IFRS adoption, analysts and institutional setting

Abstract

This study examines the effects of the mandatory adoption of International Financial Reporting Standards (IFRS) in the European Union (EU) and Australia on the properties of analysts' earnings forecasts. Using a sample of 53,296 firm-month observations during the 2002-2007 period, we find that the mandatory adoption of IFRS significantly reduces analysts' forecast errors and dispersion, implying an increase in overall quality of financial reporting post-IFRS adoption. Further, using a self-constructed comprehensive enforcement index we show that these benefits are dependent on the effectiveness of the enforcement regimes that exist within each adopting country.

Key words

IFRS adoption; analyst forecast accuracy; analysts forecast dispersion; enforcement of accounting standards.

JEL codes M51

1. Introduction

The adoption of International Financial Reporting Standards (IFRS), promulgated by the International Accounting Standards Board (IASB), has been described as a 'watershed' in financial reporting (Cairns, 2003). From 2005 onwards publicly traded companies in more than 100 countries have been required to prepare consolidated financial statements under IFRS and it is expected that this number will exceed 150 by 2011 (IASB, 2008). Support for adoption of IFRS is based on the view that a single set of high quality accounting standards will promote transparency and comparability, thus improving the overall quality of financial reporting and the efficiency of capital markets (EC Regulation No. 1606/2002).

Realization of the anticipated benefits of mandatory IFRS adoption relies on the change from national GAAP to IFRS actually improving the overall quality of financial reporting. Supporters of IFRS adoption argue that benefits will flow from expanded financial statement disclosures, improved measurement and recognition practices and the elimination of differences in company reporting arising from a range of national GAAP. However, it has been proposed that there are several factors affecting the quality of financial reporting, many of which are embedded in a country's institutional framework (SEC, 2000; FEE 2001). Adoption of a set of high quality standards may be viewed as one of several elements required to achieve high quality financial reporting, others being actions of independent external auditors, public enforcement bodies and courts. Studies suggest that while there has been considerable activity in developing international auditing standards and promoting high quality auditing, there remain many differences between countries in the extent to which they have active enforcement bodies and systems to promote comparable application of IFRS (FEE, 2001; CESR, 2007). The question of interest is whether these differences between countries are important and whether they influence the benefits of IFRS adoption.

In the first stage of this paper we investigate the consequences of mandatory IFRS adoption in the EU and Australia for financial analysts, who are among the most important users of financial information. Analysts' earnings forecasts provide a way to evaluate different accounting standards because they reflect firms' information environments and the overall quality of financial statement information available to financial analysts. In addition, they proxy for investor beliefs, which cannot be directly observed (Arbarbanell, Lanen and Verrecchia, 1995). The accuracy of analysts' earnings forecasts has also been linked to

information asymmetry and the cost of capital (Gebhardt, Lee and Swaminathan, 2001). Thus, we provide indirect evidence as to whether mandatory IFRS adoption has resulted in reduced information asymmetry and a lower cost of capital.

In the second stage of the paper we explore whether countries' institutional frameworks influence the outcomes of mandatory IFRS adoption. Researchers argue that the level of enforcement of accounting standards is likely to influence the extent to which IFRS adoption is beneficial (Schipper, 2005; Ball 2006). Given that managerial incentives influence both accounting policy choice and disclosure (Fields, Lys and Vincent, 2001; Healy and Palepu, 2001), independent enforcement of IFRS requirements is likely to be necessary to ensure high quality comparable reporting. We investigate whether the outcomes of mandatory IFRS adoption are influenced by the level of enforcement at the country level to shed light on the question of how institutional differences, which are pervasive and difficult to remove, impact on the work of financial analysts.

Our study includes countries from the European Union member states and Australia, where mandatory adoption of IFRS began from 2005. Based on the period 2002-2007, we obtain a sample of 53,296 firm-month observations from 20 countries to assess the impact of mandatory IFRS adoption on analysts' forecast accuracy and dispersion. Using regression analysis and including a range of firm-level control variables, we find that that there is a significant reduction in analysts' forecast errors and dispersion around mandatory IFRS adoption. We measure country levels of enforcement with a self-constructed enforcement proxy, following the approach of Al-Shammari, Brown and Tarca (2008). The results show that the benefits of mandatory IFRS adoption, in terms of lower forecast errors and dispersion, are more prevalent in countries with more effective enforcement mechanisms.

Our study adds to the literature in the following ways. First, it extends studies which have explored IFRS impact for analysts. In a voluntary setting, IFRS effects appear to be mixed. Ashbaugh and Pincus (2001) find lower forecast errors among voluntary adopters. Contrary evidence is provided by Daske (2005) who finds lower accuracy and higher dispersion among analysts following German firms which adopted international accounting standards (IAS) between 1993 and 2002. In the post-2005 environment, Hodgdon, Rasoul, Harless and Adhikari (2008) conclude that compliance with IFRS disclosure requirements enhances

forecast accuracy. Our study considers a large sample from 20 countries, thus provides more generalizable evidence about IFRS effects for analysts in a mandatory setting.

Although the relationship of enforcement and accounting quality is acknowledged, few studies of IFRS effects for analysts have considered the role of country differences in enforcement. In a study based on national GAAP users, Hope (2003) finds a number of proxies for enforcement are positively related to forecast accuracy. Our study extends Hope's approach by introducing a new comprehensive enforcement measure, which focuses on enforcement of accounting standards in the post-2005 mandatory environment. We find that higher levels of enforcement are associated with lower analyst error and dispersion around IFRS adoption. Our findings have implications for regulators and governments as they make policy decisions about optimal institutional arrangements in capital markets.

Current studies investigating economic consequences of mandatory IFRS adoption have used La Porta, Lopez-de-Silanes and Shleifer (2006) and Kaufmann, Kraay and Mastruzzi (2007) measures to proxy for the level of enforcement of accounting standards. Our enforcement index extends these proxies as it focuses on accounting enforcement. It rates 19 countries across three dimensions of enforcement: the legal environment, the statutory audit function and the institutional oversight system. Scores are weighted so that the most important aspects of enforcement receive a relatively higher weighting, whereas less important aspects are assigned a lower weighting. The incremental benefit of employing this enforcement index is that it directly captures cross-country variation in the effectiveness of enforcement mechanisms that promote compliance with accounting standards. Other enforcement proxies often employ variables that are expected to correlate with the enforcement of accounting standards, but may not actually reflect substantive enforcement procedures. Therefore our study contributes to the literature by developing a comprehensive measure of enforcement of accounting standards at the country level.

The remainder of the paper is organized as follows: Section 2 provides background and develops hypotheses. Section 3 describes data and method and Section 4 presents results. Section 5 concludes.

2. Literature Review and Hypothesis Development

2.1 Mandatory IFRS Adoption and Analysts' Forecast Errors

Our study investigates the consequences for financial analysts of mandating IFRS. Therefore, a primary research question is whether mandatory IFRS adoption has affected the accuracy of analysts' earnings forecasts. There are several competing arguments as to the nature of this effect. Firstly, IFRS aim to be high quality accounting standards that improve corporate transparency. For many European countries, the mandatory adoption of IFRS should lead to more extensive and informative financial statement disclosures (Ashbaugh and Pincus, 2001). Daske and Gebhardt (2006) confirm that the quantity and quality of corporate disclosures improved with the adoption of IFRS in three European countries. As increased financial statement disclosures allow analysts to better understand a firm's strategies, prospects and accounting practices, we might expect analysts' forecast accuracy to improve around IFRS adoption. This would be consistent with results of prior studies investigating financial disclosure and forecast accuracy. For example, Chang, Khanna and Palepu (2000) and Hope (2003) report a positive association between financial statement disclosure and forecast accuracy in cross-country studies. An additional argument supporting the proposal of improved forecast accuracy under IFRS is that, for many countries, adopting IFRS leads to a more restricted set of accounting measurement methods. Ashbaugh and Pincus (2001) argue that with fewer measurement rules to deal with, analysts should be better able to master the existing set. Thus, the adoption of IFRS should reduce the complexity of the forecasting task and improve forecast accuracy. This argument is consistent with Hope (2004), who confirms that a more restricted set of accounting methods leads to greater forecast accuracy for a sample of 18 countries.

A third argument in support of the hypothesis that mandatory IFRS adoption leads to greater forecast accuracy is derived from Bae, Tan and Welker (2008). Employing a database that includes 6,888 foreign analysts following 6,169 firms from 49 countries, the authors find that the extent to which GAAP differ between two countries is negatively related to the forecast accuracy of foreign financial analysts. This evidence is consistent with the argument that lower variation in accounting practices for similar transactions across countries increases the comparability of financial statements and thus reduces analysts' accounting uncertainty. On the basis of this empirical evidence, it might be expected that the adoption of IFRS, which harmonizes accounting practices across European countries and Australia, should lead to a reduction in analysts' forecast errors.

Although the adoption of IFRS was expected to be beneficial to users of financial information, there are several reasons why IFRS adoption might actually impair analysts' ability to accurately predict future earnings. First, it may be difficult for analysts to generate accurate earnings forecasts around IFRS adoption because of their unfamiliarity with the new accounting standards. Ackens, Horton and Tonks (2002) provide UK evidence in support of this proposition. They find that the introduction of UK Financial Reporting Standard 3 reduced analysts' forecast accuracy in the first year of mandatory adoption. A similar effect could emerge in the years immediately following IFRS adoption, leading to larger forecast errors in the early years. Second, Ashbaugh and Pincus (2001) claim that more volatile earnings in the post-IFRS period might lead to lower forecast accuracy. Their argument is that earnings are likely to fluctuate following the adoption of IFRS because a more restricted set of measurement methods reduces managers' ability to smooth earnings. The increased volatility could lead to reduced forecast accuracy, as historical earnings trends become relatively less informative post-IFRS adoption. Ball (2006) argues that the focus of IFRS on fair value accounting may also lead to increased earnings volatility and, consequently, less accurate earnings forecasts. Barth, Landsman and Lang (2008) confirm that there is greater volatility in earnings after the voluntary adoption of IFRS. This supports the proposition that analysts' forecast errors are likely to be higher post-IFRS adoption. However, it should be noted that the generalizability of Barth et al (2008) is limited, as the Anglo-Saxon countries (the United Kingdom, Australia and South Africa) are represented by just 10 firms of the 327 firms in the sample.

An often cited argument against the mandatory adoption of IFRS is that a uniform set of accounting standards may not be appropriate in all countries due to marked economic, political and cultural differences between countries (e.g. Sunder, 2007). The argument is that differences give rise to various business practices and transactions across countries, which mean that a uniform set of accounting standards may not provide relevant financial information in some instances. Although this argument is theoretically sound, it is generally inconsistent with the empirical evidence. For example, Bae et al (2008) provide evidence that reducing differences in countries' GAAP is actually beneficial for capital markets. The above discussion demonstrates that the impact of IFRS adoption on analyst forecast accuracy is an ambiguous area. However, given that the adoption of IFRS was intended to be a useful and positive event for security markets (e.g. EC Regulation No. 1606/2002), the first hypothesis (stated in the alternative form) is:

H1A: Analysts' forecast errors are lower in the post-IFRS adoption period.

2.2 Mandatory IFRS Adoption and Analysts' Forecast Dispersion

Many of the arguments related to the proposition that mandatory IFRS adoption reduces analysts' forecast errors also apply to the question of whether mandating IFRS reduces forecast dispersion. For example, a decrease in the number of inconsistencies in GAAP across countries should reduce the extent of disagreement among financial analysts, as well as analysts' forecast errors. However, the effect of additional financial statement disclosures on analysts' forecast dispersion is more ambiguous than for analysts' forecast errors. Lang and Lundholm (1996) conjecture that the effect of increased disclosure on analyst dispersion is dependent on whether differences in the earnings forecasts of individual analysts are attributable to differences in private information or differences in forecasting models. If earnings forecasts differ because analysts possess different private information, then an increase in the availability of public information will encourage analysts to place less weight on private information. This would lead to a decrease in forecast dispersion. However, if analysts' forecasts differ because they interpret annual report disclosures in different ways, an increase in public information would lead to an increase in analyst dispersion. The possible effects of increased disclosure on dispersion mean that it is difficult to predict the precise effect of the adoption of IFRS. However, given that mandatory IFRS adoption was intended to improve the overall quality of financial reporting and thereby reduce investor uncertainty in securities markets, the second hypothesis (stated in the alternative form) is:

H1B: Analysts' forecast dispersion is lower in the post-IFRS adoption period.

2.3 The Role of Enforcement in Determining the Benefits of Mandatory IFRS Adoption

There are claims that the introduction of high quality accounting standards does not guarantee a shift towards high quality financial reporting (Ball Robin and Wu, 2000). The argument is that the adoption of high quality accounting standards does not confer benefits upon users of financial information unless managers comply with the new standards, which in turn may require that there is a strong system of enforcement in place. Accordingly, regulators in the EU have recognised the importance of enforcement in promoting compliance with accounting standards. Tweedie and Seidenstein (2005, p. 590) state that a

sound financial reporting infrastructure must be founded upon "an enforcement or oversight mechanism that ensures that the principles as laid out by the accounting and auditing standards are followed."

Given that enforcement may well play an important role in determining the effectiveness of accounting standards, the potential benefits of mandatory IFRS adoption in the EU are likely to vary across countries if there are differences in enforcement regimes across European countries. Studies such as Ball (2006) suggest that, despite a greater emphasis on strengthening the enforcement of accounting standards in recent times, such variation does exist. This is because, whether international standards are adopted or not, the quality of enforcement is dependent on political and economic influences which remain specific to each adopting country. Ball (2006) argues that the international enforcement agencies currently in place will be unable to coordinate an improvement in the overall quality of enforcement in Europe. Although national standard setters and the IASB can encourage and promote the adoption of IFRS, they cannot require managers to comply with accounting standards. This exposes IFRS to the risk that application will vary among countries in response to firm- and country-level incentives and reflect the effectiveness of the country-level institutional environment for promoting compliance with accounting standards.

In light of the evidence that there are existing differences in enforcement mechanisms in the EU and elsewhere and that these differences could play a role in determining the effects of a change in accounting standards, it is important to explore whether the benefits of IFRS adoption, in terms of reduced forecast errors and dispersion, are influenced by variation in enforcement mechanisms across countries. This investigation is also consistent with Hope (2003), who provides empirical support for the proposition that the level of enforcement of accounting standards is positively related to the accuracy of analysts' earnings forecasts. To examine the role of legal enforcement in determining the effects of mandatory IFRS adoption, the following hypotheses (stated in the alternative form) are proposed:

H2A: The improvement in analyst forecast accuracy post-IFRS adoption is greater where enforcement is stronger.

H2B: The improvement in analyst forecast dispersion post-IFRS adoption is greater where enforcement is stronger.

3. Data and Method

3.1 Sample

The initial sample of analysts' forecasts relates to companies from each of the 25 EU member states and the three members of the European Economic Area (Iceland, Liechtenstein and Norway) that required listed companies to prepare consolidated accounts under IFRS for fiscal periods commencing on or after 1 January 2005. Also included is a sample of Australian companies, because Australia adopted IFRS-equivalents on 1 January 2005. To explore the impact of mandatory IFRS adoption, we analyse monthly analyst consensus earnings forecasts before and after 1 January 2005. The pre-IFRS adoption period comprises analysts' earnings forecasts for fiscal years commencing during 2002-2004. The year 2002 was selected as the starting year because it immediately preceded the announcement on 4 June 2002 that the EU would adopt IFRS (IASB, 2002). The post-IFRS adoption sample comprises analysts' earnings forecasts for fiscal years commencing during 2005-2007, the three years immediately following IFRS adoption. These pre- and post-IFRS adoption sub-samples allow for the comparison of the properties of analysts' earnings forecasts before and after the new accounting standards were mandatorily introduced.

3.1.1 Sample Selection

Table 1 reports the sample selection process. The initial sample of consensus (median) forecasts available on I/B/E/S for 2002-2007 consisted of 250,936 observations from the 29 sample countries. Observations for which actual earnings were not provided (30,868) and consensus forecasts that were announced more than one year before the earnings announcement date (9,928) were removed. This restriction to one-year ahead forecasts ensures that last period's financial statements were available at the time when the earnings forecasts were issued. An additional nine observations were deleted because the number of days between the end of the fiscal year and the earnings announcement date exceeded 365. Observations where less than three analysts contributed to the consensus forecast (40,582) were also deleted. This restriction to at least three analysts ensures that inter-analyst standard deviation is capturing meaningful variation in analysts' earnings forecasts. Next, we eliminated observations for which absolute analyst forecast error in the corresponding month of the previous year cannot be calculated due to missing consensus forecast or actual earnings data (40,595). In addition, observations for which actual earnings per share in the previous year is less than or equal to zero (3,317) were deleted. This data restriction was necessary as the dependent variables are deflated by actual earnings in the previous year.

Observations for which intangible assets or total assets data were not available from Datastream (547) and observations for which actual ROE data were unavailable from I/B/E/S (47,700) were removed. Finally, we excluded observations where the type of accounting principles applied were not available (2,491) and observations for companies that did not switch from national GAAP to IFRS on 1 January 2005 (21,603). This latter deletion of observations effectively restricts the sample to companies that mandatorily switched to IFRS during fiscal years beginning on or after 1 January 2005. The final sample consists of 53,296 firm-month observations.

3.2 Method

3.2.1 Model Specification and Independent Variables

To explore the effects of mandatory IFRS adoption on financial analysts, we test for differences in analysts' forecast errors and dispersion before and after IFRS adoption for a sample of mandatory adopters. The following regression equations are used (definitions of the control variables are provided in Table 2):

$$\begin{aligned} ERROR &= \beta_0 + \beta_1 POST + \beta_2 SIZE + \beta_3 FOLLOW + \beta_4 EARNCH \\ &+ \beta_5\, PREVERR + \beta_6\, PERIOD + \beta_7\, INTANG + \beta_8\, LOSS \\ &+ \beta_9 DISP + \beta_{10}\, EARNVOL + \beta_{11}\, RTNVOL + \varepsilon \end{aligned} \tag{1}$$

$$\begin{aligned} DISP &= \beta_0 + \beta_1 POST + \beta_2 SIZE + \beta_3 FOLLOW + \beta_4 EARNCH \\ &+ \beta_5\, PREVERR + \beta_6\, PERIOD + \beta_7\, INTANG + \beta_8\, LOSS \\ &+ \beta_9\, EARNVOL + \beta_{10}\, RTNVOL + \varepsilon \end{aligned} \tag{2}$$

POST is an indicator variable that is equal to one for observations in the post-IFRS adoption period and zero otherwise. A monthly consensus earnings forecast is considered to be in the post-IFRS adoption period when the fiscal period to which the forecast applies commenced on or before 1 January 2005. We expect the coefficient on the *POST* indicator variable to be negative, consistent with a reduction in analysts' forecast errors (H1A) and forecast dispersion (H1B) in the post-IFRS adoption period. Consistent with Li (2008), the role of enforcement in determining the consequences of mandatory IFRS adoption is explored by including a country-level measure of enforcement (*ENF*) in the regression equations, along with its interaction with the *POST* indicator variable (*POST***ENF*):

$$ERROR = \beta_0 + \beta_1 POST + \beta_2 ENF + \beta_3 POST*ENF + \beta_4 SIZE + \beta_5 FOLLOW + \beta_6 EARNCH + \beta_7 PREVERR + \beta_8 PERIOD + \beta_9 INTANG + \beta_{10} LOSS + \beta_{11} DISP + \beta_{12} EARNVOL + \beta_{13} RTNVOL + \varepsilon \quad (3)$$

$$DISP = \beta_0 + \beta_1 POST + \beta_2 ENF + \beta_3 POST*ENF + \beta_4 SIZE + \beta_5 FOLLOW + \beta_6 EARNCH + \beta_7 PREVERR + \beta_8 PERIOD + \beta_9 INTANG + \beta_{10} LOSS + \beta_{11} EARNVOL + \beta_{12} RTNVOL + \varepsilon \quad (4)$$

A negative coefficient on the interaction effect *POST*ENF* would support the hypothesis that the benefits of mandatory IFRS adoption, in terms of reduced forecast errors and dispersion, are more pronounced in countries with a stronger level of enforcement (H2A and H2B, respectively).

As Hope (2003) explains, there is no straightforward and uncontroversial way to measure the enforcement of accounting standards. The development of a comprehensive measure of enforcement is difficult because enforcement mechanisms take various forms and subjectivity is involved in evaluating their effectiveness. Developing a comprehensive enforcement measure therefore requires a thorough analysis of the enforcement mechanisms that operate within EU countries. FEE (2001) provides a detailed overview of the mechanisms operating within the EU to ensure compliance with accounting standards prior to IFRS adoption. The study concludes that enforcement mechanisms such as approval of financial statements and statutory audit exist in all European countries. However, they document that there is significant cross-country variation in European institutional oversight systems. These findings suggest that any European measure of the enforcement of accounting standards must be able to capture variation in the effectiveness of institutional oversight systems. La Porta et al. (2006) provide support for the proposition that a measure of the effectiveness of institutional oversight systems should be included in an enforcement index. The authors argue that public enforcement can, in some circumstances, be more effective than liability and disclosure laws because public enforcers are independent, motivated and focused. In addition, they often have the power to enact regulations, obtain information from market participants and impose penalties and sanctions.

In light of the evidence presented in FEE (2001) and the arguments of La Porta et al. (2006), we develop a weighted country-level measure of enforcement that focuses on capturing cross-sectional variation in the effectiveness of institutional oversight systems operating within EU countries. In addition, our measure aims to summarize cross-country differences in legal frameworks and the statutory audit function, which also contribute to the enforcement of accounting standards. The methodology used builds on Al-Shammari et al (2008), where the authors develop weighted country-level measures of enforcement for the six member states of the Gulf Co-Operation Council. Table 3 reports the enforcement scores assigned to each of the sample countries, with the exception of Australia (which was excluded due to data restrictions). We follow Al-Shammari et al. (2008) and assign countries a score based on the legal environment in which the accounting standards are implemented. We give a score of one to countries that permitted the early adoption of IFRS, because early adoption may provide useful exposure to IFRS. We assign one to countries that give shareholders the right to bring a cause of action against managers for non-compliance with accounting standards. The relatively low weightings for the legal environment reflect FEE (2001) arguments that complainants rarely consider going to the courts to obtain revision of (alleged) misstatements in the financial reports. Thus, we imply that an environment that promotes compliance with IFRS solely though legal provisions may be less effective than one that uses other more proactive institutional oversight systems.

Although FEE (2001) concludes that statutory audits with many common features exist in all EU countries, the study did not examine differences in the professional accounting bodies and auditing standards which might influence the effectiveness of the statutory audit function. As Healy and Palepu (2001) explain, differences in auditing standards, the enforcement of these standards, the legal framework governing the audit profession and differences in professional training requirements factors can influence the credibility of audit reports and financial statements across countries. Thus, we assign a score of two to countries in which auditors are required to complete a university degree. We also give a score of two where auditors are required to sit an examination prior to admission to the profession and a score of two where the professional accounting body(ies) supplies additional training to ensure that auditors meet a minimum level of competence. Finally, a score of two is allocated when the rotation of auditors is compulsory. These audit-level measures are given a higher weighting than their legal framework counterparts because

auditors play a more active role in ensuring that firms are compliant with accounting standards than the judiciary (FEE, 2001).

Importantly, the self-constructed enforcement index also measures the effectiveness of the institutional oversight systems that operate within European countries. These measures are derived from CESR (2007) which summarizes the compliance of EU countries with CESR Standard No 1 on Financial Information (CESR, 2003). This CESR standard stipulates 21 principles with which, according to CESR, convergence of the institutional oversight systems existing within European countries may be achieved. First, we assign a score of three for countries that are fully compliant with Principle 3 to Principle 8, which relate to the existence of a public enforcer. Second, countries are given a score of three if they fully comply with Principles 11 to 15, which outline the methods to be employed by the public enforcer. Finally, countries are assigned a score of three if they meet the requirements of Principles 16 to 19, which relate to actions taken by the public enforcer to achieve an appropriate level of disclosure or, where applicable, a public restatement of the financial reports. We then assign a score of two where there is partial compliance with the above sets of enforcement principles. Consistent with earlier discussion, these measures are weighted highest of the three levels of enforcement. This ensures that the self-constructed enforcement index maintains a focus on capturing variation in the effectiveness of institutional oversight systems. The final enforcement score assigned to each country is equal to the sum of the scores across the three selected dimensions of enforcement. This summation approach is consistent with the widely cited indices constructed by La Porta et al. (1998).

3.2.2 Dependent Variables

Consistent with Hodgdon, Tondkar, Harless and Adhikari (2008), analysts' forecast error is defined in month *t* (*ERROR*) as the absolute value of actual earnings per share (*ACTUAL*) subtract the consensus (median) forecast of EPS in month *t* (*CONSENSUS*), scaled by actual earnings per share in the previous fiscal year (*EARN*):

$$ERROR_t = \frac{|ACTUAL - CONSENSUS_t|}{EARN} \tag{5}$$

Analysts' forecast error is calculated for each month in the year preceding the earnings announcement date (Brown, Taylor and Walter, 1999). This controls for the effect that consensus earnings forecasts become more accurate as the earnings announcement date approaches (Clement, 1999). To enable the comparison of forecast errors across companies of different sizes, we deflate the absolute value of analysts' forecast error by actual earnings per share in the previous fiscal year. Scaling by actual earnings per share rather than stock price ensures that changes in price during the sample period (which featured an extended bull market) and around the adoption of IFRS do not bias the regression results (Hodgdon et al., 2008).

Following Lang and Lundholm (1996), analysts' forecast dispersion in month *t* (*DISP*) is equal to the inter-analyst standard deviation of forecasts included in the consensus forecast of EPS in month *t* (*STDEV*), deflated by actual EPS in the previous fiscal year (*EARN*):

$$DISP_t = \frac{STDEV_t}{EARN} \tag{6}$$

3.2.3 Control Variables

The hypotheses outlined above assume that 'other' determinants of analysts' forecast errors and dispersion are held constant. To avoid an omitted variable problem, several firm-specific control variables identified in prior research are included. We control for firm size using the market capitalization at the middle of the month in which the consensus forecast is published by I/B/E/S. As Herrmann, Hope and Thomas (2007) explain, firm size may be positively or negatively related to forecast error and dispersion. On the one hand, larger firms are more likely to provide additional disclosures than smaller firms, which resolve uncertainty about a firm's future prospects and thus reduce forecast errors and dispersion (Lang and Lundholm, 1996). However, larger firms are also more likely to have complex earnings, which potentially increases forecast errors and dispersion. Consistent with Hodgdon et al. (2008), we also control for the extent of analyst following because more intense competition between analysts provides them with a greater incentive to accurately forecast future earnings. Thus, we predict a negative relationship between analyst following and analysts' forecast errors. The expected relationship between analyst following and forecast dispersion is less clear, as there is a greater chance of a dissenting earnings forecast when more analysts are following a firm. Similar to Herrmann et al. (2007), we measure the

extent of analyst following as the number of forecasts included in the consensus (median) forecast. We control for the absolute value of the forecast error in the corresponding month of the previous year, scaled by earnings per share (Brown et al., 1999) because we expect the current year's forecast error and dispersion to be positively related to analysts' forecast error in the previous year. In addition, we control for the absolute value of the change in earnings from the previous year to the current year, scaled by stock price (Lang and Lundholm, 1996). This variable captures the extent to which forecast accuracy and dispersion is affected by the magnitude of the earnings information to be disclosed. Following Herrmann et al. (2007) we also control for the volatility of a firm's earnings to allow for the difficulty inherent in forecasting the earnings of firms with highly volatile earnings streams. Earnings volatility is defined as the historical standard deviation of return on equity (ROE) over the three years preceding the consensus forecast.

To control for the effects of adverse economic conditions on analysts' forecast errors and dispersion, the dummy variable, *LOSS*, (equal to one when a company reports a loss in the current year and zero otherwise) is included. This indicator variable takes into account the fact that analysts are more likely to issue optimistic forecasts (i.e. less accurate) in loss periods (Herrmann et al., 2007). Thus, we expect to observe higher forecast errors and dispersion for loss firms than for profit firms. Following Brown et al. (1999), we include the number of days between the announcement of the consensus forecast and the announcement of actual earnings, to control for the fact that earnings forecasts issued tend to become more accurate as the earnings announcement date approaches (Clement, 1999). Barron, Byard, Kile and Riedl (2002) show that analysts' absolute forecast errors and dispersion are positively related to the extent to which a company relies on the economic benefits of intangible assets. As a result, we include the ratio of intangible assets to total assets at the end of the fiscal period as a control variable. Importantly, we control for the volatility of stock returns, as measured by the sample variance in the natural logarithm of monthly returns over the sample period (2002-2007). Volatile stock returns reflect uncertainty surrounding the underlying value of the stock and we expect this uncertainty to lead to greater task complexity and, consequently, less accurate consensus forecasts and greater analyst disagreement. An additional reason for including return volatility as a control variable is due to the inherent limitations of the earnings volatility measure. Specifically, the earnings volatility variable may be a noisy measure of the difficulty inherent in predicting future earnings because it captures ROE volatility that may be

attributable to the switch to IFRS in 2005. Finally, consistent with Brown et al. (1999), we include analysts' forecast dispersion as a control variable in regressions when analysts' forecast error is the dependent variable. This is because the extent of analyst disagreement can adversely affect the accuracy of the consensus forecast.[1]

4. Results

4.1 Descriptive Statistics

Panel A of Table 4 reports the descriptive statistics for the dependent variables and firm-level continuous independent variables. Panel A shows that, on average, the absolute forecast error is 48.1% of actual earnings per share in the previous year and has standard deviation of 392.8%. Panel A indicates that mean forecast dispersion is 19.2% with a standard deviation of 125.4%. The mean (median) market capitalization of sample companies is US$6.935 million ($1,533 million) with a standard deviation of $17,473 million, showing that sample companies are among the largest in each country. Analyst following, measured by the number of analysts contributing to the consensus forecast, has a mean (median) of 10.45 (9.00) and a standard deviation of 704%. The mean (median) change in earnings from the previous year to the current year is 4.1% (1.4%) of share price. The relatively large standard deviation of 18.9% indicates that there is significant variation in the magnitude of the information contained in the earnings announcement. The number of days between I/B/E/S' publication of the consensus forecast and the earnings announcement date is, on average, 179 days, with standard deviation of 101 days. The ratio of intangible assets to total assets ranges from 0% to 91%, with a mean (median) of 16% (8%) and a standard deviation of 18%, while the volatility of earnings has a mean (median) of 10.94% (4.17%). Finally, the mean volatility of stock returns is 0.01 with a standard deviation of 1%.

Panel B of Table 4 reports the descriptive statistics in separate panels for the two time periods 2002-2004 (pre-IFRS adoption period, hereafter pre-IFRS) and 2005-2007 (post-IFRS adoption period, hereafter post-IFRS) and results for tests of differences between the means and medians of the variables in the two sub-samples. The mean absolute forecast error pre-IFRS exceeds that post-IFRS (significant at the 1% level). In addition, mean

[1] Forecast dispersion is used as a control variable when estimating forecast error, but forecast error is not included as a control variable when estimating forecast dispersion, as forecast errors are unknown at the time that the earnings forecasts were issued.

forecast dispersion is significantly lower post-IFRS. Consistent with H1A and H1B, these results provide initial descriptive evidence of a reduction in analysts' forecast errors and forecast dispersion around mandatory IFRS adoption. However, that this analysis does not control for other determinants of the dependent variables that may be driving the results, which are considered in the multivariate analysis.[2] Panel B reports that mean market capitalization increased from $5,667 million pre-IFRS to $8,025 million post-IFRS (significant at the 1% level). These results indicate that firm size increases over time. Change in earnings and the ratio of intangible assets to total assets also increase pre-IFRS to post-IFRS. The trend does not, however, continue for the extent of analyst following. Panel B reports no significant difference in analyst following between the two periods. Somewhat surprisingly, the volatility of ROE has decreased significantly over time, from a mean of 11.77% pre-IFRS to 10.22% post-IFRS.

Table 5 reports the descriptive statistics for the country-level enforcement variables. The descriptive statistics for the self-constructed enforcement index indicate that the enforcement of accounting standards is strongest in Denmark, Germany and France and weakest in Luxembourg, Sweden, Hungary, the Netherlands and Poland. Importantly, these rankings capture changes made to enforcement regimes in recent years. For example, our self-constructed enforcement measure rates Germany as having the second-most effective enforcement regime of the 19 countries. This reflects recent regulatory changes aimed at ensuring that Germany is fully compliant with the enforcement principles of CESR's Standard No. 1. Conversely, the enforcement index based on La Porta et al. (2006), which is an equally-weighted measure of public and private enforcement in 2000, ranks Germany as having the second-least effective enforcement system.[3] Other than Germany, La Porta et al (2006) assigns a relatively low enforcement score to Austria (0.18) and high scores to the United Kingdom (0.71) and France (0.63). These rankings are more consistent with our self-constructed measure of enforcement, which ranks Austria as having the second-lowest level of enforcement and France as having the second-highest.

[2] In addition to these univariate tests, we also calculate Pearson and Spearman univariate correlations between the dependent and firm-level continuous independent variables. Generally, the correlation coefficients do not indicate that multicollinearity may be a concern.

[3] The enforcement measure developed by La Porta et al. (2006) is based on a questionnaire describing the securities laws (including actual laws, statues, regulations, binding judicial precedents, and any other rule with force of law) applicable to an offering of shares listed in the country's largest stock exchange in December 2000.

The rule of law variable developed by Kaufmann et al. (2007) ranks Norway and Denmark as countries with the most effective enforcement regimes. The main differences between the Kaufmann et al. (2007) rule of law variable and our self-constructed enforcement index arise for these Scandinavian countries. The rule of law variable ranks the Scandinavian countries very highly, whereas the self-constructed index assigns relatively low scores to Scandinavian countries such as Sweden and Norway. These differences in the rankings of the two measures raise the question of whether the widely-used rule of law variable is actually able to capture cross-sectional variation in the enforcement of accounting standards. Countries such as Sweden might rank very highly in terms of rule of law, but it does not necessarily follow that the country will have a strong audit function or an effective public enforcer, which are two of the key elements in a strong system of enforcement mechanisms (FEE, 2001). This highlights the advantages of employing an enforcement index that actually aims to score countries according to the quality of the enforcement of accounting standards.

4.2 Multivariate Results

Table 6 reports the results of OLS regressions of analysts' forecast errors (Models I and II) and analysts' forecast dispersion (Models III and IV) on an indicator variable for the post-IFRS adoption period and several control variables. As the regression results may be sensitive to the control variables used, we report results for two regression models, each with different sets of control variables. Models I and III include industry fixed-effects, that is, an indicator variable for 10 of the 11 I/B/E/S sectors and country fixed-effects, which involves the inclusion of an indicator variable for 19 of the 20 countries. Models II and IV include only firm fixed-effects. In this specification of the model return volatility variable is omitted because it is perfectly correlated with the indicator variables for each firm included in Models II and IV. As the continuous variables are not normally distributed, we take natural logarithms of the dependent and independent variables (except indicator variables) when estimating the empirical models, consistent with Hodgdon et al. (2008).

Supporting H1A and the descriptive evidence reported in Table 4, the regression results show that there is a reduction in analysts' forecast errors in the post-IFRS adoption period. Specifically, the coefficients on the *POST* indicator variable in Models I and II are negative and significant at the 1% level (Table 6). These results complement Ashbaugh and Pincus' (2001) finding that analysts' forecast accuracy increases around the voluntary adoption of

IFRS. Importantly, many of the coefficients on the control variables are significant in the expected direction. Specifically, the coefficients on the market capitalization variable are positive and significant in both of the regression models. This is consistent with the proposition that the complexity of the forecasting task increases with the size of the firm. In addition, forecast errors are inversely related to the extent of analyst following, and positively related to the change in earnings from the previous year to the current year. The coefficient on the forecast error in the corresponding month of the previous year is positive and significant in Model I, but is negative and significant when firm fixed-effects are added to the regression (Model II). As expected, Table 6 also reports positive and significant coefficients on the forecast period variable, the indicator variable *LOSS* and the ratio of intangible assets to total assets in both regression models. The coefficient on the forecast dispersion control variable is also positive and significant, which is consistent with the results of Brown et al. (1999). However, in contrast to Brown et al. (1999), who report a negative coefficient on return volatility, we find that return volatility is positively related to analysts' forecast errors. This lends credence to the proposition that high return volatility connotes a high degree of uncertainty surrounding a firm's future prospects, which in turn is reflected in less accurate consensus forecasts. Finally, and somewhat surprisingly, we find that earnings volatility is negatively related to analysts' forecast errors, when in fact a positive relationship was expected. This finding may be due to the inherent limitations of the earnings volatility variable, which is likely to capture variation in earnings that occurs around the transition from national GAAP to IFRS.

Table 6 also reports the results of regressing analysts' forecast dispersion on the post-IFRS adoption indicator variable and a set of control variables (Models III and IV). We find that the coefficients on the *POST* indicator variable are significantly negative in both regression Models III and IV, which is consistent with the descriptive evidence reported in Table 4 and with the prediction that analyst disagreement falls following the mandatory adoption of IFRS (H1B). Assuming that the expanded disclosure in the post-IFRS adoption period is at least partially responsible for this improvement in analysts' consensus, this finding also represents indirect evidence that analysts' forecasts differ primarily in their private information. If differences in analysts' forecasts were caused by different interpretation of public information, then the expanded disclosure under IFRS would actually have the effect of increasing analysts' forecast dispersion (Lang and Lundholm, 1996). It should be noted that the findings for forecast dispersion are inconsistent with Cuijpers and Buijink (2005),

who report increased forecast dispersion following the voluntary adoption of IFRS. This discrepancy is likely due to differences in sample composition – Cuijpers and Buijink (2005) analyse the effects of IFRS adoption on 114 voluntary adopters, whereas our study has a mandatory setting and uses a considerably larger sample of observations.

Coefficients on most of the control variables have the predicted signs. The coefficients on firm size are negative and significant in both regression models, which indicates that analyst disagreement is lower for larger firms. In addition, the coefficients on the forecast error in the corresponding month of the previous year, the change in earnings from the previous year to the current year, the forecast period, the ratio of intangible assets to total assets, the indicator variable *LOSS* and the volatility of stock returns are all positive and significant in both models. The coefficient on the earnings volatility variable is also positive and significant at the 1% level in Model III. This is consistent with the expectation that analyst disagreement increases with earnings volatility. The positive and significant coefficient on analyst following in Model IV is consistent with the argument that the greater the number of analysts following a firm, the greater the chance that there will be a dissenting forecast. However, the coefficient on analyst following is not significantly different from zero after controlling for industry and country effects (Model III).

Overall, the regression results reported in Table 6 provide support for H1A and H1B. Even when known determinants of analysts' forecast accuracy and dispersion are controlled for, we find that the mandatory adoption of IFRS reduces analysts' forecast errors and disagreement. Of course, the reliability of these results depends on successfully controlling for other determinants of forecast error and dispersion. The finding that the majority of the coefficients on the control variables are significant in the predicted direction suggests that this has been achieved.

To test H2A and H2B, we regress analysts' forecast errors (Models I and II) and dispersion (Models III and IV) on the post-IFRS adoption indicator variable (*POST*), the self-constructed enforcement score (*ENF)*, the interaction effect of these two variables (*POST*ENF*) and a set of control variables. The aim of this analysis is to examine the role of enforcement in determining the consequences of mandatory IFRS adoption for financial analysts. Again, we report regression results with alternative sets of control variables. Models I and III include industry fixed-effects, while Models II and IV includes firm fixed-

effects. Table 7 shows that the coefficients on the *POST*ENF* interaction effects are negative and significant in each of the regression equations. Consistent with H2A and H2B, this implies that the benefits of mandatory IFRS adoption, in terms of reduced forecast errors and dispersion, are more widely received in countries with strong enforcement regimes. This represents evidence in support of the proposition that, absent effective enforcement mechanisms that incentivize compliance with accounting standards, analysts do not enjoy the full extent of benefits to be gained from the mandatory change to IFRS.[4]

Coefficients on the majority of the control variables are also consistent with our expectations. The coefficients on the change in earnings, the indicator variable *LOSS*, the forecast period, ratio of intangible assets to total assets and the volatility of stock returns are positive and significant in each of the regression models. The coefficient on the forecast error of the previous year is positive and significant in Models I, III and IV, but is negative and significant when firm fixed-effects are introduced in Model II. This is consistent with the regression results for tests of H1A (Table 6). Also consistent with the results reported in Table 6, the coefficient on the market capitalization variable is positive and significant in Models I and II but negative and significant in Models III and IV. In addition, the coefficient on the volatility of earnings is positively related to the dependent variables only in Model III, but is negative and significant in the models where forecast error is the dependent variable. Finally, the results indicate that analyst following is negatively related to analysts' forecast error but positively related to forecast dispersion. These findings are consistent with our expectations.

5. Conclusion

The mandatory adoption of IFRS in the EU and Australia was one of the most important events in accounting history, with over 7,000 listed companies in the adopting countries required to switch from their national GAAP to a single set of accounting standards. The costs and benefits of this regulatory change are still debated and there is little empirical

[4] To explore whether the results reported in Table 7 are sensitive to alternative measures of the level of enforcement of accounting standards, we re-estimate regression equations that include the *POST*ENF* interaction effect. When the rule of law measures developed by Kaufmann et al. (2007) are used to proxy for the level of enforcement in tests of H2A and H2B, the coefficient on the *POST*ENF* interaction effect is insignificantly different from zero in Model I and positive and significant at the 1% level in Model III. These findings are inconsistent with the proposition that the beneficial effects of mandatory IFRS adoption are more prevalent in countries with strong legal enforcement. We repeat this sensitivity test using an equally-weighted index of public and private enforcement based on the enforcement measures developed by La Porta et al. (2006). Tests of H2A and H2B using La Porta's (2006) enforcement index are broadly consistent with the results of our main analysis.

evidence as to the consequences of mandatory IFRS adoption. Our study makes a contribution to this debate by providing evidence on the effects of mandatory IFRS adoption on analysts' forecast errors and dispersion, which reflect changes in the quality of the financial information used by analysts to generate earnings forecasts.

Using a sample of 53,296 observations covering 1,564 European and Australian mandatory adopters during the period 2002-2007, we provide evidence that analysts' forecast errors and dispersion are reduced following mandatory IFRS adoption. This finding suggests an improvement in the quality of analysts' information around IFRS adoption, which is consistent with regulators' claims that IFRS adoption confers benefits upon investors. The results are significant because, ex ante, it was unclear that mandatory IFRS adoption would in fact result in an increase in the decision usefulness of financial statement information. Importantly, the findings show that level of enforcement of accounting standards plays a significant role in determining the benefits of IFRS adoption. Using a self-constructed enforcement index, we report that the reduction in analysts' forecast errors and dispersion is more substantial for companies that operate in countries with strong enforcement mechanisms. This complements the findings of Daske et al (2007b), who find that the cost of capital benefits of mandatory IFRS adoption are a function of the quality of the enforcement regime in place.

Our results should be of interest to all parties seeking to evaluate the costs and benefits of IFRS adoption, as they suggest that IFRS financial information is more informative to financial analysts than national GAAP information. Further, the evidence confirms the benefits of active enforcement of accounting standards. It suggests that the work of CESR to promote and harmonize enforcement mechanisms can contribute to the successful implementation of IFRS in the EU and benefit capital market development. In addition, our study contributes to research by providing a specific accounting enforcement index that may be useful in future studies.

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Table 1
Sample Selection

This table reports the sample selection process. The initial sample includes all monthly consensus earnings forecasts available on I/B/E/S for 2002-2007 from the 25 member states of the EU, the 3 member states of the European Economic Area and Australia.

Initial sample of earnings forecasts	250,936
Less:	
Missing actual earnings or stock price data	30,868
Earnings forecasts published more than one year before the earnings announcement	9,928
Actual earnings announced more than one year after fiscal year end	9
Less than three analysts contributing to the earnings forecast	40,582
Missing earnings forecast, actual earnings or stock price data in the previous year	40,595
Actual earnings in the previous year is less than or equal to zero	3,317
Missing intangible assets or total assets data	547
Missing ROE data for the previous three years	47,700
Missing accounting standards data	2,491
Non-mandatory adopters of IFRS	21,603
Total number of firm-month observations in pooled sample	53,296

Table 2
Description of Variables

This table describes the dependent variables and firm-level independent variables used in the regression analysis and their data sources.

Variable	Description	Data Source(s)
ERROR	The absolute difference between actual EPS and the monthly consensus (median) forecast scaled by earnings per share in the previous year.	I/B/E/S
DISP	The inter-analyst standard deviation of analysts' earnings forecasts scaled by earnings per share in the previous year.	I/B/E/S
POST	An indicator variable equal to 1 where actual EPS is reported under IFRS, zero otherwise.	I/B/E/S, Datastream
SIZE	Market value of equity in USD millions at the middle of the month.	I/B/E/S
FOLLOW	The number of analyst earnings forecasts included in the consensus (median) forecast.	I/B/E/S
EARNCH	The absolute value of the difference between the current year's EPS and last year's EPS, scaled by price at the middle of the month.	I/B/E/S
PREVERR	The absolute value of last year's forecast error scaled by earnings per share in the previous year, measured at the corresponding month in the previous year.	I/B/E/S
PERIOD	The number of days between the announcement of the consensus (median) forecast and the earnings announcement date.	I/B/E/S
INTANG	The ratio of intangible assets to total assets at the end of the fiscal year.	Datastream
LOSS	An indicator variable equal to 1 if the current year's EPS is negative, zero otherwise.	I/B/E/S
EARNVOL	The historical standard deviation of return on equity over the preceding three years.	I/B/E/S
RTNVOL	The sample variance of the natural logarithm of the share market monthly rate of return on the company's ordinary shares.	Datastream

Table 3
Details of Self-Constructed Enforcement Variable

This table describes the scores assigned across the three levels of enforcement (legal environment, statutory audit and institutional oversight) and the total enforcement scores for the self-constructed enforcement variable, by country. The variables are defined as follows: EARLY = 1 if the early adoption of IFRS was permitted. PROSEC = 1 if directors/officers can be prosecuted for failure to comply with accounting standards. DEGREE = 2 if professional accounting body(ies) require auditors to have a university degree. EXAM = 2 if auditors are required to sit an examination prior to admission to the profession. TRAINING = 2 if auditors are provided with additional training by the professional accounting body(ies). ROTATION = 2 if the rotation of auditors or audit firms is required by law. ENFORCE = 3 (2) if countries fully (partially) comply with Principle 3 to Principle 8 of CESR's Standard No. 1. METHOD = 3 (2) if countries fully (partially) comply with Principle 11 to Principle 15 of CESR's Standard No. 1. ACTION = 3 (2) if countries fully (partially) comply with Principle 16 to Principle 19 of CESR's Standard No. 1. TOTAL is the sum of the scores across the three levels of enforcement. Weightings reflects the relative importance of the roles of auditors and enforcement bodies in promoting compliance (SEC 2000; FEE, 2001)

	Legal Environment		Statutory Audit			Institutional Oversight				
	EARLY	PROSEC	DEGREE	EXAM	TRAINING	ROTATION	ENFORCE	METHOD	ACTION	TOTAL
Austria	1	1	2	2	0	2	0	0	0	8
Belgium	1	1	0	2	2	0	2	3	3	14
Czech Republic	1	1	2	2	0	0	2	0	2	10
Denmark	1	1	2	2	2	2	3	3	3	19
Finland	1	1	2	2	0	0	2	2	3	13
France	0	1	2	2	2	2	2	3	3	17
Germany	1	1	2	2	0	2	3	3	3	17
Greece	1	1	2	0	0	2	3	3	3	15
Hungary	0	1	2	2	2	0	0	0	0	7
Ireland	0	1	0	2	2	0	3	2	3	13
Italy	0	0	2	2	0	2	3	3	3	15
Luxembourg	0	1	2	0	0	0	2	0	0	5
Netherlands	0	1	0	2	2	2	0	0	0	7
Norway	0	1	0	2	2	0	3	3	3	13
Poland	0	1	2	2	0	0	0	0	2	7
Portugal	0	0	2	2	2	0	3	3	3	15
Spain	0	1	0	2	2	2	2	3	3	15
Sweden	0	1	2	2	2	0	0	0	0	7
United Kingdom	0	1	0	2	2	0	3	3	3	14

Table 4
Descriptive Statistics

Panel A reports the descriptive statistics for the dependent variables and all firm-level continuous independent variables for the full sample of 56,613 firm-month observations. Panel B reports the descriptive statistics of the dependent variables and selected firm-level continuous independent variables in the pre- and post-IFRS adoption periods. The variables are defined as follows: ERROR is the absolute difference between actual EPS and the monthly consensus (median) forecast scaled by earnings per share in the previous year.. DISP is the inter-analyst standard deviation of analysts' earnings forecasts scaled by earnings per share in the previous year.. SIZE is the market value of equity in USD millions at the middle of the month. FOLLOW is the number of analyst earnings forecasts included in the consensus (median) forecast. EARNCH is the absolute value of the difference between the current year's EPS and last year's EPS, scaled by price at the middle of the month. PREVERR is the absolute value of last year's forecast error scaled by earnings per share in the previous year, measured at the corresponding month in the previous year. PERIOD is the number of days between the announcement of the consensus (median) forecast and the earnings announcement date. INTANG is the ratio of intangible assets to total assets at the end of the fiscal year. EARNVOL is the historical standard deviation of return on equity over the preceding three years. RTNVOL is the sample variance of the natural logarithm of the share market monthly rate of return on the company's ordinary shares.

Panel A: Descriptive Statistics (53,296 firm-month obs.)

	Mean	Median	Minimum	Maximum	Std. Dev.
ERROR	0.481	0.107	0.000	229.667	3.928
DISP	0.192	0.081	0.000	96.667	1.254
SIZE	6935.890	1533.363	3.896	251099.500	17473.900
FOLLOW	10.445	9.000	3.000	45.000	7.040
EARNCH	0.041	0.014	0.000	7.666	0.189
PREVERR	0.026	0.008	0.000	16.256	0.127
PERIOD	178.878	179.000	0.000	365.000	101.899
INTANG	0.157	0.084	0.000	0.909	0.185
EARNVOL	10.938	4.170	0.040	2660.189	51.613
RTNVOL	0.009	0.007	0.001	0.160	0.009

Panel B: Descriptive Statistics, by period

	Pre-IFRS adoption period (23,861 obs.)			Post-IFRS adoption period (29,435 obs.)		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev
ERROR	0.61	0.13	3.50	0.38***	0.09***	4.24
DISP	0.24	0.09	1.35	0.15***	0.08***	1.17
SIZE	5666.95	1276.06	14121.49	8025.17***	1779.59***	19841.93
FOLLOW	10.48	9.00	7.14	10.42	8.00	6.95
EARNCH	0.06	0.02	0.27	0.03***	0.01***	0.06
PERIOD	177.29	175.00	103.33	180.24***	181.00***	100.64
INTANG	0.15	0.07	0.18	0.17***	0.09***	0.19
EARNVOL	11.77	4.82	32.28	10.22***	3.65***	63.68

*** indicates that the mean (median) in the post-adoption period is significantly different from the mean (median) in the pre-adoption period at the 1% level using a two-tailed t-test (Mann-Whitney U-test).

Table 5
Descriptive Statistics for the Enforcement Variables

This table reports the descriptive statistics for the country-level enforcement scores. The variables are defined as follows: LEG, AUDIT and INST are the total scores across for each level of enforcement covered by the self-constructed enforcement index: legal environment, statutory audit and institutional oversight, respectively. ENF is the sum of the scores assigned for LEG, AUDIT and INST. KAUF is the average of the rule of law variable from Kaufmann et al (2007) over the 2002-2007 period. LAP is an equally-weighted enforcement score based on the indices of public and private enforcement from La Porta et al (2006). For each of the enforcement measures (ENF, KAUF and LAP), a higher score denotes a higher level of enforcement.

Country	LEG	AUDIT	INST	ENF	KAUF	LAP
Australia	*	*	*	*	1.78	0.80
Austria	2	6	0	8	1.84	0.18
Belgium	2	4	8	14	1.48	0.29
Czech Republic	2	4	4	10	1.06	*
Denmark	2	8	9	19	1.92	0.47
Finland	2	4	7	13	1.89	0.45
France	1	8	8	17	1.33	0.63
Germany	2	6	9	17	1.73	0.22
Greece	2	4	9	15	0.72	0.37
Hungary	1	6	0	7	1.14	*
Ireland	1	4	8	13	1.63	0.46
Italy	0	6	9	15	0.59	0.46
Luxembourg	1	2	2	5	1.90	*
Netherlands	1	6	0	7	1.74	0.58
Norway	1	2	9	12	1.96	0.40
Poland	1	4	2	7	0.72	*
Portugal	0	6	9	15	1.11	0.56
Spain	1	6	8	15	1.17	0.46
Sweden	1	6	0	7	1.86	0.47
United Kingdom	1	4	9	14	1.72	0.71

Table 6

Regressions Analysis of the Effects of Mandatory IFRS Adoption on Analysts' Forecast Errors

This table reports the regression results for analysts' forecast error on the POST indicator variable and different sets of control variables. The variables are defined as follows: POST is an indicator variable equal to 1 where actual EPS is reported under IFRS, zero otherwise. SIZE is the market value of equity in USD millions at the middle of the month. FOLLOW is the number of analyst earnings forecasts included in the consensus (median) forecast. EARNCH is the absolute value of the difference between the current year's EPS and last year's EPS, scaled by price at the middle of the month. PREVERR is the absolute value of last year's forecast error scaled by price, measured at the corresponding month in the previous year. PERIOD is the number of days between the announcement of the consensus (median) forecast and the earnings announcement date. INTANG is the ratio of intangible assets to total assets at the end of the fiscal year. LOSS is an indicator variable equal to 1 if the current year's EPS is negative, zero otherwise. DISP is the inter-analyst standard deviation of analysts' earnings forecasts scaled by earnings per share in the previous year. EARNVOL is the historical standard deviation of return on equity over the preceding three years. RTNVOL is the sample variance of the natural logarithm of the share market monthly rate of return on the company's ordinary shares. The natural logarithm of all continuous variables is taken.

		Model I		Model II		Model III		Model IV	
Variable		Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	?	0.93	4.28***	-0.07	-0.55	-0.11	-0.69	-0.76	-9.63***
POST	-	-0.24	-20.21***	-0.36	-24.51***	-0.24	-29.20***	-0.20	-23.12***
SIZE	?	0.04	7.37***	0.06	3.64***	-0.01	-3.00***	-0.17	-17.70***
FOLLOW	-	-0.31	-22.77***	-0.48	-25.51***	0.00	0.52	0.04	3.66***
EARNCH	+	0.35	69.94***	0.34	60.93***	0.11	32.25***	0.08	22.80***
PREVERR	+	0.05	11.62***	-0.06	-14.60***	0.09	29.80***	0.02	8.76***
PERIOD	+	0.20	33.89***	0.23	42.54***	0.04	8.89***	0.04	12.86***
INTANG	+	0.03	8.16***	0.06	5.97***	0.03	11.90***	0.04	5.92***
LOSS	+	0.85	23.68***	0.66	14.57***	0.75	29.77***	0.38	14.17***
DISP	+	0.56	85.09***	0.45	57.40***				
EARNVOL	+	-0.03	-5.36***	-0.08	-11.14***	0.03	7.73***	-0.01	-1.53
RTNVOL	+	0.16	15.11***			0.28	37.12***		
Industry Fixed-Effects		YES		NO		YES		NO	
Country Fixed-Effects		YES		NO		YES		NO	
Firm Fixed-Effects		NO		YES		NO		YES	
F-Statistic		882.02***		40.86***		518.17***		48.96***	
Adjusted R^2		0.43		0.55		0.30		0.59	
Number of Observations		53,296		53,296		53,296		53,296	

***,**,* Significance at 1%, 5% and 10%, respectively

Table 7

Regressions Analysis of the Role of Enforcement in Determining the Effects of Mandatory IFRS Adoption

This table reports the regression results for analysts' forecast error (Models we and II) and dispersion (Models III and IV) on the POST indicator variable, the ENF variable, the POST*ENF interaction effect and different sets of control variables. The variables are defined as follows: POST is an indicator variable equal to 1 where actual EPS is reported under IFRS, zero otherwise. ENF is the self-constructed enforcement index. POST*ENF is the interaction effect of POST and ENF. SIZE is the market value of equity in USD millions at the middle of the month. FOLLOW is the number of analyst earnings forecasts included in the consensus (median) forecast. EARNCH is the absolute value of the difference between the current year's EPS and last year's EPS, scaled by price at the middle of the month. PREVERR is the absolute value of last year's forecast error scaled by price, measured at the corresponding month in the previous year. PERIOD is the number of days between the announcement of the consensus (median) forecast and the earnings announcement date. INTANG is the ratio of intangible assets to total assets at the end of the fiscal year. LOSS is an indicator variable equal to 1 if the current year's EPS is negative, zero otherwise. DISP is the inter-analyst standard deviation of analysts' earnings forecasts scaled by earnings per share in the previous year. EARNVOL is the historical standard deviation of return on equity over the preceding three years. RTNVOL is the sample variance of the natural logarithm of the share market monthly rate of return on the company's ordinary shares. The natural logarithm of all continuous variables is taken.

		Model I		Model II		Model III		Model IV	
Variable		Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	?	1.19	12.87***	46.96	8.00***	-0.41	-6.12***	5.37	1.52
POST	?	-0.05	-0.86	0.11	1.79	0.21	4.55***	0.15	4.05***
ENF	?	0.00	1.31	-3.02	-8.09***	0.03	14.03***	-0.39	-1.73
POST*ENF	-	-0.01	-2.80***	-0.03	-8.14***	-0.03	-10.39***	-0.02	-10.33***
SIZE	?	0.03	4.23***	0.14	7.67***	-0.08	-18.18***	-0.16	-14.91***
FOLLOW	?	-0.27	-19.94***	-0.51	-25.23***	0.15	15.32***	0.02	1.56
EARNCH	+	0.37	66.86***	0.35	56.52***	0.13	32.28***	0.08	22.30***
PREVERR	+	0.05	12.22***	-0.06	-12.52***	0.09	28.96***	0.02	5.38***
PERIOD	+	0.20	29.78***	0.23	38.73***	0.03	7.09***	0.04	12.46***
INTANG	+	0.04	9.35***	0.06	5.03***	0.02	5.53***	0.03	4.41***
LOSS	+	0.79	20.64***	0.64	13.48***	0.75	27.37***	0.42	14.99***
DISP	+	0.58	84.17***	0.45	52.47***				
EARNVOL	+	-0.02	-4.23***	-0.07	-8.75***	0.02	4.31***	-0.01	-1.25***
RTNVOL	+	0.10	8.86***			0.25	30.96***		
Industry Fixed-Effects		YES		NO		YES		NO	
Firm Fixed-Effects		NO		YES		NO		YES	
F-Statistic		1258.59***		40.22***		541.26***		48.07***	
Adjusted R^2		0.43		0.55		0.23		0.59	
Number of Observations		44,125		44,125		44,125		44,125	

***,**,* Significance at 1%, 5% and 10%, respectively