Does Mandatory IFRS Adoption Impact Audit Fees?

Theory and Evidence

by

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ABSTRACT: This study examines the impact of IFRS adoption on audit fee. We first build an analytical audit fee model to develop empirical hypotheses. We then test our hypotheses using audit fee data from 14 European Union countries that mandated IFRS adoption in 2005. We find that mandatory IFRS adoption has led to an increase in audit fee, which suggests that the increase in audit task complexity associated with IFRS adoption is the driving force for the audit fee change. Furthermore, we find that the IFRS-related audit fee premium increases with the extent of the accounting differences between a country's former local GAAP and IFRS, decreases with the improvement in financial reporting quality brought about by IFRS adoption, and decreases with the strength of a country's legal regime. These results provide useful insights into the audit fee effect of IFRS adoption, and how this effect varies with the institutional features of different countries.

Key Words: *Audit fee change, IFRS adoption, Audit complexity, Financial reporting quality, Legal regime.*

Data Availability: *Data are available from public sources identified in the paper.*

I. INTRODUCTION

The European Parliament (Regulation No 1606/2002) required companies listed on the organized exchanges in European Union (EU) countries to prepare their consolidated accounts using International Financial Reporting Standards (IFRS)[1] starting from January 2005. In the history of accounting regulation, this requirement is the first regulation that mandated the same disclosure standards across multiple political jurisdictions with different legal and other institutional infrastructures. Since this historic event, there has been an increasing trend of adopting IFRS around the world.[2] The accounting profession and academic researchers have paid great attention to the informational and other economic consequence of IFRS adoption. Proponents of IFRS claim that the IFRS adoption leads to greater and higher-quality disclosures. They argue that when compared with former local GAAP (Generally Accepted Accounting Standards) in most countries, IFRS is more fair-value-oriented, emphasizing more on "true and fair view" both in letter and in spirit, and incorporating the effects of economic events on firm performance into financial statements in a timelier manner (Coopers & Lybrand 1993; Dumontier and Raffounier 1998; GAAP 2000; Alexander and Archer 2001).

Consistent with the views of the IFRS proponents, some recent research has provided empirical evidence suggesting that financial disclosures under IFRS are, in general, of higher information quality than those under a country's local accounting

[1] The IAS are standards issued by the International Accounting Standard Committee (IASC), and the IFRS are standards issued by the International Accounting Standard Board (IASB). In 2001, the IASB succeeded the IASC to assume its standard-setting responsibilities and adopted all standards issued by the IASC. For convenience, this study uses the term IFRS to refer to both IAS and IFRS.

[2] More than 100 countries have required or permitted IFRS for their domestic listed companies. In 2002, IASB and the Financial Accounting Standards Board (FASB) in the U.S. embarked on a joint program to make U.S. GAAP and IAS fully compatible (known as the "Norwalk Agreement").

standards. This strand of research finds that IFRS-based earnings are of higher value relevance than German GAAP-based earnings (Bartov et al. 2005), convey more information contents than Swiss GAAP (Auer 1996), improve analysts' forecast accuracy (Ashbaugh and Pincus 2001) and accounting quality (Barth et al. 2005), and reduce stock price synchronicity (Kim and Shi 2009a). Besides these informational benefits, another strand of research has provided evidence that IFRS adoption leads to some other economic benefits, including lower cost of equity capital (Daske et al. 2009; Kim and Shi 2009b), higher market liquidity and trading volume (Leuz and Verrecchia 2000), more investment flows through foreign mutual funds (Covrig et al. 2007), and improved efficiency in private debt contracting (Kim et al. 2009). While these studies focus on the benefit side of *voluntary* IFRS adoption, little attention has been paid to the cost side. We note that unlike voluntary IFRS adoption, mandatory IFRS adoption is an exogenously imposed, regulatory event that necessarily engenders various costs associated therewith. To fill this gap, our study aims to offer insights into the cost side of *mandatory* IFRS adoption by examining a hitherto unexplored question of whether and how the EU decision to mandate IFRS impacts fees paid to auditors for their financial statement audits (henceforth, audit fees).

Since Simunic (1980), many studies have examined cross-sectional determinants of audit fees within a country. These studies find that audit fees are primarily determined by client size, potential legal liability or litigation risk, and audit task complexity (e.g., Simunic and Stein 1996; Craswell et al. 1995). This study extends the previous single-country studies to an international setting where the mandatory IFRS adoption by EU countries leads to a shift in disclosure regime. This shift in disclosure regime implies not

only an upward shift in audit task complexity, but also an upward shift in financial reporting quality as claimed by proponents of IFRS (arising from improvement in the quality of accounting standards), without any change in legal regime or other institutional infrastructures. We take advantage of this unique setting to assess whether and how the changes in audit task complexity and financial reporting quality work together to affect audit pricing.

To guide our hypotheses development and interpretation of empirical results, we first develop a simple analytical model in which audit task complexity, financial reporting quality, and legal regime play critical roles in producing and pricing audit services. We then test the model's predictions on the relation between IFRS adoption and audit fee. To shed more lights on the audit fee effect of IFRS adoption, we further test the model's prediction on how the relation between IFRS adoption and audit fee is conditioned upon a country's institutional factors. In so doing, we consider three types of institutional factors: (i) the increase in audit complexity arising from IFRS adoption; (ii) the improvement in reporting quality brought about by IFRS adoption; and (iii) the strength of a country's legal regime.

To empirically assess the audit fee impact of the above factors (i) and (ii), we rely on the *Absence* and *Divergence* scores developed by Ding et al. (2007). The *Absence* score is based on the number of accounting treatments regarding certain accounting issues that exist in IFRS, but are missing from former local GAAP. The *Divergence* score is developed by counting the number of the accounting treatments regarding the same accounting issues that differ between IFRS and local GAAP. We use ln(*Absence*+*Divergence*) to measure the accounting differences between local GAAP and

IFRS. This measure captures factor (i), i.e., the increase in audit complexity arising from IFRS adoption. In addition, we use $-\ln(1+Absence)$ to measure the quality of local GAAP in the pre-adoption period, because a higher value of *Absence* indicates a lower degree of GAAP comprehensiveness (relative to IFRS) and Ding et al. find a negative association between *Absence* and accounting quality. As *Absence* takes the benchmark value of zero after IFRS adoption, $\ln(1+Absence)$ simply captures factor (ii), i.e., the improvement in financial reporting quality brought about by IFRS adoption.[3] We use the litigation risk index developed by Wingate (1997) to measure the third institutional factor, i.e., the strength of a country's legal regime faced by auditors.[4] By utilizing these scores or indices, our study addresses the question of whether and how cross-country differences in these three institutional factors have an impact on the audit fee changes associated with IFRS adoption.

For our empirical tests, we construct a cross-country sample of firms which consist of (i) EU firm-year observations that adopted IFRS over the four years after EU's decision to mandate IFRS, i.e., 2005-2008; and (ii) EU firm-year observations that did not adopt IFRS over the period of 2002-2008.[5] With a large sample of 11,883 firm-year observations from 14 EU member countries, we first test whether mandatory IFRS adoption causes a change in audit fees, after controlling for other determinants of audit fees. We then examine how the observed audit fee change, if any, is associated with the three institutional factors; namely, the increase in audit task complexity arising from

[3] The improvement in reporting quality from pre-adoption local GAAP to IFRS is 0-[-ln(1+*Absence*)]= ln(1+*Absence*).
[4] The Wingate (1997) litigation index has been used as a proxy for a country's litigation risk faced by auditors in several studies including Francis et al. (2003), Choi and Wong (2007), and Choi et al. (2008, 2009).
[5] As explained later, some EU firms are allowed to postpone the adoption of IFRS till after 2005.

IFRS adoption; the improvement in financial reporting quality brought about by IFRS adoption, and the strength of the country's legal regime.

Our results can be summarized as follows. First, we find that auditors charge significantly higher audit fees in the post-adoption period than in the pre-adoption period.[6] This suggests that IFRS adoption entails more complex audit work, which dominates the audit-fee reducing effect of an improved financial reporting quality brought about by IFRS adoption. Second, we find that the IFRS-related audit fee premium (i.e., the increase in audit fee caused by IFRS adoption) is positively related to the extent to which IFRS adoption increases audit task complexity. Third, the IFRS-related audit fee premium decreases with the improvement in GAAP quality (comprehensiveness) brought about by IFRS adoption. Finally, the IFRS-related audit fee premium decreases with the strength of a country's legal regime. This finding suggests that the greater audit effort induced by a stronger legal regime has a dominant effect on reducing the audit fee premium, compared with the direct impact of the stronger legal regime on increasing the audit fee premium. This finding highlights the benefit of a stronger legal regime in the context of IFRS adoption: The greater audit effort induced by a stronger legal regime could actually reduce the IFRS-related audit fee premium.

Our study adds to the extant literature in the following ways. First, our study is one of the few studies, if not the first, that examine the cost side of IFRS adoption with a focus on audit fee. Existing studies on IFRS are typically concerned with various economic benefits of IFRS adoption (e.g., Bartov et al. 2005; Auer 1996; Ashbaugh and Pincus 2001; Barth et al. 2005; Covrig et al. 2007; Kim et al. 2009a, b), or the

[6] Unless otherwise specified, in this paper the term "post-adoption period (years)" include both the adoption year and the years subsequent to the adoption year.

determinants of a firm's decision to adopt IFRS (Cuijpers and Buijink 2005; Dumontier and Raffounier 1998; Hope et al. 2006). While Dumontier and Raffounier (1998, 239) mentioned in their study that "compliance with IAS is particularly costly since it implies additional disclosure and renunciation of considerable discretion in accounting practices," previous research has paid little attention to the costs of adopting IFRS.

Second, this study contributes to the audit pricing literature. Our study shares some similarity with Choi et al. (2009) in the sense that both cross-listing and IFRS adoption are associated with enhanced disclosures. In their study, a cross-listing has two effects, i.e., upward shifts in legal regime and in disclosure requirements, both of which may increase audit fee. In contrast, in our study, IFRS adoption involves two contradicting effects on audit fee: upward shift in audit complexity increases audit fee, but improvement in financial reporting quality reduces audit fee. By examining these two effects separately, we provide insights into how audit complexity and financial reporting quality can have different effects on audit fee.

Finally, to the best of our knowledge, our study is the first that provides systematic evidence on the impact of accounting standards on audit pricing. When evaluating the change in audit fee resulting from IFRS adoption, we weigh two factors: the auditing benefit of IFRS (i.e., improved financial reporting quality) against the auditing cost of IFRS (i.e., increased audit complexity). Our empirical results from pooled regressions show that the audit fees increase with IFRS adoption, which suggests that the latter cost factor tends to dominate the former benefit factor in the context of their joint effects on audit fee.

The remainder of the paper is organized as follows. Section 2 develops a theoretical audit fee model and formulates empirical hypotheses based on the model's predictions. Section 3 specifies empirical models for hypothesis testing. Section 4 describes our sample and data sources, and presents descriptive statistics. Section 5 reports our main empirical results for hypothesis testing. Section 6 shows further sensitivity analyses. The final section concludes the paper. All proofs appear in Appendix.

II. THEORY AND HYPOTHESIS

To gain insights into the effect of IFRS on audit fee, we build an audit fee model, which is similar in spirit to the model of Choi, Kim, Liu, and Simunic (CKLS: 2008, 2009). The auditor's objective is to choose the audit effort, $e \in (0,1)$, to minimize the total audit cost, which is the sum of two components – the expected legal liability cost and the auditor's effort cost:

$$\underset{e\in(0,1)}{\text{Minimize}}\ \text{Total-Audit-Cost} = (1-q)[c(1-e)][r(1-e)]l + ke^2. \qquad (1)$$

where

$q \in (0,1)$ denotes the quality of financial reporting, which is represented by the probability of the financial statement containing no misstatement or misrepresentation of the firm's economic situation;

$c \in (0,1)$ refers to the complexity of an audit;

$e \in (0,1)$ represents the auditor's effort;

$r \in (0,1)$ refers to the strength of the country's legal environment in determining the auditor's legal liability conditional on an audit failure;

$l > 0$ refers to the amount of legal payment the auditor makes to the client if the auditor is found liable in court; and

$k > 0$ is the auditor's effort cost parameter.

First, note that $c(1-e)$ in the objective function (1) represents the probability of an audit failure (i.e., the probability of the auditor issuing an unqualified opinion on a misstated report), which is increasing in audit complexity c and decreasing in the auditor's effort e. Also note that $r(1-e)$ is the probability of the auditor being held liable in court in the event of audit failure, which is increasing in the strength of the country's legal regime r and decreasing in the auditor's effort e. Hence, $(1-q)[c(1-e)][r(1-e)]l$ as a whole represents the auditor's *expected* legal liability associated with a financial statement audit. Finally, ke^2 is the auditor's effort cost, which is increasing and convex in effort e.

The objective function (1) is convex in audit effort. We can derive from the first order condition the optimal audit effort: $e^* = \frac{(1-q)crl}{(1-q)crl+k}$. We know from $\frac{\partial e^*}{\partial r} > 0$ and $\frac{\partial e^*}{\partial c} > 0$ that the auditor's effort choice is increasing in both the strength of the legal regime and the complexity of the audit.

In a competitive audit market, the audit fee is equal to the total audit cost in equilibrium, that is, $f = (1-q)rc(1-e^*)^2 l + ke^{*2}$. As $\frac{\partial f}{\partial r} = (1-q)c(1-e^*)^2 l > 0$, $\frac{\partial f}{\partial c} = (1-q)r(1-e^*)^2 l > 0$, and $\frac{\partial f}{\partial q} = -rc(1-e^*)^2 l < 0$, we have the following results.

> **Observation 1:** The audit fee is increasing in the strength of legal regime r and in audit complexity c, but decreasing in financial reporting quality q.

One of the results in Observation 1 is that audit fee decreases with the quality of financial reporting. The intuition behind this result is clear: The higher the quality of a

financial report, the less likely the financial report contains any misstatement or misrepresentation of the firm's economic situation. As a result, the auditor faces less expected legal liability, which leads to a lower audit fee.

To examine how the IFRS adoption changes audit fee, we note that IFRS adoption has two audit-related effects. First, it improves financial reporting quality, as IFRS are generally considered better accounting standards than (former) local accounting standards. Second, IFRS adoption increases the complexity of an audit. As IFRS are comprehensive, fair-value oriented, and principle-based, the use of IFRS generally requires accountants and auditors to perform more complex estimates and use more professional judgments (Deloitte 2008; Mersereau 2006). As shown in Observation 1, on the one hand, the improvement of financial reporting quality reduces audit fee; on the other hand, the increase in audit complexity increases audit fee. Therefore, the effect of IFRS adoption on audit fee is determined by which of the above two forces dominates. Our analysis yields the following result.

> **Observation 2:** IFRS adoption, which increases both financial reporting quality and audit complexity, leads to an increase (decrease) in audit fee, if the positive effect of the increase in audit complexity dominates (is dominated by) the negative effect of improved financial reporting quality on audit fee. Specifically, IFRS adoption is likely to lead to a higher (lower) audit fee if $(1-q)\Delta c > c\Delta q$ (if $(1-q)\Delta c < c\Delta q$), where Δ denotes the change that is brought about by the IFRS adoption.
>
> **Proof:** See Appendix.

As the condition stated in Observation 2 is *a priori* unknown, we formulate the following null hypothesis on the relation between IFRS adoption and audit fee.

H1: *IFRS adoption has no impact on audit fee.*

IFRS-adoption could lead to an increase or decrease in audit fee, depending on whether the increase in audit complexity or the increase in financial reporting quality is the dominant factor in determining the audit fee change. To facilitate the later discussion, we provide a preview on the results of empirical test for H1. The results as reported in Table 6 show that IFRS-adoption leads to a positive audit fee change. According to Observation 2, these empirical results suggest that $(1-q)\Delta c > c\Delta q$ holds, i.e., the positive effect of the increase in audit complexity dominates the negative effect of improved financial reporting quality on audit fee. Throughout the paper, we conveniently refer to the positive audit fee change induced by IFRS-adoption as "audit fee premium."

The increase in audit complexity that results from IFRS adoption may have two components: (i) the temporary increase which is due to the learning curve of the auditors; and (ii) the permanent increase which is due to the inherently more complex audit judgment required by IFRS compared with former local GAAP. The temporary increase in audit complexity means that the auditor takes time and effort to learn about new IFRS rules, but this learning effect is likely to become insignificant after the first year of IFRS adoption. We thus form the following hypothesis in alternative form.

H2: *The audit fee premium in the years subsequent to the adoption year is smaller than that in the adoption year.*

We now examine how the audit fee premium associated with IFRS adoption varies with a number of institutional factors. First, we examine the effects of the increased audit complexity arising from IFRS adoption. We derive that

$\frac{\partial \Delta f}{\partial \Delta c} = \frac{\partial [f(q_{IFRS}, c_i + \Delta c) - f(q_i, c_i)]}{\partial \Delta c} > 0$, where the subscript *i* is country-specific. This means that, other things being equal, the greater the increase in audit complexity (i.e., greater Δc), the greater the IFRS-related audit fee premium.

> **Observation 3:** The audit fee premium associated with IFRS adoption is increasing with the increase in audit complexity arising from IFRS adoption.

We also note that the greater the differences in accounting rules between the local GAAP and the IFRS, the greater the increase in audit complexity associated with IFRS adoption. Based upon the prediction in Observation 3, we test the following hypothesis in alternative form.

> **H3:** *Ceteris paribus, the audit fee premium associated with IFRS adoption is greater in countries with more differences between the pre-adoption local GAAP and IFRS than in countries with fewer differences between the two.*

Next, we examine how the IFRS-related audit fee premium changes with the improvement in financial reporting quality brought about by IFRS adoption. We derive that $\frac{\partial \Delta f}{\partial \Delta q} = \frac{\partial [f(q_i + \Delta q, c_{IFRS}) - f(q_i, c_i)]}{\partial \Delta q} < 0$. This means that, other things being equal, the lower the pre-adoption financial reporting quality, the greater the improvement in financial reporting quality brought about by IFRS adoption (i.e., greater Δq), hence the lower the audit fee premium.

> **Observation 4:** The audit fee premium associated with IFRS adoption is decreasing with the improvement in financial reporting quality brought about by IFRS adoption.

Based upon the prediction in Observation 4, we test the following hypothesis in alternative form.

H4: *Ceteris paribus, the audit fee premium associated with IFRS adoption is decreasing with the improvement in financial reporting quality brought about by IFRS adoption.*

Finally, we examine how the audit fee premium associated with IFRS adoption varies with a country's legal regime. In this analysis, we assume that $(1-q)\Delta c > c\Delta q$, which is a reasonable assumption because we observe a positive audit fee change after IFRS adoption (see the discussion following H1). We derive that $\frac{\partial df}{\partial r} = \frac{\partial df}{\partial r}\Big|_{e=e^*} + \frac{\partial df}{\partial e}\frac{\partial e}{\partial r}$. The first component is $\frac{\partial df}{\partial r}\Big|_{e=e^*} > 0$, which represents the direct positive effect of a stronger legal regime on the audit fee premium, *with effort level being fixed*. The second component is $\frac{\partial df}{\partial e}\frac{\partial e}{\partial r}$, which represents the negative effect of a greater auditor effort on audit fee premium ($\frac{\partial df}{\partial e}<0$) times the positive effect of a stronger legal regime on auditor effort (denoted by $\frac{\partial e}{\partial r}>0$). Hence, effect of the legal regime on the IFRS-related audit fee premium, i.e., the sign of $\frac{\partial df}{\partial r}$, depends on which of the above two components is dominant. For example, when the second component is larger in magnitude, that means that the greater auditor effort induced by the legal regime has a more significant reduction effect on the audit fee premium, compared with the direct increasing effect of the stronger legal regime on the audit fee premium (with effort level being fixed). This leads to an overall reduction in the IFRS-related audit fee premium in a stronger legal regime. Our analysis shows that $\frac{\partial df}{\partial r}\Big|_{e=e^*} < \left|\frac{\partial df}{\partial e}\right|\frac{\partial e}{\partial r}$ holds

when the strength of the legal regime exceeds a threshold. Specifically, we have the following result.

> **Observation 5:** Assume that $(1-q)\Delta c > c\Delta q$ holds. The audit fee premium associated with IFRS adoption decreases (increases) with the strength of a country's legal regime if the positive effect of a stronger legal regime on the auditor's effort is sufficiently large (small). Specifically, $\frac{\partial df}{\partial r} < 0$ ($\frac{\partial df}{\partial r} > 0$) when the strength of the legal regime exceeds (falls below) a threshold, i.e., $r > \frac{k}{cl(1-q)}$ ($r < \frac{k}{cl(1-q)}$).
> **Proof:** See Appendix.

Based on Observation 5, we formulate the following hypothesis in null form:

> **H5:** *The audit fee premium associated with IFRS adoption is the same for countries with strong legal regimes as for countries with weak legal regimes.*

III. EMPIRICAL PROCEDURES

Research Design for Testing H1 and H2

H1 is related to the overall effect of IFRS adoption on audit fee. On the one hand, IFRS adoption increases audit complexity, and thus increases audit fee; on the other hand, IFRS adoption increases financial reporting quality, and thus reduces audit fee. As the two effects work in the opposite direction, it is an empirical question as for which effect dominates. H2 predicts a lower audit fee in the years subsequent to the adoption year than in the adoption year as long as the increased audit complexity brought about by IFRS adoption has some temporary fee-increasing effect due to the auditor's learning curve.

To test H1 and H2, we estimate the following regression model, using the full sample covering the period of 2002-2008.

$$AUDFEE = \beta_0 + \beta_1 ADOPT + \beta_2 POST\_ADOPT + \sum_{k=1}^{9} \delta_k FSCONTROL + Country\ Indicators + Error\ Term. \quad (2)$$

In Eq. (2), *ADOPT* is an indicator variable that equals one for the year of IFRS adoption and years subsequent to the year of IFRS adoption, and zero otherwise. *POST_ADOPT* equals one for only the years subsequent to the year of IFRS adoption, and zero otherwise. *FSCONTROL* denotes firm-specific control variables. Table 1 provides the definitions of all the variables included in Eq. (1).

[INSERT TABLE 1 AROUND HERE]

We include nine firm-specific controls (*LNTA, INVREC, LOSS, LEV, QUICK, NBS, NGS, BIG4* and *CROSS*). *LNTA* and *INVREC* are proxies for client size and client complexity, respectively (e.g., Simunic 1980; Francis 1984). As operationally or geographically diversified firms may require more complex audits, we include the number of business segment (*NBS*) and the number of geographical segment (*NGS*) as additional proxies for client complexity (Simunic 1980; Choi et al. 2008). Similar to Simunic (1980), Francis (1984), and Seetharaman et al. (2002), we include *LOSS, LEV*, and *QUICK* to measure the client-specific litigation risks to be borne by auditors. We expect the coefficients on all the above firm-specific control variables except *QUICK* to be positive as prior studies show that audit fees are positively related to client size, client complexity, and client-specific risk factors. We expect the coefficient on *QUICK* to be negative, as a low *QUICK* ratio is associated with a higher financial risk (Francis 1984). We also include the Big 4 indicator variable (*BIG4*) to capture a Big 4 auditor fee premium (e.g., DeFond et al. 2000; Choi et al. 2008). Finally, Choi et al. (2009) find that auditors charge higher fees for firms that are cross-listed in countries with stronger legal

regimes than they do for non-cross-listed firms. We control for any cross-listing effect on audit fee by including an indicator variable, *CROSS,* which equals one for cross-listed firms and zero otherwise. We use country indicators in the regression to control for correlated omitted variables associated with country-level fee determinants.

The coefficient β_1 captures the audit fee premium associated with the first year of IFRS adoption, whereas the sum of two coefficients, $\beta_1 + \beta_2$, captures the audit fee premium in the years subsequent to the first adoption year. β_2 captures the learning effect, i.e., the audit fee differential between the IFRS adoption year and the subsequent post-adoption years.[7] H2 translates as $\beta_2 < 0$.

Research Design for Testing H3, H4, and H5

To test the impact of the institutional factors on the audit fee premium associated with IFRS adoption, we estimate the following model using the full sample covering the period of 2002-2008.

$$\begin{aligned} AUDFEE = {} & \beta_0 + \beta_1 ADOPT + \beta_2 ADOPT * GAAPDIFF \\ & + \beta_3 ADOPT * \Delta GAAPQUALITY + \beta_4 ADOPT * REGIME \\ & + \sum_{k=1}^{9} \delta_k FSCONTROL + Country\ Indicators + Error\ Term. \end{aligned} \qquad (3)$$

In Eq. (3), *GAAPDIFF* measures the extent to which local GAAP deviates from IFRS. This measure captures the increase in audit complexity arising from IFRS adoption. *GAAPDIFF* is constructed based on the *Absence* and *Divergence* scores developed by Ding et al. (2007). The *Absence* score is based on the number of accounting rules regarding certain accounting issues that are missing in (pre-adoption) local GAAP

[7] Other than the learning effect, there may be other reasons that contribute to a temporary increase in audit complexity in the adoption year. For example, if a firm first adopts IFRS in 2005, then for 2005 the company has to publish not only its financial statements for 2005 using IFRS but also the figures for 2004 that are restated according to IFRS (JeanJean and Stolowy 2008).

but are explicitly stipulated in IFRS. The *Divergence* score is based on the number of accounting rules regarding the same accounting issues that differ between IFRS and (pre-adoption) local GAAP. As both *Absence* and *Divergence* contribute to the difference in accounting standards, *GAAPDIFF* is computed as the natural log of the sum of the *Absence* and *Divergence* scores, i.e., ln(*Absence*+*Divergence*). H3 states that the audit fee premium associated with IFRS adoption is increasing with the accounting differences between IFRS and the pre-adoption local GAAP, which implies that the coefficient on *ADOPT**GAAPDIFF* is positive, i.e., $\beta_2 > 0$.

Δ*GAAPQUALITY* refers to the change (improvement) in the quality of accounting standards that is brought about by IFRS adoption. We use the $-\ln(1+Absence)$ to proxy for the former local GAAP quality, as *Absence* is inversely associated with the degree of (pre-adoption) local GAAP comprehensiveness.[8] Ding et al. (2007) find that *Absence* is negatively correlated with financial reporting quality. More specifically, they find that a higher level of *Absence* implies more opportunities for earnings management and less firm-specific information for investors. GAAP quality after IFRS adoption is the same across adopting countries and takes a benchmark value of zero (as *Absence* becomes zero). Hence, the improvement in GAAP quality brought about by IFRS adoption, namely $\Delta GAAPQUALITY$, equals $0-[-\ln(1+Absence)] = \ln(1+Absence)$. H4 implies that the coefficient on $\Delta GAAPQUALITY$ is negative, i.e., $\beta_3 < 0$.

[8] Ding et al. (2007) find that financial reporting quality is negatively associated with the *Absence* score, but not the *Divergence* score. Appendix A in Ding et al. (2007) provides details of the measurement of *Absence* and *Divergence*. The primary source for the score construction is "GAAP 2001: A Survey of national accounting rules benchmarked against International Accounting Standards" by Nobes (2001).

The impact of legal regime on the IFRS-related audit fee premium, which is captured by the coefficient β_4, depends on two forces. On the one hand, in a stronger legal regime, the greater auditor effort induced by the stronger legal regime has a significant *negative* effect on the audit fee premium; on the other hand, there is a direct *positive* effect of the stronger legal regime on the audit fee premium with effort level being fixed. Our empirical investigation into β_4 will shed light on which of the above two effects dominates.

IV. SAMPLE AND DESCRIPTIVE STATISTICS

We initially identify a sample of 31,782 firm-year observations from 14 EU countries over the period of 2002-2008 from Worldscope.[9] To test our hypotheses, we further exclude (1) firms with missing or ambiguous information on accounting standards ; (2) firms that adopted IFRS voluntarily (i.e., firms that adopted IFRS prior to 2005);[10] (3) firms that pertain to the banking, insurance, and other financial industries (with the Worldscope general industry classification of 04, 05 or 06); (4) firms with missing audit fee data; and (5) firms with missing data required to compute other firm-specific control variables. As shown in Table 2, we obtain the final sample of 11,883 firm-year observations for 14 EU countries after applying the above selection criteria.

[INSERT TABLE 2 AROUND HERE]

[9] Luxembourg is excluded due to missing legal regime information as well as the information on *ABSENCE* and *DIVERGENCE* scores developed by Ding et al. (2007).

[10] We focus on the audit fee implications of mandatory change of financial standards and exclude firms that voluntarily adopted IFRS prior to 2005. The benefit of studying mandatory adoption is that the audit fee implication is not subject to the self selection issue. As firms voluntarily adopt IFRS only when the benefits of adoption overweight the costs of adoption, the audit fee changes of voluntary adopters may not be generalized to the general population.

Worldscope has a data field *07536* that describes accounting standards followed by a specific firm. This data field includes the following 16 categories: (1) IFRS; (2) International standards; (3) International standards and some EEC guidelines; (4) Local standards; (5) Local standards with EEC and IASC guidelines; (6) Local standards with a certain reclassification for foreigners; (7) Local standards with some EEC guidelines; (8) Local standards with some IASC guidelines; (9) Local standards with some OECD guidelines; (10) NA; (11) Not disclosed; (12) Other; (13) Specific standards set by the group; (14) US GAAP reclassified from local standards; (15) US standards (GAAP); and (16) US standards inconsistency problems. Similar to JeanJean and Stolowy (2008), we code the standards as IFRS if *07356* = 01, and code the standard as local GAAP if *07356* = 04, 05, 06, 07, 08, or 09.[11] We consider the year as the (first) year of adoption if the accounting standards are coded as IFRS in the year but coded as local GAAP for the previous years.

Regulation No 1606/2002 of the European Parliament mandated publicly listed firms in EU countries to adopt IFRS, effective January 1, 2005, but also allow the following firms to postpone the IFRS adoption. (1) firms listed on less regulated markets (e.g., the Alternative Investment Market [AIM] in London);[12] (2) firms reporting non-consolidated reports; (3) firms publicly traded in a non-EU country which use internationally accepted standards; and (4) firms with only publicly traded debt securities. As a result, not all publicly listed firms in EU adopted IFRS in 2005.

[11] Following JeanJean and Stolowy (2008), we do not consider categories (2) and (3) as equivalent to (1) because of the ambiguity over the content of the categories. However, treating (2) and (3) as equivalent to (1) does not change our results as there are only a few observations in these two categories. We exclude observations falling in categories (10) to (16).

[12] Note that about half of the firms listed on the London Stock Exchange are AIM listed firms (e.g., 47.8% in 2009 according to the London Stock Exchange website).

Table 3 reports the distribution of IFRS adoption over the period of 2005-2008 across 14 EU countries. The statistics are based on our sample before imposing the non-missing data requirements for audit fee and firm-specific control variables. As shown in Table 3, the adoption of IFRS in 2005 varies across countries, with the lowest percentage of adoption in UK (25%), followed by Ireland (47%). By the end of 2008, almost all EU publicly listed firms had adopted IFRS.

[INSERT TABLE 3 AROUND HERE!]

Table 4 presents the mean values of the variables included in Eq. (2) for each country and the grand mean for the 14 EU countries in our sample. We also include *Absence* and *Divergence* scores, which are used for constructing *GAAPDIFF* and Δ*GAAPQUALITY* in Eq. (3). The number of observations varies across countries with only 4 observations in Greece and 7,571 observations in UK. The *Absence* and *Divergence* scores that are used for the construction of our key test variables Δ*GAAPQUALITY* and *GAAPDIFF* vary significantly across our sample countries. This provides a reasonable cross-country setting to assess the impact of these country-level variables on audit fee.

[INSERT TABLE 4 AROUND HERE!]

Table 5 presents the Pearson correlation coefficients and their p-values (in parentheses) for the variables used in our regression analysis. Consistent with prior studies, audit fee (*AUDFEE*) is highly correlated with firm size (*LNTA*) with the correlation coefficient of 0.85. *AUDFEE* is significantly and positively correlated with *ADOPT* and *POST_ADOPT*, which suggests that IFRS adoption is associated with an increase in audit fee (or IFRS-adoption related audit fee premium). A few firm-specific

variables are also highly correlated with each other. For example, the correlation between *LNTA* and *BIG4* (*LOSS*) is 0.52 (-0.45). The high correlation among firm-specific variables suggests that it is important to control for such correlated variables when making inferences on the relation between audit fee and a particular firm-specific variable.

[INSERT TABLE 5 AROUND HERE!]

V. REGRESSION RESULTS

Throughout the paper, all of the t-values from regressions have been adjusted using robust standard errors corrected for clustering at the firm level. All of the regressions are estimated after removing outliers with absolute studentized residuals greater than 3. As a result, the actual sample size varies slightly across the regressions.

Table 6 reports the regression results for Eq. (2) for testing H1 and H2. The coefficient on *ADOPT* (i.e., β_1) , which captures the IFRS adoption related audit fee premium in the (first) year of adoption, is highly significant with a positive sign (0.139 with t = 8.97). This rejects the null hypothesis H1 in favor of a significant increase in audit fee in the year of IFRS adoption.[13]

Consistent with H2, the coefficient on *POST_ADOPT* (i.e., β_2), which captures the difference in audit fee premium between the adoption year and the subsequent post-adoption years, is significantly negative (-0.056 with t = -3.49). We also find that the sum of β_1 and β_2, which captures the audit fee premiums in the post-adoption period, is significantly positive (F=26.56), although it is smaller than the first adoption year fee

[13] We also run country by country regressions for Eq. (2) and find that only firms in Demark exhibit negative IFRS-related fee change at a 10% significance level. Our results in this study are robust to the alternative tests excluding firms from Denmark.

premium ($0 < (\beta_1 + \beta_2) < \beta_1$). The audit fee premiums associated with IFRS adoption are also economically significant. For example, the results translate into an increase of audit fee of 14.9% in the adoption year (and 8.7% in the years subsequent to the adoption year) for an average firm when all of the control variables are set at their mean values.

The above results are in line with the following view. IFRS adoption increases audit fee to a higher level both in the year of adoption and in the subsequent years. In other words, the IFRS adoption results in an audit fee premium. This suggests that the audit fee-increasing effect of the increased complexity arising from IFRS adoption dominates the audit fee-decreasing effect of the improved financial reporting quality. Moreover, the lower audit fee premium in the years subsequent to the adoption year relative to the fee premium in the adoption year supports our hypothesis H2 regarding the auditor's learning curve. These results suggest that the increase in audit task complexity caused by IFRS adoption consists of both a temporary component and a permanent component.

[INSERT TABLE 6 AROUND HERE!]

To test hypotheses H3-H5, we estimate Eq. (3) using the full sample over the period of 2002-2008. The main results are reported in column 1 of Table 7. We find that the coefficient on *ADOPT*GAAPDIFF* is significantly positive (0.844 with t = 3.39). This is consistent H3, i.e., IFRS adoption causes an increase in audit fee to a greater extent when a country's pre-adoption local GAAP deviates more from IFRS. The finding suggests that the IFRS-related fee premium is increasing with the increase in audit complexity brought about by IFRS adoption in any particular country.

The coefficient on *ADOPT**Δ*GAAPQUALITY* is significantly negative (-0.201 with t = -3.58). This result is consistent with H4, suggesting that, other things being equal, the greater the improvement in GAAP quality brought about by IFRS adoption, the lower the audit fee premium associated with the IFRS adoption.

Finally, the coefficient on *ADOPT*REGIME* is significantly negative (-0.445 with t = -2.70), which leads us to reject the null hypothesis H5. This result indicates that the adoption of IFRS results in a smaller IFRS-related audit fee premium in countries with a strong legal regime, compared with the fee premium in countries with a weak legal regime. According to Observation 5, this result suggests that the negative audit-fee-premium effect of greater auditor effort induced by a stronger legal regime is the dominant force. Specifically, the auditor exercises greater effort in countries with stronger legal regimes (to minimize expected legal liability cost or litigation risk). When the positive incentive effect of legal regime on the auditor's effort is sufficiently large, then the IFRS-related audit fee premium decreases with the strength of the legal regime (see Observation 5).

[INSERT TABLE 7 AROUND HERE!]

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VI. FURTHER ANALYSES

Nonlinear Relation Between Audit Fee and the Strength of Legal Regime

In column 1 of Table 7, we implicitly assume that the IFRS-related audit fee premiums are linearly associated with the strength of legal regime. Observation 5 indicates, however, that the inverse relation between IFRS adoption and the associated audit fee premium exists only when the strength of legal regime is above a threshold level,

suggesting that the relation between the two is nonlinear. To see if our test results reported in column 1 of Table 7 are unduly influenced by the linearity assumption, we re-estimate Eq. (3) without making any assumption on the specific form of the relation between legal regime and audit fee premium.

For countries included in our sample, raw scores on legal regime (i.e., the Wingate litigation risk indices) take four values, i.e., 3.61, 4.82, 6.22, and 10. We create four regime indicators with each representing one level of the score: *REGIME1* = 1 if the raw legal regime score is 3.61 and 0 otherwise; *REGIME*2 = 1 if the raw legal regime score is 4.82 and 0 otherwise; *REGIME3* = 1 if the raw legal regime score = 6.22 and 0 otherwise; *REGIME4* = 1 if raw legal regime score is 10 and 0 otherwise. We then estimate Eq. (3) after replacing *REGIME* by three indicators, namely *REGIME2, REGIME3,* and *REGIME4*. Here, the lowest legal regime indicator, *REGIME1*, serves as the benchmark and thus is not included in the regression. The three included legal regime indicators capture the incremental difference in the audit fee premium across different legal regimes.

We report the new estimates in column 2 of Table 7. We find that, similar to the results in column 1, the coefficient on *ADOPT*GAAPDIFF* in column 2 is significant with a positive sign and the coefficient on *ADOPT**Δ*GAAPQUALITY* is significant with a negative sign. More interestingly, we find that the coefficients on *ADOPT*REGIME2* and *ADOPT*REGIME3* are not significant whereas the coefficient on *ADOPT*REGIME4* is significantly negative at the 1% level. These results are consistent with our theory (Observation 5) that the audit fee premium associated with IFRS

adoption decreases with the strength of a country's legal regime only when the strength of legal regime is above a certain threshold level.

Weighted Least Squares (WLS) Procedures

As the OLS results may be unduly influenced by the unequal size of the samples from different countries, we also perform sensitivity tests using the WLS procedure with an equal weight assigned to each country. The results from WLS procedures are qualitatively similar to the results in Tables 6 and 7. In addition, we exclude the large size of UK firms from our sample and rerun the tests. We find that the positive coefficient on *ADOPT*REGIME* becomes marginally significant with this reduced sample (which is reasonable as UK has the largest *REGIME* score in the original sample), and other results regarding our test variables remain qualitatively unchanged.

Change Analyses

Our analyses have focused on pooled cross-sectional regressions of audit fee on our test variables (*ADOPT, GAAPDIFF,* Δ*GAAPQUALITY,* and *REGIME*), firm-specific controls, and country indicators. To the extent that we fail to control for some other variables that are correlated with both audit fee and our test variables, however, we cannot rule out the possibility that our results are driven by correlated omitted variables. To alleviate this concern, we conduct change analyses to further examine whether the IFRS-related audit fee premium is associated with changes in firm-specific controls and with our test variables. Specifically, we compare the audit fee before and after the IFRS adoption, and then examine whether the audit fee change (or the IFRS-related audit fee

premium) varies systematically with our test variables, *GAAPDIFF, ΔGAAPQUALITY,* and *REGIME*, after controlling for changes in firm-specific controls over the two periods.

For our change regressions, we construct a reduced sample by including only such firms that appear in both the pre-adoption period and the post-adoption period. For each firm included in the reduced sample, we compute the average values of audit fee (*AUDFEE*) and firm-specific control variables (i.e., *LNTA*, *INVREC*, *LEV,* and *QUICK*), separately, for the pre-adoption period and the post-adoption period. We then compute the change of each variable over the two periods. Since *LOSS* is an indicator variable, *ΔLOSS* takes value of 1 if, for a particular firm, the magnitude of loss in the post-adoption period is greater than that in the pre-adoption period. We view the changes in firm-specific control variables as zero if their average values do not change from the pre-adoption period to the post-adoption period.

In column 1 of Table 8, we report the results of a baseline regression of the change in audit fee (*ΔAUDFEE*) on the changes in firm-specific variables without including the test variables. Note here that the intercept is significantly positive (0.114 with t = 6.80). This suggests that audit fee increases significantly from the pre-adoption period to the post-adoption period, even after controlling for changes in all firm-specific variables over the two periods. In column 2 of Table 8, we add our test variables, *GAAPDIFF*, *ΔGAAPQUALITY,* and *REGIME,* to our baseline change regression to see if the audit fee premium associated with IFRS adoption varies systematically with these test variables.

As shown in column 2 of Table 8, the coefficient on *GAAPDIFF* is significantly positive (0.809 with t = 4.11). This result buttresses our earlier findings reported in Table

7 in relation to H3, suggesting that the audit fee premium associated with IFRS adoption increases with the difference in accounting rules between (pre-adoption) local GAAP and IFRS. The coefficient on *ΔGAAPQUALITY* is significantly negative, which is consistent with H4. This finding lends further support to our theory that the improvement in financial reporting quality brought about by the IFRS adoption reduces audit fee. Finally, the coefficient on *REGIME* is significantly negative (-0.5 with t = -3.77).

The results in column 3 of Table 8 are also consistent with those in column 2 of Table 7. Overall, the results of our changes-based regressions in Table 8 are in line with the results of our levels-based regressions reported in Table 7, suggesting that our test results reported earlier are unlikely to be driven by correlated omitted variables.

[INSERT TABLE 8 AROUND HERE!]

VII. SUMMARY

We investigate the impact of IFRS on audit fee using audit fee data from EU countries that mandate IFRS adoption in 2005. Our theoretical analysis suggests that IFRS adoption has two opposite effects on audit fee. On the one hand, the increase in audit task complexity arising from IFRS adoption increases audit fee; on the other hand, the improvement in financial reporting quality has a reduction effect on audit fee. Our empirical tests show that the mandatory IFRS adoption has led to an increase in audit fee, which suggests that the increase in audit task complexity is the driving force for the IFRS-related audit fee change. Furthermore, we find that the IFRS-related audit fee premium increases with the extent of the accounting differences between a country's former local GAAP and IFRS, decreases with the improvement in financial reporting

quality brought about by IFRS adoption, and decreases with the strength of a country's legal regime. These results provide insights into the audit fee impact of IFRS adoption, and how this effect varies with the institutional features of different countries.

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APPENDIX

Proof of Observation 2

$\Delta f \approx df = \frac{\partial f}{\partial q}\Delta q + \frac{\partial f}{\partial c}\Delta c = (1-e^*)^2 rl[(1-q)\Delta c - c\Delta q]$. Thus, $df > 0$ ($df < 0$) if $(1-q)\Delta c > c\Delta q$ (if $(1-q)\Delta c < c\Delta q$), where Δc and Δq denote the changes in audit complexity and financial reporting quality that are brought about by the IFRS adoption. ■

Proof of Observation 5

$$\frac{\partial df}{\partial r} = \frac{\partial df}{\partial r}\Big|_{e=e^*} + \frac{\partial df}{\partial e}\frac{\partial e}{\partial r}$$
$$= (1-e)l[(1-q)\Delta c - c\Delta q][k-(1-q)rcl].$$

Hence, given that $(1-q)\Delta c > c\Delta q$, we know from the above derivation that $\frac{\partial df}{\partial r} < 0$ ($\frac{\partial df}{\partial r} > 0$) when $r > \frac{k}{cl(1-q)}$ ($r < \frac{k}{cl(1-q)}$). ■

TABLE 1: Empirical Definition of Variables

Variable		Empirical Definition	Data Source
The dependent variable and test variables for firm *i* in country *j* in year *t*			
$AUDFEE_{ijt}$	=	natural log of audit fee in thousands of Euros;	*Worldscope*
$ADOPT_{ijt}$	=	one for the year of IFRS adoption and the years subsequent to the year of IFRS adoption, and zero otherwise;	*Worldscope*
$POST\_ADOPT_{ijt}$	=	One for only the years subsequent to the year of IFRS adoption, and zero otherwise;	*Worldscope*
$\Delta GAAPQUALITY_{jt}$	=	Change in GAAP quality brought about by IFRS adoption, measured by the natural log of one plus the *Absence* score where the *Absence* score captures the number of absent items in local GAAP compared with IFRS.	*Ding et al. (2007)*
$GAAPDIFF_{j}$	=	Differences between local GAAP and IFRS, measured by the natural log of the sum of *Absence* and *Divergence* scores.	*Ding et al. (2007)*
Firm-specific control variables (*FSCONTROL*) for firm *i* in country *j* in year *t*			
$LNTA_{ijt}$	=	natural log of year-end total assets in thousands of Euros;	*Worldscope*
$INVREC_{ijt}$	=	the sum of inventories and receivables divided by total assets;	*Worldscope*
$LOSS_{ijt}$	=	one when a firm reports a net loss in year t and zero otherwise;	*Worldscope*
LEV_{ijt}	=	the ratio of year-end total liabilities to total assets;	*Worldscope*
$QUICK_{ijt}$	=	quick ratio, being equal to the quick assets divided by current liabilities;	*Worldscope*
NBS_{ijt}	=	natural log of one plus the number of business segments;	*Worldscope*
NGS_{ijt}	=	natural log of one plus the number of geographical segments;	*Worldscope*
$BIG4_{ijt}$	=	one when a firm uses one of the Big 4 auditors and zero otherwise;	*Worldscope*
$CROSS_{ijt}$	=	one when a firm is cross-listed in a foreign country and zero otherwise.	*Worldscope*

Table 2: Sample Selection

Initial sample of 14 EU countries from Worldscope, 2002 – 2008	31,782
Minus firms with missing or ambiguous information on accounting standard	(1,142)
	30,640
Minus voluntary adopters	(3,264)
	27,376
Minus firms in financial industry	(4,732)
	22,644
Minus firms with missing audit fee	(10,419)
	12,225
Minus firms with missing firm-specific control variables	(342)
Final Sample	11,883

Table 3: Distribution of IFRS Adoption, 2005-2008 [a]

	2005	2006	2007	2008
Austria	67%	74%	86%	94%
Belgium	71%	77%	80%	94%
Denmark	63%	91%	91%	95%
Finland	93%	100%	100%	100%
France	59%	75%	79%	87%
Germany	56%	66%	71%	81%
Greece	97%	100%	100%	100%
Ireland	47%	71%	94%	100%
Italy	89%	99%	100%	100%
Netherlands	93%	99%	99%	99%
Portugal	88%	90%	93%	97%
Spain	71%	76%	78%	77%
Sweden	76%	86%	85%	89%
UK	25%	51%	73%	99%

[a] This table reports the percentage of firms that adopted IFRS for the period of 2005-2008 across 14 EU countries. The initial sample obtained from Worldscope database consists of 31,782 firm-year observations. We delete (1) firms with missing or ambiguous information on accounting standard information, (2) firms that adopted IFRS voluntarily (i.e., firms that adopted IFRS prior to 2005), (3) firms that pertain to the banking, insurance, and other financial industries (with the Worldscope general industry classification of 04, 05, or 06). The selection procedures result in 22,644 firm-year observations.

TABLE 4: Sample Characteristics [a, b]

Country	*N*	*AUD-FEE (mean)*	*ABSEN-CE*	*DIVERGEN-CE*	*Wingate Index*	*LNTA (mean)*	*INVREC (mean)*	*LOSS (mean)*	*LEV (mean)*	*QUICK (mean)*	*NBS (mean)*	*NGS (mean)*	*BIG4 (mean)*	*CROSS (mean)*
Austria	6	7.19	34	36	3.61	15.97	0.17	0.17	0.61	0.67	1.81	1.85	1.00	0.00
Belgium	93	5.78	22	32	4.82	12.79	0.40	0.14	0.62	1.10	1.13	1.06	0.66	0.00
Denmark	450	5.98	31	21	4.82	12.08	0.38	0.19	0.51	1.77	1.20	1.25	0.80	0.03
Finland	251	6.20	22	31	3.61	12.89	0.34	0.16	0.52	1.25	1.49	1.52	0.86	0.06
France	1216	6.77	21	34	6.22	13.12	0.37	0.20	0.61	1.55	0.90	1.02	0.52	0.06
Germany	247	5.84	18	38	6.22	12.44	0.37	0.23	0.59	1.42	1.34	1.34	0.57	0.00
Greece	4	3.65	40	28	3.61	12.17	0.02	1.00	0.25	0.50	1.39	0.69	1.00	0.00
Ireland	277	5.76	0	34	6.22	12.40	0.25	0.27	0.59	2.62	1.07	1.19	0.87	0.11
Italy	141	7.51	27	37	6.22	15.02	0.32	0.21	0.64	0.89	0.00	0.00	0.93	0.43
Netherlands	105	7.62	10	25	6.22	14.06	0.34	0.13	2.98	0.93	1.39	1.41	0.96	0.00
Portugal	98	5.99	29	22	3.61	13.79	0.25	0.17	0.68	0.75	1.39	1.05	0.83	0.00
Spain	479	6.37	28	29	4.82	14.01	0.33	0.08	0.60	1.07	1.44	1.30	0.94	0.01
Sweden	945	6.39	10	26	4.82	12.71	0.34	0.26	0.51	1.59	1.36	1.52	0.98	0.09
UK	7,571	5.24	0	35	10	10.93	0.28	0.42	0.65	3.00	1.06	1.04	0.54	0.01
Mean (total)	(11,883)	5.66	6.94	33.17	8.32	11.69	0.31	0.34	0.64	2.46	1.10	1.11	0.62	0.03

[a] The sample consists of 11,883 firm-year observations from 14 EU countries for the period of 2002-2008.
[b] Refer to Table 1 for variable definitions.

TABLE 5: Correlations Matrix [a, b]

	AUDFEE	*ADOPT*	*POST_ADOPT*	*LNTA*	*INVREC*	*LOSS*	*LEV*	*QUICK*	*NBS*	*NGS*	*BIG4*	*CROSS*
ADOPT	0.29											
	<.0001											
POST_ADOPT	0.28	0.73										
	<.0001	<.0001										
LNTA	0.85	0.32	0.33									
	<.0001	<.0001	<.0001									
INVREC	0.05	0.01	0.03	0.00								
	<.0001	0.15	0.00	0.74								
LOSS	-0.34	-0.19	-0.18	-0.45	-0.21							
	<.0001	<.0001	<.0001	<.0001	<.0001							
LEV	-0.03	-0.01	-0.01	-0.09	0.06	0.04						
	0.00	0.16	0.14	<.0001	<.0001	0.00						
QUICK	-0.19	-0.06	-0.05	-0.17	-0.20	0.16	-0.03					
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.00					
NBS	0.39	0.08	0.09	0.39	0.07	-0.21	-0.01	-0.13				
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.25	<.0001				
NGS	0.40	0.10	0.10	0.35	0.07	-0.15	-0.02	-0.10	0.39			
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.01	<.0001	<.0001			
BIG4	0.47	0.14	0.16	0.52	0.01	-0.24	-0.02	-0.10	0.26	0.29		
	<.0001	<.0001	<.0001	<.0001	0.33	<.0001	0.01	<.0001	<.0001	<.0001		
CROSS	0.15	0.04	0.05	0.16	-0.09	0.01	-0.01	0.01	-0.01	0.02	0.10	
	<.0001	<.0001	<.0001	<.0001	<.0001	0.26	0.43	0.12	0.15	0.03	<.0001	
REGIME	-0.26	-0.28	-0.29	-0.37	-0.13	0.22	0.01	0.09	-0.15	-0.18	-0.27	-0.12
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.48	<.0001	<.0001	<.0001	<.0001	<.0001

[a] The sample consists of 11,883 firm-year observations from 14 EU countries for the period of 2002-2008.
[b] Refer to Table 1 for variable definitions.

TABLE 6 [a, b, c]

Results of Multivariate Regressions for Testing H1 and H2

$AUDFEE_{ijt} = \beta_0 + \beta_1 ADOPT_{ijt} + \beta_2 POST\_ADOPT_{ijt} + \delta_1 LNTA_{ijt} + \delta_2 INVREC_{ijt} + \delta_3 LOSS_{ijt} + \delta_4 LEV_{ijt} + \delta_5 QUICK_{ijt} + \delta_6 NBS_{ijt} + \delta_7 NGS_{ijt} + \delta_8 BIG4_{ijt} + \delta_9 CROSS_{ijt} + Country\ Indicators + Error\ Term$

	Coefficient	t-statistic
Intercept	-3.714	-4.96
ADOPT (?)	0.139	8.97
POST_ADOPT (-)	-0.056	-3.49
LNTA (+)	0.606	74.68
INVREC (+)	0.419	6.39
LOSS (+)	0.265	11.94
LEV (+)	0.025	2.94
QUICK (-)	-0.008	-5.90
NBS (+)	0.141	5.49
NGS (+)	0.320	13.39
BIG4 (+)	0.160	5.49
CROSS (+)	0.109	1.13
F-statistic	0.083	26.56
Country Indicators	Included	
Adj. R^2	84.58%	
N	11,769	

[a] The initial sample consists of 11,883 firm-year observations from 14 countries for the period of 2002-2008. Refer to Table 1 for variable definitions.

[b] Observations with absolute studentized residuals greater than 3 are deleted. The reported t-values are based on standard errors clustering on the firm dimension.

[c] *F-statistic* is from a F-test of $\beta_1+\beta_2=0$.

TABLE 7 [a, b]

Results of Multivariate Regressions for Testing H3, H4, and H5

$$AUDFEE_{ijt} = \beta_0 + \beta_1 ADOPT_{jjt} + \beta_2 ADOPT_{ijt}*GAAPDIFF_j + \beta_3 ADOPT_{ijt} *\Delta GAAPQUALITY_j + \beta_4 ADOPT_{ijt} *REGIME_j + \delta_1 LNTA_{ijt} + \delta_2 INVREC_{ijt} + \delta_3 LOSS_{ijt} + \delta_4 LEV_{ijt} + \delta_5 QUICK_{ijt} + \delta_6 NBS_{ijt} + \delta_7 NGS_{ijt} + \delta_8 BIG4_{ijt} + \delta_9 CROSS_{ijt} + Country\ Indicators + Error\ Term$$

	Column 1		Column 2	
	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	-4.047	-5.34	-3.880	-5.09
ADOPT (?)	-1.862	-2.60	-2.650	-2.56
*ADOPT * GAAPDIFF (+)*	0.844	3.39	0.892	2.92
*ADOPT * ΔGAAPQUALITY (-)*	-0.201	-3.58	-0.244	-3.74
*ADOPT * REGIME (?)*	-0.445	-2.70		
*ADOPT * REGIME2 (?)*			0.023	0.17
*ADOPT * REGIME3 (?)*			-0.044	-0.32
*ADOPT * REGIME4 (?)*			-0.415	-2.44
LNTA (+)	0.605	74.66	0.605	74.63
INVREC (+)	0.419	6.39	0.418	6.38
LOSS (+)	0.262	11.74	0.261	11.72
LEV (+)	0.025	2.94	0.025	2.93
QUICK (-)	-0.008	-5.94	-0.008	-5.94
NBS (+)	0.140	5.47	0.140	5.46
NGS (+)	0.320	13.38	0.320	13.37
BIG4 (+)	0.158	5.42	0.160	5.47
CROSS (+)	0.122	1.25	0.122	1.26
Country Indicators	Included		Included	
Adj. R^2	84.60%		84.60%	
N	11,765		11,765	

[a] The initial sample consists of 11,883 firm-year observations from 14 countries for the period of 2002-2008. Raw regime scores take four values in our sample: 3.61, 4.82, 6.22, 10. *REGIME2*=1 if raw legal regime score is 4.82, and 0 otherwise; *REGIME3*=1 if raw legal regime score=6.22, and 0 otherwise; *REGIME4*=1 if raw legal regime score=10, and 0 otherwise. Refer to Table 1 for other variable definitions.

[b] Observations with absolute studentized residuals greater than 3 are deleted. The reported t-values are based on standard errors clustering on the firm dimension.

TABLE 8[a, b]

Results of Multivariate Regressions for Testing H3, H4, and H5

$$\Delta AUDFEE_{ij} = \beta_0 + \beta_1 GAAPDIFF_j + \beta_2 \Delta GAAPQUALITY_j + \beta_3 REGIME_j + \delta_1 \Delta LNTA_{ij} + \delta_2 \Delta INVREC_{ij} + \delta_3 \Delta LOSS_{it} + \delta_4 \Delta LEV_{ij} + \delta_5 \Delta QUICK_{it} + Error\ Term$$

	Column 1		Column 2		Column 3	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Intercept	0.114	6.80	-1.592	-2.76	-2.361	-3.04
GAAPDIFF (+)			0.809	4.11	0.840	3.61
ΔGAAPQUALITY (-)			-0.229	-4.95	-0.247	-4.57
REGIME (?)			-0.500	-3.77		
REGIME1 (?)					-0.077	-0.83
REGIME2 (?)					-0.184	-1.89
REGIME3 (?)					-0.494	-3.66
ΔLNTA (+)	0.511	28.63	0.506	28.31	0.507	28.50
ΔINVREC (+)	0.338	2.95	0.341	2.97	0.348	3.05
ΔLOSS (+)	0.067	1.90	0.064	1.80	0.062	1.77
ΔLEV (+)	0.027	7.59	0.027	7.54	0.027	7.61
ΔQUICK (-)	-0.010	-4.57	-0.010	-4.63	-0.010	-4.71
Adj. R^2	35.21%		35.78%		36.12%	
N	1,633		1,634		1,633	

[a] The initial sample consists of 1,648 firms from 14 countries for the period of 2002-2008, which have data both in the pre-IFRS period and the post-IFRS adoption period. The dependent variable is *ΔAUDFEE*. For each firm, we calculate the average value of audit fee (*AUDFEE*), total assets (*LNTA*), the sum of inventories and receivables divided by total assets (*INVREC*), leverage (*LEV*) and quick ratio (*QUICK*), separately for the pre-adoption period and the post-adoption period. Then we take the difference to construct the change measure. Since *LOSS* is an indicator variable, *ΔLOSS* takes value of 1 if, for a particular firm, the magnitude of loss in the post-adoption period is more than the magnitude of loss in the pre-adoption period. See Table 1 for variable definitions.

[b] Observations with absolute studentized residuals greater than 3 are deleted. The reported t-values are based on standard errors clustering on the firm dimension.