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Does Mandatory IFRS Adoption Affect Audit Hours and the Effectiveness to Constrain Earnings Management? Evidence from Italy

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# Does Mandatory IFRS Adoption Affect Audit Hours and the Effectiveness to Constrain Earnings Management? Evidence from Italy

Stefano Azzali  
University of Parma  
[stefano.azzali@unipr.it](mailto:stefano.azzali@unipr.it)

Tatiana Mazza  
University of Parma  
[tatiana.mazza@unipr.it](mailto:tatiana.mazza@unipr.it)

Kenneth J. Reichelt  
Louisiana State University  
[reichelt@lsu.edu](mailto:reichelt@lsu.edu)

Dechun Wang  
Texas A&M University  
[dwang@mays.tamu.edu](mailto:dwang@mays.tamu.edu)

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# Does Mandatory IFRS Adoption Affect Audit Hours and the Effectiveness to Constrain Earnings Management? Evidence from Italy

## Abstract

We examine the effect IFRS adoption has had on audit effort and the effectiveness of greater audit effort on constraining earnings management. While prior studies have examined the costs of IFRS adoption, it is unclear whether IFRS adoption affects audit effort and whether extra audit effort results in higher audit quality. We find that following Italy's adoption of IFRS, audit hours (but not the hourly rate) increased, suggesting that audit effort (in audit hours) increased following IFRS adoption. We then examine whether more audit hours are associated with improved audit quality in the IFRS regime. Consistent with prior literature (Caramanis and Lennox 2008), we find that more audit effort is associated with lower abnormal accruals in the period before IFRS adoption. Interestingly, after Italy adopted IFRS, abnormal accruals are lower, but audit hours were less associated with lower abnormal accruals, implying that more audit hours are needed to constrain earnings management. Collectively, our empirical analysis suggests that while audit effort increased with mandatory IFRS adoption, the effectiveness of audit effort to constrain earnings management decreased.

**Keywords:** IFRS, Audit hours, Audit Effort, Earnings Quality, Audit Quality

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## 1. INTRODUCTION

In this study, we explore whether the mandatory adoption of International Financial Reporting Standards (IFRS) affects audit effort and the effect of audit effort in constraining the clients' management of earnings. Prior studies have examined the impact of mandatory and voluntary adoption of IFRS on financial reporting quality (e.g., Van Tendeloo and Vanstraelen 2005; Barth, Landsman, and Lang 2008; Ahmed, Neel, and Wang 2013).<sup>1</sup> Researchers have also explored, to a lesser extent, the costs of mandatory adoption, such as audit fees (e.g., Kim, Liu, and Zheng 2012; De George, Ferguson, and Spear 2013). But how IFRS adoption influences audit efforts and auditors' effectiveness in constraining clients' earnings management activities remains unclear. IFRS is principles-based and more complex than previous standards, and requires significantly more human judgment to enforce (Marden and Brackney 2009). As a result, the mandatory adoption of IFRS is likely to affect the auditor's production function. Thus, the findings of our study have implications for how IFRS adoption affects audit effort and effectiveness. We motivate our study as follows.

First, it is unclear whether auditors spend more hours completing an audit after IFRS adoption. On the one hand, IFRS is more complex, and its adoption may "overly burden accounting professionals who are already strapped for resources" (Marden and Brackney 2009). Stated differently, the higher level of complexity could require auditors to exert greater effort (in audit hours) to achieve the same level of assurance. However, it is also likely that under IFRS, auditors have more flexibility to direct their resources, just as Audit Standard No. 5 (Doogar, Sivadasan, and Solomon 2010) permits them to assess risk more effectively and conduct their procedures in fewer hours. Thus, ex ante, it is unclear whether auditors incur more or fewer hours to complete an engagement under IFRS.

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<sup>1</sup> See De George, Li, and Shivakumar (2016) for a review of the literature.

Second, while Kim et al. (2012) and De George et al. (2013) show that audit fees increase after the adoption of IFRS, it is unclear whether the fee increase is attributable to an increase in effort (i.e., audit hours) or an increase in the hourly rate. The hourly rate to auditors could increase in the post-IFRS period because principles-based accounting standards have the potential to increase auditor business risk (Marden and Brackney 2009). Thus, auditors in the IFRS regime could expend the same level of audit effort but charge a higher hourly rate to compensate for greater business risk (Bell, Landsman, and Shackelford 2001; Bedard and Johnstone 2004).

Third, the higher audit fees attributable to the IFRS adoption, instead of implying better audit quality, could compromise auditor independence and lead to lower quality (Frankel, Johnson, and Nelson 2002). When exploring audit quality, the use of audit hours (instead of audit fees) to measure audit effort improves the construct validity for audit effort. By examining the impact of IFRS on audit hours, we could shed more light on the consequences of mandatory IFRS adoption.

Prior studies have shown that, before IFRS adoption, greater audit effort (measured by audit hours) constrained managers from more aggressively managing earnings (e.g., Caramanis and Lennox 2008). If auditors expend greater effort post IFRS, a legitimate follow-up question is whether the greater audit effort contributes to higher financial reporting quality. And if greater effort does lead to higher earnings quality under IFRS, does the marginal benefit increase (or decrease) from one more audit hour post IFRS versus pre IFRS? Differently put, does audit effectiveness improve in the post-IFRS period relative to in the pre-IFRS period?

The answer to the last question is not clear ex ante. On the one hand, auditors have to exercise more judgment under IFRS, which could result in a higher risk of their being sued by

investors. Greater judgment and flexibility could also lead to disagreement between the auditor and management. Greater audit risk and more disagreement with management could reduce the level of effectiveness, because more audit hours would be needed to achieve an acceptable level of assurance. Consequently, auditors could be less effective in constraining earnings management under IFRS. On the other hand, the adoption of IFRS arguably affords auditors more flexibility in identifying audit risk, allowing them to direct their audit resources to riskier areas of the engagement. If this is the case, then auditors could achieve greater effectiveness. This underlying logic is supported by the Doogar et al. (2010) inference that auditors devote more resources to risky engagements when internal control auditing standards are less prescriptive (i.e., PCAOB AS No. 5). Additionally, IFRS grants auditors more latitude in exercising their judgment, which could also contribute to greater effectiveness.<sup>2</sup> In sum, it is unclear whether auditors under IFRS are more effective in constraining earnings management.

We use data from the Italian market for testing our research questions for two reasons. First, Italy is an important country in the European Union (EU), and its audit hours are publicly available. Second, compared to IFRS, Italian GAAP is more rules-based and allows for fewer accounting choices. For instance, Italian GAAP amortizes goodwill over a 20-year maximum term (or a ten-year maximum term, when the useful life cannot be determined effectively), whereas IFRS expenses goodwill by a more judgement-based impairment test. As well, Italian GAAP, for investments in associates, uses the cost method, while IFRS uses the more complex equity method. Consequently, the adoption of IFRS in Italy represents a significant change to more principles-based accounting standards by Italian firms.

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<sup>2</sup> Peytcheva, Wright, and Majoor (2014, 67) conclude that "...accounting standards based on broad principles are likely to evoke systematic and thorough information processing, thereby leading auditors to strive for a rich and accurate understanding of the issues under consideration."

We manually collect audit hours for 700 firm-year observations in the period 2002–2007. We find that in the period after IFRS adoption, audit hours are significantly higher than in the period before IFRS adoption. In contrast, in a supplemental analysis, we do not find evidence that the hourly rate is statistically different in the periods before and after IFRS adoption. These two findings together suggest that higher audit fees, as documented in Kim et al. (2012) and De George et al. (2013), are driven by increased audit effort rather than by a higher hourly rate. More importantly, our results indicate that after IFRS adoption, audit hours are less strongly associated with lower absolute and income-increasing abnormal accruals. This suggests that, following IFRS adoption, auditors are less effective in constraining management from aggressively reporting higher earnings, which is consistent with the theory that auditors face asymmetric loss functions for income-increasing earnings management (Caramanis and Lennox 2008).

Our results are similar when we employ the propensity of using abnormal accruals to avoid reporting a loss, and are robust to various design choices to improve identification. Collectively, the empirical results indicate that audits are less effective under IFRS. This finding is consistent with concerns that prior studies have expressed about principles-based accounting standards. Specifically, Nelson, Elliott, and Tarpley (2002) indicate that auditors are less likely to adjust clients' unstructured earnings management attempts when accounting standards are imprecise. And Schipper (2003, 69) notes that principles-based accounting standards require a higher level of expertise from auditors and preparers.

Our study makes several important contributions to the literature. First, we extend the IFRS and audit fee literature by exploring how IFRS influences audit effort. Audit hours are different from audit fees because higher audit fees could be attributable to either greater audit

effort or higher hourly rates (Knechel, Rouse, and Schelleman 2009). Our study shows that the complexity of IFRS (greater audit hours), rather than higher litigation risk (higher hourly rate), potentially contributes to higher audit fees. Second, the higher audit fees attributable to IFRS adoption do not imply better audit quality, because they could compromise auditor independence and thereby lead to lower quality (Frankel et al. 2002). Our use of audit hours to measure audit effort improves the construct validity for audit effort when audit quality is explored (Caramanis and Lennox 2008). Our results therefore clarify the findings in the literature on audit effort and audit quality. Third, our paper sheds light on how more complex, principles-based standards (i.e., IFRS) affect (i) audit efficiency and (ii) the effectiveness of audits in constraining earnings management. To the best of our knowledge, we are the first to explore this issue. Lastly, our study provides more insight on how IFRS adoption affects the financial reporting process and the auditors' role in it. Our paper is the first to link the adoption of IFRS to audit effort and financial reporting quality.

While our study uses data from the Italian market, we believe our findings may have implications for other continental EU countries that have a similar capital market and legal system. We caution, however, that each country is different, and the findings may not generalize to markets outside Italy. However, at a minimum, our study provides insight into the intertwined relationship between accounting standards and auditor effort, and the effect of this relationship on earnings quality. Moreover, although the EU countries adopted IFRS more than ten years ago, the debate over the benefits and costs of such an important set of accounting standards is far from over. Concurrently, the U.S. FASB continues to deliberate and promulgate standards that converge with IFRS. For example, the FASB Topic 842 (accounting for leases), which is similar to the standards for leasing in IFRS, has taken effect for all public firms in the United States as of

the end of 2018. While the legal systems in Italy and the U.S. are substantially different, granting auditors more judgment by adopting more principles-based standards in a country with stronger investor protection likely shifts more responsibility to the auditors.

## 2. REGULATORY BACKGROUND

Italy is a country with a code-law tradition and one of the countries where local GAAP is significantly different from IFRS (Bae, Tan, and Welker 2008; La Porta, Lopez-de-Silanes, Shleifer, and Vishny 1998). Its investor protection laws and enforcement are weaker than in countries with common-law traditions (Choi and Wong 2007), thus its auditor litigation risk is lower. In Italy, as in other code-law countries (e.g., Germany and France), the ownership of publicly traded companies is more concentrated in large shareholders, such as founding families and the state (La Porta, Lopez-de-Silanes, and Shleifer 1999), and banks are a major supplier of capital to the economy (OECD 2018, 33). Italian GAAP, which was used before the adoption of IFRS, was a more conservative standard that included historical cost and capital maintenance based-principles (Di Pietra 1997, 2011). Italian GAAP was closely tied to regulations and produced more-conservative accounting figures, which protected the interests of creditors, including financial institutions (Corbella, Florio, and Rossignoli 2013). Therefore, financial statements under Italian GAAP were more verifiable and contained less subjective figures.

In 2002, the European Union passed Regulation 1606/2002, which required mandatory adoption of IFRS in 2005 by most publicly listed companies in EU member countries (European Parliament 2002). IFRS establishes high-quality, principles-based financial reporting standards that better reflect the underlying economics of the reporting entity (IASB 1989; Barth et al. 2008). Following EU Regulation 1606/2002, Italy mandatorily adopted IFRS (Legislative Decree No. 38/2005), effective as of the 2005 fiscal year (Republic of Italy 2005). Legislative Decree

No. 38/2005 requires compliance by listed companies (Cameran and Perotti 2014). Private companies can adopt IFRS voluntarily if they exceed the minimum size in assets (4.4M euros), sales (8.8M euros), and employees (50) for the past two years.

Compared to Italian GAAP, IFRS is more principles-based and, according to the IFRS mission statement, aims to “bring transparency, accountability and efficiency to financial markets around the world” (IFRS Foundation 2021). As mentioned above, Italian GAAP protected creditors, who are the dominant suppliers of capital in Italy. In contrast, IFRS intends to reduce information asymmetry between all stakeholders (e.g., investors and lenders) and management. One of the major differences between the two is that IFRS requires significantly more judgment by management and auditors than historical cost accounting under Italian GAAP did. For example, IFRS can require non observable inputs (as in the case of financial instrument fair-value valuation) and revaluation of property, plant, and equipment under fair-value accounting (Corbella et al. 2013). In addition, IFRS requires impairment tests of intangible assets. These tests require more judgment than amortization over a finite number of years, the requirement under Italian GAAP.

### **3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

#### **3.1 IFRS Adoption and Audit Hours**

Several studies have shown that audit fees are higher in specific countries after IFRS was adopted (Griffin, Lont, and Sun 2009; Kim et al. 2012; De George et al. 2013). Audit production models, which can be traced back to the seminal study by Simunic (1980), view audit fees as a function of production costs, audit liability costs, and profit (Akono and Stein 2014). These studies suggest that an increase in audit fees is not sufficient to conclude that audit hours increase. To compensate for higher audit risk in the IFRS regime, auditors could substitute

higher-ranked personnel for lower-ranked personnel, resulting in higher hourly rates (Bedard and Johnstone 2004). Alternatively, partners and managers could expend more hours where greater professional judgment is needed, such as in understanding the client's business and processes and in assessing internal controls (Blokdiijk, Drienuhuizen, Simunic, and Stein 2006; Bell, Doogar, and Solomon 2008). As well, higher audit fees could reflect the higher audit liability costs associated with the greater audit risk (De George et al. 2013).

To the best of our knowledge, no studies have systematically examined why and how the adoption of IFRS affects audit hours. Prior empirical studies that focus on IFRS adoption and audit fees show an increase in fees following mandatory adoption (Griffin et al. 2009; Kim et al. 2012; De George et al. 2013). Griffin et al. (2009) find an increase around New Zealand's transition to IFRS (2004–2006); however, their results may not generalize to Italy because of New Zealand's different legal system (common law). Kim et al. (2012) find an increase for eleven EU countries (including Italy) that adopted IFRS in 2005. They argue that audit fees increase because of greater task complexity. Specifically, they say IFRS is “comprehensive, principles-based, and fair value-oriented,” which leads to more complex estimates and a greater need for professional auditor judgment (Kim et al. 2012, 2070).

More relevant to our study is De George et al. (2013), who use data from Australia. Given that Australia's common-law legal system is different from Italy's code-law system, their findings may not generalize to Italy. However, their theory that more principles-based accounting standards require greater auditor verification equally applies to the Italian market. They predict that IFRS increases audit fees by (i) requiring greater auditor verification of detailed disclosures, and (ii) increasing audit risk through the use of fair value estimates. First, post IFRS, auditors will have to complete more verification work arising from the added detail in

footnote disclosures (e.g., fair value calculations for share-based compensation). Second, and more importantly, IFRS carries an increased risk of material misstatements and a greater litigation risk from those misstatements. Fair value estimates are the primary source of risk because they require subjective estimates, particularly for level-three inputs. The lack of bright-line rules that would otherwise defend subjective fair value estimates exacerbates litigation risk (Diehl 2010). In turn, auditors expend additional effort to ensure that their estimates are sufficiently defensible.

Yet it is also possible that IFRS adoption will lead to lower audit hours, as principles-based standards allow auditors more flexibility in allocating resources to address critical issues. For instance, Doogar et al. (2010) find that audit fees in the U.S. have been lower since Auditing Standard No. 5 (AS5), a principles-based standard concerning the audit of internal control effectiveness, took effect in 2007. Relative to Auditing Standard No. 2 (AS2), AS5 is more efficient because it gives auditors flexibility in determining critical matters. If IFRS permits greater efficiency than Italian GAAP, then audit effort should be lower.

In short, our first hypothesis is non-directional and stated formally:

**H1: *Mandatory adoption of IFRS is not associated with audit effort.***

### **3.2 IFRS Adoption and Auditors' Effectiveness in Constraining Earnings Management**

Ex ante, it is unclear whether the adoption of IFRS increases the auditor's effectiveness in constraining earnings management. De George et al.'s (2016) review of the IFRS literature calls for future research on whether additional auditor effort indeed translates into higher financial reporting quality.

Arguably, the adoption of IFRS in Italy may increase the opportunity for earnings management. As discussed earlier, before IFRS adoption, Italian GAAP used more conservative

principles and specific codified rules. Because IFRS is more principles-based and involves greater use of fair value estimates,<sup>3</sup> it could give managers more discretion to manage earnings (Jamal et al. 2010). If managers have greater discretion, auditors must exert greater effort to constrain their attempts at earnings management (Caramanis and Lennox 2008). Caramanis and Lennox (2008) find that when audit hours are lower, abnormal accruals are more positive than negative, positive abnormal accruals are larger, and companies are more likely to meet or beat the zero earnings benchmark.

More germane to our study is Cameran, Campa, and Pettinicchio (2014), who find evidence that Italy's adoption of IFRS resulted in lower financial reporting quality for non-listed private firms who *voluntarily* adopted IFRS. Comparing non-listed private firms who voluntarily adopted IFRS to firms that still use Italian GAAP, they find that abnormal accruals are higher for the IFRS adopters. Relatedly, Ahmed, Neel, and Wang (2013) obtain a similar result when they compare mandatory IFRS adopters to non-adopters in a cross-country analysis, while controlling for country-level enforcement characteristics. They conclude that IFRS adopters have poorer financial reporting quality. Thus, if, following IFRS adoption, earnings management increases in the Italian market at the same time that auditors spend more hours, this will indicate a decline in audit effectiveness.

The underlying prediction above is consistent with arguments, in prior studies, that auditors are less effective in constraining earnings management under IFRS because managers have greater discretion over earnings. The audit effort under IFRS requires greater professional judgment in assessing the reasonableness of fair value estimates, the valuation of financial

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<sup>3</sup> Several studies argue that IFRS is more principles-based than domestic accounting standards. The studies cite, as examples, principles-based lease accounting (Agoglia, Douppnik, and Tsakumis 2011), more policy options (Kvaal and Nobes 2012), and more discretion for aggregating amounts on the financial statements (Valentinetti and Rea 2013).

instruments, and the impairments of tangible and intangible assets. With greater audit effort, auditors can better constrain earnings management. But because audit tests depend on risk assessments and samples that imperfectly detect and correct errors (particularly when lower-ranked audit personnel assess management discretion), the rate at which auditors can complete their work will be diminished.

However, we offer several arguments as to why this might not be the case. First, incremental earnings management under IFRS may be negligible in Italy. Because European private companies engage in more earnings management than public companies (Burgstahler, Hail, and Leuz 2006), Cameran et al.'s (2014) results may not generalize to companies that mandatorily adopt IFRS (publicly listed companies and public interest entities). Second, experimental and survey literature suggests that principles-based accounting standards are better at constraining clients' aggressive reporting than rules-based standards are (Cohen, Krishnamoorthy, Peytcheva, and Wright 2013). Principles-based standards influence auditors' cognitive motivations by expecting the auditors to justify their decisions to others; this could lead the auditors to desire a rich and deep understanding of the problem, and to increase their demands for audit evidence (Peytcheva et al. 2014). If this is the case, then auditors may be more effective in constraining earnings management post IFRS. While auditors spend more hours in the post-IFRS period, their greater effort could more effectively constrain earnings management. Therefore, whether auditors are more effective in constraining earnings management is an empirical question. Our second hypothesis is non-directional and stated in the null form as follows.

***H2: Mandatory adoption of IFRS does not affect auditor effectiveness to constrain client earnings management.***

#### **4. RESEARCH DESIGN**

#### 4.1 Test of H1

We adopt the following model to compare audit hours in the pre-IFRS period to the post-IFRS period:

$$\begin{aligned} \ln(\text{hours}) = & \beta_1 + \beta_2 \text{IFRS} + \beta_3 \ln(\text{GDP}) + \beta_4 \text{SIZE} + \beta_5 \sigma(\text{CFO}) + \beta_6 \text{CFO} + \beta_7 \text{LEV} + \beta_8 \text{LOSS} + \\ & \beta_9 \text{SALES\_GROWTH} + \beta_{10} \text{LAG\_ABS\_TOT\_ACC} + \beta_{11} \text{LARGE\_SHAREHOLDER} + \\ & \beta_{12} \# \text{SEGMENTS} + \beta_{13} \# \text{SUBSIDIARIES} + \beta_{14} \text{FOREIGN\_REVENUES} + \beta_{15} \text{BIG} + \\ & \beta_{16} \text{FIRM\_CHANGE} + \beta_{17} \text{PARTNER\_CHANGE} + \beta_{18} \text{IND\_MKTSHARE\_EP} + \\ & \beta_{19} \text{PARTNER\_AGE} + \beta_{20} \text{WORKING\_EXP} + \beta_{21} \text{FEMALE} + \beta_{22} \text{CATA} + \beta_{23} \text{QUICK} + \beta_{24} \text{ROI} + \\ & \beta_{25} \text{OPINION} + \text{Industry fixed effects} + \text{error} \end{aligned} \quad (1)$$

where  $\ln(\text{hours})$  is the natural logarithm of audit hours. Audit hours include the audit of the consolidated financial statements, the individual parent and subsidiaries' financial statements, the semiannual financial reports, and related accounting and record-keeping procedures. To measure audit effort, we use total audit hours for the group audit rather than specific individual components (e.g., parent company, consolidation procedures, interim reports, and other audits).<sup>4</sup> We believe this is a more reliable measure of audit effort because it better considers the structure and complexity of the entire consolidated entity and is consistent with the other data used in the model.

To test H1, we include an indicator variable for the adoption of IFRS. *IFRS* is equal to 1 for fiscal years 2005 and later, and 0 otherwise. If the estimated coefficient on *IFRS* ( $\beta_1$ ) is positive (negative), then audit hours are higher (lower) in the post-IFRS period than in the pre-IFRS period.

We control for variables used in prior studies that examine determinants of audit hours (Caramanis and Lennox 2008; Cameran, Francis, Marra, and Pettinicchio 2015), audit fees (Craswell, Francis, and Taylor 1995; Cameran et al. 2015; Corbella, Florio, Gotti, and Mastrolia

<sup>4</sup> As well, clients do not consistently report the individual components of the group audit hours. In our robustness tests, we exclude interim reporting hours and restrict the sample to firms that report them. The inferences are not affected.

2015), and audit quality (e.g., Reichelt and Wang 2010).<sup>5</sup> We control for macroeconomic conditions ( $\ln(GDP)$ ) because auditors may expend less effort during recessions (Ettredge, Emeigh Fuerherm, and Li 2014). We control for client size ( $SIZE$ ) because larger clients require more audit effort. We include common variables that control for audit risk: current assets to total assets ( $CATA$ ), quick ratio ( $QUICK$ ), proxies for client profitability ( $ROI$ ,  $CFO$ , and  $LOSS$ ), leverage ( $LEV$ ), cash flow volatility ( $\sigma(CFO)$ ), client sales growth ( $SALES\_GROWTH$ ), and measures of client complexity (i.e., the number of segments ( $\#SEGMENTS$ ), the number of subsidiaries ( $\#SUBSIDIARIES$ ) and the proportion of foreign sales ( $FOREIGN\_REVENUES$ ). We control for the lagged absolute value of total accruals ( $LAG\_ABS\_TOT\_ACC$ ) because auditors expect to expend more effort for clients with greater risk of earnings management. We control for audit firm change ( $FIRM\_CHANGE$ ) and engaging partner change ( $PARTNER\_CHANGE$ ) because Italy has a mandatory rotation term for audit firms and audit partners. We control for Big N ( $BIG$ ) auditor type, auditor industry specialization ( $IND\_MKTSHARE\_EP$ ), and a qualified audit opinion ( $OPINION$ ), because they entail greater audit effort and greater litigation risk (Bae, Choi, and Rho 2016).<sup>6</sup> Because family ownership correlates with financial reporting quality (Wang 2006), we control for large shareholder ownership (e.g., family-controlled firms) ( $LARGE\_SHAREHOLDER$ ).<sup>7</sup> We control for partner characteristics such as partner age ( $PARTNER\_AGE$ ), partner working experience ( $WORKING\_EXP$ ), and partner gender ( $FEMALE$ ), because prior studies show that these factors affect audit fees or audit quality (Abbott, Parker, and Presley 2012; Sundgren and Svanström

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<sup>5</sup> Appendix I provides further details of the variable definitions.

<sup>6</sup> Note that our measure,  $OPINION$ , has a relatively high mean value (0.41, Table 2) because it is based on a modified audit opinion definition (Compustat Global), which includes unqualified opinions with additional language, qualified opinions, adverse opinions, or no opinion.

<sup>7</sup> We do not have data to directly measure family ownership, so our measure is based on controlling ownership. The two are highly correlated because family ownership has larger ownership. Thus, we use controlling ownership as an approximation of family ownership.

2014; Cahan and Sun 2015; Chi, Myers, Omer, and Xie 2017). Lastly, we include industry indicator variables to control for unobservable industry fixed effects.<sup>8</sup> Appendix I provides detailed definitions of these variables.

## 4.2 Test of H2

Following prior studies (e.g., Ahmed et al. 2013), our main measure of audit quality is the absolute value of abnormal accruals magnitude ( $|AB\_ACCR|$ ). Because our sample size is relatively small, we estimate  $|AB\_ACCR|$  following DeFond and Park (2001), Francis and Wang (2008), and Cameran et al. (2015).  $|AB\_ACCR|$  is the absolute value of signed abnormal accruals (i.e., total accruals less predicted accruals). Total accruals are earnings before extraordinary items less cash flow from operations, scaled by assets at the end of year  $t-1$ . Predicted accruals are:

$$\begin{aligned} & [[\text{Sales in year } t \times (\text{current accruals in year } t-1 / \text{sales in year } t-1)] \\ & - [\text{gross PPE in year } t \times (\text{depreciation in year } t-1 / \text{gross PPE in year } t-1)] \\ & / \text{total assets at the end of year } t-1 \end{aligned} \quad (2).$$

Abnormal accruals have been adopted widely as a measure of audit quality (e.g., Reichelt and Wang 2010). Moreover, following Ashbaugh-Skaife, Collins, Kinney, and LaFond (2008) and Cameran et al. (2015), we use the absolute value of abnormal accruals, positive abnormal accruals, and negative abnormal accruals to measure earnings management. Specifically, the following model tests H2:

$$\begin{aligned} & |AB\_ACCR| \text{ or } | \text{positive } AB\_ACCR | \text{ or } | \text{negative } AB\_ACCR | \\ & = \beta_0 + \beta_1 \ln(\text{hours}) + \beta_2 IFRS + \beta_3 IFRS * \ln(\text{hours}) + \beta_4 \ln(GDP) + \beta_5 SIZE + \beta_6 \sigma(CFO) + \beta_7 CFO + \\ & \beta_8 LEV + \beta_9 LOSS + \beta_{10} SALES\_GROWTH + \beta_{11} LAG\_ABS\_TOT\_ACC + \\ & \beta_{12} LARGE\_SHAREHOLDER + \beta_{13} \#SEGMENTS + \beta_{14} \#SUBSIDIARIES + \\ & \beta_{15} FOREIGN\_REVENUES + \beta_{16} BIG + \beta_{17} FIRM\_CHANGE + \beta_{18} PARTNER\_CHANGE + \end{aligned}$$

<sup>8</sup> The industry definition is from the Global Industry Classification Standards (GICS). Firms are grouped into nine industries: energy (GICS 10), materials (GICS 15), industrials (GICS 20), consumer discretionary (GICS 25), consumer staples (GICS 30), healthcare (GICS 35), information technology (GICS 45), telecommunication services (GICS 50), and utilities (GICS 55).

$$\beta_{19}IND\_MKTSHARE\_EP + \beta_{20}PARTNER\_AGE + \beta_{21}WORKING\_EXP + \beta_{22}FEMALE + \beta_{23}LIT + \beta_{24}ALTMAN + \beta_{25}SALES\_VOLATILITY + \beta_{26}PPE\_GROWTH + \beta_{27}ROA\_1 + \text{Industry fixed effects} + \text{error} \quad (3).$$

Consistent with Caramanis and Lennox (2008), we predict that the estimated coefficient on  $\ln(hours)$  is negative (i.e.,  $\beta_2 < 0$ ). Our test variable is the interaction term  $IFRS * \ln(hours)$ . If the estimated coefficient ( $\beta_3$ ) is positive, it indicates that after IFRS adoption, auditors are less effective in constraining client earnings management when  $|AB\_ACCR|$ ,  $AB\_ACCR > 0$  or  $|AB\_ACCR < 0|$  is the dependent variable for the same level of effort (audit hours).<sup>9</sup> In comparison, a negative coefficient on the interaction term ( $\beta_3 < 0$ ) indicates that after IFRS adoption, auditors are more effective in mitigating client earnings management for the same level of effort when the dependent variable is  $|AB\_ACCR|$ ,  $AB\_ACCR > 0$ , or  $|AB\_ACCR < 0|$ . We separately examine income-increasing and income-decreasing accruals because prior studies find that auditors face asymmetric loss functions and are more concerned about income-increasing abnormal accruals (e.g., Caramanis and Lennox 2008).<sup>10</sup> We adopt a Tobit regression, following the approach in Ashbaugh-Skaife et al. (2008), because all dependent variables are limited to positive values.<sup>11</sup>

Consistent with equation (1) and prior audit quality studies (e.g., Myers, Myers and Omer 2003; Francis and Yu 2009; Reichelt and Wang 2010; Francis and Michas 2013), we include

<sup>9</sup> Alternatively, we estimate two regressions based on equation (3): one for the pre-IFRS period and one for the post-IFRS period, and we drop the  $IFRS$  variable and interaction term. We find that the coefficient on  $\ln(hours)$  in the pre-IFRS period is more negative than that in the post-IFRS period, but the difference is only significant at  $p = 0.093$  (one-tailed test), indicating very weak support for the main results.

<sup>10</sup> Prior studies show that auditors are more concerned about income-increasing abnormal accruals (e.g., Caramanis and Lennox 2008; Ke, Lennox, and Xin 2015; Lennox, Wu, and Zhang 2016). However, large income-decreasing abnormal accruals may also be used by clients to create a cookie-jar reserve or a “big bath” that will lead to income-increasing abnormal accruals in future years. Our empirical results indicate that clients do manage earnings upward and downward. This is also likely the reason that Cameran et al. (2015) adopt the absolute value of abnormal accruals to measure earnings management in the Italian market. Lastly, while Hribar and Nichols (2007) show the false positive problem of using absolute accruals, they suggest controlling for operating volatility and size to mitigate the concern. In our model, we control for operating cash flow volatility ( $\sigma(CFO)$ ) and client size ( $SIZE$ ).

<sup>11</sup> We do not include client-fixed effects because a Tobit model with client-fixed effects yields biased results (Soderbom 2009). As an alternative test, we estimate a Tobit model with client-random effects and an OLS model with client-fixed effects. The inferences of the results (untabulated) are unchanged.

several control variables, including some of the same control variables defined in Equation (1), and other determinants of accruals quality. The definitions are reported in Appendix I.

## 5. SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

Our sample selection starts with all Italian companies listed on the Milan Stock Exchange that are available on Compustat Global (2002–2007). We exclude the financial sector from our analysis because of its dissimilar nature. We hand-collect audit hours from publicly available annual shareholder meeting minutes of Italian listed companies, downloaded from the companies' websites.<sup>12</sup> Appendix II provides two examples of the disclosures for audit hours: Pirreli & C. S.p.A., and Davide Campari-Milano S.p.A.

As reported in Table 1, after deleting observations with missing values, the final sample yields 700 firm-year observations for the period 2002–2007, representing 183 unique firms and 80 percent of publicly traded non-financial firms.<sup>13</sup> Table 1 also reports the sample distribution by period and year. There are 303 firm-year observations in the pre-IFRS period (2002–2004) and 397 firm-year observations in the first three years of the post-IFRS period (2005–2007).

[Insert Table 1]

Table 2 reports the descriptive statistics of the main variables. Mean raw audit hours are 1,806 for the full sample and 1,691 and 1,894 for the pre-IFRS and post-IFRS period samples, respectively. Raw audit hours increase by 12 percent in the post-IFRS period, consistent with H1. The mean absolute value of abnormal accruals is 0.18 for the full sample and 0.20 and 0.17 for the pre-IFRS and post-IFRS periods, respectively. The findings appear to be consistent with

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<sup>12</sup> To ensure that our data are accurate, we hired a different team of assistants to verify the data. Over the course of the data collection, two of the coauthors met with the team every two weeks to plan and control the quantity and quality of the data collected. We are confident that we hand-collected all audit hours of publicly disclosed subsidiaries. However, following Cameran et al. (2015), we acknowledge that we did not hand-collect for non-publicly disclosed subsidiaries.

<sup>13</sup> Approximately 45 percent of the firm-year observations (1,251/2,281) have missing audit hours. However, there are approximately 230 unique non-financial firms traded on the Milan Stock Exchange (Cameran et al. 2015). Thus, our sample represents about 80 percent (183/230) of publicly traded clients.

prior evidence that financial reporting quality improves in the post-IFRS period (Barth et al. 2008). The descriptive statistics for control variables are, in general, consistent with prior studies (e.g., Cameran et al. 2015). Thus, for brevity, we do not discuss them in detail.<sup>14</sup>

[Insert Table 2]

## 6. EMPIRICAL RESULTS

### 6.1 Correlation analysis

Table 3 presents further univariate analysis, based on Pearson correlation coefficients. Audit hours are higher in the IFRS period, as indicated by the positive correlation between *IFRS* and  $\ln(hours)$ . Abnormal accruals magnitude is lower in the post-IFRS period, as indicated by the negative correlation between *IFRS* and  $|AB\_ACCR|$ , consistent with Barth et al. (2008). Abnormal accruals magnitude and audit hours are negatively associated, indicating that greater audit effort is associated with less earnings management, consistent with Caramanis and Lennox (2008).

[Insert Table 3]

Other correlations are consistent with prior studies. In the post-IFRS period, the following variables exhibit significantly higher values: audit effort ( $\ln(hours)$ ), gross domestic product ( $\ln(GDP)$ ), working experience (*WORKING\_EXP*), partner change (*PARTNER\_CHANGE*), sales volatility (*SALES\_VOLATILITY*), lagged return on assets (*ROA\_I*), return on assets (*ROI*), and audit opinion (*OPINION*). In comparison, loss frequency

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<sup>14</sup> Our descriptive statistics are comparable to Cameran et al. (2015) after we account for differences in the unit of measure and the inclusion of non-Big 4 clients in our sample. In our study, the mean (median) of *SIZE* is 6.30 (6.08), and the mean (median) of assets is 2,448 (436) million euros, for the period 2002–2007. In comparison, Cameran et al. (2015, Table 2) report that the mean (median) of *SIZE* is 20.252 (19.934), and the median of assets is 458 million euros, for the period 2006–2009. We calculate *SIZE* as the natural logarithm of total assets in millions of euros, while Cameran et al. (2015) seem to measure *SIZE* as the natural log of total assets in euros.

(*LOSS*), audit firm change (*FIRM\_CHANGE*), current assets (*CATA*), and quick ratio (*QUICK*) are lower in the post-IFRS period.

Audit hours ( $\ln(\text{hours})$ ) are positively correlated with  $\ln(\text{GDP})$ , client size (*SIZE*), operating cash flow (*CFO*), leverage (*LEV*), number of segments (*#SEGMENTS*), number of subsidiaries (*#SUBSIDIARIES*), foreign sales (*FOREIGN\_REVENUES*), Big 4 audits (*BIG*), partner industry specialization (*IND\_MKTSHARE\_EP*), female partners (*FEMALE*), and some other client-level characteristics (*SALES\_VOLATILITY*, *ROA\_1*, and *ROI*). In contrast, greater audit effort ( $\ln(\text{hours})$ ) is correlated with lower operating cash flow volatility ( $\sigma(\text{CFO})$ ), Altman z-score (*ALTMAN*), current assets (*CATA*), and quick ratio (*QUICK*).<sup>15</sup> For brevity, we do not discuss the correlations among other variables.

## 6.2 Multivariate analysis

### 6.2.1 Tests of H1

H1 tests whether audit hours increase or decrease after Italy adopts IFRS. Before we report the results from testing H1, we validate the audit fee results following IFRS adoption that are documented in prior studies (Kim et al. 2012; De George et al. 2013). We do so by replacing the dependent variable in equation (1) with the natural logarithm of audit fees. In untabulated results, we find that the coefficient on *IFRS* is positive (0.235,  $p < 0.01$ ).<sup>16, 17</sup>

We next report the results from estimating equation (1) with  $\ln(\text{hours})$  as the dependent variable. All p-values are two-tailed and calculated based on client firm clustered standard errors.

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<sup>15</sup> The correlation between  $\ln(\text{GDP})$  and *IFRS* is high (0.806) because Italian GDP has been increasing during most of our sample period (see <https://fred.stlouisfed.org/series/CLVMNACSCAB1GQIT>). The highest VIF in our main regression analysis (Tables 4 and 5) is 3.41, which applies to the  $\ln(\text{GDP})$  variable reported in Table 4, suggesting that there is no concern over multicollinearity.

<sup>16</sup> We obtain audit fee data from the notes to the financial statements. The adjusted  $R^2$  is 0.404, which is comparable to Cameran (2005, 140) that report a value of 0.498 using Big 4 and non-Big 4 audit listed firms in their sample.

<sup>17</sup> We find robust results when we exclude the year of IFRS adoption (2005) and restrict the sample period to two years before adoption (2003–2004) and two years after (2006–2007). The coefficient on *IFRS* is positive (0.375,  $p < 0.01$ ) and the adjusted  $R^2$  is 0.418. To estimate the regression equation, we exclude  $\ln(\text{GDP})$  as a control variable because the VIF exceeds 10.

Table 4 reports the results of estimating equation (1). The adjusted  $R^2$  is 0.446, which is comparable to the  $R^2$ s (between 0.527 and 0.532) reported by Cameran et al. (2015). The coefficient on *IFRS* is 0.173 ( $p < 0.01$ ), suggesting that audit hours are 18.9 percent higher following the adoption of IFRS.<sup>18</sup> The result indicates that audit hours increased following Italy's adoption of IFRS.

[Insert Table 4]

### 6.2.2. Tests of H2

Table 5 reports the results for testing H2. In Column (1), the dependent variable is the absolute value of abnormal accruals. Following Ashbaugh-Skaife et al. (2008), we adopt Tobit models for this test because the dependent variable is limited to non-zero values by construction (Greene 2003, C. 22).<sup>19</sup> The adjusted  $R^2$  is 23.7 percent. The coefficient on  $\ln(hours)$  is -0.058 ( $p < 0.01$ ), indicating that abnormal accruals magnitude is negatively associated with audit effort in the pre-IFRS period, and is consistent with Caramanis and Lennox (2008). The coefficient on  $IFRS * \ln(hours)$  is positive (0.043,  $p < 0.01$ ), indicating that the negative association between audit hours and abnormal accruals magnitude is less salient after IFRS adoption. In short, it appears that after Italy adopts IFRS, abnormal accruals magnitude decreases, but auditors are less effective in constraining client earnings management of abnormal accruals, as they require more audit hours to address the same magnitude of abnormal accruals. The economic significance is such that, for a 12-percent increase in audit hours (the mean increase between the pre-IFRS and post-IFRS period), auditors are less effective in reducing abnormal accruals magnitude by 0.5 percent of opening total assets (0.2 percent in the post-IFRS period, compared

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<sup>18</sup> The percentage increase in audit hours is estimated as  $e^{\beta} - 1$ , where  $\beta$  is the coefficient on *IFRS* (Craswell et al. 1995).

<sup>19</sup> Inferences remain the same if we adopt OLS regression models.

to 0.7 percent in the pre-IFRS period).<sup>20</sup> The effect is material at a benchmark of 0.5 percent of total assets (McKee and Eilifsen 2000).

[Insert Table 5]

We next explore whether auditors are more or less effective in constraining income-increasing or income-decreasing abnormal accruals in the post-IFRS period. In Column (2), the dependent variable is positive abnormal accruals ( $AB\_ACCR > 0$ ). Column (2) reports that the coefficient on  $\ln(hours)$  is  $-0.046$  ( $p < 0.01$ ), suggesting that for a 12-percent increase in audit hours, income-increasing abnormal accruals decrease by 0.6 percent of opening total assets. The coefficient on  $IFRS * \ln(hours)$  is  $0.051$  ( $p < 0.01$ ), which indicates that in the post-IFRS period, an increase in audit hours is less associated with lower income-increasing abnormal accruals. Further, the sum of the coefficients on  $\ln(hours)$  and  $IFRS * \ln(hours)$  is not statistically different from zero. Consistent with the results reported in Column (1), the finding implies that additional audit effort does not seem to constrain income-increasing earnings management in the post-IFRS period. The result suggests that for a 12-percent increase in audit hours, auditors are less effective by 0.6 percent (i.e.,  $-0.051 \times 0.12$ ) of opening total assets.

In Column (3), the dependent variable is the absolute value of negative abnormal accruals ( $|AB\_ACCR < 0|$ ). The coefficient on  $\ln(hours)$  is  $-0.042$  ( $p < 0.05$ ), suggesting that a 12-percent increase in audit hours is associated with a reduction in the magnitude of income-decreasing abnormal accruals by 0.5 percent of opening total assets. Thus, it appears that greater audit effort

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<sup>20</sup> Note that mean raw audit hours increase by 12 percent between the pre-IFRS period and the post-IFRS period. If audit hours increased the same amount in the pre-IFRS period, abnormal accruals magnitude would decrease by 0.7 percent (i.e.,  $-0.058 \times 0.12$ ) of beginning of year total assets. In the post-IFRS period, the same increase in audit hours would be associated with a decrease by 0.2 percent (i.e.,  $(-0.058 + 0.043) \times 0.12$ ), a total difference of 0.5 percent. In short, for a 12-percent increase in audit hours, auditors would be less effective in reducing abnormal accruals magnitude by 0.5 percent of opening total assets in the post-IFRS period, compared to the pre-IFRS period. We find that the sum of the coefficients on  $\ln(hours)$  and  $IFRS * \ln(hours)$  is not significantly different from zero, suggesting that additional audit hours in the post-IFRS period are not effective in reducing abnormal accruals magnitude.

reduces both income-increasing and income-decreasing abnormal accruals in the pre-IFRS period. In comparison, the coefficient on  $IFRS*ln(hours)$  is positive but statistically insignificant ( $p>0.10$ ). Thus, we fail to find evidence that the adoption of IFRS in Italy reduces auditor's effectiveness in reducing management's income-decreasing abnormal accruals.

In short, our results indicate that the effect of expending more audit hours to constrain earnings management decreases after IFRS adoption. A possible reason for this is that the greater complexity of IFRS and the judgment required to apply principles-based accounting standards reduce audit effectiveness. Further, Italian GAAP is more conservative and more oriented toward creditor protection than IFRS (Corbella, Florio, and Rossignoli 2013). Under IFRS, which is more fair-value oriented, auditors' ability to constrain income-increasing abnormal accruals is compromised more than their ability to constrain income-decreasing abnormal accruals. However, our findings do not imply that earnings quality decreases after Italy adopts IFRS.<sup>21</sup>

## 7. ADDITIONAL ANALYSIS

### 7.1 Placebo test

As indicated in Table 1 of Christensen, Hail, and Leuz (2013), Italy did not experience a significant change in enforcement from 2001 to 2009. Thus, our results in Tables 4 and 5 are unlikely to be driven by changes in enforcement. However, in order to infer a plausible causal relationship between audit hours and audit effectiveness, we conduct a placebo test for whether there are similar results without IFRS adoption. Our test proceeds as follows. We restrict our sample period to 2002–2004 and create an indicator variable ( $Pre\_IFRS$ ) equal to 1 for 2004 and 0 otherwise.<sup>22</sup> We estimate equations (1) and (3) but replace  $IFRS$  with  $Pre\_IFRS$ . Because no

<sup>21</sup> Indeed, Table 2 reports that the opposite is true: abnormal accruals magnitude is lower after IFRS adoption, and the difference is statistically significant (untabulated), consistent with Barth et al. (2008).

<sup>22</sup> Alternatively, we use data from 2009 to 2013 for the placebo test, and use 2011 as the hypothetical adoption year ( $POST2011=1$ ). The inferences are the same.

clients in our sample adopt IFRS in 2004, we expect that the coefficient on *Pre\_IFRS* is not significantly different from zero. Table 6, Panel A, reports the results of estimating equation (1) when the dependent variable is  $\ln(hours)$ . The coefficient on *Pre\_IFRS* is positive and not statistically significant ( $p>0.10$ ), suggesting that without IFRS adoption, audit hours are not affected.

Panel B reports the results when the dependent variable is abnormal accruals (absolute, positive, and absolute negative values). The coefficient on *Pre\_IFRS\*ln(hours)* is positive for absolute and absolute negative values, and negative for positive values; however, the coefficients are not statistically significant ( $p>0.10$ ). In short, our results from the placebo test indicate that without IFRS adoption, audit hours expended and the effectiveness of audit effort on earnings management do not vary temporally.

[Insert Table 6]

## 7.2 Difference-in-differences test of H1

In our main analysis, the test of H1 relies on the same clients in the pre-IFRS period as in the post-IFRS period, because all publicly traded firms are required to adopt IFRS in 2005. Thus, it is challenging to find a control group, for a difference-in-differences test of H1, that is not affected by IFRS adoption. Fortunately, we do identify such a group. Regulation (EC) No. 1606/2002 (European Parliament 2002) allows member countries to delay the adoption of IFRS for unconsolidated financial statements by one year. Under this regulation, publicly traded firms in 2005 can still use local GAAP for non-consolidated financial statements but must adopt IFRS for consolidated financial statements. In our sample, all non-financial firms adopted IFRS for non-consolidated financial statements in 2006, and none adopted IFRS in 2005. Thus, 2005 is unique to consolidated financial statements adopting IFRS. Because client firms that prepare

non-consolidated financial statements did not adopt IFRS in 2005, we use them as our control group. We estimate the following model to test H1:

$$\ln(\text{hours}) = f(\text{POST}, \text{TREATED}, \text{POST}*\text{TREATED}, \text{controls}) + e \quad (4).$$

We implement the above model for the period 2002–2005. *POST* equals 1 for 2005 and 0 for 2002–2004. *TREATED* equals 1 for the treatment firms (consolidated financial statements), and 0 for the control firms (unconsolidated financial statements). The coefficient on *POST\*TREATED* measures the mean difference between the change in audit hours from the pre-IFRS period to the post-IFRS period for consolidated financial statements and the change in audit hours for non-consolidated financial statements during the same period.

We hand-collect 297 observations with unconsolidated financial statements. As a sensitivity analysis, we estimate audit hours that are not reported separately for consolidated and unconsolidated financial statements, based on the percentage of total audit hours from firms that report separately: consolidated (51 percent) and unconsolidated (23 percent).<sup>23</sup> The analysis permits us to increase the sample size from 297 to 848.

Table 7 reports the results of estimating equation (4). Column (1) reports results based on only using actual audit hours to compute  $\ln(\text{hours})$ . The coefficient on *POST* is positive but not statistically significant, suggesting that mean audit hours for unconsolidated financial statements are no different between 2005 and 2002–2004. The coefficient on *TREATED* is negative ( $p < 0.01$ ), indicating that mean audit hours in 2002–2004 are significantly lower for consolidated financial statements than for unconsolidated financial statements. The coefficient on *POST\*TREATED* is positive and statistically significant ( $p = 0.083$ ), indicating that the increase in

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<sup>23</sup> The sum is not 100 percent because total audit hours include other items such as the interim audit and quarterly reporting.

audit hours (between the 2005 and 2002–2004 periods) for consolidated financial statements was greater than that for non-consolidated financial statements.<sup>24, 25</sup>

[INSERT TABLE 7]

In Column (2), we report the results in which the dependent variable uses the actual audit hours for firms that separately report (between consolidated and unconsolidated financial statements) and the estimated audit hours for firms that do not separately report. The coefficient on *TREATED\*POST* is 0.354 ( $p < 0.01$ ), consistent with our results using only actual audit hours.

Taken together, our results from the difference-in-differences test are consistent with those in Table 4, suggesting that audit hours are higher in the IFRS regime.

### 7.5 An alternative measure of earnings management

Following prior literature (e.g., Burgstahler and Dichev 1997; Caramanis and Lennox 2008; Francis and Wang 2008), we measure earnings management by a client firm using abnormal accruals to avoid reporting a loss. Specifically, *LOSS\_AVOID* is equal to 1 if pre-managed earnings are less than 0 ([earnings before extraordinary items less abnormal accruals] < 0), abnormal accruals are positive, and earnings before extraordinary items are positive, and 0 otherwise.<sup>26</sup> We estimate equation (3) using a logistic regression with *LOSS\_AVOID* as the dependent variable. We exclude *LOSS* as an independent variable because 0 values construct

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<sup>24</sup> The key assumption of a difference-in-differences design is a parallel trend. We empirically test the assumption by examining whether audit hours before 2005 follow the same trend. We find that, from 2003 to 2004, audit hours increase for both the treatment group and control group but the trends are not statistically significant ( $p > 0.10$ ), and the difference in trends between the two groups is not statistically significant ( $p > 0.10$ ). This suggests that our test does not violate the parallel trend assumption.

<sup>25</sup> Because the treatment sample is the consolidated firms (following IFRS) and the control sample is the unconsolidated firms (following Italian GAAP), they are the same group of firms with two different sets of financial statements (e.g., differences in investment accounting, and non-consolidation of the subsidiary's financial statements by the parent). Thus, by design, we control for potential differences between the two groups. However, we acknowledge that the control group is closely related to the treatment group and is therefore less than ideal.

<sup>26</sup> We adopt a different definition of loss avoidance from the *SMALL1* and *SMALL2* definitions used in Caramanis and Lennox (2008, Table 6) (CL), because strict adoption would yield insufficient variation. Specifically, *SMALL1* = 1 (*SMALL2* = 1) would only have 10 (41) observations out of 700. Our sample differs from that of CL, because the large majority of CL's sample are private firms (93%) and our sample is strictly publicly traded.

*LOSS\_AVOID* values of 1, making *LOSS* redundant. The variable of interest is the interaction term *IFRS\*ln(hours)*. Table 8 reports the results of estimating the logistic regression and shows that the coefficient on *IFRS\*ln(hours)* is positive ( $p<0.05$ ). The results suggest that audit hours are negatively associated with earnings management in the pre-IFRS regime, and the association is weaker in the post-IFRS regime; thus, our main results for H2 are robust to an alternative measure of audit quality.

[Insert Table 8]

### 7.6 Short-term versus long-term effect

The effect of IFRS adoption on audit effort could be temporary if auditors learn new accounting standards over time. In the early years of IFRS adoption, auditors expend more effort because they are less familiar with the new accounting standards. Thus, many clients continue to adopt IFRS options that conform to the previous national GAAP (Kvaal and Nobes 2010). On the other hand, the effect of IFRS is likely to be permanent if IFRS requires more auditor judgment. To examine whether our results are sensitive to a short-term effect, we drop observations in 2005 and 2006, and add 2008 and 2009, so that the post-IFRS period and the pre-IFRS period have three years each. Untabulated results indicate that our results are robust.<sup>27</sup>

On the earnings quality side, we drop observations in 2005 and 2006, replace them with observations in 2008 and 2009, and estimate equation (3). The results are similar to those reported in Table 5,<sup>28</sup> suggesting that the IFRS adoption effect is long-term.

### 7.8. Audit hourly rate

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<sup>27</sup> Specifically, the coefficient on *IFRS* in equation (1) is positive (0.389,  $p<0.001$ ), indicating that audit hours increase on a long-term basis after IFRS is adopted. It is worth noting that the economic magnitude (a 47.6% audit hour increase) is higher than that reported in Table 4 (18.9%).

<sup>28</sup> Untabulated results indicate that the coefficient on *IFRS\*ln(hours)* is positive (0.043,  $p<0.01$ ) when the dependent variable is  $|AB\_ACCR|$ , positive (0.035,  $p<0.01$ ) when the dependent variable is  $|AB\_ACCR>0|$ , and not statistically significant (0.027,  $p=0.16$ ) when the dependent variable is  $|AB\_ACCR<0|$ .

Next, we explore whether the hourly rate changed in the post-IFRS period. We calculate the hourly rate (*Hourly Rate*) as the total audit fees divided by total audit hours. We obtain the total audit fees from the notes to the financial statements. Thus, the measure is the average hourly rate for partners, managers, and staff auditors. To examine whether IFRS adoption affects the hourly rate, we modify equation (1) by replacing the dependent variable with the hourly rate.

$$\begin{aligned} \text{Hourly Rate} = & \beta_1 + \beta_2 \text{IFRS} + \beta_3 \ln(\text{GDP}) + \beta_4 \text{SIZE} + \beta_5 \sigma(\text{CFO}) + \beta_6 \text{CFO} + \beta_7 \text{LEV} + \beta_8 \text{LOSS} + \\ & \beta_9 \text{SALES\_GROWTH} + \beta_{10} \text{LAG\_ABS\_TOT\_ACC} + \beta_{11} \text{LARGE\_SHAREHOLDER} + \\ & \beta_{12} \#\text{SEGMENTS} + \beta_{13} \#\text{SUBSIDIARIES} + \beta_{14} \text{FOREIGN\_REVENUES} + \beta_{15} \text{BIG} + \\ & \beta_{16} \text{FIRM\_CHANGE} + \beta_{17} \text{PARTNER\_CHANGE} + \beta_{18} \text{IND\_MKTSHARE\_EP} + \\ & \beta_{19} \text{PARTNER\_AGE} + \beta_{20} \text{WORKING\_EXP} + \beta_{21} \text{FEMALE} + \beta_{22} \text{CATA} + \beta_{23} \text{QUICK} + \beta_{24} \text{ROI} + \\ & \beta_{25} \text{OPINION} + \text{Industry fixed effects} + \text{error} \end{aligned} \quad (5).$$

Untabulated results indicate that the coefficient on *IFRS* is not statistically different from zero.<sup>29</sup>

### 7.7. Other sensitivity analyses

We conduct several sensitivity analyses: First, we use a balanced sample for the main analysis for the period 2003–2006. We obtain 80 auditees for four years (n=320). Using this reduced sample, we repeat our tests for H1 (Table 4) and H2 (Table 5). Untabulated results indicate that our inferences hold. Second, to more strictly control for the unobservable client time-constant factors, we replace industry fixed effects with client fixed effects for the regressions reported in Table 4 and Table 6, Panel A. In addition, we test H2 by adding year fixed effects and dropping *IFRS* for the regressions in Table 5 and Table 8 and by dropping *pre\_IFRS* for regressions in Table 6 Panel B to avoid the perfect collinearity with the year fixed effects. Our inferences remain. For Table 7, we repeat all regressions while adding year-fixed effects, client fixed effects, or both types of fixed effects, and the results hold. Lastly, to rule out the possibility that our results are influenced by 2005, we exclude that year and restrict the sample to the two years

<sup>29</sup> Specifically, the adjusted R<sup>2</sup> is 0.273. The estimated coefficient on *IFRS* ( $\beta_2$ ) is -0.006 ( $p=0.46$ ).

prior (2003–2004) and the two years after (2006–2007) (n=494). Then, we repeat all tests in Tables 4 and 5. Our inferences remain.

## 8. CONCLUSIONS

In this study, we explore whether mandatory adoption of IFRS affects how auditors conduct their audits. In particular, using data from Italy (2002–2007), we investigate whether audit hours, and the effectiveness of audit effort in constraining earnings management, change in the IFRS regime (compared to the pre-IFRS period).

We find that audit hours are significantly higher for Italian clients after IFRS adoption. We also find that the absolute value of abnormal accruals, and positive abnormal accruals, decline after IFRS adoption. More importantly, the negative associations between the absolute value of abnormal accruals and audit hours and between positive abnormal accruals and audit hours are less salient in the IFRS regime, indicating that auditors are less effective in constraining accruals manipulation when they exert the same amount of audit effort. This means that, after IFRS adoption, auditors must expend more effort to constrain the same amount of abnormal accruals. Collectively, our results mostly suggest that audit efficiency and effectiveness decrease after IFRS adoption.

Our study makes three important contributions. First, it is the first to show how the adoption of IFRS affects audit efficiency and effectiveness. Our results indicate that the auditors' effectiveness in constraining earnings management is compromised after Italy adopts IFRS. Second, while prior studies find that audit fees increase after IFRS adoption, our study shows that the increase is attributable to greater audit effort rather than a higher hourly rate. Third, our finding that audit efficiency and effectiveness decrease after IFRS adoption has implications for accounting and auditing standard setters. However, it is important to note that our results do not

suggest that the quality of financial reporting decreases after IFRS adoption. Rather, we provide empirical evidence that higher costs of enforcing accounting standards follow IFRS adoption, as auditors seek a reasonable level of audit quality.

While our study uses data from the Italian market, we believe our findings have implications at least for other continental EU countries that have similar capital markets and legal systems, such as in France and Germany. Moreover, while IFRS was adopted in the EU countries more than ten years ago, the debate over the benefits and costs of such an important set of accounting standards is far from over. For instance, the U.S. FASB is still issuing standards or considering standards that converge with IFRS. One such standard, FASB Topic 842 (accounting for leases), is similar to the standards for leasing in IFRS and took effect for all public firms in the United States at the end of 2018.

As a caveat, we caution that our conclusions are based on the Italian market and on using abnormal accruals as the main proxy for audit quality. However, these concerns are generic in many other studies. Further studies can extend this line of literature by using other countries and multiple proxies of audit quality. Additionally, the hourly rate is estimated by dividing total audit fees by total audit hours. Because hourly rates are different among partners, managers, and staff auditors, our finding that IFRS adoption does not affect the hourly rate should be interpreted with caution. We also acknowledge that an undesirable consequence of IFRS adoption is that audit effectiveness decreases. Future research is needed to better understand how accounting standards affect audit effectiveness.

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## Appendix I - Variable Definitions

<b>Dependent Variable - Audit Hours Analysis</b>	
<i>ln(hours)</i>	= natural logarithm of audit hours for the audit of the annual financial report of the parent company, consolidated financial statements of the group, the semi-annual financial reports, and related accounting and record-keeping procedures. See Appendix II for two examples ( <i>source: annual shareholder meeting minutes</i> );
<b>Dependent Variable - Earnings Quality Analysis*</b>	
<i>AB_ACCR</i>	= abnormal accruals, equal to total accruals less predicted accruals. Total accruals are equal to (earnings before extraordinary items – cash flow from operations)/ total assets at the end of year <i>t-1</i> . Predicted accruals are equal to [[Sales in year <i>t</i> X (current accruals in year <i>t-1</i> /sales in year <i>t-1</i> )] - [gross PPE in year <i>t</i> X (depreciation in year <i>t-1</i> /gross PPE in year <i>t-1</i> )] /total assets at the end of year <i>t-1</i> ;
<b>IFRS Variable</b>	
<i>IFRS</i>	= 1 if year $\geq 2005$ , and 0 otherwise;
<b>Control Variables Used in Audit Hours and Earnings Quality Analysis</b>	
<b>Auditee Level*</b>	
<i>SIZE</i>	= the natural logarithm of total assets (in millions) at the end of year <i>t</i> ;
$\sigma$ ( <i>CFO</i> )	= the standard deviation of operating cash flow in year <i>t</i> , <i>t-1</i> , and <i>t-2</i> , scaled by total assets;
<i>CFO</i>	= operating cash flow in year <i>t</i> scaled by total assets at <i>t-1</i> ;
<i>LEV</i>	= total long-term debt at the end of year <i>t</i> scaled by total assets at <i>t-1</i> ;
<i>LOSS</i>	= 1 if net income in year <i>t</i> < 0, and 0 otherwise;
<i>SALES_GROWTH</i>	= the difference in the current year's revenue ( $REV_t$ ) and the prior year's revenue divided by the prior year's revenue ( $(REV_t - REV_{t-1})/REV_{t-1}$ );
<i>LAG_ABS_TOT_ACC</i>	= absolute value of total accruals in year <i>t-1</i> scaled by total assets at <i>t-1</i> ;
<i>LARGE_SHAREHOLDER</i>	= 1 if the largest shareholder has a percentage of ownership larger than 50 percent; and 0 otherwise ( <i>source: Bureau van Dijk</i> );
<i>#SEGMENTS</i>	= the number of business segments ( <i>source: annual report</i> );
<i>#SUBSIDIARIES</i>	= the number of subsidiaries with more than 50 percent ownership ( <i>source: annual report</i> );
<i>FOREIGN REVENUES</i>	= foreign revenue divided by total revenue in year <i>t</i> ( <i>source: annual report</i> );
<b>Audit Firm Level</b>	
<i>BIG</i>	= 1 if audited by a Big N auditor in year <i>t</i> , and 0 otherwise ( <i>source: annual shareholder meeting minutes</i> );
<i>FIRM_CHANGE</i>	= 1 if the audit firm in year <i>t</i> is different from <i>t-1</i> , and 0 otherwise ( <i>source: annual report</i> );
<b>Partner Level</b>	
<i>PARTNER_CHANGE</i>	= 1 if the audit partner in year <i>t</i> is different from <i>t-1</i> and the audit firm does not change, and 0 otherwise ( <i>source: annual report</i> );
<i>IND_MKTSHARE_EP</i>	= the engagement partner industry market share, defined as the partner's total client revenues in a specific industry (2-digit SIC) in year <i>t</i> divided by the total client revenues for a specific industry for all audit partners in year <i>t</i> (Aobdia, Lin, and Petacchi 2015) ( <i>source: annual report and Compustat Global Vantage</i> );
<i>PARTNER_AGE</i>	= the natural logarithm of (current fiscal year – year of birth) in year <i>t</i> . Data on year of birth is available from the Italian register of auditors at: <a href="https://www.revisionelegale.mef.gov.it/opencms/opencms/Revisionelegale/ricercaRevisori/">https://www.revisionelegale.mef.gov.it/opencms/opencms/Revisionelegale/ricercaRevisori/</a> ;
<i>WORKING_EXP</i>	= the natural logarithm of (current fiscal year – registration year of Statutory Auditor status) in year <i>t</i> . Data on registration year of Statutory Auditor status is from the Italian register of auditors at: <a href="https://www.revisionelegale.mef.gov.it/opencms/opencms/Revisionelegale/ricercaRevisori/">https://www.revisionelegale.mef.gov.it/opencms/opencms/Revisionelegale/ricercaRevisori/</a> ;
<i>FEMALE</i>	= 1 if the partner is a female in year <i>t</i> , and 0 otherwise. Based on the partner name

from the audit report;

<b>Economy level</b>	
$\ln(\text{GDP})$	= the natural logarithm of annual GDP in year $t$ (source: Eurostat);
<b>Audit Hours Analysis Only*</b>	
$CATA$	= the ratio of current assets to total assets at the end of year $t$ ;
$QUICK$	= the ratio of current assets (minus inventories) to current liabilities at the end of year $t$ ;
$ROI$	= the ratio of earnings before interest and tax in year $t$ to total assets at the end of year $t$ ;
$OPINION$	= 1 if the audit opinion is not unqualified (additional language, qualified, adverse, or no opinion) and 0 if unqualified in year $t$ ;
<b>Earnings Quality Analysis Only*</b>	
$LIT$	= 1 if the company operates in a high litigation industry (SIC codes of 2833–2836, 3570–3577, 3600–3674, 5200–5961, and 7370–7370 corresponding to the following GICS codes: 2520 (Consumer Durables and Apparel), 2550 (Retailing), 2010 (Capital Goods), 3010 (Food & Staples Retailing), 4530 (Semiconductors & Semiconductor Equipment), 3520 (Pharmaceuticals, Biotechnology & Life Sciences), 4510 (Software & Services), and 4520 (Technology Hardware & Equipment)), and 0 otherwise;
$ALTMAN$	= the bankruptcy score measured by the Altman (1983) z-score ( $0.717 * \text{net working capital/assets} + 0.847 * \text{retained earnings/assets} + 3.107 * \text{earnings before interest and taxes/assets} + 0.42 * \text{book value of equity/liabilities} + 0.998 * \text{sales/assets}$ ), based on amounts in year $t$ ;
$SALES\_VOLATILITY$	= the standard deviation of sales revenue in years $t$ , $t-1$ , and $t-2$ scaled by total assets at $t-1$ for the current year and the prior two years;
$PPE\_GROWTH$	= one-year growth in a company's net property, plant, and equipment ( $PPENT_t$ ) from year $t-1$ to year $t$ ( $(PPENT_t - PPENT_{t-1}) / (PPENT_{t-1})$ );
$ROA\_1$	= earnings before interest and taxes at $t-1$ / total assets at $t-1$ .

\* Financial statement variables are from Compustat Global Vantage unless otherwise stated. Compustat variables are in millions of euros.

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## Appendix II – Examples of Audit Fee Disclosures Extracted from the Minutes of the Annual Shareholder Meeting

The following examples are audit fee and hour disclosures extracted from English translations of the minutes of annual shareholder meetings provided by the firm's website. Original Italian versions are available from the BorsaItalianaSpA website: <http://www.borsaitaliana.it/homepage/homepage.en.htm>.

### 1. PIRELLI & C. S.p.A.

Available from:

[http://www.pirelli.com/mediaObject/corporate/documents/common/assemblea/may\\_2013/13052013-Minutes\\_of\\_the\\_Ordinary\\_and\\_Extraordinary\\_Shareholders-Meeting/original/13052013-Minutes\\_of\\_the\\_Ordinary\\_and\\_Extraordinary\\_Shareholders%27\\_Meeting.pdf](http://www.pirelli.com/mediaObject/corporate/documents/common/assemblea/may_2013/13052013-Minutes_of_the_Ordinary_and_Extraordinary_Shareholders-Meeting/original/13052013-Minutes_of_the_Ordinary_and_Extraordinary_Shareholders%27_Meeting.pdf)

ORDINARY SHAREHOLDERS' MEETING ON MAY 13, 2013

(English courtesy translation – the Italian version shall prevail)

The Ordinary and Extraordinary Shareholders' Meeting of PIRELLI & C. S.p.A. (hereinafter, the “Company” or “Pirelli”) began at 10:30 a.m. on May 13, 2013, in Milan, Viale Sarca n. 214. Mr. Marco Tronchetti Provera chaired the Shareholders' Meeting according to the Bylaws, and, with the unanimous approval of those present, he asked Prof. Piergaetano Marchetti to act as Secretary of the meeting. Prof. Marchetti accepted this request and expressed his thanks. First of all, the Chairman announced that the Shareholders' Meeting has been called to discuss and resolve on the following:

AGENDA

1. Financial Statements as of 31st December 2012. Inherent and consequent resolutions
2. ....

\*\*\* (page 18)

Before opening discussion on the first item on the agenda, the Chairman announced that the fee charged by the accounting firm, Reconta Ernst & Young S.p.A.

- totaled euro 64,350, for a total of 1,073 hours, to audit the Annual Financial Report 2012 of Pirelli & C. S.p.A.;
- totaled euro 123,350, for a total of 1,493 hours, to audit the Consolidated Financial Statements 2012 of the Pirelli & C. Group;
- totaled euro 64,060, for a total of 642 hours, for the limited audit of the Semi-Annual Financial Report at June 30, 2012, of the Pirelli & C. Group;

- stated that, as reported last year, these fees are in addition to the fee of euro 16,000 for the activities connected with the fairness opinion on certain of the information contained in the Report on Corporate Governance and the Structure of Share Ownership 2012, according to Article 123-bis of Legislative Decree 58/1998;

- he also observed that the time and fees charged for auditing the annual report also included the billable time dedicated to auditing proper record-keeping by the Company and proper accounting of operations in the company ledgers.

These fees do not include out-of-pocket expenses and the Consob supervisory fee, which are billed at cost.

### 2. DAVIDE CAMPARI-MILANO S.p.A

Available from:

[http://www.camparigroup.com/sites/default/files/docs/minutes\\_of\\_the\\_ordinary\\_shareholders\\_meeting\\_of\\_davide\\_campari-milano\\_s.p.a.\\_of\\_30\\_april\\_2014\\_final.pdf](http://www.camparigroup.com/sites/default/files/docs/minutes_of_the_ordinary_shareholders_meeting_of_davide_campari-milano_s.p.a._of_30_april_2014_final.pdf)

MINUTES OF THE ORDINARY SHAREHOLDERS' MEETING OF DAVIDE CAMPARI-MILANO S.p.A. OF 30 APRIL 2014

The ordinary shareholders' meeting of Davide Campari-Milano S.p.A., with registered office at 20, Via Franco Sacchetti, 20099 Sesto San Giovanni (Milan), share capital of € 58,080,000.00 (fully paid up), tax and VAT code and registration number in the Milan Companies' Register 06672120158, took place at single call at 9:30 on 30 April 2014, at the premises of the Campari Academy at via Campari 23, to discuss and pass resolutions on the following

Agenda

1. Approval of the annual financial statements for the year ending 31 December 2013 and related resolutions;
2. ...

...

The Chairman also explained that:

- concerning the auditing of the financial statements, according to Consob Communication DAC/RM/96003558 of 18 April 1996, the meeting was notified that: (i) PricewaterhouseCoopers S.p.A. spent 2,985 working hours on the audit of the draft separate financial statements and the consolidated financial statements to 31 December 2013, broken down as follows: statutory audit of the separate annual financial statements and review of the accounting procedures, according to articles 14 and 16 of Legislative Decree 39 of 27 January 2010, 2,135 hours; and statutory audit of the consolidated financial statements, 850 hours; (ii) the projected invoiced amount was € 202,000, of which € 127,000 for the audit of the separate financial statements and € 75,000 for the audit of the consolidated financial statements, following the resolution of the shareholders' meeting that conferred the auditing assignment.



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Accounting  
Association

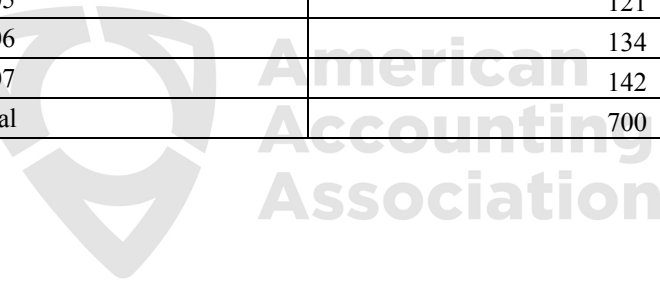
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**Table 1 Sample Selection**

Firm-year observations for non-financial publicly-listed Italian companies from Compustat Global Vantage for 2002–2007	2,811
Delete observations with missing values for control variables	(860)
Delete observations with missing values for audit hours	(1,251)
Final sample for the full period	700
Sample for the 2002–2004 Pre-IFRS period	303
Sample for the 2005–2007 Post-IFRS period	397
Non-financial publicly-listed Italian companies	183

<b>Fiscal Years</b>	<b>Frequency</b>
2002	77
2003	108
2004	118
2005	121
2006	134
2007	142
Total	700



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**Table 2 Descriptive Statistics**

Variables	Full period (2002–2007)			Pre-IFRS period (2002–2004)			Post-IFRS period (2005–2007)		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
<i> AB_ACCR </i>	700	0.18	0.14	303	0.20	0.15	397	0.17	0.13
<i>AB_ACCR&gt;0</i>	294	0.13	0.11	109	0.14	0.11	185	0.14	0.11
<i> AB_ACCR&lt;0 </i>	406	0.22	0.18	194	0.24	0.19	212	0.21	0.17
<i>IFRS</i>	700	0.57	1.00	303	0.00	0.00	397	1.00	1.00
<i>ln(hours)</i>	700	7.06	6.98	303	6.97	6.88	397	7.14	7.09
<i>hours</i>	700	1,806	1,075	303	1,691	970	397	1,894	1195
<i>ln(GDP)</i>	700	10.25	10.24	303	10.23	10.23	397	10.25	10.26
<i>GDP per capita in Euros</i>	700	28,153	28,000	303	27,803	27,800	397	28,419	28,500
<i>SIZE</i>	700	6.30	6.08	303	6.25	6.00	397	6.34	6.12
<i>Total raw assets (millions €)</i>	700	2,448	436	303	2,481	403	397	2,423	453
<i>σ (CFO)</i>	700	0.03	0.02	303	0.03	0.02	397	0.03	0.02
<i>CFO</i>	700	0.06	0.07	303	0.06	0.07	397	0.06	0.07
<i>LEV</i>	700	0.62	0.65	303	0.62	0.65	397	0.63	0.64
<i>LOSS</i>	700	0.23	0.00	303	0.27	0.00	397	0.20	0.00
<i>SALES GROWTH</i>	700	0.20	0.07	303	0.13	0.06	397	0.25	0.09
<i>LAG_ABS_TOT_ACC</i>	700	0.05	0.05	303	0.05	0.05	397	0.04	0.05
<i>LARGE SHAREHOLDER</i>	700	0.45	0.00	303	0.46	0.00	397	0.45	0.00
<i>#SEGMENTS</i>	700	2.99	3.00	303	3.08	3.00	397	2.93	3.00
<i>#SUBSIDIARIES</i>	700	29.63	13.00	303	31.14	13.00	397	28.48	13.00
<i>FOREIGN REVENUES</i>	700	0.38	0.38	303	0.40	0.42	397	0.37	0.34
<i>BIG</i>	700	0.92	1.00	303	0.94	1.00	397	0.91	1.00
<i>FIRM CHANGE</i>	700	0.18	0.00	303	0.31	0.00	397	0.09	0.00
<i>PARTNER CHANGE</i>	700	0.14	0.00	303	0.07	0.00	397	0.20	0.00
<i>IND_MKTSHARE_EP</i>	700	0.45	0.29	303	0.46	0.31	397	0.44	0.28
<i>PARTNER_AGE</i>	700	3.87	3.85	303	3.88	3.87	397	3.86	3.85
<i>WORKING_EXP</i>	700	2.11	2.20	303	1.96	2.08	397	2.22	2.30
<i>FEMALE</i>	700	0.05	0.00	303	0.06	0.00	397	0.04	0.00
<i>LIT</i>	700	0.52	1.00	303	0.54	1.00	397	0.50	1.00
<i>ALTMAN</i>	700	1.49	1.41	303	1.48	1.43	397	1.49	1.40
<i>SALES VOLATILITY</i>	700	0.07	0.04	303	0.05	0.03	397	0.08	0.05
<i>PPE_GROWTH</i>	700	0.14	0.02	303	0.09	0.00	397	0.19	0.05
<i>ROA_I</i>	700	0.02	0.02	303	0.01	0.01	397	0.03	0.03
<i>CATA</i>	700	0.53	0.53	303	0.56	0.58	397	0.51	0.51
<i>QUICK</i>	700	1.38	1.01	303	1.50	1.02	397	1.29	1.01
<i>ROI</i>	700	0.01	0.02	303	0.01	0.02	397	0.02	0.03
<i>OPINION</i>	700	0.41	0.00	303	0.30	0.00	397	0.49	0.00

See Appendix I for variable definitions. All continuous variables are winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentiles.

Table 3 Pearson Correlation Coefficients

#	Panel A -Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	<i>AB_ACCR</i>	<b>1.000</b>														
2	<i>IFRS</i>	<b>-0.084</b>	<b>1.000</b>													
3	<i>ln(hours)</i>	<b>-0.257</b>	<b>0.103</b>	<b>1.000</b>												
4	<i>ln(GDP)</i>	<b>-0.106</b>	<b>0.806</b>	<b>0.106</b>	<b>1.000</b>											
5	<i>SIZE</i>	<b>-0.235</b>	0.028	<b>0.545</b>	0.033	<b>1.000</b>										
6	$\sigma$ (CFO)	<b>0.106</b>	-0.046	<b>-0.129</b>	-0.061	<b>-0.192</b>	<b>1.000</b>									
7	<i>CFO</i>	-0.060	-0.009	<b>0.163</b>	-0.021	<b>0.224</b>	<b>-0.095</b>	<b>1.000</b>								
8	<i>LEV</i>	<b>-0.245</b>	0.011	<b>0.270</b>	0.041	<b>0.286</b>	-0.016	<b>-0.097</b>	<b>1.000</b>							
9	<i>LOSS</i>	<b>0.105</b>	<b>-0.078</b>	-0.051	-0.067	<b>-0.234</b>	0.073	<b>-0.355</b>	<b>0.185</b>	<b>1.000</b>						
10	<i>SALES_GROWTH</i>	<b>0.165</b>	0.034	-0.033	0.059	-0.005	-0.026	-0.005	0.004	-0.020	<b>1.000</b>					
11	<i>LAG_ABS_TOT_ACC</i>	0.029	-0.001	-0.156	-0.008	<b>-0.294</b>	<b>0.208</b>	-0.201	<b>-0.001</b>	<b>0.170</b>	0.050	<b>1.000</b>				
12	<i>LARGE_SHAREHOLDER</i>	-0.068	-0.005	0.014	0.012	<b>-0.079</b>	-0.052	<b>0.098</b>	<b>-0.148</b>	<b>-0.114</b>	0.041	0.011	<b>1.000</b>			
13	<i>#SEGMENTS</i>	-0.044	-0.046	<b>0.172</b>	-0.045	<b>0.299</b>	<b>-0.146</b>	0.054	<b>0.212</b>	-0.042	0.020	<b>-0.147</b>	<b>-0.183</b>	<b>1.000</b>		
14	<i>#SUBSIDIARIES</i>	<b>-0.084</b>	-0.027	<b>0.329</b>	-0.015	<b>0.510</b>	<b>-0.113</b>	<b>0.146</b>	<b>0.147</b>	<b>-0.129</b>	0.002	<b>-0.089</b>	-0.046	<b>0.227</b>	<b>1.000</b>	
15	<i>FOREIGN REVENUES</i>	0.012	-0.049	<b>0.235</b>	-0.051	0.036	-0.053	<b>0.105</b>	<b>0.092</b>	0.050	-0.037	-0.055	0.034	-0.014	<b>0.267</b>	<b>1.000</b>
16	<i>BIG</i>	-0.032	-0.043	<b>0.150</b>	-0.064	<b>0.238</b>	0.069	<b>0.170</b>	-0.034	-0.060	0.012	<b>-0.115</b>	0.043	0.006	<b>0.087</b>	0.004
17	<i>FIRM_CHANGE</i>	-0.023	<b>-0.284</b>	-0.016	<b>-0.272</b>	-0.017	<b>0.095</b>	-0.031	-0.003	0.043	-0.054	-0.042	-0.018	0.063	-0.011	0.001
18	<i>IND_MKTSHARE_EP</i>	<b>-0.180</b>	-0.021	<b>0.379</b>	-0.048	<b>0.463</b>	-0.044	<b>0.105</b>	<b>0.237</b>	-0.051	-0.050	<b>-0.120</b>	0.002	0.055	<b>0.305</b>	0.042
19	<i>PARTNER_AGE</i>	-0.016	-0.061	0.026	<b>-0.085</b>	0.068	-0.030	<b>0.078</b>	0.074	0.036	-0.034	-0.055	0.025	-0.037	<b>0.109</b>	<b>0.127</b>
20	<i>WORKING_EXP</i>	-0.051	<b>0.295</b>	0.056	<b>0.289</b>	<b>0.123</b>	-0.052	<b>0.159</b>	0.021	0.004	-0.025	<b>-0.139</b>	<b>-0.079</b>	0.049	0.074	<b>0.091</b>
21	<i>FEMALE</i>	-0.015	-0.037	<b>0.121</b>	-0.038	<b>0.079</b>	-0.040	0.059	-0.018	-0.027	-0.003	-0.028	-0.040	<b>-0.078</b>	-0.045	0.013
22	<i>PARTNER_CHANGE</i>	-0.007	<b>0.178</b>	0.030	<b>0.242</b>	0.022	0.032	-0.022	-0.029	-0.024	0.001	-0.072	0.059	0.014	-0.009	0.012
23	<i>LIT</i>	0.025	-0.037	0.036	-0.036	<b>-0.269</b>	<b>0.139</b>	-0.073	-0.020	0.063	-0.039	0.068	<b>0.081</b>	-0.033	-0.074	<b>0.366</b>
24	<i>ALTMAN</i>	<b>0.151</b>	0.010	<b>-0.114</b>	0.015	<b>-0.267</b>	0.038	<b>0.218</b>	<b>-0.590</b>	<b>-0.323</b>	<b>-0.078</b>	0.007	<b>0.108</b>	<b>-0.166</b>	-0.016	<b>0.151</b>
25	<i>SALES_VOLATILITY</i>	<b>0.111</b>	<b>0.165</b>	<b>0.093</b>	<b>0.129</b>	-0.064	<b>0.286</b>	-0.070	0.073	0.072	-0.001	0.065	0.007	-0.029	0.036	<b>0.123</b>
26	<i>PPE_GROWTH</i>	<b>0.157</b>	0.062	-0.035	0.027	0.010	-0.027	<b>0.133</b>	-0.042	<b>-0.089</b>	<b>0.283</b>	-0.004	0.025	-0.008	-0.003	-0.066
27	<i>ROA_1</i>	<b>-0.110</b>	<b>0.127</b>	<b>0.093</b>	<b>0.121</b>	<b>0.182</b>	<b>-0.095</b>	<b>0.354</b>	<b>-0.262</b>	<b>-0.431</b>	<b>-0.108</b>	<b>-0.302</b>	<b>0.085</b>	0.034	0.025	0.025
28	<i>CATA</i>	<b>0.174</b>	<b>-0.113</b>	<b>-0.118</b>	<b>-0.090</b>	<b>-0.515</b>	<b>0.221</b>	<b>-0.154</b>	-0.003	<b>0.106</b>	-0.070	<b>0.133</b>	-0.052	<b>-0.101</b>	<b>-0.219</b>	<b>0.242</b>
29	<i>QUICK</i>	<b>0.332</b>	<b>-0.081</b>	<b>-0.309</b>	<b>-0.096</b>	<b>-0.246</b>	<b>0.082</b>	<b>-0.096</b>	<b>-0.644</b>	-0.045	-0.034	<b>0.095</b>	0.033	<b>-0.102</b>	<b>-0.104</b>	<b>-0.121</b>
30	<i>ROI</i>	<b>-0.084</b>	<b>0.111</b>	<b>0.091</b>	<b>0.096</b>	<b>0.194</b>	-0.028	<b>0.468</b>	<b>-0.338</b>	<b>-0.668</b>	0.018	<b>-0.260</b>	<b>0.123</b>	-0.011	<b>0.081</b>	0.055
31	<i>OPINION</i>	-0.035	<b>0.187</b>	0.015	<b>0.216</b>	-0.003	-0.021	-0.070	<b>0.131</b>	<b>0.078</b>	-0.022	0.042	0.015	-0.037	0.012	0.023

#	Panel B -Variables	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
16	<i>BIG</i>	<b>1.000</b>															
17	<i>FIRM_CHANGE</i>	-0.045	<b>1.000</b>														
18	<i>IND_MKTSHARE_EP</i>	<b>0.171</b>	-0.029	<b>1.000</b>													
19	<i>PARTNER_AGE</i>	0.040	0.020	0.015	<b>1.000</b>												
20	<i>WORKING_EXP</i>	<b>0.264</b>	<b>-0.153</b>	0.052	<b>0.386</b>	<b>1.000</b>											
21	<i>FEMALE</i>	0.064	0.016	0.042	-0.068	-0.013	<b>1.000</b>										
22	<i>PARTNER_CHANGE</i>	0.071	<b>-0.195</b>	0.030	<b>-0.201</b>	-0.067	-0.034	<b>1.000</b>									
23	<i>LIT</i>	<b>-0.102</b>	0.036	<b>-0.164</b>	-0.003	-0.008	-0.043	0.012	<b>1.000</b>								
24	<i>ALTMAN</i>	0.027	-0.010	-0.073	-0.029	-0.015	-0.065	<b>0.098</b>	<b>0.278</b>	<b>1.000</b>							
25	<i>SALES_VOLATILITY</i>	0.036	0.004	-0.042	-0.034	-0.004	<b>-0.079</b>	<b>0.076</b>	<b>0.125</b>	0.050	<b>1.000</b>						
26	<i>PPE_GROWTH</i>	0.042	-0.070	-0.043	-0.039	-0.025	0.014	-0.026	<b>-0.089</b>	<b>-0.076</b>	0.041	<b>1.000</b>					
27	<i>ROA_1</i>	0.036	-0.009	<b>0.079</b>	0.033	0.039	0.005	0.050	-0.009	<b>0.403</b>	-0.046	0.013	<b>1.000</b>				
28	<i>CATA</i>	<b>-0.097</b>	0.043	<b>-0.194</b>	0.009	<b>-0.087</b>	-0.011	-0.007	<b>0.529</b>	<b>0.416</b>	<b>0.110</b>	-0.067	-0.050	<b>1.000</b>			
29	<i>QUICK</i>	0.003	0.063	<b>-0.175</b>	<b>-0.084</b>	<b>-0.107</b>	-0.049	0.029	0.039	<b>0.580</b>	-0.051	-0.026	<b>0.078</b>	<b>0.201</b>	<b>1.000</b>		
30	<i>ROI</i>	<b>0.078</b>	-0.030	<b>0.075</b>	-0.029	0.021	0.041	0.057	0.006	<b>0.526</b>	-0.008	0.062	<b>0.555</b>	-0.023	<b>0.106</b>	<b>1.000</b>	
31	<i>OPINION</i>	-0.004	<b>-0.080</b>	-0.026	0.052	<b>0.148</b>	0.021	0.006	0.007	<b>-0.142</b>	-0.034	0.016	-0.073	0.015	<b>-0.101</b>	<b>-0.118</b>	<b>1.000</b>

See Appendix I for variable definitions. Correlation coefficients in **bold** typeface are significant at 5 percent or lower.

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**Table 4 IFRS Adoption and Audit Hours**

2002–2007	Dependent variable is the natural logarithm of audit hours ( $\ln(\text{hours})$ )	
	Estimate	p-value
<i>IFRS</i>	0.173	0.002
<i>ln(GDP)</i>	5.616	0.017
<i>SIZE</i>	0.290	0.000
$\sigma$ ( <i>CFO</i> )	-1.094	0.344
<i>CFO</i>	0.540	0.206
<i>LEV</i>	-0.283	0.377
<i>LOSS</i>	0.160	0.066
<i>SALES_GROWTH</i>	-0.010	0.295
<i>LAG_ABS_TOT_ACC</i>	-0.157	0.776
<i>LARGE_SHAREHOLDER</i>	0.115	0.297
<i>#SEGMENTS</i>	0.022	0.469
<i>#SUBSIDIARIES</i>	0.000	0.967
<i>FOREIGN_REVENUES</i>	0.375	0.012
<i>BIG</i>	0.142	0.311
<i>FIRM_CHANGE</i>	0.071	0.199
<i>PARTNER_CHANGE</i>	-0.054	0.428
<i>IND_MKTSHARE_EP</i>	0.274	0.019
<i>PARTNER_AGE</i>	-0.044	0.895
<i>WORKING_EXP</i>	-0.201	0.083
<i>FEMALE</i>	0.326	0.071
<i>CATA</i>	0.939	0.001
<i>QUICK</i>	-0.129	0.003
<i>ROI</i>	-0.372	0.518
<i>OPINION</i>	-0.034	0.620
Intercept	-52.254	0.032
Industry fixed effects		included
N		700
Adj. R <sup>2</sup>		0.446

This table reports the results of estimating the OLS regression of audit hours on *IFRS*, equal to 1 for observations in the post-IFRS period (2005–2007), and 0 for the pre-IFRS period (2002–2004), and control variables. Coefficient p-values are two-tailed, and standard errors are client firm clustered (Petersen 2009). Refer to Appendix I for variable definitions.

Table 5 IFRS Adoption and Effectiveness of Auditor Constraining Abnormal Accruals

2002–2007	Column (1)		Column (2)		Column (3)	
	Dependent variable: $ AB\_ACCR $ Tobit regression		Dependent variable: $AB\_ACCR > 0$ Tobit regression		Dependent variable: $ AB\_ACCR  < 0$ Tobit regression	
	Estimate	p-value	Estimate	p-value	Estimate	p-value
<i>ln(hours)</i>	-0.058	0.000	-0.046	0.004	-0.042	0.041
<i>IFRS</i>	-0.304	0.001	-0.399	0.000	-0.139	0.378
<b><i>IFRS*ln(hours)</i></b>	<b>0.043</b>	<b>0.001</b>	<b>0.051</b>	<b>0.000</b>	<b>0.024</b>	<b>0.263</b>
<i>ln(GDP)</i>	-1.181	0.071	0.420	0.558	-2.719	0.002
<i>SIZE</i>	0.006	0.423	0.004	0.572	0.008	0.475
$\sigma$ ( <i>CFO</i> )	-0.041	0.876	-0.474	0.059	0.543	0.087
<i>CFO</i>	-0.037	0.722	-0.028	0.810	-0.233	0.111
<i>LEV</i>	-0.149	0.025	0.032	0.518	-0.228	0.008
<i>LOSS</i>	0.036	0.120	-0.043	0.062	0.054	0.039
<i>SALES_GROWTH</i>	0.001	0.850	0.001	0.810	0.034	0.163
<i>LAG_ABS_TOT_ACC</i>	0.317	0.034	0.324	0.061	0.242	0.188
<i>LARGE_SHAREHOLDER</i>	-0.016	0.319	-0.012	0.379	-0.011	0.637
<i>#SEGMENTS</i>	0.004	0.334	-0.007	0.151	0.010	0.141
<i>#SUBSIDIARIES</i>	0.000	0.423	0.000	0.858	0.000	0.758
<i>FOREIGN_REVENUES</i>	0.077	0.013	0.044	0.187	0.053	0.112
<i>BIG</i>	-0.019	0.471	-0.085	0.020	0.028	0.295
<i>FIRM_CHANGE</i>	-0.016	0.318	-0.019	0.238	-0.006	0.783
<i>PARTNER_CHANGE</i>	0.010	0.569	0.006	0.684	0.010	0.673
<i>IND_MKTSHARE_EP</i>	-0.010	0.599	-0.018	0.410	-0.030	0.244
<i>PARTNER_AGE</i>	0.019	0.729	-0.014	0.779	0.073	0.268
<i>WORKING_EXP</i>	0.003	0.860	0.022	0.257	-0.017	0.431
<i>FEMALE</i>	0.027	0.394	0.057	0.011	0.016	0.704
<i>LIT</i>	-0.074	0.001	-0.108	0.000	-0.041	0.169
<i>ALTMAN</i>	0.029	0.062	0.003	0.859	0.030	0.108
<i>SALES_VOLATILITY</i>	0.194	0.063	0.435	0.000	0.068	0.637
<i>PPE_GROWTH</i>	0.033	0.004	0.007	0.804	0.032	0.008
<i>ROA_1</i>	-0.228	0.047	-0.124	0.173	-0.166	0.410
Intercept	12.607	0.059	-3.743	0.608	28.061	0.002
Industry fixed effects	included		included		included	
N	700		294		406	
Adj. R <sup>2</sup>	0.237		0.208		0.324	

This table reports the results of estimating a Tobit regression of abnormal accruals on the interaction of IFRS adoption (*IFRS*) and audit hours (*ln(hours)*), and control variables. *IFRS* is equal to 1 for observations in the post-IFRS period (2005–2007), and 0 for the pre-IFRS period (2002–2004). *ln(hours)* is the natural logarithm of audit hours. Coefficient p-values are two-tailed, and standard errors are client firm clustered (Petersen 2009). Refer to Appendix I for variable definitions.

Table 6 Placebo Test

Panel A	Dependent variable is the natural logarithm of audit hours ( $\ln(\text{hours})$ )	
2002–2004	Estimate	p-value
<i>Pre_IFRS</i>	0.537	0.138
<i>ln(GDP)</i>	-60.571	0.230
<i>SIZE</i>	0.298	0.000
$\sigma$ ( <i>CFO</i> )	-2.296	0.140
<i>CFO</i>	0.866	0.162
<i>LEV</i>	-0.367	0.386
<i>LOSS</i>	-0.063	0.568
<i>SALES_GROWTH</i>	-0.066	0.067
<i>LAG_ABS_TOT_ACC</i>	0.393	0.603
<i>LARGE_SHAREHOLDER</i>	0.041	0.736
<i>#SEGMENTS</i>	0.021	0.569
<i>#SUBSIDIARIES</i>	-0.001	0.604
<i>FOREIGN_REVENUES</i>	0.425	0.023
<i>BIG</i>	0.048	0.797
<i>FIRM_CHANGE</i>	0.224	0.251
<i>PARTNER_CHANGE</i>	0.104	0.507
<i>IND_MKTSHARE_EP</i>	0.331	0.051
<i>PARTNER_AGE</i>	-0.004	0.993
<i>WORKING_EXP</i>	-0.206	0.156
<i>FEMALE</i>	0.246	0.277
<i>CATA</i>	1.042	0.004
<i>QUICK</i>	-0.127	0.032
<i>ROI</i>	-1.273	0.103
<i>OPINION</i>	-0.109	0.279
Intercept	625.089	0.226
Industry fixed effects		included
N		303
Adj. R <sup>2</sup>		0.451

This table reports the results of estimating an OLS regression as a counterfactual test of IFRS adoption. We restrict the sample period to 2002–2004, define the variable of interest as *Pre\_IFRS*, equal to 1 for 2004 and 0 for years 2002 and 2003, and test whether the coefficient is different from zero. Coefficient p-values are two-tailed, and standard errors are client firm clustered (Petersen 2009). Refer to Appendix I for variable definitions.

Table 6 Placebo Tests (Cont.)

Panel B	Column (1) Dependent variable is the absolute value of abnormal accruals ( $AB\_ACCR$ ) Tobit Model		Column (2) Dependent variable: $AB\_ACCR > 0$ Tobit Model		Column (3) Dependent variable: $ AB\_ACCR  < 0$ Tobit Model	
	Estimate	p-value	Estimate	p-value	Estimate	p-value
<b>2002–2004</b>						
<i>ln(hours)</i>	-0.051	0.002	-0.025	0.272	-0.032	0.154
<i>Pre_IFRS</i>	-0.046	0.724	0.119	0.434	-0.200	0.377
<b><i>Pre_IFRS*ln(hours)</i></b>	<b>0.014</b>	<b>0.347</b>	<b>-0.002</b>	<b>0.895</b>	<b>0.036</b>	<b>0.165</b>
<i>ln(GDP)</i>	-7.596	0.386	-15.234	0.277	-7.697	0.612
<i>SIZE</i>	0.013	0.315	-0.012	0.430	0.028	0.130
$\sigma$ ( <i>CFO</i> )	-0.180	0.523	-0.515	0.112	-0.178	0.611
<i>CFO</i>	-0.008	0.957	-0.190	0.312	-0.150	0.356
<i>LEV</i>	-0.278	0.001	-0.140	0.066	-0.350	0.003
<i>LOSS</i>	0.033	0.236	-0.039	0.255	0.016	0.540
<i>SALES_GROWTH</i>	0.047	0.004	0.062	0.000	0.029	0.290
<i>LAG_ABS_TOT_ACC</i>	0.505	0.007	0.369	0.026	0.571	0.042
<i>LARGE_SHAREHOLDER</i>	0.005	0.845	-0.008	0.717	-0.019	0.525
<i>#SEGMENTS</i>	0.007	0.163	-0.014	0.085	0.006	0.564
<i>#SUBSIDIARIES</i>	0.000	0.452	0.000	0.276	0.000	0.463
<i>FOREIGN_REVENUES</i>	0.051	0.169	0.028	0.531	-0.003	0.944
<i>BIG</i>	0.012	0.640	0.036	0.381	-0.016	0.682
<i>FIRM_CHANGE</i>	0.010	0.714	0.049	0.304	-0.001	0.981
<i>PARTNER_CHANGE</i>	0.031	0.288	0.043	0.121	0.025	0.477
<i>IND_MKTSHARE_EP</i>	-0.035	0.255	-0.039	0.748	-0.624	0.037
<i>PARTNER_AGE</i>	0.106	0.169	-0.039	0.610	0.184	0.074
<i>WORKING_EXP</i>	0.002	0.918	0.069	0.007	-0.048	0.054
<i>FEMALE</i>	-0.008	0.795	0.014	0.742	-0.073	0.107
<i>LIT</i>	-0.054	0.122	-0.114	0.003	-0.026	0.542
<i>ALTMAN</i>	0.027	0.254	-0.032	0.151	0.029	0.256
<i>SALES_VOLATILITY</i>	-0.018	0.920	0.044	0.824	-0.197	0.246
<i>PPE_GROWTH</i>	0.042	0.000	0.052	0.318	0.037	0.000
<i>ROA_1</i>	-0.169	0.310	0.070	0.543	-0.339	0.131
Intercept	77.829	0.385	156.460	0.276	78.575	0.612
Industry fixed effects		included		included		included
N		303		109		194
Adj. R <sup>2</sup>		0.405		0.345		0.505

This table reports the results of estimating a Tobit regression as a counterfactual test of IFRS adoption on the dependent variables in three sets of models: abnormal accruals magnitude, positive abnormal accruals, and negative abnormal accruals magnitude, respectively. We restrict the sample period to 2002–2004, define the variable of interest as *Pre\_IFRS*, equal to 1 for 2004 and 0 for years 2002 and 2003, and test whether the coefficient is different from zero. Coefficient p-values are two-tailed, and standard errors are client firm clustered (Petersen 2009). Refer to Appendix I for variable definitions.

**Table 7 IFRS Adoption and Audit Hours: A Difference-in-Differences Design**

Dependent variable is the natural logarithm of audit hours ( <i>ln(hours)</i> )	Column (1)		Column (2)	
	Actual audit hours		Actual and estimated audit hours	
2002–2005	Estimate	p-value	Estimate	p-value
<i>POST</i> (1 if year=2005)	0.055	0.625	0.017	0.783
<i>TREATED</i> (1 if consolidated)	-1.175	0.000	-1.176	0.000
<b><i>POST*TREATED</i></b>	<b>0.214</b>	<b>0.083</b>	<b>0.354</b>	<b>0.000</b>
<i>ln(GDP)</i>	6.863	0.485	17.153	0.012
<i>SIZE</i>	0.310	0.000	0.259	0.000
$\sigma$ ( <i>CFO</i> )	0.590	0.751	-0.351	0.784
<i>CFO</i>	-0.442	0.461	0.505	0.272
<i>LEV</i>	-0.955	0.080	-0.115	0.755
<i>LOSS</i>	-0.031	0.789	0.042	0.608
<i>SALES_GROWTH</i>	-0.068	0.092	-0.073	0.026
<i>LAG_ABS_TOT_ACC</i>	-2.273	0.058	-0.039	0.952
<i>LARGE_SHAREHOLDER</i>	-0.020	0.895	0.104	0.279
<i>#SEGMENTS</i>	-0.016	0.756	0.008	0.814
<i>#SUBSIDIARIES</i>	0.002	0.235	0.001	0.517
<i>FOREIGN_REVENUES</i>	0.353	0.118	0.272	0.052
<i>BIG</i>	0.016	0.928	0.097	0.462
<i>FIRM_CHANGE</i>	0.145	0.086	-0.032	0.642
<i>PARTNER_CHANGE</i>	0.237	0.139	0.173	0.162
<i>IND_MKTSHARE_EP</i>	0.168	0.337	0.185	0.152
<i>PARTNER_AGE</i>	-0.082	0.864	-0.067	0.854
<i>WORKING_EXP</i>	-0.287	0.133	-0.198	0.073
<i>FEMALE</i>	-0.626	0.137	0.173	0.540
<i>CATA</i>	1.141	0.013	0.745	0.008
<i>QUICK</i>	-0.207	0.003	-0.101	0.022
<i>ROI</i>	-1.010	0.365	-0.634	0.314
<i>OPINION</i>	-0.150	0.194	-0.079	0.283
Intercept	-63.757	0.523	-170.630	0.015
Industry fixed effects		included		included
N		297		848
Adj. R <sup>2</sup>		0.572		0.506

This table reports the results of a difference-in-differences test where the dependent variable is *ln(hours)*. *POST* equals 1 for 2005 and 0 for 2002–2004. *TREATED* equals 1 for consolidated financial statements (IFRS mandated in 2005) and 0 for unconsolidated financial statements. Unconsolidated financial statements are the control group because they were not mandated to adopt IFRS in 2005. The sample and dependent variable in the first major columns are from client firms that separately reported actual audit hours for consolidated financial statements and non-consolidated financial statements. In the second major column, the sample and dependent variable are from client firms that separately report actual audit hours, and the actual audit hours of the remaining client firms are estimated from the mean percentage of audit hours for consolidated and unconsolidated financial statements. See Appendix II for an example. Coefficient p-values are two-tailed, and standard errors are client firm clustered (Petersen 2009). Refer to Appendix I for variable definitions

**Table 8 Alternative Measure of Earnings Quality: Likelihood of Using Positive Abnormal Accruals to Avoid Reporting a Loss**

2002–2007	Dependent variable is <i>LOSS_AVOID</i>	
	Estimate	p-value
<i>IFRS</i>	-4.730	0.013
<i>ln(hours)</i>	-0.562	0.058
<b><i>IFRS*ln(hours)</i></b>	<b>0.621</b>	<b>0.018</b>
<i>ln(GDP)</i>	22.884	0.071
<i>SIZE</i>	0.474	0.002
$\sigma$ ( <i>CFO</i> )	-4.948	0.245
<i>CFO</i>	-3.826	0.037
<i>LEV</i>	1.575	0.103
<i>SALES_GROWTH</i>	0.174	0.042
<i>LAG_ABS_TOT_ACC</i>	3.232	0.112
<i>LARGE_SHAREHOLDER</i>	0.339	0.265
<i>#SEGMENTS</i>	-0.007	0.930
<i>#SUBSIDIARIES</i>	0.003	0.422
<i>FOREIGN_REVENUES</i>	-0.391	0.434
<i>BIG</i>	-0.474	0.230
<i>FIRM_CHANGE</i>	0.163	0.562
<i>PARTNER_CHANGE</i>	-0.385	0.236
<i>IND_MKTSHARE_EP</i>	-0.378	0.322
<i>PARTNER_AGE</i>	-1.987	0.038
<i>WORKING_EXP</i>	0.206	0.492
<i>FEMALE</i>	-0.135	0.803
<i>LIT</i>	-0.751	0.060
<i>ALTMAN</i>	-0.171	0.501
<i>SALES_VOLATILITY</i>	1.330	0.454
<i>PPE_GROWTH</i>	-0.851	0.033
<i>ROA_1</i>	7.853	0.005
Intercept	-225.965	0.082
Industry fixed effects	included	
N	700	
Pseudo R <sup>2</sup>	0.253	

This table reports the results of estimating a logistic regression of *LOSS\_AVOID* on the interaction of IFRS adoption (*IFRS*) and audit hours (*ln(hours)*), and control variables. *LOSS\_AVOID* is equal to 1 if pre-managed earnings are less than 0 ([earnings before extraordinary items  $\square$  abnormal accruals] < 0), abnormal accruals are positive, and earnings before extraordinary items are positive, and 0 otherwise. *IFRS* is equal to 1 for observations in the post-IFRS period (2005–2007), and 0 for the pre-IFRS period (2002–2004). *ln(hours)* is the natural logarithm of audit hours. Coefficient p-values are two-tailed, and standard errors are client firm clustered (Petersen 2009). Refer to Appendix I for other variable definitions.