwise. *USLIST* is an indicator variable equal to one for firms cross-listed in U.S. markets. *VOLUN* is an indicator variable equal to one if year *t* is before the mandatory adoption of IFRS in firm *i*'s country of origin. *REGQ* is an index variable capturing the regulatory quality across countries (Kaufmann et al., 2009).

All continuous variables are winsorized at the top and bottom 1% level.
*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels (based on one-tailed *p*-values), respectively.

CHAPTER 3: DIFFERENCES WITHIN THE BIG 4 GLOBAL NETWORKS

3.1 Introduction

Contemporary advances in multinational strategies of large corporations have led to a response by large audit firms to establish global networks. As summarized by Carson (2009, page 358), use of global networks creates several competitive advantages, including global expertise, superior brand name image, and robust audit methodologies, and these practices attract clients seeking higher quality audits. Such qualities may be of greater importance to companies located in emerging markets, where additional emphasis is sometimes placed on the monitoring role of external auditors (Michas, 2011). However, published reports by the Public Company Accounting Oversight Board (PCAOB) in the United States (U.S.) raise concerns about the quality of foreign auditors; about half of the inspection reports of international audit firms released through 2012 cite audit deficiencies, while two-thirds report quality control defects (Bishop, Hermanson, and Houston, 2013). Although fewer of these issues arise for clients audited by members of the Big 4 global networks, the PCAOB also faces complications in executing inspections of foreign auditors due to regulatory disagreements between the U.S. and other jurisdictions. As of the end of 2013, 58 foreign audit firms with publicly-listed U.S. clients that were not yet inspected, and at least 39 of these were member firms of the Big 4 global networks (Norris, 2014; PCAOB, 2014).

While previous studies conclude that clients are willing to pay global auditors a premium for their services (Carson, 2009) and that these firms provide higher-quality audits relative to smaller, local auditors (Francis and Wang, 2008), the extent to which variation exists within these global networks is unclear. These questions have become

increasingly important given skepticism by regulators (e.g., PCAOB, 2008). This study utilizes newly-available data to classify members of the Big 4 global networks as either "Parent" firms, "Brand Name" affiliates, or "Local" affiliates, as described in more detail later.[23] I first examine if any fee premium exists for these three separate classifications of the Big 4 auditors, relative to non-Big 4 firms, based on both audit service fees and total fees paid to the auditor.[24] Further, I test whether there are any statistically significant differences in the premiums of these groups of firms. Second, I examine the extent to which these three types of auditors provide services of superior quality relative to non-Big 4 auditors, using discretionary accruals to proxy for audit quality. Taken together, the results of these tests address questions regarding the effectiveness of knowledge-sharing and other benefits derived from membership within global audit firm networks. The considerable resources invested by large audit firms to facilitate their international operations and claims that such investments lead to of superior audit quality draw particular attention to the issues addressed in this study.

This study is based on a comprehensive sample of publicly-listed companies located in 26 countries. The results suggest that Big 4 "Parent" firms command the highest premium over non-Big 4 auditors based on both audit service fees and total fees paid to the auditor; though premiums exist for both types of affiliate firms, they are lower than those charged by the "Parent" firms. Though I do find a statistically significant

[23] The sample period in this study begins in 2001, before the collapse of Arthur Andersen. Although not absent from the sample until 2002, for ease of exposition I refer only to the "Big 4," except when referencing prior studies.

[24] Throughout this study, the terms "fees," "audit fees," or "auditor fees" denote a general term irrespective of data definitions, while "audit service fees" and "total fees paid to the auditor" refer to the respective classifications based on the types of services provided.

difference in the audit service fee premium between "Brand Name" and "Local" affiliates, the premiums based on total fees paid to the auditor are similar. In terms of audit quality, I find a significant negative association between absolute discretionary accruals and use of any of these types of auditors. The effect is greatest for Big 4 "Parent" firms, and the results also suggest no difference in levels of discretionary accruals reported by clients of "Brand Name" compared to "Local" affiliates, despite the significantly higher fee premiums of the former. Partitioning the sample into client firms with income-increasing and income-decreasing discretionary accruals offers similar inferences, although only use of a Big 4 "Parent" firm results in significantly lower levels of negative discretionary accruals. In additional analyses I find some evidence that audit service fees are positively associated with concurrent levels of audit quality, suggesting that premiums are derived from offering services of superior quality. Further tests suggest that impaired auditor independence is not a causal explanation for this effect.

This study offers several contributions to the literature. First, I find that fee premium differences exist within the Big 4 global network. While prior research investigating fee premiums treats the Big 4 as a homogeneous group, this is the first study to dissect and assess differences within the global networks of these firms. In addition, using competing data sources, the inferences drawn are somewhat sensitive to the choice of fee measures. In light of the data limitations noted in previous international auditing studies (e.g., Kim, Liu, and Zheng, 2012), it is particularly important for future research in this area to carefully consider how results could differ based on the type of auditor fee data employed. Third, I find that while all three classifications of Big 4 network member firms provide higher-quality audits than non-Big 4 auditors, differences exist in that

clients of "Parent" firms report significantly lower levels of discretionary accruals than clients of either type of affiliate. Given the increased globalization of business, accounting, and auditing environments, it is important to further our understanding of variability within the Big 4 global networks. Moreover, given concerns by the PCAOB regarding the quality of foreign auditors, the results of this study may offer inferences worthy of further consideration.

The remainder of this study is organized as follows. Section 2 reviews prior research relevant to this study and develops research questions. In Section 3, I detail the research design. Section 4 explains the data and sample selection procedures. I summarize the empirical results in Sections 5 and 6. I conclude in Section 7 and offer implications for future research.

3.2 Prior Research & Development of Research Questions

The topic of audit fee premiums charged by large audit firms has drawn significant attention from researchers throughout the years. In various contexts, prior studies report significantly higher auditor fees for "Big N" auditors (Francis, 1984; Palmrose, 1986; Francis and Simon, 1987; Ireland and Lennox, 2002). These premiums are often explained as resulting from relatively higher quality audits (DeAngelo, 1981). One common proxy for audit quality is the magnitude of discretionary accruals reported by clients. While managers can use accruals-based earnings to communicate private information to outsiders, aggressive reporting of accruals can undermine the intended improvement in the informativeness of earnings. Auditors serve an important role in mitigating these agency costs by constraining the opportunistic reporting of accruals, and prior research generally finds lower levels of discretionary accruals for companies

audited by "Big N" firms (Becker, DeFond, Jiambalvo, and Subramanyan, 1998; Francis, Maydew, and Sparks, 1999). Consistent with the viewpoint that the external auditor serves an important monitoring role, Krishnan (2003) finds that the association between stock returns and discretionary accruals is greater for companies audited by what were at that time the "Big 6" accounting firms.

Another proxy for audit quality that focuses on audit firm characteristics, as opposed to clients' financial reporting behavior, is industry expertise. Whether or not industry specialization results in higher levels of audit fees is an issue of contention within existing research.[25] In a sample of publicly-listed Australian firms, Craswell, Francis, and Taylor (1995) find a positive association between Big 8 industry expertise and audit service fees, suggesting premiums of 16% over Big 8 non-specialists, although the results are sensitive to market share cutoffs used in defining industry specialization. Ferguson and Stokes (2002) present evidence that suggests these premiums decreased following the subsequent mergers that created the Big 6 and, later, Big 5 audit firms.

Carson (2009) extends prior research in industry specialization to the global level, asserting that specialization by global audit firm networks adds values to clients, especially multinational corporations. She finds that significant fee premiums exist for industry specialists at the national and global level both compared to smaller auditors and within global audit firm networks. The topic of global audit firm networks has drawn additional attention in recent years as large auditors make their differentiated

[25] Numerous prior studies exist that measure industry specialization using a variety of methods, test the association between specialization and audit fees in different time periods and countries, and condition industry expertise at the city level as opposed to the national level. In aggregate, the results of these studies offer evidence of no association, a positive association, and a negative association between industry specialization and auditor fees.

specialization strategies plainly available to clients. Each of the Big 4 auditors discloses information regarding the benefits of their structure as a global network and, more specifically, knowledge-sharing among member firms.[26] Given that statutory requirements within individual countries often require local member firms within the networks to be comprised of domestically-licensed practitioners or restrict the use of international brand names, it is difficult for audit firms to expand into the global market in the traditional sense. The creation of global networks circumvents this problem by permitting each of the member firms to operate as separate and independent legal entities. While Carson (2009) notes that such a "loose" structure may be beneficial to the firm as a whole due to variable litigation environments in which individual member firms practice, it remains unclear if member firms of the Big 4 global networks can be treated as a homogeneous group. In fact, practitioners and regulators have become increasingly concerned with the international operations of and cooperation within the networks (Norris, 2008; PCAOB, 2008).

As such, this study differentiates individual firms within the Big 4 global networks into three categories: "Parent" firms, "Brand Name" affiliates, and "Local" affiliates (the details of this coding are explained later). It is important to note that the promotion of these global networks may be constrained by the regulations in individual countries, where individual audit firms may or may not be permitted to use the parent entity's international brand name. Smaller member firms may retain their own identity while marketing themselves as affiliates of a Big 4. For example, "Ernst & Young LLP"

[26] An example of such disclosure is found on Ernst & Young's website: ''With the development of the CBK (Center for Business Knowledge), every Ernst & Young employee now has access to the collective global knowledge and intellectual capital of the firm.''

is the primary presence of Ernst & Young Global in Australia, but there is one affiliate in Tasmania operating as "Wise Lord & Ferguson." Similarly, PricewaterhouseCoopers has a large presence in Korea as both "PricewaterhouseCoopers LLP" and "Samil Accounting Corp." In addition, affiliates of the Big 4 global networks may be structured at the national or regional level.

While previous studies offer evidence suggesting that auditor fees are generally higher for companies audited by the Big 4, the extent to which variation exists among members of the global networks of these firms has not been addressed. There are at least two competing hypotheses that lead to this question. If the creation of global networks has led to effective knowledge management between individual firms and/or employees, then it is reasonable to expect few differences within the network. Although it is not possible to directly measure the effectiveness of these systems, clients may perceive the advantages of engaging a Big 4 auditor without differentiating between member firms. In this case, while a fee premium relative to non-Big 4 auditors may be observed, it is unlikely that variation exists within the Big 4 global networks.

An alternative explanation that would introduce variation within these three classifications is that two of the three operate under the Big 4 brand names. Craswell et al. (1995) find that Big 8 auditors enjoy a premium of over 30% relative to non-Big 8 auditors, which they attribute to the costly process of developing and sustaining brand name reputations. To the extent that such a result is generalizable, it may be expected that

some member firms of the Big 4 global networks enjoy higher premiums than others. Given these opposing explanations, I state the following two research questions in lieu of directional hypotheses:

> **RQ1:** Relative to non-Big 4 auditors, do Big 4 "Parent" firms, "Brand Name" affiliates, and "Local" affiliates exhibit audit fee premiums?
>
> **RQ2:** Are audit fee premiums similar between Big 4 "Parent" firms, "Brand Name" affiliates, and "Local" affiliates?

I address these two research questions with consideration to both audit service fees and total fees paid to the auditor. It is possible that the usefulness of information management within the Big 4 global networks differs between various types of services. Any premiums driven by nonaudit services will not be captured using only audit service fees.

Similar arguments exist with respect to audit quality. Although uniform standards exist within each of the Big 4 global networks with respect to standards of quality aimed at governing the operations, services, and competitiveness of each firm within the network, each member firm is ultimately responsible for enforcing these network-wide policies.[27] If one accepts that member firms within the Big 4 global networks operate under identical standards, then there should be little-to-no variation in the quality of services offered. Again, it is impossible to directly observe these internal processes. And as with fee premiums, it is possible that individual firms operating under a reputable

[27] For example, KPMG's transparency report (2013) states: "Under agreements with KPMG International, member firms are required to comply with KPMG International's policies and regulations including quality standards governing how they operate and how they provide services to entities to compete effectively…Each member firm takes responsibility for its management and the quality of its work."

brand name strive to offer services of superior quality, even within their own or similar networks.

Using discretionary accruals as a proxy for audit quality, I assess whether each of the three different classifications member firms within the Big 4 global networks provide higher-quality audits than non-Big 4 auditors. Specifically, I address the following research question:

RQ3: Relative to non-Big 4 auditors, do Big 4 "Parent" firms, "Brand Name" affiliates, and "Local" affiliates provide audits of superior quality?

Although there is little reason to expect lower audit quality for any of these types of auditors relative to non-Big 4 firms, variation may be present.

RQ4: Are the differences in audit quality between the different classifications of Big 4 member firms and non-Big 4 auditors similar?

3.3 Research Design

3.3.1 Model: Audit Fee Premiums of the Big 4 and Affiliate Firms

To address the first research question and test the audit fee premium of Big 4 "Parent" firms and affiliates, I pool all observations in the sample and estimate the following OLS regression models that control for factors identified in prior research as being associated with audit fees or to capture cross-country differences that may affect audit pricing.

$$\begin{aligned} \ln(FEE)_{i,t} = {} & \alpha_1 + \alpha_2 SIZE_{i,t} + \alpha_3 CATA_{i,t} + \alpha_4 LOSS_{i,t} + \alpha_5 DEBT_{i,t} + \alpha_6 QUAL_{i,t} \\ & + \alpha_7 ROA_{i,t} + \alpha_8 AUDSWITCH_{i,t} + \alpha_9 REGQ_{i,t} + \alpha_{10} ACCTSTND_{i,t} \\ & + \alpha_{11} USLIST_{i,t} + \alpha_{12} Big4_{i,t} + \alpha_{13} Named\_Affiliate_{i,t} + \\ & \alpha_{14} Local\_Affiliate_{i,t} + COUNTRY + YEAR + \varepsilon_{i,t} \end{aligned} \quad (4)$$

In Equation (4) the dependent variable ln(*FEE*) is defined the natural log of either of audit service fees (*AUDFEE*) or total fees paid to the auditor (*TOTFEE*) by firm *i* in period *t*.[28]

SIZE = the natural log of total assets;

CATA = the ratio of current assets to total assets;

LOSS = an indicator variable equal to one if firm *i* reports a loss in period *t*, and zero otherwise

DEBT = the ratio of total liabilities to total assets;

QUAL = an indicator variable equal to one if firm *i* receives a qualified audit opinion in period *t*, and zero otherwise;

ROA = net income before extraordinary and preferred dividends divided by total assets;

AUDSWITCH = an indicator variable equal to one if firm *i* switches to a new auditor in period *t*, and zero otherwise;

REGQ = an index variable capturing the regulatory quality of firm *i*'s country of domicile (Kaufmann et al., 2009);

ACCTSTND = an indicator variable equal to one if firm *i* reports under international accounting standards or U.S. GAAP, and zero otherwise;

[28] Including audit-related fees in the measure of audit service fees has no impact on the reported results.

USLIST = an indicator variable equal to one if firm *i* is cross-listed on a U.S. stock exchange, and zero otherwise;

Big4 = an indicator variable equal to one if firm *i* is audited by one of the Big 4 "Parent" auditors, and zero otherwise;

Named_Affiliate = an indicator variable equal to one if firm *i* is audited by a Big 4 "Brand Name" affiliate firm, and zero otherwise;

Local_Affiliate = an indicator variable equal to one if firm *i* is audited by a Big 4 "Local" affiliate firm, and zero otherwise;

COUNTRY = country fixed-effects;

YEAR = year fixed-effects.

The variables of interest in the above models are *Big4*, *Named_Affiliate*, and *Local_Affiliate*. These variables each capture the fee premium of the various classifications of Big 4 auditors relative to non-Big 4 auditors. Positive and statistically significant estimates of any of these coefficients suggest a fee premium relative to non-Big 4 audit firms.[29]

I classify the individual audit firms a Big 4 "Parent" auditor, a "Brand Name" affiliate, or a "Local" affiliate in the following manner. The data item extracted from the database is a code, rather than the name, of the individual audit firm as reported on the client firms' annual reports. To assist in translating this code, I received a spreadsheet from Thompson Reuters detailing, for each auditor code, the name of the corresponding

[29] One concern specific to companies in France is the dual audit requirement. The data used in this study represents the company's primary auditor. Thus, I classify observations where a Big 4 member firm is secondary as having a non-Big 4 auditor.

audit firm and the code of the associated "Parent Auditor".[30] The Big 4 "Parent" firms include: Arthur Andersen; Deloitte & Touche LLP; Ernst & Young LLP; KPMG LLP; and PricewaterhouseCoopers LLP. I classify the auditor as a "Brand Name" affiliate if Thompson Reuters identifies the individual auditor as an affiliate of any of the Big 4, but the name used includes some derivation of the parent firm's internationally-recognized name. Finally, the auditor is classified as a "Local" affiliate if Thompson Reuters identifies that the individual auditor is an affiliate of one of the Big 4, but the name used by the individual firm is not derived from the name of the parent firm. Examples of the data provided by Thompson Reuters are provided in Appendix A.

I test for the fee premium using both *AUDFEE* and *TOTFEE* for several reasons. First, to the extent that clients perceive quality differences among the various services offered by auditors, they may be more likely to engage a Big 4 auditor for nonaudit services. This may affect the pricing of nonaudit services that are not captured by *AUDFEE*. Second, prior research finds conflicting evidence on the associations between nonaudit service fees and audit quality (Frankel, Johnson, and Nelson, 2002; DeFond, Raghunandan, and Subramanyan, 2002; Ashbaugh, LaFond, and Mayhew, 2003), which is the focus of the second part of this study. Third, these data items are collected from different databases, and existing international auditing literature raises the concern that results may differ based on the specific type of audit fees analyzed (Kim et al., 2012). The control variables included in the model capture differences in auditor fees due to client size and complexity (*SIZE, CATA*) and audit risk (*LOSS, DEBT, QUAL, ROA*), as

[30] I am extremely grateful to Jason Hartman, Pedrag Cvetkovski, and David Coluccio of Thompson Reuters for providing this additional data.

well as the impact of auditor switches on audit fees (*AUDSWITCH*). I include *REGQ*, an index variable that captures the strength of each country's regulatory quality as determined by Kaufmann, Kraay, and Mastruzzi (2009),[31] and *USLIST* to capture the impact of exposure to various regulatory and enforcement regimes and *ACCTSTND* to control for differences that may be present due to application of higher quality accounting standards. *ACCTSTND* also captures any audit fee effect present after firms adopt IFRS (Kim et al., 2012).

It is possible (and to some extent, expected) that the magnitude of the fee premium for these different classifications of Big 4 auditors may differ, and the parameter estimates derived from the above regressions only offer evidence regarding the differential pricing relative to non-Big 4 auditors. To further evaluate differences between Big 4 "Parent" firms and the two types of affiliates, I perform an *F*-test for statistically significant differences between the three derived regression coefficients.

3.3.2 Discretionary Accruals as a Proxy for Audit Quality

As in prior research (Becker et al., 1998; Francis et al., 1999; Frankel et al., 2002; Ashbaugh et al., 2003; Krishnan, 2003), I use discretionary accruals as a proxy for audit quality. To the extent that the Big 4 and their affiliates charge a fee premium relative to non-Big 4 auditors, a logical extension is to examine if these premiums may be driven by higher-quality audits. I follow Dechow, Sloan, and Sweeney (1995) in estimating discretionary accruals based on the modified Jones (1991) model. Specifically, I compute a predicted value of nondiscretionary accruals as

[31] The sample period in Kaufmann et al. (2009) ends in 2008. Thus, for subsequent years, I use the value of *REGQ* from 2008.

$$NDA_t = \beta_1(1/ASSETS_{t-1}) + \beta_2(\Delta REV_t - \Delta REC_t) + \beta_3(PPE_t). \quad (5)$$

In the above equation:

= predicted nondiscretionary accruals;

ASSETS = total assets;

ΔREV = annual change in revenue, scaled by prior year total assets;

ΔREC = annual change in receivables, scaled by prior year total assets;

PPE = gross property, plant, and equipment, scaled by prior year total assets,

and the parameter estimates β_1, β_2, and β_3 are obtained from the following OLS regression model estimated by year, country, and industry (based on two-digit SIC codes).[32,33]

$$TA_t = b_1(1/ASSETS_{t-1}) + b_2(\Delta REV_t - \Delta REC_t) + b_3(PPE_t) + \varepsilon_t \quad (6)$$

As in prior studies (Healy, 1985; Jones, 1991; Dechow et al., 1995), *TA* in Equation (6) is total accruals, measured as

$$TA_{i,t} = (\Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} - \Delta STD_{i,t} - Dep_{i,t})/(Assets_{i,t-1}),$$

where:

Δ*CA* = annual change in current assets;

Δ*CL* = annual change in current liabilities;

Δ*Cash* = annual change in cash and cash equivalents;

[32] For brevity, subscripts for country and industry are suppressed.

[33] I delete observations where there are fewer than ten firms in each year/country/industry combination in

order to estimate Equation (4).

ΔSTD = annual change in short-term debt;

Dep = depreciation and amortization expense;

Assets = total assets.

Discretionary accruals (*DA*) are then calculated by subtracting the predicted value of nondiscretionary accruals ( ) obtained in Equation (3) from computed total accruals (*TA*). For the subsequent analysis, I use the absolute value of discretionary accruals (*Abs_DA*) as the primary dependent variable, and I also partition the sample based on observations with income-increasing and income-decreasing discretionary accruals.

I first perform univariate comparisons of the various types of discretionary accruals between clients audited by Big 4, Big 4 "Brand Name" affiliates, Big 4 "Local" affiliates, and non-Big 4 auditors. Tests for statistically significant differences in the means (medians) are based on *t*-tests (Wilcoxon two-sample tests). My multivariate results are based on the following OLS regression model,

$$\begin{aligned} Abs\_DA_{i,t} = {} & \gamma_1 + \gamma_2 SIZE_{i,t} + \gamma_3 CFO_{i,t} + \gamma_4 DEBT_{i,t} + \gamma_5 LOSS_{i,t} + \gamma_6 ABS\_TA_{i,t} \\ & + \gamma_7 \Delta CSHARES_{i,t} + \gamma_8 GROWTH_{i,t} + \gamma_9 REGQ_{i,t} + \\ & \gamma_{10} ACCTSTND_{i,t} + \gamma_{11} USLIST_{i,t} + \gamma_{12} NUMEX_{i,t} + \gamma_{13} CLOSE_{i,t} \\ & + \gamma_{14} Big4_{i,t} + \gamma_{15} Named\ \underline{Affiliate_{i,t}} + \gamma_{16} Local\ \underline{Affiliate_{i,t}} \\ & + COUNTRY + YEAR + \varepsilon_{i,t}, \end{aligned} \quad (7)$$

where:

Abs_DA = absolute discretionary accruals;

SIZE = the natural log of total assets;

CFO = cash flows from operations, scaled by total assets;

DEBT	=	the ratio of total liabilities to total assets;
LOSS	=	an indicator variable equal to one if firm *i* reports a loss in period *t*, and zero otherwise;
ABS_TA	=	the absolute value of total accruals, scaled by total assets;
ΔCSHARES	=	the change in the number of shares of common stock outstanding;
GROWTH	=	the percentage change in sales;
REGQ	=	an index variable capturing the regulatory quality of firm *i*'s country of domicile (Kaufmann et al., 2009);
ACCSTND	=	an indicator variable equal to one if firm *i* reports under international accounting standards or U.S. GAAP, and zero otherwise;
USLIST	=	an indicator variable equal to one if firm *i* is cross-listed on a U.S. stock exchange, and zero otherwise;
NUMEX	=	the number of exchanges on which firm *i* is listed;
CLOSE	=	the percentage of closely-held shares of common stock;
Big4	=	an indicator variable equal to one if firm *i* is audited by one of the Big 4 "parent" auditors, and zero otherwise;
Named_Affiliate	=	an indicator variable equal to one if firm *i* is audited by a Big 4 affiliate firm that uses the name of the associated parent auditor, and zero otherwise;
Local_Affiliate	=	an indicator variable equal to one if firm *i* is audited by a local affiliate of one of the Big 4 audit firms, and zero otherwise;

COUNTRY = country fixed-effects;

YEAR = year fixed-effects.

Again, the variables of interest are *Big4*, *Named_Affiliate*, and *Local_Affiliate*. Negative and significant coefficients on these variables suggest lower levels of discretionary accruals, which I interpret as higher audit quality, relative to non-Big 4 auditors.

I control for a number of factors found in prior research to be associated with use of accruals and managers' discretion over financial reporting. *SIZE* controls for differences in reporting of accrual for firms of various sizes and also surrogates for a number of potentially omitted variables (Becker et al., 1998). Accruals have also been found to be correlated with operating cash flows, *CFO*. As highly leveraged firms are more likely to violate debt covenants and debt covenant violation has been found to be associated with accrual choice (DeFond and Jiambalvo, 1994), I include *DEBT*. *LOSS* captures any incentives to manipulate earnings in periods of financial distress. *ABS_TA* controls for firms with larger absolute total accruals having greater discretionary accruals. To capture managers' incentives related to stock transactions, I include *ΔC_Shares* (Teoh, Welch, and Wong, 1998). Finally, prior research has found accruals to be associated with sales growth (Dechow, Kothari, and Watts, 1998), and *GROWTH* captures this effect.

The remaining independent variables control for cross-country or firm-specific differences related to the international setting of this study. *REGQ*, *USLIST*, and *NUMEX* capture differences in regulatory and enforcement regimes, which may constrain or otherwise alter managers' incentives to use discretionary accruals. *ACCTSTND* controls

for the use of higher-quality accounting standards; use of U.S. GAAP (Lang, Raedy, and Yetman, 2003) or IFRS (Barth, Landsman, and Lang, 2008) are found to result in relatively higher financial reporting quality compared to non-U.S. domestic standards. *CLOSE* captures the differing incentives of firms with greater insider control, and previous studies in the international accounting literature find this to be associated with financial reporting quality (Lang et al., 2003; Lang, Raedy, and Wilson, 2006; Barth et al., 2008).

3.4 Data and Sample Selection

I begin by obtaining a list of public companies in Worldscope for the period 2001 through 2011. The coverage of firms in Worldscope extends to smaller companies and those listed in less regulated markets. I exclude firms in certain East Asian countries (China, Hong Kong, Singapore, Malaysia, and Thailand) since firms in these countries face significantly different reporting environments and incentives compared to other countries, despite similar legal systems (Ball, Robin, and Wu, 2003). All financial data and the total fees paid to the auditor are obtained from Worldscope. However, auditor data in Worldscope covers only the most recently reported fiscal year. Therefore, data on the engaged audit firm is obtained from Thompson Reuters Fundamentals, which also provides more detailed audit fee data; it is from this source that I obtain data on audit service fees. The initial sample consists of 291,982 firm-year observations representing 33 countries.

As described in Table 3-1, I delete 65,815 observations with missing auditor data in Thompson Reuters Fundamentals and 59,149 observations missing financial data used

to construct control variables. Due to the differing operating characteristics of financial institutions, I further delete 52,225 observations with SIC codes 6000-6999. This results in an available sample of 114,793. For the auditor fee analyses, I delete an additional 65,264 (70,781) observations with missing data for audit service fees (total fees paid to the auditor). These exclusions result in a sample size of 49,529 (44,012) used in the audit service fee (total audit fee) analysis, which represents 26 countries. For the discretionary accruals analysis, I delete 26,435 observations missing financial data needed to estimate discretionary accruals or used in the construction of control variables and an additional 24,729 observations where the estimation of discretionary accruals is based on year/country/industry combinations with less than 10 observations. This results in a final sample of 63,629 observations in 22 countries.[34,35] Table 3-2 presents the sample distributions by country for the three primary analyses. Not surprisingly, five countries contribute significantly more observations to the overall sample (Australia; Canada; Japan; Korea; and the United Kingdom).[36] Table 3-3 reports descriptive statistics for variables used in each analysis for the full sample and partitioned based on auditor type.

[34] All three classifications of Big 4 auditors ("Parent" firms, "Brand Name" affiliates," and "Local" affiliates) are present in 17 out of 26 countries in the audit fee analyses and 13 out of 22 countries in the discretionary accruals analysis.

[35] Note that the sample construction is not based on a matching approach. Due to the relatively smaller number of observations with auditor affiliates, a one-to-one matched design would produce a sample that severely underrepresents the overall population.

[36] Inferences are similar if any one of these countries are removed from the sample, mitigating concerns that results are driven by some dominating effect within the sample.

3.5 Empirical Results

3.5.1 Results: Audit Fee Premiums of the Big 4 and Affiliate Firms

Table 3-4 presents the results of the tests for the audit fee premiums of the Big 4 and their affiliates relative to non-Big 4 firms. Panel A presents the results of estimating Equation (4) with the dependent variable based on audit service fees (*AUDFEE*), which tests for the premium related only to audit service fees. The overall model is significant ($F = 65.29$) and has high explanatory power (adjusted $R^2 = 93.27\%$). The coefficients on the three auditor type indicator variables are all positive and significant ($p < 0.001$), suggesting that Big 4 "Parent" firms, "Brand Name" affiliates, and "Local" affiliates all charge a fee premium relative to non-Big 4 auditors. Adjusting each coefficient to its respective effect yields a premium of 35.8% for Big 4 "Parent" auditors, 26.7% for "Brand Name" affiliates, and 12.3% for "Local" affiliates relative to non-Big 4 auditors.[37] These results suggest that clients face higher audit service fee premiums not only when choosing a Big 4 over a non-Big 4 auditor, but that the premium differs depending on where the individual firm lies within the Big 4 global network.[38]

[37] These effect sizes can be obtained by applying EXP[ ]-1 for Big 4 "Parent" auditors, EXP[ ]-1for "Brand Name" affiliates, and EXP[ ]-1 for "Local" affiliates.

[38] Caron (2009) investigates the audit fee premiums for global audit firm networks (*GAFN*) based on global and national industry expertise. Results based on her Table 4 suggest a fee premium of *GAFN* ranging from a low of 15.1% (26.2%) for global auditors with no industry expertise to a high of 33.1% (47.1%) for global auditors with national industry expertise in 2000 (2004). Although both Carson (2009) and the current study examine audit service fees, the differences in our results may be driven by three factors. First, my sample spans 2001 through 2011, whereas she examines only two years (2000 and 2004). Second, her sample spans many countries not included in this study. Finally, she includes BDO and Grant Thornton in her classification of *GAFN*, whereas this study considers these two firms to be smaller auditors (i.e., non-Big 4).

Except for *ROA*, *LOSS*, and *AUDSWITCH*, all of the control variables are statistically significant. Consistent with prior research, larger clients (*SIZE*), those with greater complexity (*CATA*), firms receiving a qualified audit opinion (*QUAL*) face higher audit service fees. The positive estimates of *REGQ* and *USLIST* suggest that firms listed in countries with greater regulatory or enforcement environments also face higher audit service fees. The coefficient on *ACCTSTND* is also positive, which is most likely driven by higher audit service fees due to adoption of international accounting standards (Kim et al., 2012) or the stricter reporting requirements of U.S. GAAP.

Panel B of Table 3-4 provides the results of estimating Equation (4) using *TOTFEE* as the dependent variable. Again, the model is significant (F = 29.49) and has reasonably high explanatory power (adjusted R^2 = 86.95%). Again, the coefficients on all three auditor type indicator variables are positive and significant, offering somewhat similar inferences to the model based on audit service fees. That is, the Big 4 "Parent" auditors and both types of affiliates charge a premium over non-Big 4 auditors. However, the magnitudes of the coefficients differ; the translated effects yield a premium of 54.2% for Big 4 "Parent" auditors, 19.8% for "Brand Name" affiliates, and 19.5% for "Local" affiliates. Thus, compared to audit service fees, the Big 4 "Parent" firms command a higher premium than their affiliates. Using total fees paid to the auditor, both "Brand Name" and "Local" affiliates have lower premiums relative to the premium based on audit service fees. In addition, using this measurement, the two affiliates appear to be more or less equal, whereas based on audit service fees the "Brand Name" affiliates command a higher premium.

All of the control variables in this model are statistically significant and inferences are similar to those drawn from the audit fee model. The only notable difference is the negative and significant ($p < 0.001$) on the *AUDSWITCH* variable, suggesting that total fees paid to the auditor are lower in the first year after switching auditors. This could be driven either by "lowballing" (DeAngelo, 1981) or switches to a smaller auditor (citation).

3.5.2 Results: Differences between Regression Coefficients for the Audit Fee Premium Model

The results from estimating Equation (1) offer insight only into the fee premiums charged by Big 4 auditors and their affiliates relative to non-Big 4 auditors. With regard to the associated effects of the parameter estimates, it seems that the premiums are not equal between the Big 4 "Parent" firms and the two types of affiliates. To statistically assess this finding, I perform an *F*-test for differences in the parameter estimates α_{12}, α_{13}, and α_{14}. Panel A of Table 3-5 reports the differences of the coefficients from estimating Equation (1) using the dependent variable based on audit service fees. All three differences are significant ($p < 0.001$), suggesting that there is a statistically significant difference in the premiums charged by the Big 4 "Parent" auditors and their affiliates, as well as between the "Brand Name" and "Local" affiliate firms. Panel B reports similar results based on estimating Equation (1) based on total fees paid to the auditor as the dependent variable. In this case, the only difference is that there is no statistically significant difference in the fee premiums between the two types of affiliates.

Taken together, these results offer several implications. First, clients face significant premiums regardless of whether they choose a Big 4 "Parent" auditor or an affiliate firm over a non-Big 4 auditor. In the next section, I address whether there is a difference in audit quality between the Big 4 "Parent" firms, their affiliates, and non-Big 4 auditors. Second, the premium that clients face when engaging a Big 4 "Parent" auditor is highest based on total fees paid to the auditor, though smaller premiums are present for affiliate firms. Although the Big 4 global networks are said to provide services of similar quality, it remains an empirical question whether or not knowledge-sharing occurs equally in all aspects of the services offered by the auditor. Further, it is unclear whether clients perceive the Big 4 "Parent" firms as a more desirable choice for consulting and other nonaudit services relative to their affiliates. Finally, these results highlight the importance of selecting the appropriate data sources to assess empirical questions related to audit fees, especially at the international level where significant differences may be present among sample firms.

3.5.3 Sensitivity Tests

Note that the results in the previous section are drawn based on audit service fee data collected from Thompson Reuters Fundamentals, whereas data on total fees paid to the auditor is taken from Worldscope. Thus, while the two samples are similar in size, the exact composition may differ. To offer more comparable results between the two fee models, I repeat the analysis using a sample of firms covered by both databases. For brevity, I discuss only the variables of interest and their implications.

The adjusted sample size includes firms with available data that are covered by both databases (n = 26,048).[39] Table 3-6, Panel A repeats the estimation of Equation (1) with the dependent variable *AUDFEE*. While all of the classifications of a Big 4 auditor report a premium over non-Big 4 auditors, some differences arise. The coefficient on *Big4* of 0.3101 is still significant ($p < 0.001$) and translates to a premium over non-Big 4 auditors of 36.4%, which is similar to that derived in the previous section. The gap between the Big 4 "Parent" premium and that of "Brand Name" affiliates is slightly larger; the coefficient on *Named_Affiliate* of 0.1857 remains significant ($p < 0.001$) and its associated effect is 20.4%. However, the parameter estimate of 0.750 on *Local_Affiliate* is not significant at conventional levels ($p > 0.10$), suggesting no statistically significant premium of "Local" affiliates over non-Big 4 auditors. In Panel B of Table 6, I repeat the estimation of Equation (1) for the adjusted sample using the dependent variable *TOTFEE*. Inferences with respect to the premium of Big 4 "Parent" firms are virtually identical in that the coefficient is still significant ($p < 0.001$) and translates into a premium of 54.0% compared to non-Big 4 audit firms. However, the premium is larger for "Brand Name" affiliates than in the earlier results; the associated effect of the coefficient of 0.3089 is 36.2%, and the estimate remains significant ($p < 0.001$). In addition, the premium of "Local" affiliates is reduced; the estimate of *Local_Affiliate* of 0.1115 translates into a premium over non-Big 4 auditors of 11.8%, and this result is only marginally significant ($p < 0.10$). The results of an *F*-test for

[39] In terms of the distrubition by country and year, the adjusted sample from which results in this section are drawn is similar to those used in the previous section. However, some differences exist with respect to the auditor type classifications.

differences in the regression coefficients (untabulated) suggest that all differences are statistically significant at conventional levels ($p < 0.10$ or higher).

Although some differences exist using this stricter sample, the overall conclusion remains that the highest premiums, both for audit service fees and total fees paid to the auditor, are charged by the Big 4 "Parent" firms, followed by the "Brand Name" affiliates. While the results in this section suggest smaller premiums for "Local" affiliates over non-Big 4 audit firms, this may be driven in part by an underrepresentation of this type of audit firm in the adjusted sample.

3.5.4 Univariate Results: Discretionary Accruals

In this section I discuss the results of univariate tests for various measures of discretionary accruals, which I consider a proxy for audit quality. Table 3-7 presents descriptive statistics for the discretionary accruals measure (*Abs_DA*) and for the alternative sample partitions based on observations with income-increasing and income-decreasing discretionary accruals. Both the means and medians of these measures are smallest for the Big 4 "Parent" auditors, though firms audited by "Local" affiliates have similar results. Interestingly, results suggest that the clients of "Brand Name" affiliates have higher levels of discretionary accruals than their "Local" counterparts based on both means and medians. As expected, the values for the non-Big 4 partition are highest.

Table 3-8 presents the results of testing for statistically significant differences in the means (medians) between various combinations of auditor type based on *t*-tests (Wilcoxon two sample tests). Panel A compares Big 4 "Parent" auditors to both types of affiliates and to non-Big 4 auditors. All differences of both means and medians are

significant at the 1% level, suggesting that clients of the Big 4 "Parent" firms have lower levels of discretionary accruals. Note, however, that there are no significant differences in either the means or medians between the Big 4 "Parent" auditors and the "Local" affiliates. Compared to non-Big 4 auditors, clients of the Big 4 "Parent" firms report lower levels of discretionary accruals based on both means and medians, as all differences (except for the difference in the means of signed discretionary accruals) are significant at the 1% level.

In Panel B of Table 3-8, I compare the "Brand Name" affiliates with the "Local" affiliates and non-Big 4 partitions. Compared to "Local" affiliates all differences in both means and medians are statistically significant ($p < 0.05$ or higher) and suggest that clients of "Local" affiliates report lower levels of discretionary accruals. In relation to non-Big 4 auditors, clients of "Brand Name" affiliates report lower levels of discretionary accruals; except for the difference in the means of signed discretionary accruals, all other differences are statistically significant ($p < 0.05$ or $p < 0.001$). Finally, in Panel C, I compare "Local" affiliates to non-Big 4 auditors, and the results suggest that discretionary accruals are lower for clients of "Local" affiliates than non-Big 4 audit firms. All differences are statistically significant at the 1% level. Taken together, these results suggest that audit quality is higher for Big 4 "Parent" firms and "Local" affiliates compared to "Brand Name" affiliates, but that all results in lower levels of discretionary accruals than non-Big 4 audit firms.

3.5.5 Regression Results: Discretionary Accruals

A limitation of the preceding analysis is that it ignores any firm- or country-specific factors that may impact managers' ability to exercise discretion over the reporting of accruals. Therefore, I also perform a multivariate analysis through estimation of Equation (4). Table 3-9 reports these results for the primary analysis based on *Abs_DA* and for the samples partitioned based on observations with income-increasing and income-decreasing discretionary accruals.

Significant results arise when discretionary accruals are specified in absolute terms (*Abs_DA*) and when the observations with income-increasing and income-decreasing discretionary accruals are partitioned into individual samples. Table 3-9, Panel A reports the results for the model estimated with the dependent variable *Abs_DA*. The model is highly significant ($F = 12.19$) and the parameter estimates of the three variables yield significant results. Specifically, the coefficient of -0.0118 on *Big4* is statistically significant ($p < 0.001$), suggesting that clients of Big 4 "Parent" auditors report lower levels of absolute discretionary accruals relative to non-Big 4 audit firms. The parameter estimate of *Named_Affiliate* also produces a negative and significant ($p < 0.05$) coefficient of -0.0083, suggesting that these "Brand Name" affiliates also provide higher audit quality. Although only marginally significant ($p < 0.10$), the coefficient on *Local_Affiliate* provides similar insights. Interestingly, the magnitude of the coefficient is larger for "Local" affiliates relative to "Brand Name" affiliates, although this difference is not statistically significant at conventional levels ($p > 0.10$). An untabulated *F*-test suggests that the relative quality of Big 4 "Parent" firms (i.e., compared to non-Big 4 auditors) is greater than that of both types of affiliates.

The results in Panel B of Table 3-9 are derived from estimating Equation (4) for firms with income-increasing discretionary accruals (*DA*). The inferences drawn from these results are similar to those when estimating the model using total absolute discretionary accruals. Specifically, the coefficient of -0.0193 on *Big4* is statistically significant ($p < 0.001$), suggesting higher audit quality relative to non-Big 4 auditors. Consistent with the previous results, the parameter estimates of *Named_Affiliate* and *Local_Affiliate* remain negative and significant ($p < 0.05$ and $p < 0.10$, respectively), and the coefficient is greater in magnitude for "Local" affiliates, although again, this difference is not statistically significant. An untabulated *F*-test implies that the effect of *Big4* is significantly ($p < 0.05$) greater than the effects of both affiliates. Table 3-9, Panel C presents the same results for firms with income-decreasing discretionary accruals. Of the three variables of interest, only the coefficient on *Big4* is significant ($p < 0.05$). This suggests that "Brand Name" and "Local" affiliates of the Big 4 may not scrutinize the use income-decreasing discretionary accruals to the same extent as the Big 4 "Parent" firms.

In summary, based on both absolute discretionary accruals and observations with income-increasing discretionary accruals, the results suggest that all three classifications of Big 4 auditors—"Parent" firms, "Brand Name" affiliates, and "Local" affiliates—provide higher-quality audits than non-Big 4 firms, though the improvement in quality is highest for "Parent" firms. In addition, it appears that only Big 4 "Parent" firms are associated with significantly lower levels of income-decreasing discretionary accruals. However, an interesting finding is that similar levels of audit quality appear to be present for "Brand Name" and "Local" affiliates, despite the significantly higher premiums charged by the former. This raises the question of whether some affiliates within the Big

4 global networks capitalize on brand name reputations without significant benefits to the client in terms of the quality of services offered.

3.6 Additional Analyses

Although the inferences drawn from the preceding sections offer some evidence regarding fee premiums and audit quality, the following question remains: are the premiums of the Big 4—the "Parent" firms and the two types of affiliates—driven by the quality of services offered? To address this question, I perform an additional analysis that tests for any statistically significant association between auditor fees and contemporaneous absolute discretionary accruals, which proxies for audit quality. I modify Equation (4) as follows to execute this test:

$$\begin{aligned} \ln(FEE)_{i,t} = {} & \alpha_1 + \alpha_2 SIZE_{i,t} + \alpha_3 CATA_{i,t} + \alpha_4 LOSS_{i,t} + \alpha_5 DEBT_{i,t} + \alpha_6 QUAL_{i,t} \\ & + \alpha_7 ROA_{i,t} + \alpha_8 AUDSWITCH_{i,t} + \alpha_9 REGQ_{i,t} + \alpha_{10} ACCTSTND_{i,t} \\ & + \alpha_{11} USLIST_{i,t} + \alpha_{12} Big4_{i,t} + \alpha_{13} Named\_Affiliate_{i,t} + \\ & \alpha_{14}(Big4 * Abs\_DA)_{i,t} + \alpha_{15}(Named\_Affiliate * Abs\_DA)_{i,t} \\ & + \alpha_{16}(Local\_Affiliate * Abs\_DA)_{i,t} + COUNTRY + YEAR + \varepsilon_{i,t} \end{aligned} \quad (8)$$

Again, I consider both audit service fees (*AUDFEE*) and total fees paid to the auditor (*TOTFEE*) as alternative dependent variables. For the purposes of this test, I exclude clients of non-Big 4 auditors and interact each of the auditor type indicator variables with absolute discretionary accruals, *Abs_DA*. Negative and significant coefficients on any of the interaction terms included in Equation (8) suggest a positive relationship between auditor fees and concurrent audit quality.[40] In other words, such a result implies that fee

[40] In a study of Australian firms, Gul, Chen, and Tsui (2003) find a positive association between audit fees and the absolute value of discretionary accruals. The authors attribute this finding to an increase in audit effort as a result of greater inherent risk. In the international context of this study, this competing result is

increases are driven at least partially by the quality of services offered. As this test requires both audit fee data and data items needed to estimate discretionary accruals, the adjusted sample size without non-Big 4 clients is 21,760.[41]

The results of this analysis are provided in Table 3-10. As seen in Panel A, the coefficient on *Big4*Abs_DA* of -0.0149 is significant ($p < 0.001$), suggesting that clients of Big 4 "Parent" firms face higher fees with increases in audit quality. Similar inferences are drawn for "Local" affiliates, though the coefficient on *Local_Affiliate*Abs_DA* of -0.0086 is only marginally significant ($p < 0.10$). However, there does not appear to be a significant association between audit service fees and audit quality for "Brand Name" affiliates. In Panel B, the test is repeated with the dependent variable *TOTFEE*, and no significant results are found.

Though these results imply associations between auditor fees and audit quality, the causal relationship remains unclear. It is possible that auditors receive higher fees in previous years and permit clients to produce financial information of lower quality in subsequent years, which could be a symptom of impaired independence. To draw additional inferences, I use the adjusted sample of 21,760 observations that excludes non-Big 4 auditors and delete an additional 2,285 observations in which an auditor switch occurred.[42] I then estimate a modified version of Equation (7), removing the indicator

---

relatively unlikely due to the low frequencies of litigation against auditors due to clients' misrepresentation of financial information.

[41] The reported results for this test are based on the modified sample with data availability for both audit service fee and total fees paid to the auditor. Inferences are similar if I modify the two samples with different fee data availability.

[42] Failure to delete observations with an auditor switch could result in biased inferences, as audit quality would be based on the auditor engaged in year *t* while the fee variables are based on the auditor in year *t*-1.

variable *Local_Affiliate* and including interactions between all three types of Big 4 auditors and *lagged* auditor fee variables.

$$
\begin{aligned}
Abs\_DA_{i,t} = {} & \gamma_1 + \gamma_2 SIZE_{i,t} + \gamma_3 CFO_{i,t} + \gamma_4 DEBT_{i,t} + \gamma_5 LOSS_{i,t} + \\
& \gamma_6 ABS\_TA_{i,t} + \gamma_7 \Delta CSHARES_{i,t} + \gamma_8 GROWTH_{i,t} + \gamma_9 REGQ_{i,t} \\
& + \gamma_{10} ACCTSTND_{i,t} + \gamma_{11} USLIST_{i,t} + \gamma_{12} NUMEX_{i,t} + \gamma_{13} CLOSE_{i,t} \\
& + \gamma_{14} Big4_{i,t} + \gamma_{15} Named\_Affiliate_{i,t} + \gamma_{16} [Big4_{i,t} * \ln(FEE)_{i,t-1}] \\
& + \gamma_{17} [Named\_Affiliate_{i,t} * \ln(FEE)_{i,t-1}] + \\
& \gamma_{18} [Local\_Affiliate_{i,t} * \ln(FEE)_{i,t-1}] + COUNTRY + YEAR + \varepsilon_{i,t}
\end{aligned}
\tag{9}
$$

In equation (9), $\ln(FEE)_{i,t-1}$ denotes the natural log of either audit service fees (*AUDFEE*) or total fees paid to the auditor (*TOTFEE*) in year *t*-1. The results of this test, reported in Table 3-11, corroborate the previous inferences. For Big 4 "Parent" firms, I find that prior-year audit service fees are negatively associated with current-year absolute discretionary accruals. The parameter estimate on the interaction term *Big4**($AUDFEE_{t-1}$) of -0.0048 is statistically significant ($p < 0.001$). In other words, audit service fees in the prior year are positively associated with future levels audit quality. I find similar, albeit weaker effects for "Local" and "Brand Name" affiliates. The effect size is smaller for "Brand Name" affiliates and the coefficient of -0.0020 on the interaction term *Named_Affiliate**($AUDFEE_{t-1}$) is also statistically significant ($p < 0.05$); though I also find a negative effect for "Local" affiliates, the coefficient is not significant at conventional levels ($p > 0.10$). Using lagged total fees paid to the auditor produces insignificant results for all three auditor type classifications.

Thus, it seems unlikely that the positive association between auditor fees and audit quality is a result of impaired auditor independence.[43]

3.7 Conclusion

This study investigates differences in auditor fee premiums and audit quality within the Big 4 global networks. Though prior research has assessed differences between Big 4 and non-Big 4 auditors, these results are typically drawn on samples within individual countries. Expanding the analysis to a global level and utilizing newly available data, I differentiate member firms within the Big 4 networks as "Parent" firms, "Brand Name" affiliates, or "Local Affiliates." Results suggest that while all three types of Big 4 firms command audit fee premiums relative to non-Big 4 auditors, significant differences exist. Likewise, with respect to audit quality, though clients of any of these three report lower levels of discretionary accruals compared to clients of non-Big 4 audit firms, variation exists within the network.

The results of this study advance our understanding of the international operations of the Big 4 and suggest that member firms are not necessarily alike, at least with respect to the two aspects examined in this essay—auditor fee premiums and audit quality. Given the supposed benefits of knowledge sharing and information management within the Big 4 global networks, as well as claims that all member firms must meet certain quality standards, this study raises several more specific questions that may be addressed by future researchers, some of which cannot be examined using available archival data. Do affiliate firms make use of the resources provided to them within the global network to

[43] All results reported in this section are insensitive to using indicator variables for the top and bottom decile ranks of absolute discretionary accruals or auditor fee variables in place of the continuous variables in interaction terms.

increase the quality of services offered to clients? What factors, if any, undermine the overall effectiveness of quality management systems in place within these global networks? Do affiliates using a Big 4 brand name strive to provide higher-quality services, or do they simply adopt a label? In light of the troubles faced by the PCAOB, how does noncompliance with a regulatory body by a member firm impact the overall image of the Big 4's international brand name?

Table 3-1: Sample Selection - Big 4 Global Networks

Sample selection criteria:	Firm-year observations	
Initial Sample[#]	291,982	
Less: missing auditor data	(65,815)	
Less: missing financial data used to construct variables	(59,149)	
Less: financial service firms (SIC 6000-6999)	(52,225)	
Available sample	114,793	
Less: missing audit service fee data		(65,264)
Primay sample for audit service fee analysis		**49,529**
Less: missing total fee dada		(70,781)
Primay sample using total auditor fees analysis		**44,012**
Less: missing financial data used to construct additional variables or estimate discretionary accruals		(26,435)
Less: year/country/industry combination contains less than 10 observations		(24,729)
Primary sample for discretionary accruals analysis		**63,629**

This table summarizes the selection procedure to create the samples used in various components of this study.

[#] The initial sample consists of publicly-listed companies available in Worldscope from 2001 through 2011 located in 33 countries. Through application of the sample selection criteria, the number of countries represented in the audit fee (discretionary accruals) analysis decreases to 26 (22).

Table 3-2: Sample Distribution by Country - Big 4 Global Networks

	Audit Fee Analyses				Discretionary Accruals Analysis	
	Audit Service Fees		*Total Auditor Fees*			
	Observations	*%*	*Observations*	*%*	*Observations*	*%*
AUSTRALIA	6,210	12.5%	8,314	18.9%	4,793	7.6%
AUSTRIA	274	0.6%	227	0.5%	230	0.4%
BELGIUM	634	1.3%	622	1.4%	767	1.2%
BRAZIL	39	0.1%	50	0.1%	407	0.6%
CANADA	7,101	14.3%	3,028	6.9%	6,740	10.7%
DENMARK	439	0.9%	749	1.7%	112	0.2%
FINLAND	293	0.6%	319	0.7%	178	0.3%
FRANCE	1,710	3.5%	1,827	4.2%	2,841	4.5%
GERMANY	1,621	3.3%	1,413	3.2%	2,561	4.0%
GREECE	82	0.2%	53	0.1%	607	1.0%
IRELAND	203	0.4%	325	0.7%	-	0.0%
ISRAEL	178	0.4%	186	0.4%	644	1.0%
ITALY	617	1.2%	798	1.8%	541	0.9%
JAPAN	11,153	22.5%	7,067	16.1%	19,512	30.8%
KOREA	6,851	13.8%	754	1.7%	8,718	13.8%
LUXEMBOURG	24	0.0%	16	0.0%	-	0.0%
NETHERLANDS	319	0.6%	315	0.7%	232	0.4%
NEW ZEALAND	460	0.9%	488	1.1%	-	0.0%
NORWAY	711	1.4%	931	2.1%	1,250	2.0%
PHILLIPINES	297	0.6%	138	0.3%	185	0.3%
PORTUGAL	98	0.2%	149	0.3%	-	0.0%
SOUTH AFRICA	1,100	2.2%	1,163	2.6%	794	1.3%
SPAIN	448	0.9%	761	1.7%	221	0.3%
SWEDEN	1,521	3.1%	1,192	2.7%	2,057	3.3%
SWITZERLAND	425	0.9%	765	1.7%	407	0.6%
UK	6,721	13.6%	12,362	28.1%	9,472	15.0%
	49,529	***100%***	***44,012***	***100%***	***63,269***	***100.0%***

This table presents the distribution by country for the various samples employed in this study.

Table 3-3: Descriptive Statistics - Big 4 Global Networks

Panel A: Audit Service Fee analysis	Full Sample			Big 4 "Parent" Firms			"Brand Name" Affiliates			"Local" Affiliates			Non-Big 4		
	n = 49,529			n = 26,979			n = 3,063			n = 670			n = 18,817		
Dependent Variables	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.
AUDFEE	13.97	13.16	3.11	14.85	14.76	2.86	14.04	13.80	1.85	13.98	12.97	2.59	12.83	11.39	3.17
Independent Variables															
SIZE	20.59	20.33	3.96	21.82	21.95	3.53	19.93	19.75	2.49	20.91	20.01	3.13	18.90	17.62	4.12
CATA	0.49	0.49	0.26	0.49	0.48	0.24	0.48	0.47	0.24	0.50	0.51	0.24	0.51	0.50	0.28
LOSS (%)	19.4%			12.0%			14.5%			27.9%			21.3%		
DEBT	0.48	0.44	0.43	0.49	0.46	0.35	0.51	0.51	0.33	0.47	0.45	0.36	0.47	0.36	0.55
QUAL (%)	16.3%			13.8%			12.4%			18.8%			20.4%		
ROA	(0.11)	0.01	0.49	(0.04)	0.02	0.34	(0.04)	0.02	0.32	(0.02)	0.03	0.29	(0.23)	(0.02)	0.64
AUDSWITCH (%)	17.6%			10.3%			17.7%			13.1%			24.6%		
REGQ	1.39	1.46	0.38	1.36	1.25	0.36	1.49	1.66	0.34	0.94	1.11	0.41	1.44	1.66	0.39
ACCTSTND (%)	45.0%			39.0%			89.3%			51.5%			46.3%		
USLIST (%)	1.5%			2.0%			0.5%			2.7%			0.5%		
***Big4* (%)**	54.5%			-			-			-			-		
***Named_Affiliate* (%)**	6.2%			-			-			-			-		
***Local_Affiliate* (%)**	1.4%			-			-			-			-		

Table 3-3 (Continued)

Panel B: Total Auditor Fee analysis	Full Sample			Big 4 "Parent" Firms			"Brand Name" Affiliates			"Local" Affiliates			Non-Big 4		
	n = 44,012			n = 26,857			n = 3,313			n = 693			n = 13,149		
Dependent Variables	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.
TOTFEE	13.43	12.85	2.62	14.42	14.08	2.50	14.03	13.46	2.28	13.19	12.98	2.34	11.88	11.28	2.26
Independent Variables															
SIZE	19.85	19.32	3.50	20.62	20.14	3.23	20.52	20.94	3.07	19.47	19.14	3.09	17.74	17.04	3.18
CATA	0.48	0.48	0.25	0.47	0.47	0.25	0.48	0.48	0.24	0.50	0.48	0.25	0.51	0.49	0.27
LOSS (%)	16.5%			11.3%			18.4%			13.1%			21.1%		
DEBT	0.50	0.47	0.37	0.50	0.49	0.32	0.51	0.51	0.30	0.49	0.48	0.35	0.49	0.41	0.48
QUAL (%)	12.2%			10.3%			16.5%			22.5%			14.7%		
ROA	(0.08)	0.02	0.41	(0.04)	0.03	0.32	(0.01)	0.03	0.24	0.01	0.03	0.20	(0.19)	(0.00)	0.55
AUDSWITCH (%)	15.3%			9.2%			17.3%			11.9%			21.2%		
REGQ	1.51	1.62	0.32	1.49	1.61	0.32	1.40	1.46	0.34	1.09	1.11	0.33	1.59	1.71	0.29
ACCTSTND (%)	45.9%			41.5%			69.2%			38.5%			49.3%		
USLIST (%)	2.0%			2.5%			0.7%			2.2%			1.0%		
***Big4* (%)**	61.0%			-			-			-			-		
***Named_Affiliate* (%)**	7.5%			-			-			-			-		
***Local_Affiliate* (%)**	1.6%			-			-			-			-		

Table 3-3 (Continued)

Panel C: Discretionary Accruals analysis	Full Sample			Big 4 "Parent" Firms			"Brand Name" Affiliates			"Local" Affiliates			Non-Big 4		
	n = 63,629			n = 28,981			n = 9,768			n = 4,739			n = 19,781		
Dependent Variables	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Mean	Median	St. Dev.
Abs_DA	0.113	0.062	0.179	0.090	0.051	0.147	0.111	0.063	0.197	0.092	0.053	0.127	0.130	0.071	0.219
Independent Variables															
SIZE	21.05	21.73	3.41	23.94	23.76	3.16	23.13	23.64	2.32	23.46	23.91	2.09	19.59	18.26	3.65
CFO	(2.71)	0.05	19.15	(0.89)	0.06	19.01	(1.26)	0.05	29.37	(1.23)	0.05	21.88	(2.34)	0.03	18.66
DEBT	0.49	0.45	0.63	0.50	0.46	0.48	0.50	0.45	0.36	0.48	0.43	0.32	0.49	0.43	0.92
LOSS (%)	16.6%			13.5%			19.9%			14.9%			20.3%		
ABS_TA	0.14	0.08	0.21	0.14	0.09	0.22	0.10	0.06	0.15	0.10	0.06	0.13	0.16	0.09	0.24
CHG_CSHARES	11.58	9.01	23.51	13.79	9.08	26.38	4.78	3.21	17.47	2.78	1.74	19.11	13.58	10.91	14.56
GROWTH	22.20	21.09	26.86	32.74	19.07	20.01	19.39	1.01	180.16	19.56	7.71	13.84	13.84	6.90	16.50
REGQ	1.34	1.23	0.34	1.42	1.39	0.29	1.15	1.11	0.27	0.97	1.05	0.32	1.39	1.44	0.35
ACCTSTND (%)	43.5%			49.3%			44.4%			37.7%			39.5%		
USLIST (%)	1.0%			1.6%			0.3%			2.7%			0.4%		
CLOSE	4.61	0.14	12.90	7.50	0.19	17.19	2.90	0.05	8.64	0.88	0.01	6.16	1.78	0.31	7.98
NUMEX	1.29	1.00	0.74	1.30	1.00	0.81	1.35	1.00	0.77	1.31	1.00	0.61	1.25	1.00	0.64
***Big4* (%)**	45.5%			-			-			-			-		
***Named_Affiliate* (%)**	15.3%			-			-			-			-		
***Local_Affiliate* (%)**	7.5%			-			-			-			-		

This table presents descriptive statistics for variables used in the analyses of this study. Panel A, Panel B, and Panel C report these statistics for the audit service fee analysis, total fee analysis, and discretionary accruals analysis, respectively. Separate partitions are provided for the full sample and for each auditor type classification. A percentage sign (%) following the name of dichotomous variables indicates that the reported mean is the percentage of observations for which that variable is equal to one.

In Panels A and B, *AUDFEE* is defined as the natural log of audit service fees, and *TOTFEE* is the natural log of total fees paid to the auditor. *SIZE* is the natural log of total assets. *CATA* is the ratio of current assets to total assets. *LOSS* is an indicator variable for firm-year observations with negative net income, and zero otherwise. *DEBT* is defined as the ratio of total liabilities to total assets. *QUAL* is an indicator variable equal to one for firm-year obsevations with a qualified (going-concern or other) audit opinion, and zero otherwise. *ROA* is defined as the ratio of net income to total assets. *AUDSWITCH* is an indicator variable equal to one for firm-year observations in which a switch between parent auditors occurred, and zero otherwise. *REGQ* is an index variable to capture the regulatory quality of each country as computed by Kaufmann et al., 2009. *ACCTSTND* is an indicator variable equal to one for firms that report financial statements in accordance with U.S. GAAP or international accounting standards (IAS or IFRS), and zero otherwise. *USLIST* is an indicator variable for firm-year observations in which the stock of the company is cross-listed on a U.S. stock exchange, and zero otherwise.

Table 3-3 (Continued)

Big4 is an indicator variable equal to one for observations where the auditor is a Big 4 "Parent" firm, and zero otherwise. *Named_Affiliate* is an indicator variable equal to one for observations where the auditor is a "Brand Name" affiliate, and zero otherwise. *Local_Affiliate* is an indicator variable equal to one for observations where the auditor is a "Local" affiliate, and zero otherwise.

The additional variables reported in Panel C are defined as follows. *CFO* is cash flows from operations, scaled by total assets. *ABS_TA* is the absolute value of total accruals. *CHG_CSHARES* is the percentage change in the number of common shares of stock outstanding. *GROWTH* is defined as the percentage change in sales. *CLOSE* is the proportion of closely-held shares of common stock, as reported by Worldscope. *NUMEX* is the aggregate number of stock exchanges on which the firm is listed.

The statistics in this table are based on all continuous variables having been winsorized at the 1% and 99% level.

Table 3-4: Audit Fee Premium Models for Big 4 and Affiliates

	Panel A: Audit Service Fees Dep Var = *AUDFEE* n = 49,529		*Panel B: Total Auditor Fees* Dep Var = *TOTFEE* n = 44,012	
Variable	Estimate	p-value	Estimate	p-value
Intercept	6.2156	***	5.1348	***
SIZE	0.4228	***	0.5207	***
CATA	0.0002	***	0.0001	*
LOSS	-0.0113		0.0468	***
DEBT	0.0000	***	0.0000	**
QUAL	0.1411	***	0.0885	***
ROA	0.0000		0.0001	**
AUDSWITCH	-0.0164		-0.0588	***
REGQ	0.4639	***	0.5135	***
ACCTSTND	0.2006	***	0.1982	***
USLIST	0.6290	***	0.4159	***
Big4	**0.3063**	***	**0.4330**	***
Named_Affiliate	**0.2369**	***	**0.1809**	***
Local_Affiliate	**0.1163**	***	**0.1784**	***
COUNTRY FIXED-EFFECTS	Included		Included	
YEAR FIXED-EFFECTS	Included		Included	
Adjusted R-square	93.27%		86.95%	
F -statistic	65.29		29.49	

This table presents the results of estimating Equation (1), an OLS regression to model the effect of the type of Big 4 auditor on the audit fee premium relative to non-Big 4 auditors for the primary samples. AUDFEE is defined as the natural log of audit service fees, and TOTFEE is the natural log of total fees paid to the auditor. SIZE is the natural log of total assets. CATA is the ratio of current assets to total assets. LOSS is an indicator variable for firm-year observations with negative net income, and zero otherwise. DEBT is defined as the ratio of total liabilities to total assets. QUAL is an indicator variable equal to one for firm-year obsevations with a qualified (going-concern or other) audit opinion, and zero otherwise. ROA is defined as the ratio of net income to total assets. AUDSWITCH is an indicator variable equal to one for firm-year observations in which a switch between parent auditors occurred, and zero otherwise. REGQ is an index variable to capture the regulatory quality of each country (Kaufmann et al., 2009). ACCTSTND is an indicator variable equal to one for firms that report financial statements in accordance with U.S. GAAP or international accounting standards (IAS or IFRS), and zero otherwise. USLIST is an indicator variable for firm-year observations in which the stock of the company is cross-listed on a U.S. stock exchange, and zero otherwise. Big4 is an indicator variable equal to one for observations where the auditor is a Big 4 "Parent" firm, and zero otherwise. Named_Affiliate is an indicator variable equal to one for observations where the auditor is a "Brand Name" affiliate, and zero otherwise. Local_Affiliate is an indicator variable equal to one for observations where the auditor is a "Local" affiliate, and zero otherwise.

All continuous variables are winsorized at the 1% and 99% level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on two-tailed *p*-values.

Table 3-5: Differences of Regression Coefficients - Fee Premium Model for Big 4 and Affiliates

Panel A: Audit Service Fees

	Difference Sig. ***Named_Affiliate***	Difference Sig. ***Local_Affiliate***
	(α_{12} - α_{13})	(α_{12} - α_{14})
Big 4 **(α_{12})**	0.0694 ***	0.1900 ***
		(α_{13} - α_{14})
Named_Affiliate	-	0.1206 ***

Panel B: Total Auditor Fees

	Difference Sig. ***Named_Affiliate***	Difference Sig. ***Local_Affiliate***
	(α_{12} - α_{13})	(α_{12} - α_{14})
Big 4	0.2521 ***	0.2546 ***
		(α_{13} - α_{14})
Named_Affiliate	-	0.0025

This table presents the results of performing an *F*-test for differences in the regression coefficients derived from estimating Equation (1). The parameter estimates α_{12}, α_{13}, and α_{14} are derived from the variables *Big4*, *Named_Affiliate*, and *Local_Affililate*, respectively. All differences in the regression coefficients are calculated as shown.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on two-tailed p-values.

Table 3-6: Audit Fee Premium Models for Big 4 and Affiliates (Robust Sample)

	Panel A: Audit Service Fees		*Panel B: Total Auditor Fees*	
	Dep Var = *AUDFEE*		Dep Var = *TOTFEE*	
	n = 26,048		n = 26,048	
Variable	Estimate	p-value	Estimate	p-value
Intercept	5.2044	***	4.6752	***
SIZE	0.4710	***	0.4960	***
CATA	0.0000		0.0000	
LOSS	0.0039		0.0109	
DEBT	0.0000	***	0.0000	**
QUAL	0.1543	***	0.1064	***
ROA	0.0000	*	0.0001	**
AUDSWITCH	-0.0336	**	-0.0450	***
REGQ	0.1808		0.3218	**
IAS	0.2631	***	0.3749	***
USLIST	0.6915	***	0.5716	***
Big4	**0.3101**	***	**0.4316**	***
Named_Affiliate	**0.1857**	***	**0.3089**	***
Local_Affiliate	**0.0750**		**0.1115**	*
COUNTRYFIXED-EFFECTS	Included		Included	
YEARFIXED-EFFECTS	Included		Included	
Adjusted R-square	91.46%		89.39%	
F -statistic	52.57		27.93	

This table presents the results of estimating Equation (1), an OLS regression to model the effect of the type of Big 4 auditor on the audit fee premium relative to non-Big 4 auditors for the sample of firms with data availability for both audit service fees and total fees paid to the auditor.

AUDFEE is defined as the natural log of audit service fees, and TOTFEE is the natural log of total fees paid to the auditor. SIZE is the natural log of total assets. CATA is the ratio of current assets to total assets. LOSS is an indicator variable for firm-year observations with negative net income, and zero otherwise. DEBT is defined as the ratio of total liabilities to total assets. QUAL is an indicator variable equal to one for firm-year obsevations with a qualified (going-concern or other) audit opinion, and zero otherwise. ROA is defined as the ratio of net income to total assets. AUDSWITCH is an indicator variable equal to one for firm-year observations in which a switch between parent auditors occurred, and zero otherwise. REGQ is an index variable to capture the regulatory quality of each country (Kaufmann et al., 2009). ACCTSTND is an indicator variable equal to one for firms that report financial statements in accordance with U.S. GAAP or international accounting standards (IAS or IFRS), and zero otherwise. USLIST is an indicator variable for firm-year observations in which the stock of the company is cross-listed on a U.S. stock exchange, and zero otherwise. Big4 is an indicator variable equal to one for observations where the auditor is a Big 4 "Parent" firm, and zero otherwise. Named_Affiliate is an indicator variable equal to one for observations where the auditor is a "Brand Name" affiliate, and zero otherwise. Local_Affiliate is an indicator variable equal to one for observations where the auditor is a "Local" affiliate, and zero otherwise.

All continuous variables are winsorized at the 1% and 99% level.
*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on two-tailed p-values.

Table 3-7: Univariate Analysis of Discretionary Accruals Based on Auditor Type

	Big 4 "Parent" Firms n = 28,981		"Brand Name" Affiliates n = 9,768		"Local" Affiliates n = 4,739		Non-Big 4 Auditors n = 19,781	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Absolute discretionary accruals (*Full Sample*)	0.0899	0.0511	0.1112	0.0631	0.0922	0.0534	0.130402	0.0708
	n = 14,430		n = 4,791		n = 2,314		n = 9,888	Income-
increasing *DA* sample partition	0.0911	0.0510	0.1083	0.0640	0.0921	0.0521	0.1235	0.0687
	n = 14,551		n = 4,977		n = 2,425		n = 9,893	Income-
decreasing *DA* sample partition	-0.0886	-0.0512	-0.1142	-0.0622	-0.0924	-0.0544	-0.1380	-0.0732

This table presents descriptive statistics for absolute discretionary accruals for the full sample and, separately, for subsamples of firms with income-increasing and income-decreasing discretionary accruals. The procedures for estimating discretionary accruals consistent with Dechow et al. (1995) are described in Section 3.1, Equations (2) and (3). The means and medians are reported for the four sample partitions based on auditor type. The Big 4 "Parent" firms include: Arthur Andersen; Deloitte & Touche LLP; Ernst & Young LLP; KPMG LLP; and PricewaterhouseCoopers LLP. "Brand Name" affiliates include auditors that are members of the Big 4 global networks and use the international brand name. "Local" affiliates include member firms of the Big 4 global networks that use individual, non-brand names.

Table 3-8: Univariate Analysis of Differences in Discretionary Accruals Based on Auditor Type

	Versus: "Brand Name" Affiliates		Versus: Big 4 "Local" Affiliates		Versus: Non-Big 4 Auditors	
	Difference in		Difference in		Difference in	
	Mean	Median	Mean	Median	Mean	Median
Panel A: Big 4 "Parent" Firms						
Absolute discretionary accruals (*Full Sample*)	0.0214 ***	0.0120 ###	0.0024	0.0023	0.0405 ***	0.0197 ###
Income-increasing *DA* sample partition	0.0172 ***	0.0130 ###	0.0010	0.0011	0.0324 ***	0.0177 ###
Income-decreasing *DA* sample partition	-0.0256 ***	0.1133 ###	-0.0038	-0.0033	-0.0494 ***	-0.0221 ###
Panel B: "Brand Name" Affiliates						
Absolute discretionary accruals (*Full Sample*)	-	-	-0.0190 ***	-0.0097 ###	0.0192 ***	0.0077 ###
Income-increasing *DA* sample partition	-	-	-0.0162 ***	-0.0119 ###	0.0152 ***	0.0047 ###
Income-decreasing *DA* sample partition	-	-	0.0218 ***	0.0078 ##	-0.0238 ***	-0.0110 ##
Panel C: "Local" Affiliates						
Absolute discretionary accruals (*Full Sample*)	-	-	-	-	0.0382 ***	0.0174 ###
Income-increasing *DA* sample partition	-	-	-	-	0.0314 ***	0.0166 ###
Income-decreasing *DA* sample partition	-	-	-	-	-0.0456 ***	-0.0188 ###

This table reports differences in discretionary accruals between the sample partitions based on auditor type. All differences are computed as the value of the "smaller" auditor type less the corresponding "larger" auditor type. For the full sample comparing absolute discretionary accruals and for the income-increasing discretionary accrual sample partition, positive (negative) differences signify lower (higher) levels of discretionary accruals for the "larger" auditor type. For the income-decreasing discretionary accruals sample partition, negative (positive) differences signify lower (higher) levels of discretionary accruals for the "larger" auditor type. The procedures for estimating discretionary accruals consistent with Dechow et al. (1995) are described in Section 3.1, Equations (2) and (3). The Big 4 "Parent" firms include: Arthur Andersen; Deloitte & Touche LLP; Ernst & Young LLP; KPMG LLP; and PricewaterhouseCoopers LLP. "Brand Name" affiliates include auditors that are members of the Big 4 global networks and use the international brand name. "Local" affiliates include member firms of the Big 4 global networks that use individual, non-brand names.

Tests of differences in means (medians) are based on *t*-tests (Wilcoxon two-sample tests). *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on two-tailed p-values.

Table 3-9: Multivariate Analysis - Discretionary Accruals Regression Model

Variable	*Panel A: Full Sample* Dep Var = *Abs_DA* n = 63,269 Estimate	*p* -value	*Panel B: Income-Increasing DA* Dep Var = *DA* n = 31,423 Estimate	*p* -value	*Panel C: Income-Decreasing DA* Dep Var = *DA* n = 31,846 Estimate	*p* -value
Intercept	0.1503	***	0.1732	***	0.1246	***
SIZE	-0.0068	***	-0.0064	***	-0.0072	***
CFO	0.0001	*	0.0000		0.0001	***
DEBT	0.0889	***	0.0759	***	0.0946	***
LOSS	0.0267	***	0.0098	**	0.0409	***
ABS_TA	-0.0168	***	0.0016		0.0129	**
Δ*CSHARES*	0.0000	*	0.0000	**	0.0000	
GROWTH	0.0000		0.0000	***	0.0000	
REGQ	-0.0379	***	-0.0267	*	-0.0526	**
ACCTSTND	-0.0091	**	-0.0035		-0.0164	***
USLIST	0.0131		-0.0150		0.0061	
CLOSE	-0.0003		0.0027		-0.0027	
NUMEX	0.0000		0.0000		0.0000	
BIG4	**-0.0118**	***	**-0.0193**	***	**-0.0092**	**
NAMED_AFFILIATE	**-0.0083**	**	**-0.0112**	**	**-0.0043**	
LOCAL_AFFILIATE	**-0.0095**	*	**-0.0160**	*	**-0.0079**	
COUNTRY FIXED-EFFECTS	Included		Included		Included	
YEAR FIXED-EFFECTS	Included		Included		Included	
Adjusted R-square	9.23%		6.27%		13.14%	
Model	F = 15.19		F = 11.85		F = 19.14	

Table 3-9 (Continued)

This table presents the results of estimating Equation (4), the regression model for the multivariate analysis of discretionary accruals. Panel A reports results for the full sample, while Panels B and C report the results for sample partitions of firms with income-increasing and income-decreasing discretionary accruals, respectively.

Abs_DA is the absolute value of discretionary accruals and *DA* is signed discretionary accruals. The procedures for estimating discretionary accruals consistent with Dechow et al. (1995) are described in Section 3.1, Equations (2) and (3). *SIZE* is defined as the natural logarithm of total assets. *CFO* is cash flows from operations, scaled by total assets. *DEBT* is defined as total liabilities divided by total assets. *LOSS* is an indicator variable equal to one for observations with negative net income, and zero otherwise. *ABS_TA* is absolute total accruals. *CHG_CSHARES* is the percentage change in the number of shares of common stock outstanding. *GROWTH* is the percentage change in sales. *REGQ* is an index variable to capture the regulatory quality of each country as computed by Kaufmann et al., 2009. *ACCTSTND* is an indicator variable equal to one for observations where the firm reports under U.S. GAAP or international accounting standards (IAS or IFRS), and zero otherwise. *USLIST* is an indicator variable equal to one for observations where the firm is cross-listed on a U.S. stock exchange, and zero otherwise. *CLOSE* is the proportion of closely-held shares of common stock, as reported in Worldscope. NUMEX is the aggregate number of stock exchanges on which the firm is listed.

All continuous variables are winsorized at the 1% and 99% level.
*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on two-tailed p-values.

Table 3-10: Audit Fee Regression Models with Absolute Discretionary Accruals Interaction Terms

	Panel A: Audit Service Fees Dep Var = *AUDFEE* n = 21,760		*Panel B: Total Auditor Fees* Dep Var = *TOTFEE* n = 21,760	
Variable	Estimate	p-value	Estimate	p-value
Intercept	6.3234	***	5.6470	***
SIZE	0.4350	***	0.5299	***
CATA	0.0034	***	0.0017	***
LOSS	-0.0124	**	0.0395	***
DEBT	-0.0006	**	-0.0030	***
QUAL	0.0761	***	0.0087	
ROA	-0.0130	***	-0.0009	
AUDSWITCH	-0.0289	***	-0.1217	***
REGQ	0.3506	**	0.8530	***
IAS	0.1857	***	0.2063	***
USLIST	0.6911	***	0.4727	***
Big4	0.1425	***	0.2626	***
Named_Affiliate	0.1516	***	0.0032	
Big4*Abs_DA	-0.0149	***	-0.0021	
Named_Affiliate*Abs_DA	-0.0024		-0.0115	
Local_Affiliate*Abs_DA	-0.0086	*	-0.0062	
COUNTRYFIXED-EFFECTS	Included		Included	
YEARFIXED-EFFECTS	Included		Included	
Adjusted R-square	93.52%		88.25%	
F -statistic	67.35		32.64	

This table presents the results of Equation (5), a modified version of Equation (1) that includes interaction terms between auditor type and absolute discretionary accruals. The sample for this test excludes non-Big 4 auditors. *AUDFEE* is defined as the natural log of audit service fees, and *TOTFEE* is the natural log of total fees paid to the auditor. *SIZE* is the natural log of total assets. *CATA* is the ratio of current assets to total assets. *LOSS* is an indicator variable for firm-year observations with negative net income, and zero otherwise. *DEBT* is defined as the ratio of total liabilities to total assets. *QUAL* is an indicator variable equal to one for firm-year obsevations with a qualified audit opinion, and zero otherwise. *ROA* is defined as the ratio of net income to total assets. *AUDSWITCH* is an indicator variable equal to one for firm-year observations in which a switch between parent auditors occurred, and zero otherwise. *REGQ* is an index variable to capture the regulatory quality of each country (Kaufmann et al., 2009). *ACCTSTND* is an indicator variable equal to one for firms that report financial statements in accordance with U.S. GAAP or international accounting standards (IAS or IFRS), and zero otherwise. *USLIST* is an indicator variable for firm-year observations in which the stock of the company is cross-listed on a U.S. stock exchange, and zero otherwise. Big4 is an indicator variable equal to one for observations where the auditor is a Big 4 "Parent" firm, and zero otherwise. *Named_Affiliate* is an indicator variable equal to one for observations where the auditor is a "Brand Name" affiliate, and zero otherwise. *Local_Affiliate* is an indicator variable equal to one for observations where the auditor is a "Local" affiliate, and zero otherwise. *Abs_DA* is the absolute value of discretionary accruals, and the procedures for estimating discretionary accruals consistent with Dechow et al. (1995) are described in Section 3.1, Equations (2) and (3).

All continuous variables are winsorized at the 1% and 99% level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on two-tailed p-values.

Table 3-11: Discretionary Accrual Regression Models with Lagged Audit Fee Interaction Terms

	Panel A: Audit Service Fees Dep Var = *Abs_DA* n = 19,475		*Panel B: Total Auditor Fees* Dep Var = *Abs_DA* n = 19,475	
Variable	Estimate	p-value	Estimate	p-value
Intercept	0.4837	***	0.3968	***
SIZE	-0.0132	***	-0.0088	***
CFO	0.0000		0.0000	
DEBT	0.0000	*	0.0000	
LOSS	0.0377	***	0.0301	***
ABS_TA	0.0000	*	-0.0001	
Δ*CSHARES*	0.0000		0.0000	
GROWTH	0.0000	***	0.0000	
REGQ	-0.1133	***	0.0814	**
IAS	0.0290	**	0.0168	**
USLIST	-0.0151	*	-0.0064	
CLOSE	0.0044	**	0.0029	*
NUMEX	0.0000		0.0000	
Big4	-0.1133	**	-0.1179	**
Named_Affiliate	-0.0997	*	-0.1162	*
Big4* (AUDFEE $_{t-1}$)	-0.0048	***	-	
Named_Affiliate* (AUDFEE $_{t-1}$)	-0.0020	**	-	
Local_Affiliate* (AUDFEE $_{t-1}$)	-0.0008		-	
Big4* (TOTFEE $_{t-1}$)	-		-0.0006	
Named_Affiliate* (TOTFEE $_{t-1}$)	-		0.0001	
Local_Affiliate* (TOTFEE $_{t-1}$)	-		0.0017	
COUNTRYFIXED-EFFECTS	Included		Included	
YEARFIXED-EFFECTS	Included		Included	
Adjusted R-square	9.43%		9.06%	
F -statistic	48.63		43.07	

This table presents the results of estimating Equation (6), a modified version of Equation (4) that includes interaction terms between auditor type and lagged auditor fee variables. The sample for this test excludes non-Big 4 auditors. *Abs_DA* is the absolute value of discretionary accruals, estimated as described in Section 3.1, Equations (2) and (3). *SIZE* is defined as the natural log of total assets. *CFO* is cash flows from operations scaled by total assets. *DEBT* is defined as total liabilities divided by total assets. *LOSS* is an indicator variable equal to one for observations with negative net income, and zero otherwise. *Abs_TA* is absolute total accruals. *CHG_CSHARES* is the percentage change in the number of shares of common stock outstanding. *GROWTH* is the percentage change in sales. REGQ is an index variable to capture the regulatory quality of each country as computed by Kaufmann et al. (2009). *ACCTSTND* is an indicator variable equal to one for observations where the firm reports under U.S. GAAP or international accounting standards, and zero otherwise. *USLIST* is an indicator variable equal to one for observations where the firm is cross-listed on a U.S. stock exchange, and zero otherwise. *CLOSE* is the proportion of closely-held shares of common stock. *NUMEX* is the number of stock exchanges on which the firm is listed. $AUDFEE_{t-1}$ ($TOTFEE_{t-1}$) is the natural log of prior-year audit service fees (total fees paid to the auditor).

All continuous variables are winsorized at the 1% and 99% level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on two-tailed p-values.

REFERENCES

Ashbaugh, H., R. LaFond., and B.W. Mayhew. (2003). "Do nonaudit services compromise auditor independence? Further evidence." *The Accounting Review*, **78**(3): 611-639.

Atkinson, K.E., C.W. Taylor, D.L. Flesher, and M.H. Stocks. (2002). "The Impact of Accounting Standards on Audit Firm Switch Rates." *International Journal of Auditing* **6**(3), 215-229.

Australian Institute of Company Directors (AICD). 2005. "Submission to the Parliamentary Joint Committee on Corporations and Financial Services." www.aph.gov.au/Senate/committee/corporations_ctte/aas/submissions/sublist.htm

Bae, K. H., H. Tan, and M. Welker. (2008). "International GAAP differences: The impact on foreign analysts." *The Accounting Review* **83**(3): 593-628.

Ball, R., A. Robin, and J.S. Wu. (2003). "Incentives versus standards: properties of accounting income in four East Asian countries." *Journal of Accounting and Economics* **36**(1): 235-270.

Barth, M. E., W.R. Landsman, and M.H. Lang. (2008). "International accounting standards and accounting quality." *Journal of accounting research*, **46**(3): 467-498.

Barth, M.E., W.R. Landsman, M.H. Lang, and C. Williams. (2013). "Effects on Comparability and Capital Market Benefits of Voluntary Adoption of IFRS by US Firms: Insights from Voluntary Adoption of IFRS by Non-US Firms." Working Paper, Stanford University and University of North Carolina-Chapel Hill.

Becker, C. L., M.L. DeFond, J. Jiambalvo, and K.R. Subramanyam. (1998). "The Effect of Audit Quality on Earnings Management." *Contemporary accounting research*, **15**(1): 1-24.

Bishop, C. C., D.R. Hermanson, and R.W. Houston (2013). "PCAOB inspections of international audit firms: Initial evidence." *International Journal of Auditing*, **17**(1): 1-18.

Bonner, S. E. and P.L. Walker. (1994). "The effects of instruction and experience on the acquisition of auditing knowledge." *The Accounting Review* **69**(1): 157-178.

Bruggemann, U., J.M. Hitz, and T. Sellhorn. (2013). "Intended and Unintended Consequences of Mandatory IFRS Adoption: A Review of Extant Evidence and Suggestions for Future Research." *European Accounting Review* **22**(1): 1-37.

Carson, E. (2009). "Industry specialization by global audit firm networks." *The Accounting Review* **84**(2): 355-382.

Chan, K.H., K.Z. Lin, and P.L. Mo. (2006). "A political-economic analysis of auditor reporting and auditor switches." *Review of Accounting Studies* **11**(1): 21-48.

Choi, J.H., J.B. Kim, X. Liu, and D.A. Simunic. (2008). "Audit Pricing, Legal Liability Regimes, and Big 4 Premiums: Theory and Cross-country Evidence." *Contemporary Accounting Research* **25**(1): 55-99.

Christensen, H., E. Lee, and M. Walker. (2013). "Incentives or Standards: what determines accounting quality changes around IFRS adoption?" Working Paper, University of Manchester.

Comprix, J., K.A. Muller, and J. Sinclair. (2011). "Mandatory Accounting Requirements and Demand for Big Four Auditors: Evidence from IFRS Adoption in the EU." Working Paper Syracuse University, the Pennsylvania State University, the University of Connecticut.

Craswell, A. T., J.R. Francis, and S.L. Taylor. (1995). "Auditor brand name reputations and industry specializations." *Journal of accounting and economics* **20**(3): 297-322.

Daske, H., L. Hail, C. Leuz, and R. Verdi. (2013). "Adopting a label: Heterogeneity in the economic consequences around IAS/IFRS adoptions." *Journal of Accounting Research* **46**(5): 1085-1142.

DeAngelo, L. E. (1981). "Auditor size and audit quality." *Journal of Accounting and Economics* **3**(3): 183-199.

Dechow, P. M., S.P. Kothari, and R.L. Watts. (1998). "The relation between earnings and cash flows." *Journal of Accounting and Economics*, **25**(2): 133-168.

Dechow, P. M., R.G. Sloan, and A.P. Sweeney. (1995). "Detecting earnings management." *The Accounting Review*, **70**(2): 193-225.

DeFond, M. L. (1992). "The association between changes in client firm agency costs and auditor switching." *Auditing: A Journal of Practice & Theory* **11**(1): 16-31.

DeFond, M. L. and J. Jiambalvo. (1994). "Debt covenant violation and manipulation of accruals." *Journal of accounting and economics*, **17**(1): 145-176.

DeFond, M. L., J.R. Francis, and T.J. Wong. (2000). "Auditor industry specialization and market segmentation: Evidence from Hong Kong." *Auditing: A Journal of Practice & Theory* **19**(1): 49-66.

DeFond, M. L., K. Raghunandan, and K.R. Subramanyam. (2002). "Do non–audit service fees impair auditor independence? Evidence from going concern audit opinions." *Journal of accounting research*, **40**(4): 1247-1274.

DeGeorge, E., C. Ferguson, and N. Spear. (2013). "How much does IFRS Cost? IFRS Adoption and Audit Fees." *The Accounting Review* **88**(2): 429-462.

Ettredge, M. L., C. Li, and L. Sun. (2006). "The impact of SOX Section 404 internal control quality assessment on audit delay in the SOX era." *Auditing: A Journal of Practice & Theory* **25**(2), 1-23.

European Commission. (2011). "Proposal for a regulation of the European Parliament and of the Council on specific requirements regarding statutory audit of public-interest entities." Available online at http://ec.europa.eu/internal_market/auditing/docs/reform/COM_2011_779_en.pdf

Ferguson, A. and D.J. Stokes. (2002). "Brand name audit pricing, industry specialization, and leadership premiums post-Big 8 and Big 6 mergers." *Contemporary Accounting Research* **19**(1): 77–100.

Financial Reporting Council (FRC). (2007). "Final report of Audit Choice Market Participants Group. London, U.K.: FRC."

Francis, J. R. (1984). "The effect of audit firm size on audit prices: A study of the Australian market." *Journal of Accounting and Economics*, **6**(2): 133-151.

Francis, J. R. and D.T. Simon. (1987). "A test of audit pricing in the small-client segment of the US audit market." *The Accounting Review* **62**(1): 145-157.

Francis, J. R. and D. Wang. (2008). "The joint effect of investor protection and big 4 audits on earnings quality around the world." *Contemporary accounting research*, **25**(1): 157-191.

Francis, J. R. and E.R. Wilson. (1988). "Auditor changes: A joint test of theories relating to agency costs and auditor differentiation." *The Accounting Review* **63**(4), 663-682.

Francis, J. R., E.L. Maydew, and H.C. Sparks. (1999). "The role of Big 6 auditors in the credible reporting of accruals." *Auditing: A Journal of Practice & Theory*, **18**(2): 17-34.

Frankel, R.M., M.F. Johnson, and K.K. Nelson. (2002) "The Relation between Auditors' Fees for Nonaudit Services and Earnings Management." *The Accounting Review*, *Supplement* **77**(1): 71-105.

General Accounting Office (GAO). (2003). "Mandated study on consolidation and competition." Report 03-864. Washington, D.C.: Government Printing Office.

Gul, F. A., C.J. Chen, and J.S. Tsui. (2003). "Discretionary Accounting Accruals, Managers' Incentives, and Audit Fees." *Contemporary Accounting Research*, **20**(3): 441-464.

Hail, L., C. Leuz, and P. Wysocki. (2010). "Global Accounting Convergence and the Potential Adoption of IFRS by the United States: An Analysis of Economic and Policy Factors (Part I)." *Accounting Horizons* **24**(3): 355-394.

House of Lords. (2011). "Auditors: Market concentration and their role. Volume I: Report" March, 2011. Available online at: http://www.publications.parliament.uk/pa/ld201011/ldselect/ldeconaf/119/119.pdf

Houston, R.W., M.F. Peters, and J.H. Pratt. (1999). "The audit risk model, business risk and audit-planning decisions." *The Accounting Review* **74**(3), 281-298.

IASC Foundation. 2008. "IASC Foundation Annual Report 2008." Available online at: http://www.ifrs.org/The-organisation/Governance-and-accountability/Annual-Reports/Documents/IASCFannualreport 2008.pdf

IASC Foundation. 2009. "IASC Foundation Annual Report 2009." Available online at: http://go.iasb.org/2009annualreport.

IFRS Foundation. 2010. "IFRS Foundation Annual Report 2010." Available online at: http://www.ifrs.org/the-organisation/governance-and-accountability/annual-reports/Pages/2010annual-report.aspx

IFRS Foundation. 2011. "IFRS Foundation Annual Report 2011." Available online at: http://www.ifrs.org/The-organisation/Governance-and-accountability/Annual-reports/Pages/2011AnnualReport.aspx

IFRS Foundation. 2012. "IFRS Foundation Annual Report 2012." Available online at: http://www.ifrs.org/The-organisation/Governance-and-accountability/Annual-reports/Pages/2012-Annual-Report.aspx

Institute of Chartered Accountants in England and Wales (ICAEW). 2007. "EU Implementation of IFRS and the Fair Value Directive: A Report for the European Commission." London, U.K.: Institute of Chartered Accountants in England and Wales.

Ireland, J.C. and C.S. Lennox (2002). "The large audit firm fee premium: A case of selectivity bias?" *Journal of Accounting, Auditing & Finance* **17**(1): 73-91.

Johnson, W.B. and T. Lys. (1990). "The market for audit services: Evidence from voluntary auditor changes." *Journal of Accounting and Economics* **12**(1), 281-308.

Jones, J. (1991). "Earnings management during import relief investigations." *Journal of accounting research*, **29**(2): 193-228.

Kaufmann, D., A. Kraay, and M. Mastruzzi. (2009). "Governance matters VIII: governance indicators for 1996-2008." Washington, D.C.: World Bank Policy Research.

Kim, J.B., X. Liu, and L. Zheng. (2012). "The Impact of mandatory IFRS adoption on audit fees: Theory and evidence." *The Accounting Review* **87**(6): 2061-2094.

KPMG (2013). "KPMG, LLP transparency report: 2013." Available online at https://www.kpmg.com/US/en/IssuesAndInsights/ArticlesPublications/Documents/2013-KPMG-LLP-Transparency-Report-web-1.pdf.

Krishnan, G. V. (2003). "Audit quality and the pricing of discretionary accruals.". *Auditing: A Journal of Practice & Theory*, **22**(1): 109-126.

Landsman, W.R., K.K. Nelson, and B.R. Rountree. (2009). "Auditor switches in the pre- and post-Enron eras: Risk or realignment?" *The Accounting Review* **84**(2): 531-558.

Lang, M., J.S. Ready, and M.H. Yetman. (2003). "How representative are firms that are cross-listed in the united states? An analysis of accounting quality." *Journal of Accounting Research,* **41**(2): 363-386.

Leuz, C. (2003). "IAS versus US GAAP: information asymmetry–based evidence from Germany's new market." *Journal of Accounting Research* **41**(3): 445-472.

Leuz, C. and R.E. Verrecchia. (2000). "The economic consequences of increased disclosure." *Journal of Accounting Research* **38**(Supplement): 91-124.

Libby, R. and J. Luft. (1993). "Determinants of judgment performance in accounting settings: Ability, knowledge, motivation, and environment." *Accounting, Organizations and Society* **18**(5), 425-450.

Lin, H.L. and A.R. Yen. (2010). "The effects of IFRS adoption on audit fees for listed companies in China." Working paper, National Chiao-Ton University and Northeastern Illinois University.

Lin, S., W. Riccardi, and C. Wang. (2012). "Does accounting quality change following a switch from US GAAP to IFRS? Evidence from Germany. *Journal of Accounting and Public Policy* **31**(6): 641-657.

Maher, M.W., P. Tiessen, R. Colson, and A.J. Broman. (1992). "Competition and audit fees." *The Accounting Review* **67**(1): 199-211.

McWilliams, A., D.D. Van Fleet, and K.D. Cory. (2002). "Raising Rivals' Costs Through Political Strategy: An Extension of Resource-based Theory." *Journal of Management Studies* **39**(5): 707-724.

Michas, P. N. (2011). "The importance of audit profession development in emerging market countries." *The Accounting Review* **86**(5): 1731-1764.

Norris, F. (2008). "Global or Local? For Accounting Firms, It All Depends." *New York Times* (March 14).

Norris, F. (2014). "The Auditing Roadblock: It's Not Just China." *New York Times* (February 19).

Palmrose, Z. V. (1986). "The effect of nonaudit services on the pricing of audit services: Further evidence." *Journal of Accounting Research*, **24**(2): 405-411.

Public Company Accounting Oversight Board (PCAOB). (2008). "Standing advisory group meeting, Panel Discussion – global quality control practices." (February 27).

Public Company Accounting Oversight Board (PCAOB). (2014). "Registered Firms Not Yet Inspected Even Though Four or More Years Have Passed Since Issuance of an Audit Report While Registered." Available online at http://pcaobus.org/International/Inspections/Pages/NotYetInspected.aspx.

Rama, D. V. and W.J. Read. (2006). "Resignations by the Big 4 and the market for audit services." *Accounting Horizons*, **20**(2): 97-109.

Salterio, S. (1994). "Researching for Accounting Precedents: Learning, Efficiency, and Effectiveness." *Contemporary Accounting Research* **11**(1): 515-542.

Simunic, D.A. (1980). "The pricing of audit services: Theory and evidence." *Journal of Accounting Research* **18**(1): 161-190.

Soderstrum, N.S. and K.J. Sun. (2007). "IFRS Adoption and Accounting Quality: A review." *European Accounting Review* **16**(4): 675-702.

Taub, S. (2004). "Big 4 seen shedding small clients." CFO (September 21): 1.

Teoh, S. H., I. Welch, and T.J. Wong. (1998). "Earnings management and the underperformance of seasoned equity offerings." *Journal of Financial economics*, **50**(1), 63-99.

U.S. Department of Treasury. (2008). "Report of the Advisory Committee on the auditing profession to the U.S. Department of Treasury." Washington, D.C.: U.S. Department of Treasury.

U.S. House of Representatives. (1985). "Hearings Before the Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce (February 20): No. 99-17." Washington, D.C.: Government Printing Office.

U.S. House of Representatives. (2002). "The Sarbanes-Oxley Act of 2002. Public Law 107-204 [H.R. 3763]." Washington, D. C.: Government Printing Office.

U.S. Senate. (1976). "The Accounting Establishment." Prepared by the Subcommittee on Reports, Accounting and Management of the Committee on Governmental Affairs. Washington, D.C.: Government Printing Office.

Wieczynska, M. (2013). "The 'Big' Consequences of IFRS: How and When Does the Adoption of IFRS Benefit Global Accounting Firms?" Working Paper, Emory University.

Appendix A: Samples of Auditor Data Provided by Thompson Reuters

Panel A: General Example of Data Provided

Auditor	AuditorName	AuditorParent
DCRN	Drs. Chaeroni & Rekan	AFLC
YMMU	Yeminli Mali Musavirlik ve Denetim A.S.	AGNI
ALK	Alliot Kangust OU	ALO
WIND	Windes & McClaughry Accountancy Corporation	BAKT
TRTV	3R Tveede AS	PVND
HKC	Hall- Kistler & Co.	BKRI
NGLE	Ng, Lee & Associates DFK	DFI
AANL	A & N Limited	PVND
HSNN	Hasnan & Co.	HSLS
ARR	Asep Rahmansyah & Rekan	IEC

Notes: (i) The "auditor code" described in the paper is the column "Auditor"; (ii) The above includes ten random audit firms provided by Thompson Reuters; (iii) PVND in the "AuditorParent" column indicates that the parent auditor is "Not Disclosed." Any observations in the sample with an undisclosed auditor parent are coded as non-Big 4; (iv) Many audit firms, based on "AuditorName," are no longer represented in the database as a result of mergers and acquisitions or closures.

Panel B: Data provided by Thompson Reuters for Big 4 "Parent" Firms

Auditor	AuditorName	AuditorParent
AA	Arthur Andersen LLP	PVAN
PVAN	Arthur Andersen	NULL
DHS	Deloitte & Touche LLP	PVDT
PVDT	Deloitte Touche Tohmatsu International	NULL
EY	Ernst & Young LLP	PVEY
PVEY	Ernst & Young Global	NULL
KPMG	KPMG LLP	PVKP
PVKP	KPMG International	NULL
PWCL	PricewaterhouseCoopers LLP	PVPW
PVPW	PricewaterhouseCoopers International	NULL

Notes: (i) In the AuditorParent column, "NULL" denotes that either the associated auditor is the "coordinating entity" or is not an affiliate of any other firm; (ii) the codes PVAN, PVDT, PVEY, PVKP, and PVPW are the internal codes used by Thompson Reuters to classify members of the respective Big 4 networks.

Panel C: Example of data provided by Thompson Reuters for Big 4 "Brand Name" Affiliates

Auditor	AuditorName	AuditorParent
KAFS	KPMG Al Fozan & Al Sadhan	PVKP
FPTC	KPMG Ford Rhodes Thornton & Company	PVKP
OPAW	Ohrlings PricewaterhouseCoopers AB	PVPW
PWCO	PwC Oberoesterreich	PVPW
DAYC	Deloitte Auditores y Consultores Ltda	PVDT

Notes: (i) This presents a random selection of the Big 4's "Brand Name" affiliates based on the data provided by Thompson Retuers. These firms may not be represented in the sample included in this study.

Panel D: Example of data provided by Thompson Reuters for Big 4 "Local" Affiliates

Auditor	AuditorName	AuditorParent
PLUK	Auditorska Palata Ukraina	PVAN
CLMC	C.L. Manabat & Co.	PVDT
OTA	Century Ota Showa & Co.	PVEY
JAA	Joao Augusto & Associados, SROC	PVKP
SAML	Samil Accounting Corp.	PVPW

Notes: (i) This presents a random selection of each of the Big 4's "Local" affiliates based on the data provided by Thompson Retuers. These firms may not be represented in the sample included in this study; (ii) note that some of these firms may be "affiliated" with one of the Big 4 auditors without being the primary name used in the country or region in which they operate.

VITA

WILLIAM N. RICCARDI

Born, Belleville, New Jersey, United States

2008	B.S., Accounting Florida Gulf Coast University Ft. Myers, Florida
2010	Master of Accounting Florida International University Miami, Florida
2010 - 2013	Instructor: Principles of Accounting Florida International University Miami, Florida
2013 - 2014	Dissertation Year Research Fellow Florida International University Miami, Florida

PUBLICATIONS AND PRESENTATIONS

Does Accounting Quality Change Following a Switch from U.S. GAAP to IFRS? Evidence from Germany, with Stephen Lin and Changjiang Wang, AAA International Accounting Section Meeting, Phoenix, Arizona, February 2012.

"Does Accounting Quality Change Following a Switch from U.S. GAAP to IFRS? Evidence from Germany" (with Stephen Lin and Changjiang Wang), *Journal of Accounting and Public Policy*, 2012, Vol. **31**(6): 641-657.

"The Global Financial Crisis: Bankruptcies and Prior Going-Concern Opinions" (with Marshall Geiger and Kannan Raghunandan), forthcoming at *Accounting Horizons*.