

# **The Impact of Improvements in Institutional Oversight on IFRS Accrual Quality in Europe\***

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## **Abstract**

This study examines the impact of improvements in institutional oversight specifically for compliance with International Financial Reporting Standards (IFRS) on accrual quality in Europe. The sample comprises 9339 firm-year observations from a treatment sample of three European countries that had either non-existent or relatively weak institutional oversight systems at the start of the sample period 2006-10 but improved their oversight systems thereafter, and a benchmark sample of six other European countries that had institutional oversight systems from the start of this sample period. After controlling for legal system, rule of law and other variables, we find incremental improvement in accrual quality in the treatment sample relative to the benchmark sample from the pre-enforcement period 2006-07 to the enforcement period 2008-10. The results suggest that institutional oversight has an incrementally positive impact on accrual quality over and above that attributable to legal system, rule of law and other variables. The results are robust to different measures of accrual quality, alternative enforcement proxy and alternative samples.

**JEL Classification Code:** M41, M42

**Keywords:** accrual quality; enforcement; IFRS; institutional oversight

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## **The Impact of Improvements in Institutional Oversight on IFRS Accrual Quality in Europe**

### **Introduction**

This study examines whether improved institutional oversight of compliance with International Financial Reporting Standards (IFRS) in Europe leads to improved accrual quality. The adoption of IFRS in Europe and other developed economies is one of the most significant developments in financial reporting.<sup>1</sup> The global adoption of IFRS was motivated by the argument that the adoption of a single set of high quality standards would improve the reporting quality across the world and reduce international financial reporting diversity (Whittington 2005).<sup>2</sup>

However, the academic, regulatory and professional literature suggests that the mere adoption of IFRS without a rigorous enforcement regime would not improve reporting quality (Brown 2011; European Communities [EC] 2002; Fédération des Experts Comptables Européens [FEE] 2001, 2002; Holthausen 2009; Pope and McLeay 2011; United States Securities and Exchange Commission [US SEC] 2000). Since IFRS are principles-based standards, which allow accounting discretion and require managers to make judgments and estimates, a rigorous enforcement mechanism is needed to ensure compliance with the standards. The European IFRS Regulation describes the importance of rigorous enforcement of accounting standards, particularly a common approach to enforcement, as follows:

*A proper and rigorous enforcement regime is key to underpinning investors' confidence in financial markets. Member States, by virtue of Article 10 of the Treaty, are required to take appropriate measures to ensure compliance with international accounting standards. The Commission intends to liaise with Member States, notably through*

the Committee of European Securities Regulators [CESR], to develop *a common approach to enforcement* [emphasis added]. (EC 2002, recital n. 16)

Consistent with the emphasis on the enforcement of IFRS in the European IFRS Regulation, the then CESR developed two standards on accounting enforcement. Standard No. 1 prescribes the essential principles for IFRS enforcement activity by European national enforcement bodies and is expected to serve as the basis of harmonisation of institutional oversight across Europe (CESR 2003). Standard No. 2 provides for sharing and discussion of enforcement decisions at a pan-European forum for the purpose of achieving harmonised enforcement practices (CESR 2004).

During the period 2006 to 2010, European national enforcement bodies have complied with Standard No. 1, shared their enforcement decisions with other national enforcers and discussed those decisions at European Enforcers Coordination Sessions (EECS) (CESR 2007, 2010b; European Securities and Markets Authority [ESMA] 2011). The stated objectives of all these institutional oversight activities in Europe are to monitor and ensure compliance of financial statements with IFRS and to ensure that a consistent approach to enforcement is implemented across European countries.

However, not all European countries started accounting enforcement in the same year. For example, CESR (2007) notes that some countries (e.g., Belgium, Finland, and France) had full enforcement activity in 2006, while others (e.g., Germany, Ireland, and Sweden) had either partial or no enforcement activity in the same year. This differential enforcement activity by European countries offers a unique opportunity to examine the impact of enforcement activity on accrual quality.

European countries invested a considerable amount of resources – time, money and efforts – in establishing institutional oversight systems to ensure compliance with IFRS. This suggests that European countries expect that institutional oversight over IFRS compliance will be able to make incremental contribution to reporting

quality over and beyond rule of law; otherwise it is difficult to justify the investment of a considerable amount of resources in establishing institutional oversight systems and monitoring compliance with IFRS. Therefore, from the perspectives of theory and policy prescriptions, it is important to examine whether institutional oversight over compliance with IFRS contributes to financial reporting quality (Brown 2011; Holthausen 2009; Pope and McLeay 2011). This paper examines this issue empirically.

The paper uses a difference-in-difference research design for two groups of countries – a treatment sample of three European countries with either no or weak institutional oversight systems during 2006 but improved oversight systems after that, and a benchmark sample of six other European countries that had reasonably strong oversight systems in 2006. It compares the change in accrual quality in the treatment sample over the sample period with that of the benchmark sample during the same period. The sample comprises 9,339 firm-year observations and covers five years – 2006-10.

This paper finds incremental improvement in accrual quality in the treatment sample over and above the benchmark sample from 2006-7 to 2008-10. The results are robust to alternative measures of accrual quality, alternative samples and alternative enforcement proxy. The results support the hypothesis that institutional oversight over compliance with IFRS makes incrementally positive contribution to accrual quality over and beyond the rule of law and have relevance for accounting policymakers of countries that are planning to adopt IFRS in the future.

There is an emerging literature on the benefits of IFRS enforcement (Brown *et al.* 2013; Christensen *et al.* 2013; Hitz *et al.* 2012; Preiato *et al.* 2013). Unlike these prior studies that examine market based measures of accounting quality (e.g., analysts' forecast accuracy and dispersion, market liquidity), this paper examines a different

outcome variable – accrual quality and contributes to this emerging literature on IFRS enforcement and its consequences.

The remainder of this paper is organised as follows. Section 2 provides a literature review and section 3 describes institutional oversight systems in Europe to ensure compliance with IFRS. Section 4 develops the hypothesis and Section 5 discusses the methodology. Section 6 reports the results and the last section provides a summary and conclusion.

### **Literature review**

This study is related to two streams of accounting literature. The first stream debates the pros and cons of the adoption of IFRS and examines the impact of IFRS on various reporting outcomes. The second stream argues that IFRS would not improve reporting quality unless they are enforced strictly.

### ***IFRS and reporting quality***

The major argument in favour of IFRS is that they will enhance the transparency and comparability of financial reporting by listed companies across the borders (Whittington 2005). This, in turn, will contribute to the efficient and cost-effective functioning of the capital market, help protect the interests of investors and maintain their confidence in the financial market, facilitate the free flow of capital across borders, and create a level playing field for companies that compete for financial resources in the adopting countries (Armstrong *et al.* 2010; Florou and Pope 2009; Jones and Finley 2011; Li 2010). These were the principal motivations for the adoption of IFRS in Europe (EC 2002). Others argue that comparability of financial reporting across countries is unlikely as IFRS allow alternative accounting treatments and IFRS implementation will vary conditional on managers' reporting

incentives, national institutions and cultures (Isidro and Raonic 2012; Kvaal and Nobes 2012; Schipper 2005; Soderstrom and Sun 2007).

A growing number of studies examine the impacts of IFRS on various outcome variables but have mixed findings. Outcome variables include market reaction (Armstrong *et al.*, 2010), value relevance of earnings and book value (Clarkson *et al.*, 2011; Goodwin *et al.*, 2008; Liao *et al.* (2012)), income smoothing and timeliness of loss recognition (Chua *et al.*, 2012), variability of financial statements ratios (Jones and Finley, 2011), earnings management (Jeanjean and Stolowy, 2008), discretionary accruals (Callao and Jarne, 2010; Kabir *et al.* (2010), and accounting policy choices (Kvaal and Nobes, 2012; Nobes, 2011).

### ***IFRS, enforcement and reporting quality***

Since IFRS allow reporting discretion, it is argued that IFRS would not improve reporting quality unless they are supported by a rigorous enforcement mechanism (EC 2002; FEE 2001, 2002; Holthausen 2009; US SEC 2000). The European IFRS Regulation underscores the importance of a rigorous enforcement regime and calls for the development of a common approach to enforcement (EC 2002).

Several studies document reporting benefits of strong rule of law (Armstrong *et al.* 2010; Daske *et al.*, 2008; Li, 2010; Florou and Pope, 2009). Despite having relatively strong rule of law, with the adoption of IFRS, European countries started designing and implementing institutional oversight systems for monitoring and enforcing compliance with IFRS (CESR 2007, 2010b; ESMA 2011). These enforcement efforts include the establishment of national oversight bodies in European countries and the monitoring and enforcement of IFRS by these oversight bodies (CESR 2007, 2010b; ESMA 2011). Thus, it is important from the perspectives of both theory and policy prescription to examine whether the institutional oversight in Europe contributes to reporting quality (Holthausen 2009; Pope and McLeay 2011). This is

important because if the institutional oversight system in Europe does not contribute to accrual quality, it would be difficult to justify the considerable amount of costs – time, money and other resources – involved in establishing national oversight bodies and monitoring and enforcing compliance with IFRS.

Several recent papers examine the effects of IFRS enforcement on market development and financial accounting transparency, market liquidity, abnormal returns, abnormal trading volumes and abnormal bid-ask spreads, and analysts' forecast accuracy and dispersion (Brown *et al.*, 2013; Christensen *et al.* 2013; Hitz *et al.*, 2012; Preiato *et al.*, 2013). In contrast with these prior studies, this paper examines a different outcome variable – accrual quality and seeks to contribute to the emerging literature on IFRS enforcement and reporting quality in Europe.

### **Institutional oversight systems in Europe**

European countries had diverse institutional oversight systems prior to the adoption of IFRS (FEE 2001). In an overview of such systems prior to the adoption of IFRS in Europe, FEE (2001) classifies the systems into four types – (a) stock exchange (Sweden, Norway and Switzerland), (b) stock exchange regulator (Belgium, France, Italy, Portugal and Spain), (c) review panel (the UK), and (d) government departments (Denmark, the UK, and Czech Republic). FEE (2001) also identifies eight countries that had no institutional oversight system (Austria, Finland, Germany, Ireland, Luxembourg, the Netherlands, Hungary, and Slovenia).

Regulators, standard-setters, professional organisations and academics have emphasised the need for rigorous enforcement mechanisms to achieve high quality financial reporting (FEE 2001; Holthausen 2009; US SEC 2000). FEE (1999, p. 6) notes that the issue of accounting enforcement is 'of crucial importance to avoid incomplete and inconsistent implementation/ application'. The European IFRS

regulation also emphasises the importance of rigorous enforcement of accounting standards, particularly a common approach to enforcement (EC 2002, recital n. 16).

Consistent with the emphasis on enforcement of accounting standards in the IFRS Regulation, the now defunct CESR<sup>3</sup> released Standard No. 1 on accounting enforcement in 2003. The standard prescribes 21 principles for the enforcement of accounting standards in Europe and recommends that member countries establish institutional oversight systems and conduct accounting standards enforcement activities in line with the principles (CESR 2003).

Standard No. 1 defines enforcement as monitoring compliance of financial information with the applicable reporting framework and taking appropriate action in case of non-compliance (CESR 2003).<sup>4</sup> The standard recommends, inter alia, that (a) a competent independent administrative authority should be responsible for enforcement of accounting standards and have the necessary powers<sup>5</sup> and sufficient resources<sup>6</sup>, (b) the principles of enforcement in the standard should apply to both annual and interim financial statements and reports issued by issuers whose securities are admitted to trading in a regulated securities market, (c) in the case of material misstatements, the national enforcer should take appropriate actions to achieve appropriate disclosures and where relevant, public corrections of misstatements, and (d) actions should be effective, timely and proportional to the impact of detected infringement (CESR 2003).

The standard advocates a mixed model whereby a risk-based approach is combined with a rotation/ sampling approach to select issuers and documents for enforcement (CESR 2003). It further notes that methods of enforcement on selected information range from pure formal checks to in-depth substantive in-nature checks and the intensity of review should consider the level of risk, the type of document to be examined and the extent of information available on the issuer (CESR 2003). The above features of Standard No. 1 suggest that compliance with the standard is likely

to contribute to strict enforcement of IFRS and improvement of reporting quality over time.

The CESR (2007) reports on the extent of compliance of European countries with Standard No. 1. The report states that, as of 2006, 11 countries<sup>7</sup> complied fully with Standard No. 1, 10 countries<sup>8</sup> complied partially, and eight countries<sup>9</sup> did not comply. Out of eight countries that did not comply in 2006, three<sup>10</sup> would start complying in 2007, three<sup>11</sup> in 2008, and two<sup>12</sup> were in the process of implementing their enforcement systems. This suggests that the European national enforcers were expected to comply with Standard No. 1 by 2008. This also suggests variation in IFRS enforcement activity in European countries during the early years of IFRS adoption and this variation offers a unique opportunity to examine the impact of IFRS enforcement activity on accrual quality using a difference-in-difference research design.

### **Hypothesis development**

One stated objective of the European enforcement efforts discussed above is to monitor and ensure the compliance of financial statements of European listed companies with IFRS (CESR 2003). A review of the enforcement decisions published by the CESR and ESMA reveals that the decisions pertained to (a) classification (e.g., current vs. non-current liabilities, classification in the cash flow statement, classification of items in accordance with IAS 8, classification of an intangible asset as an intangible asset with indefinite life, and classification of an entity as a subsidiary), (b) disclosures (e.g., information regarding material intangibles, separate components of income tax, methodology to determine the recoverable amount and assumptions used in impairment testing), (c) presentation (e.g., presentation of an item either in profit or loss for the period, or other comprehensive income), (d) recognition (e.g., revenue recognition), and (e) measurement (e.g., measurement of

fair value and accounting treatment of share-based payments, use of the appropriate market price to measure the fair value of shares, measurement of the liability component of compound financial instruments, measurement of recoverable amount and impairment loss, inappropriate application of the definition of the grant date for share-based payments) (CESR 2010a, 2010c; ESMA 2011).

This suggests that European national enforcers monitor and enforce a wide range of aspects of financial reporting – classification, presentation, disclosure, recognition and measurement – by reporting entities. Issues pertaining to recognition (e.g., revenue recognition) and measurement (e.g., use of the appropriate grant date for share-based payments, use of the appropriate market price for measuring the fair value) clearly impact on accruals. Further, some classification issues also affect accounting accruals. For example, the classification of an intangible as having an indefinite useful, rather than limited, life affects amortisation expenses. These monitoring and enforcement activities are likely to constrain managerial discretion in recognition, measurement and classification in accounting and improve accrual quality.

Accrual quality is likely to improve in all the sample countries over time as a result of the enhanced enforcement efforts discussed above. However, two factors may confound the impact of enforcement activities on accrual quality in the sample. First, accrual quality may improve over time as a result of the learning curve effect (Brown 2011). Managers of European firms may become accustomed to making estimates and judgements inherent in IFRS over time, which may improve accrual quality over time. Second, the study period 2006-10 contains the economic recession of 2008. As a result of criticisms of financial reporting standards and reporting quality in the wake of the financial crisis, managers may intensify their efforts to implement IFRS properly.<sup>13</sup>

To isolate the impact of improved institutional oversight on accrual quality from that of the learning curve phenomenon and economic recession, this paper focuses on the impact of oversight on accrual quality in the treatment sample. The treatment sample consists of countries with either no or weak institutional oversight systems for compliance with IFRS in 2006 and 2007 but improved oversight systems after that. On the other hand, the benchmark sample is comprised of countries that had stronger oversight systems than the treatment sample from the start (i.e., 2006) of the sample period. Thus, the treatment sample is likely to experience the greatest improvement in accrual quality during the sample period. Since the learning curve effect and the economic recession apply to both the benchmark sample and the treatment sample, any incremental improvement in accrual quality in the treatment sample over and above that of the benchmark sample can be attributed to enhanced monitoring and enforcement efforts in the treatment sample during the period. Thus, the research hypothesis is as follows:

H1: Accrual quality is likely to improve more in the treatment sample countries than in the benchmark sample countries as a result of increased enforcement activities by European national enforcers.

## **Methodology**

### ***Accrual quality***

IFRS require managers to make accounting estimates and judgments, and accruals under IFRS are the result of these estimates and judgments. As discussed above, national institutional oversight bodies in Europe monitor managers' accounting decisions relating to accounting classification, recognition and measurement. Therefore, managers and enforcement of IFRS by institutional oversight bodies have a direct impact on accruals<sup>14</sup> and accrual quality is an appropriate measure of reporting outcome for assessing the impact of institutional oversight in Europe.

Further, accrual quality has construct validity and can be measured reliably across jurisdictions (Schipper 2005). It is a summary indicator of financial reporting quality (Francis *et al.* 2006) and has been widely used as a measure of earnings quality in the accounting literature (Francis *et al.* 2006). Accrual quality is also an important dimension of reporting as it impacts on the cost of equity (Francis *et al.* 2004), asset allocation decisions (Florou and Pope 2009), and IPO underpricing (Boulton *et al.* 2011). Thus, using accrual quality as an outcome variable is consistent with the objective of financial reporting of providing useful information for decision-making.<sup>15</sup>

Many accrual models have been used in the literature (Ball and Shivakumar 2006; DeAngelo 1986; Dechow and Dichev 2002; Dechow and Sloan 1991; Healy 1985; Jones 1991; Kothari *et al.* 2005). However, there is no conclusive evidence on which accrual model is the best (Gul *et al.* 2009).

We use the cross-sectional Jones (1991) model to estimate discretionary accruals. This model is augmented by including lagged return on assets and change in cash flow from operations ( $\Delta$ CFO). The Jones (1991) model is widely used in the earnings management literature (DeFond, 2010). Lagged return on assets and  $\Delta$ CFO are included as independent variables as proposed by Kothari *et al.* (2005) and Dechow (1994), respectively. This model is expressed as follows:

$$ACC_{i,t} = a + \beta_1(1/TA_{i,t-1}) + \beta_2\Delta REV_{i,t} + \beta_3FA_{i,t} + \beta_4ROA_{i,t-1} + \beta_5\Delta CFO_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where:

$ACC_{i,t}$  = total accruals of firm *i* for year *t*, measured as profit after tax less cash flow from operating activities (CFO), deflated by total assets at the end of *t*-1.

$TA_{i,t-1}$  = total assets of firm *i* at the end of year *t*-1.

$\Delta REV_{i,t}$  = change in revenue of firm *i* in year *t*, deflated by total assets at the end of year *t*-1.

$FA_{i,t}$  = fixed assets of firm  $i$  at the end of year  $t$ , deflated by total assets at the end of year  $t-1$ .<sup>16</sup>

$ROA_{i,t-1}$  = lagged return on assets, measured as earnings before interest and tax of year  $t-1$  divided by total assets at the end of year  $t-1$ .

$\Delta CFO_{i,t}$  = change in cash flow from operations of firm  $i$  during  $t$ , deflated by total assets at the end of year  $t-1$ .

We apply model (1) to each country-industry-year<sup>17</sup> and, following Kothari et al. (2005), require each country-industry-year combination to have at least 10 observations. We take the absolute residual from the model to indicate absolute discretionary accruals  $||DACC||$  and use  $|DACC|$  as the measure of accrual quality on the premise that both upward and downward adjustments of reported earnings are indications of earnings management and, hence, poor earnings quality (Gul *et al.* 2009).<sup>18</sup>

### **Control variables**

We include eleven control variables – (a) basis of legal system (common or code), (b) the quality of the rule of law, (c) difference between pre-IFRS local GAAP and IFRS, (d) growth rate of Gross Domestic Product (GDP), (e) change in stock market index, (f) market capitalisation as a percentage of GDP, (g) revenue growth, (h) absolute magnitude of accruals, (i) firm size, (j) leverage, and (k) market-to-book ratio. In addition to the eleven control variables, we also control for industry fixed effects.

Legal origin is used extensively in earnings quality studies (Soderstrom and Sun 2007). Common law countries have developed stock markets, pre-dominance of equity financing, better investor protection, lower ownership concentration and

higher spending on auditing services (Ali and Hwang 2000; La Porta *et al.* 1998). Soderstrom and Sun (2007) note that the legal system affects earnings quality directly through legal enforcement and indirectly through financial reporting incentives such as those provided by financial market development, capital structures, and ownership structures. Thus, this legal system variable controls for many country-level variables that impact on accounting quality (Ali and Hwang 2000; Soderstrom and Sun 2007). This dummy variable equals 1 for common law countries and 0 for code law countries.

Prior research (Armstrong *et al.* 2010; Daske *et al.* 2008; Florou and Pope 2009; Li 2010) documents IFRS benefits (e.g., decrease in cost of equity capital, increase in market liquidity and equity ownership) arising from strong legal enforcement and uses either the rule of law index developed by Kaufmann *et al.* (2007, 2008) or the average score of the efficiency of the judicial system, rule of law, and corruption from La Porta *et al.* (1998) as the proxy for legal enforcement. Both proxies broadly measure the quality of the legal and judicial system of a country. Since we examine the impact of institutional oversight system on accrual quality, we control for the quality of the rule of law and use the rule of law index from Kaufmann *et al.* (2007) as the majority of prior studies use this proxy for legal enforcement and Kaufmann *et al.*'s (2007) rule of law index is more recent than the La Porta *et al.* (1998) index (Armstrong *et al.* 2010; Daske *et al.* 2008; Florou and Pope 2009).

The third control variable is the difference between pre-IFRS local GAAP and IFRS. Bae *et al.* (2008) document different degrees of discrepancies between pre-IFRS local GAAP and IFRS for 49 countries. Since firms domiciled in a country with more discrepancies between its pre-IFRS local GAAP and IFRS may expect larger improvement in accrual quality, we control for this variable. We use the Bae *et al.* (2008) measure of difference between pre-IFRS local GAAP and IFRS and higher scores indicate greater discrepancies.

GDP growth rate and change in stock market index are used as a control variable because the study period includes the recessionary period and there has been variation in GDP growth rate and stock market performance across countries in this period (Holder *et al.* 2013). Market capitalisation as a percentage of GDP is used as a proxy for the development of the stock market. Demand for accounting information from market participants to mitigate the adverse selection problem provides incentives for corporate managers to improve the quality of earnings (Soderstrom and Sun 2007). Thus, earnings quality is likely to be better in countries where the stock market plays an important role in corporate financing.

Managers of growth firms are likely to manage earnings to avoid earnings disappointment (Callao and Jarne 2010). Further, growth firms are likely to operate in uncertain environments (Dechow and Schrand 2004). Thus, accrual quality is likely to be negatively associated with revenue growth.

Accrual quality is also likely to be negatively associated with the absolute magnitude of accruals as accruals require estimations and judgments, and larger accruals (of either sign) may indicate underlying volatility in the companies' operations and may contain estimation errors (Dechow and Schrand 2004). Further, prior research finds that managers manage earnings through accruals (Dechow and Schrand 2004). This suggests that accruals may reflect managers' financial reporting incentives which may impinge on accrual quality. Therefore, we control for both revenue growth and absolute magnitude of accruals.

Larger firms are more likely to manage earnings than smaller ones to reduce political costs (Watts and Zimmerman 1986). This suggests a negative relation between firm size and accrual quality. However, larger firms have a better information environment than smaller ones as larger firms disclose more information and are followed by more securities analysts (Hope 2003).<sup>19</sup> This suggests a positive

relation between size and accrual quality. Hence, we do not hypothesize the direction of association between firm size and accrual quality.

Banks and other lenders have private access to corporate managers (Ball *et al.* 2000; Soderstrom and Sun 2007). Thus, the demand for higher quality accounting information could be less for firms with higher leverage. Further, prior studies found that leverage is associated with earnings management (DeFond and Jiambalvo 1994; Duke and Hunt 1990). Thus, accounting quality is likely to be lower in firms with high leverage (Soderstrom and Sun 2007). However, accrual quality may be positively associated with leverage because lenders have huge financial stakes in the firms and hence, have motivation to monitor financial reporting of the borrower. Therefore, we do not hypothesize the direction of the relationship between accrual quality and leverage.

Market-to-book ratio is used in the literature as a proxy of unconditional conservatism and the accounting literature documents a negative association between conditional conservatism and unconditional conservatism (Beaver and Ryan 2005; Roychowdhury and Watts 2007). Since accruals are used to implement conditional conservatism, market-to-book ratio is included as a control variable.

### ***Research design and empirical model***

This study uses a difference-in-difference research design to test the hypothesis. We use a benchmark sample and a treatment sample and data for five years, 2006-10. To identify the benchmark and treatment samples, we use the report by CESR (2007). The CESR report (2007) provides an update on the state of compliance with the CESR (2003) Standard 1 in 2006. We focus on Western European countries<sup>20</sup> because Eastern European countries do not have long experience with commercial accounting and inclusion of these countries in the sample may confound the results.

The benchmark sample comprises six countries – Belgium, Denmark, Finland, France, Norway, and the UK. These countries complied fully with Standard No. 1 in

2006 and therefore had full enforcement activity from the start of the sample period 2006-10 (CESR 2007). On the other hand, the initial treatment sample is comprised of five countries – Germany, Ireland, Luxembourg, the Netherlands, and Sweden. Germany and the Netherlands complied partially with Standard No. 1 in 2006 (CESR 2007). Ireland, Luxembourg and Sweden did not comply with Standard No. 1 in 2006 (CESR 2007). Thus, compared with the benchmark sample countries, the institutional oversight systems of the five treatment sample countries were either non-existent or relatively weak at the start of the sample period.

We use 2006-07 as the pre-enforcement period and 2008-10 as the enforcement period. The period 2006-07 is treated as the pre-enforcement period because the enforcement activity of the treatment sample was presumably weak during this period. As discussed above, Germany and the Netherlands complied partially with Standard No. 1 in 2006 (CESR 2007). On the other hand, Ireland, Luxembourg and Sweden did not comply with Standard No. 1 in 2006 but were to start complying with the CESR (2003) Standard 1 in 2007 (CESR 2007). Since the oversight system is likely to be more effective over time as countries would learn from their own and others' enforcement experiences, we consider the institutional oversight systems of these five countries - Germany, Ireland, Luxembourg, the Netherlands, and Sweden – during these early years to be relatively weak and treat 2006-07 as the pre-enforcement period and 2008-10 as the enforcement period.

To check the reasonableness of the designation of our sample countries as belonging to either treatment or benchmark sample, we compare the changes in the value of the accounting enforcement index of Brown *et al.* (2013, Table 5) for our treatment and benchmark sample countries. They design an accounting enforcement proxy and report its value for their sample countries for 2002, 2005 and 2008. Since the pre-enforcement and enforcement periods in our study are 2006-07 and 2008-10 respectively, we compare changes in the value of Brown *et al.*'s (2013) accounting

enforcement proxy from 2005 to 2008 for our treatment and benchmark sample countries.

The value of Brown *et al.*'s (2013) enforcement proxy of only one benchmark country – France – declines from 19 in 2005 to 16 in 2008.<sup>21</sup> The value of the enforcement proxy of the remaining five benchmark countries – Belgium, Denmark, Finland, Norway, and the UK – remains the same in 2005 and 2008. On other hand, the value of Brown *et al.*'s (2013) enforcement proxy of four treatment countries – Germany, Ireland, the Netherlands, and Sweden – increased from 2005 to 2008. Brown *et al.* (2013) do not report the value of the accounting enforcement proxy for Luxembourg. Therefore, except for France, our classification of sample countries as benchmark and treatment countries is consistent with Brown *et al.*'s (2013) accounting enforcement proxy. In sensitivity analysis, we conduct the analysis for the sample after excluding France and the results (not reported in table) are similar to those reported in this study.

To test the hypotheses, the following Tobit regression model is used:

$$|DACC_{i,t}| = \alpha + \beta_1 TS + \beta_2 ENFOR + \beta_3 TS * ENFOR + \beta_4 LEGAL + \beta_5 RULEOFLAW_k + \beta_6 GAAPDIFF_k + \beta_7 GDPGROWTH_{k,t} + \beta_8 \Delta INDEX_{k,t} + \beta_9 MCGDP_{k,t} + \beta_{10} REVGROW_{i,t} + \beta_{11} |ACC_{i,t}| + \beta_{12} SIZE_{i,t} + \beta_{13} LEV_{i,t} + \beta_{14} (M/B)_{i,t} + Industry Dummies + \varepsilon_{i,t} \quad (2)$$

Where:

$$|DACC_{i,t}| = \text{absolute discretionary accruals of firm } i \text{ of year } t \text{ estimated from accrual model (1)}$$

$$TS = \begin{cases} 1 & \text{if the observation is from the treatment sample,} \\ 0 & \text{otherwise} \end{cases}$$

$$ENFOR = \begin{cases} 1 & \text{if the observation is from the period 2008-10,} \\ 0 & \text{otherwise} \end{cases}$$

$TS*ENFOR$	=	interaction between TS and ENFOR
$LEGAL$	=	1 if the observation is from a common law country, 0 otherwise
$RULEOFLAW_k$	=	the rule of law index of country k in 2006 from Kaufmann <i>et al.</i> (2007)
$GAAPDIFF_K$	=	difference between pre-IFRS local GAAP of country k and IFRS drawn from Bae <i>et al.</i> (2008)
$GDPGROWTH_{k,t}$	=	Growth rate of Gross Domestic Product (GDP) of country k in year t
$MCGDP_{k,t}$	=	market capitalisation as a percentage of GDP of country k in year t
$\Delta INDEX_{k,t}$	=	change in stock market index of country k in year t,
$REVGROW_{i,t}$	=	the annual change in revenue of firm i from year t-1 to year t deflated by sales in year t-1
$ ACC_{i,t} $	=	the absolute magnitude of total accruals of firm i in year t
$SIZE_{i,t}$	=	natural log of total assets of firm i at the end of year t
$LEV_{i,t}$	=	total debt to total assets of firm i at the end of year t
$(M/B)_{i,t}$	=	market-to-book ratio of firm i at the end of year t
<i>Industry Dummies</i>	=	eight industry dummies used to represent nine industries.

Since the value of  $|DACC_{i,t}|$  is truncated at zero, a Tobit regression is run to estimate the coefficients of model (2) (Gul et al., 2009).  $\beta_3$  (i.e., the coefficient of  $TS*ENFOR$ ) is the coefficient of interest in model (2). As shown in Table 1,  $(\alpha + \beta_1)$  and  $(\alpha + \beta_1 + \beta_2 + \beta_3)$  are the accrual quality of the treatment sample during the pre-enforcement period and the enforcement period, respectively. On the other hand,  $\alpha$  and  $(\alpha + \beta_2)$  are the accrual quality of the benchmark sample during the pre-enforcement period and the enforcement period, respectively. The change in accrual quality (i.e.,  $\beta_2 + \beta_3$ ) in the treatment sample from the pre-enforcement period to the enforcement period could be the result of improvement in institutional oversight as well as learning experience with IFRS and the financial crisis of 2008. To mitigate the confounding effects of learning experience and the financial crisis, we deduct the change in accrual quality in the benchmark sample (i.e.,  $\beta_2$ ) during the same period from the change in accrual quality in the treatment sample (i.e.,  $\beta_2 + \beta_3$ ). The resulting difference in accrual quality, i.e.,  $\beta_3$ , is attributed to improvement in institutional oversight in the treatment sample from the pre-enforcement period to the enforcement period.<sup>22</sup> Since a higher value of  $|DACC_{i,t}|$  indicates a lower accrual quality, a negative sign of  $\beta_3$  will support the hypothesis.

### **Table 1 about here**

#### **Data and sample**

We start with 18690 firm-year observations for non-financial firms available on OSIRIS for 2006-10. We include a firm-year in our sample if (a) the firm uses IFRS in that year's financial statements<sup>23</sup>, (b) the firm-year has all the data to calculate the model variables, and (c) the firm-year has non-negative book value of equity.<sup>24</sup> A total of 4872 firm-year observations are excluded from the initial sample because of non-compliance with IFRS, 3048 firm-year observations are excluded due to the lack

of data to calculate model variables, and 270 firm-year observations are excluded due to negative book value of equity. This yields the full sample of 10500 firm-year observations. We delete 1% observations (i.e., 201 firm-year observations) at each end of the distribution of total accruals and 951 observations for country-industry-years that do not have at least 10 observations to run the accrual model. This yields a final sample of 9339 firm-year observations. Compared with prior IFRS studies, the sample size of this study is reasonable. For example, Li's (2010) sample size is 6456 firm-year observations from 18 European Union countries, while Callao and Jarne's (2010) sample size is 5632 firm-year observations from 11 European countries.

### **Table 2 about here**

The full sample includes five treatment countries – Germany, Ireland, Luxembourg, the Netherlands and Sweden – and six benchmark countries – Belgium, Denmark, Finland, France, Norway, and the United Kingdom. Because of the requirement of at least 10 observations for each country-industry-year to run the accrual model, Ireland and Luxembourg which have small stock markets could not enter the final sample. Thus, the final sample includes three treatment countries – Germany, the Netherlands and Sweden – and all the six benchmark countries. We report results for the final sample in this study.<sup>25</sup> However, to include Ireland and Luxembourg in the sample, we run the accrual model for each country-year in sensitivity analysis and run model (2) for the full sample of 10500 firm-year observations. Results (not in table) are similar to those reported in Table 5.

We collect data on firm-level variables from OSIRIS, data on legal system from La Porta *et al.* (1998), data on the rule of law index of the sample countries from Kaufmann *et al.* (2007), data on the difference between pre-IFRS local GAAP and IFRS from Bae *et al.* (2008), data on stock market indices from the websites of the

stock exchanges of the sample countries, and data on GDP growth rates and market capitalisation as a percentage of GDP from the website of the World Bank.<sup>26</sup>

Table 2 describes the study sample. Panel A of the table outlines how the sample was derived. Panel B shows break-down of the observations by country and year. Consistent with their relative economy size and stock market, the UK, France and Germany have the highest number of observations while Belgium has the lowest number of observations in the sample. Panel C shows the distribution of the sample firms by industries.

## **Results**

### ***Descriptive statistics***

Table 3 provides the descriptive statistics for model (2)'s independent continuous variables. Panel A compares the treatment sample with the benchmark sample. Compared with the benchmark sample, the treatment sample has, on average, greater rule of law, greater difference between pre-IFRS local GAAP and IFRS, higher GDP growth rate, greater increase in stock market indices, and lower market capitalisation as a percentage of GDP.

### **Table 3 about here**

Panel B compares the pre-enforcement period (2006-07) with the enforcement period (2008-10). Consistent with the global economic recession that started in 2008, the enforcement period experiences negative GDP growth rate, decline/slower growth in stock market indices, declines in market capitalisation as a percentage of GDP, revenue growth, firm size, leverage and market-to-book ratio. Panel B also reports an increase in mean and median  $|ACC_{i,t}|$  from the pre-enforcement period to the enforcement period. Hence, we control for all these variables in regression model (2).

### ***Impact of institutional oversight on accrual quality***

Table 4 reports the correlation coefficients among model (2)'s independent continuous variables. The maximum correlation coefficient is -0.560 between  $GAAPDIFF_K$  and  $MCGDP_{k,t}$ . This is well below the 0.80 threshold beyond which multicollinearity problems may arise (Gujarati 2003).

#### **Table 4 about here**

Table 5 reports the results of running model (2). The coefficient of  $LEGAL$  is positive and significant at less than 1 percent, suggesting that common law countries have higher  $|DACC_{i,t}|$  and hence lower accrual quality. The coefficient of  $RULEOFLAW_k$  is negative and statistically significant, suggesting that countries with higher rule of law have lower  $|DACC_{i,t}|$  and higher accrual quality.

$\beta_1$  (i.e., the coefficient of the variable  $TS$ ), which captures the difference in accrual quality between the treatment and benchmark samples during 2006-07, is positive and significant at less than 1 percent. This suggests that accrual quality was lower in the treatment sample than in the benchmark sample during 2006-07. This is consistent with weaker oversight systems in the treatment sample than in the benchmark sample during 2006-07. On the other hand,  $\beta_2$  (i.e., the coefficient of  $ENFOR$ ) has a negative sign but is not significant at less than 10 percent. As shown in Figure 1,  $\beta_2$  captures the change in accrual quality in the benchmark sample from the pre-enforcement period 2006-07 to the enforcement period 2008-10. The statistically insignificant  $\beta_2$  suggests a lack of improvement in accrual quality in the benchmark sample from 2006-07 to 2008-10.

#### **Table 5 about here**

$\beta_3$  (i.e., the coefficient of TS\*ENFOR) has the predicted negative sign and is significant at less than 1 percent. As explained above,  $\beta_3$  captures the differential change in accrual quality in the treatment sample from the pre-enforcement period 2006-07 to the enforcement period 2008-10 over and above that in the benchmark sample. Hence, the observed significant negative sign of  $\beta_3$  suggests incremental improvement in accrual quality in the treatment sample relative to the benchmark sample from the pre-enforcement period to the enforcement period. This supports the research hypothesis. Furthermore, since model (2) controls for, inter alia, legal system and rule of law, the observed accrual quality improvement in the treatment sample during the enforcement period is incremental to the accrual quality benefits attributable to the legal system and the rule of law.

### ***Sensitivity analyses***

To test the robustness of the results in Table 5, we conducted the following sensitivity analyses.

#### *Positive and negative discretionary accruals*

The use of absolute discretionary accruals,  $|DACC_{i,t}|$ , as the measure of accrual quality in this study is premised on the assumption that IFRS enforcement has symmetrical effects on both positive and negative discretionary accruals. This is consistent with prior studies where monitors (e.g., the auditor) are observed to have symmetrical effects on discretionary accruals (Becker et al., 1998; Gul et al., 2009). On the other hand, Watts (1977, p. 67) suggests that losses from overstated income are more observable and usable in the political process than forgone gains due to understated income. Consistent with this, Nelson et al. (2003, Table 1) find that auditors adjust management's attempts to overstate current period income than

attempts to understate income. This line of argument suggests that national enforcers have incentives to monitor overstated profit more stringently than understated profit. Therefore, to test whether IFRS enforcement has symmetrical effects on discretionary accruals, following Becker et al. (1998) and Gul et al. (2009), we run models (3) and (4) for positive and negative discretionary accruals, respectively. If IFRS enforcement has symmetrical effects on discretionary accruals, it will reduce the size of both positive and negative discretionary accruals. Hence,  $\beta_3$  will have a negative sign in model (3) but a positive sign in model (4).

$$\begin{aligned}
PDACC_{i,t} = & a + \beta_1 TS + \beta_2 ENFOR + \beta_3 TS * ENFOR + \beta_4 LEGAL_k + + \\
& \beta_5 RULEOFLAW_k + \beta_6 GAAPDIFF_k + \beta_7 GDPGROWTH_{k,t} + \\
& \beta_8 \Delta INDEX_{k,t} + \beta_9 MCGDP_{k,t} + \beta_{10} REVGROW_{i,t} + \\
& \beta_{11} |ACC_{i,t}| + \beta_{12} SIZE_{i,t} + \beta_{13} LEV_{i,t} + \beta_{14} (M/B)_{i,t} + \\
& Industry Dummies + \varepsilon_{i,t}
\end{aligned} \tag{3}$$

$$\begin{aligned}
NDACC_{i,t} = & a + \beta_1 TS + \beta_2 ENFOR + \beta_3 TS * ENFOR + \beta_4 LEGAL_k + + \\
& \beta_5 RULEOFLAW_k + \beta_6 GAAPDIFF_k + \beta_7 GDPGROWTH_{k,t} + \\
& \beta_8 \Delta INDEX_{k,t} + \beta_9 MCGDP_{k,t} + \beta_{10} REVGROW_{i,t} + \\
& \beta_{11} |ACC_{i,t}| + \beta_{12} SIZE_{i,t} + \beta_{13} LEV_{i,t} + \beta_{14} (M/B)_{i,t} + \\
& Industry Dummies + \varepsilon_{i,t}
\end{aligned} \tag{4}$$

Where:

$PDACC_{i,t}$  = positive discretionary accruals estimated from model (1)

$NDACC_{i,t}$  = Negative discretionary accruals estimated from model (1)

All other variables are defined as in model (2).

Since both dependent variables,  $PDACC_{i,t}$ , and  $NDACC_{i,t}$ , of models (3) and (4) are truncated at zero, Tobit regression is used to estimate the coefficients of the models. The results are reported in the last two columns of Table 5. Consistent with symmetrical effects on discretionary accruals, the coefficient of  $TS * ENFOR$  is statistically significantly negative in model (3) but significantly positive in model (4), suggesting that IFRS enforcement reduces the size of both positive and negative discretionary accruals.<sup>27</sup>

### *Alternative accounting enforcement proxy*

To investigate the sensitivity of our results to our proxy of enforcement, we use Brown *et al.*'s (2013) accounting enforcement proxy for 2008 and run model (5) for 2008.<sup>28</sup>

$$|DACC_{i,t}| = a + \beta_1 ENFORCEMENT + \beta_2 LEGAL + \beta_3 RULEOFLAW_k + \beta_4 GAAPDIFF_k + \beta_5 GDPGROWTH_{k,t} + \beta_6 \Delta INDEX_{k,t} + \beta_7 MCGDP_{k,t} + \beta_8 REVGROW_{i,t} + \beta_9 |ACC_{i,t}| + \beta_{10} SIZE_{i,t} + \beta_{11} LEV_{i,t} + \beta_{12} (M/B)_{i,t} + Industry\ Dummies + \varepsilon_{i,t} \quad (5)$$

Where

*ENFORCEMENT* = Value of Brown *et al.* (2013) enforcement proxy for *T* 2008 divided by 24. A higher value of *ENFORCEMENT* indicates better accounting enforcement and vice versa.

Other variables are defined as in model (2).

The coefficient of *ENFORCEMENT* is negative and significant at less than 5 percent (results not in the table). Taken together, the results suggest that better enforcement is associated with lower absolute discretionary accruals and higher accrual quality.

### **Summary and conclusion**

We examine whether accrual quality improves as a result of improvements in IFRS enforcement efforts in Europe. The sample comprises 9339 firm-year observations from 9 European countries. Three of these countries - Germany, the Netherlands, and Sweden - are designated as the treatment sample and the remaining six countries - Belgium, Denmark, Finland, France, Norway, and the UK - are treated as the benchmark sample. Data for five years - 2006-2010 - are used in this study. The years 2006-07 are designated as the pre-enforcement period while 2008-10 is treated as the enforcement period. The study employs a difference-in-difference research design and compares the change in accrual quality in the treatment sample from 2006-07 to 2008-10 with that in the benchmark sample in the same period.

We observe incremental improvement in accrual quality in the treatment sample relative to the benchmark sample during the enforcement period 2008-10. Given that both the control and treatment samples are subject to the learning curve effect and the impact of the recent economic recession, the observed incremental improvement in accrual quality in the treatment sample relative to the benchmark sample can be attributed to the improvement in institutional oversight over compliance with IFRS.

Further, we observe these results after controlling for legal system and rule of law, which is used as a proxy of legal enforcement in prior IFRS studies (Daske *et al.* 2008; Florou and Pope 2009; Li 2010). Therefore, the observed improvement in accrual quality in the treatment sample suggests that institutional oversight has an incrementally positive impact on accrual quality over and above that attributable to legal system and rule of law. The results are robust to alternative accrual quality measures, alternative samples and alternative enforcement proxy.

The findings support the push for greater enforcement efforts in Europe and have policy implications for countries contemplating the adoption of IFRS in the future. Our paper contributes to the emerging literature on accounting enforcement (Brown *et al.* 2013; Christensen *et al.* 2013; Hitz *et al.* 2012; Preiato *et al.* 2013). In contrast with these studies, we examine the impact of accounting enforcement on a different outcome variable – accrual quality and report results consistent with these studies.

Caveats are appropriate here. The accounting literature suggests that accounting quality is shaped by many factors (Soderstrom and Sun 2007). While we control for eleven variables, we recognise that we might not have controlled for all factors. Especially, the enforcement period coincides with the global financial crisis (GFC). To mitigate the confounding effect of GFC, we use GDP growth rate and changes in stock market indices as control variables and the difference-in-difference research design. But we recognise that GFC might still confound the results. Further, while we use multiple measures of accrual quality in this study, they may be subject to

measurement error. We also do not investigate the impact of enforcement efforts on other measures of earnings quality (e.g., value relevance of earnings and book value, comparability of financial reporting across European countries, conservatism). Further, while the CESR (2003) Standard 1 specifies the minimum criteria for ensuring effective enforcement of IFRS and compliance with the standard improves IFRS enforcement, there may be variations in national enforcement efforts and hence variation in accrual quality (Brown et al. 2013; Pope and McLeay 2011). Finally, Christensen et al. (2008) conclude that incentives dominate accounting standards in shaping accounting quality. Future research may examine the impact of accounting enforcement on accounting quality of firms with different reporting incentives.

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#### Endnotes

- <sup>1</sup> European listed firms started preparing consolidated financial statements in accordance with IFRS in 2005 although many European firms voluntarily adopted IFRS before 2005 (Cuijpers and Buijink 2005).
- <sup>2</sup> Several benefits have been claimed to emanate from the global adoption of IFRS. These include reduction in costs of preparing financial statements according to multiple sets of accounting rules in multiple jurisdictions, free flow of capital across the borders, reduced cost for regulators involved in understanding different reporting regimes, efficient and better training of auditors, and reduction in cost of capital (Tweedie 2006).
- <sup>3</sup> The ESMA succeeded the CESR as the pan European supervisory authority in 2010.
- <sup>4</sup> The CESR (2003) envisages the scope of enforcement to cover both consolidated and non-consolidated accounts and both IFRS and national GAAPs.
- <sup>5</sup> The necessary powers should include at least powers to monitor financial information, require supplementary information from issuers and auditors, and take appropriate actions consistent with the purposes of enforcement (CESR 2003).
- <sup>6</sup> Resources include professional, skilled staff experienced with the reporting framework and the legal implications of enforcement (CESR 2003).
- <sup>7</sup> The countries are Belgium, Cyprus, Denmark, Finland, France, Greece, Italy, Norway, Portugal, Spain, and the UK.
- <sup>8</sup> The countries are Bulgaria, Czech Republic, Estonia, Iceland, Latvia, Poland, the Netherlands, Slovenia, Malta, and Germany.
- <sup>9</sup> The countries are Austria, Hungary, Lithuania, Luxembourg, Romania, Sweden, Slovakia, and Ireland.
- <sup>10</sup> The countries are Ireland, Luxembourg, and Sweden.
- <sup>11</sup> The countries are Hungary, Lithuania, and Romania.
- <sup>12</sup> The countries are Austria and Slovakia.
- <sup>13</sup> The criticisms were primarily targeted towards financial reporting by financial institutions (Financial Crisis Advisory Group 2009). They, however, have relevance to reporting by non-financial entities (Financial Crisis Advisory Group 2009).

<sup>14</sup> In contrast, the impact of financial reporting decisions of managers and IFRS enforcement on other outcome variables (e.g., value relevance) is indirect. For example, the impact of accounting information on stock returns depends on how investors interpret accounting information and market psychology.

<sup>15</sup> The Conceptual Framework for Financial Reporting specifies the objective of general purpose financial reporting as follows:

The objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling or holding equity and debt instruments, and providing or settling loans and other forms of credit. (IFRSF 2012, para. OB2)

<sup>16</sup> Jones (1991) model includes gross PPE rather than fixed assets in her accrual model. Since OSIRIS does not provide the value of gross PPE, in sensitivity analysis we use estimated PPE instead of fixed assets in model (1) and the  $|DACC_{i,t}|$  estimated from that model as the dependent variable in model (2). The results (not in table) are similar to those reported in Table 5. We estimate PPE by deducting land from fixed assets. Land value is set to zero if land value is not reported in OSIRIS for a firm-year.

<sup>17</sup> The mean (median) adjusted  $R^2$  of 229 country-industry-year specific accrual models is 0.350 (0.350) (results not in the table). The explanatory powers of the accrual models in our study are comparable with other studies. For example, Ball and Shivakumar (2006, Table 3) compared the explanatory powers of different accrual models and reported an adjusted  $R^2$  that ranged from 4.00% to 30.20%. Further, the mean (median)  $|DACC_{i,t}|$  in our sample is 4.92% (3.39%) of total assets. In contrast, Gul et al. (2009) report a mean (median) absolute discretionary accruals of 4% (2.6%) of total assets for their US sample. Becker et al. (1998) report mean (median) absolute discretionary accruals of 12.9% (6.3%) and 17% (8.8%) of total assets for two sub-samples of US firms. Thus, the magnitude of mean (median)  $|DACC_{i,t}|$  in our study is consistent with prior studies.

<sup>18</sup> We also run accrual model (6) and use estimated  $|DACC_{i,t}|$  in model (2) to check the sensitivity of the results to the accrual model. The results (not in table) are similar to those reported in Table 5.

$$ACC_{i,t} = \alpha + \beta_1(1/TA_{i,t-1}) + \beta_2\Delta REV_{i,t} + \beta_3FA_{i,t} + \beta_4\Delta CFO_{i,t} + \varepsilon_{i,t} \quad (6)$$

Variables are as defined in model (1).

<sup>19</sup> Hope (2003, Table 3) reports a correlation coefficient of 0.14 between firm size and disclosure, and a correlation coefficient of 0.41 between firm size and analysts' following.

<sup>20</sup> We do not include five Western European countries – Austria, Italy, Portugal, Spain, Switzerland – in the sample because (a) Osiris does not provide cash flow from operations for Italy and Spain, (b) Portugal had only six observations in 2006 after applying the filters in this study, (c) CESR (2007) does not clearly state whether Austria would comply with CESR (2003) Standard 1, and (d) CESR (2007) does not mention Switzerland in its report on compliance with CESR (2003) Standard 1.

<sup>21</sup> Their accounting enforcement proxy has a maximum value of 24 (Brown *et al.* 2013, Appendix 2). A higher value indicates more stringent enforcement and vice versa.

<sup>22</sup> The difference-in-difference research design has been used in the accounting literature to address similar research questions (Holder *et al.* 2013; Kang *et al.* 2012; Li 2010). Pope and McLeay (2011) also suggest this research design for investigating the impact of IFRS.

<sup>23</sup> OSIRIS classifies accounting standards into four types: (a) IFRS, (b) IFRS – NFC, (c) Local GAAP, and (d) Accounting standards N/A. We include a firm-year only if the accounting standard type for that firm-year is IFRS. NFC stands for 'not fully complied'.

<sup>24</sup> A negative book value of equity gives a negative market value-to-book value ratio, which is difficult to interpret. Thus, following Pae *et al.* (2005), we exclude firm-year observations with negative book value of equity.

<sup>25</sup> In an additional test, we exclude Sweden from the treatment sample and run model (2) on the ground that Sweden had an enforcement mechanism before 2006 (FEE, 2001). The results (not in the table) for this reduced sample are similar to those in Table 5.

<sup>26</sup> The website address is <http://data.worldbank.org/indicator>.

<sup>27</sup> We re-estimate models (3) and (4) with Huber/White standard errors and covariances (using EViews software). The results (not in the table) are very similar to those reported in the last two columns of Table 5. The coefficient of the variable TS\*ENFOR is negative and significant at less than 1 percent in model (3) but positive and significant at less than 5 percent in model (4).

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<sup>28</sup> Our study uses data for 2006-10. Brown *et al.* (2013) report the value of their accounting enforcement proxy for 2008. Since accounting enforcement is in a state of evolution in Europe (Brown and Tarca 2005), we confine our sensitivity analysis using Brown *et al.*'s (2013) proxy in this section to 2008 only.

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**Table 1.** Difference-in-difference research design

	Pre-enforcement period (2006-07)	Enforcement period (2008-10)	Enforcement period – Pre-enforcement period
Treatment sample	$\alpha + \beta_1$	$\alpha + \beta_1 + \beta_2 + \beta_3$	$\beta_2 + \beta_3$
Benchmark sample	$\alpha$	$\alpha + \beta_2$	$\beta_2$
Treatment sample – Benchmark sample	$\beta_1$	$\beta_1 + \beta_3$	$\beta_3$

Note: The coefficients in this figure are from model (2).  $\alpha + \beta_1 + \beta_2 + \beta_3$  = accrual quality of treatment sample during the enforcement period,  $\alpha + \beta_1$  = accrual quality of treatment sample during the pre-enforcement period,  $\alpha + \beta_2$  = accrual quality of benchmark sample during the enforcement period,  $\alpha$  = accrual quality of benchmark sample during the pre-enforcement period.

**Table 2.** Study sample.

<b>Panel A. Sample derivation</b>						
Total number of observations on non-financial firms for 2006-10 in Osiris						18690
Less observations not based on full compliance with IFRS						(4872)
Less observation without data on model variables						(3048)
Less observations with negative book value of equity						<u>(270)</u>
Full sample						10500
Less 1% observations at each end of the total accruals distribution						<u>210</u>
						10290
Less country-industry-year with less than 10 observations						<u>951</u>
Final sample						<u>9339</u>
<b>Panel B. Sample observations by country</b>						
<b>Country</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Total</b>
<b>Treatment sample:</b>						
Germany	159	302	358	398	399	1616
The Netherlands	57	62	77	80	81	357
Sweden	145	175	190	201	119	830
<b>Benchmark sample:</b>						
Belgium	21	46	50	61	58	236
Denmark	52	58	59	59	60	288
Finland	77	79	85	88	86	415
France	333	363	401	416	402	1915
Norway	56	74	84	80	92	386
United Kingdom	<u>322</u>	<u>587</u>	<u>757</u>	<u>800</u>	<u>830</u>	<u>3296</u>
Total	<u>1222</u>	<u>1746</u>	<u>2061</u>	<u>2183</u>	<u>2127</u>	<u>9339</u>
<b>Panel C. Sample observations by industry</b>						
<b>Industry</b>	<b>Number of observations</b>					
Consumer discretionary	2007					
Consumer staples	554					
Energy	351					
Healthcare	804					
Industrials	2601					
Information technology	2065					
Materials	764					
Telecommunications service	41					
Utilities	<u>152</u>					
Total	<u>9339</u>					

Notes: The benchmark sample countries – Belgium, Denmark, Finland, France, Norway, and the UK – had full IFRS enforcement activity in 2006 (CESR, 2007). On the other hand, the treatment sample countries – Germany, Ireland, Luxembourg, the Netherlands, and Sweden – had either no or partial enforcement activity in 2006 (CESR, 2007).

**Table 3.** Descriptive statistics for model (2) continuous variables.

Panel A. Descriptive statistics by sample group						
Variables	Treatment Sample (n=2803)		Benchmark sample (n=6536)		t-statistic	Wilcoxon statistic
	Mean	Median	Mean	Median		
$ DACC_{i,t} $	0.050	0.035	0.049	0.034	0.636	0.775
$RULEOFLAW_k$	1.794	1.770	1.641	1.730	33.215***	51.148***
$GAAPDIFF_k$	9.812	11.000	6.340	1.000	31.848***	10.513***
$GDPGROW_{k,t}$	1.017	3.269	0.353	1.663	9.531***	15.121***
$\Delta INDEX$	0.046	0.191	0.014	0.090	5.749***	11.494***
$MCGDP_{k,t}$	68.579	51.946	99.386	107.312	-38.095***	-39.523***
$REVGROW_{i,t}$	0.156	0.070	0.192	0.069	-1.383	1.779*
$ ACC_{i,t} $	0.074	0.056	0.073	0.054	0.789	0.659
$SIZE_{i,t}$	5.561	5.293	5.486	5.228	1.494	1.290
$LEV_{i,t}$	0.540	0.565	0.537	0.554	0.833	0.657
$(M/B)_{i,t}$	2.295	1.570	2.655	1.500	-2.450**	2.532**

  

Panel B. Descriptive statistics by period						
Variables	Pre-enforcement period (2006-2007) (n=2968)		Enforcement period 2008-2010 (n=6371)		t-statistic	Wilcoxon statistic
	Mean	Median	Mean	Median		
$ DACC_{i,t} $	0.050	0.035	0.049	0.034	1.628	0.671
$GDPGROW_{k,t}$	3.163	3.269	-0.664	-0.613	67.774***	64.144***
$\Delta INDEX$	0.098	0.107	-0.011	0.090	20.445***	5.813***
$MCGDP_{k,t}$	114.401	115.044	78.837	69.913	46.043***	40.173***
$REVGROW_{i,t}$	0.359	0.220	0.099	0.000	10.192***	40.911***
$ ACC_{i,t} $	0.072	0.051	0.074	0.056	-1.646*	3.197***
$SIZE_{i,t}$	5.595	5.380	5.468	5.193	2.581***	2.958***
$LEV_{i,t}$	0.545	0.571	0.534	0.551	2.510**	2.838***
$(M/B)_{i,t}$	3.434	2.164	2.134	1.273	9.010***	28.559***

Notes: \*\*\*, \*\*, and \* indicate two-tailed significance at 1 percent, 5 percent and 10 percent, respectively.

$|DACC_{i,t}|$  = absolute discretionary accruals of firm  $i$  of year  $t$  estimated from accrual model (1),

<i>RULEOFLAW</i>	=	the rule of law index of country k in 2006,
$GAAPDIFF_K$	=	difference between pre-IFRS local GAAP of country k and IFRS,
$GDPGROW_{k,t}$	=	growth rate of Gross Domestic Product (GDP) of country k in year t,
$\Delta INDEX_{k,t}$	=	change in stock market index of country k in year t,
$MCGDP_{k,t}$	=	market capitalisation as a percentage of Gross Domestic Product of country k in year t,
$REVGROW_{i,t}$	=	the annual change in revenue of firm i from year t-1 to year t deflated by sales in year t-1,
$ ACC_{i,t} $	=	the absolute magnitude of total accruals of firm i in year t,
$SIZE_{i,t}$	=	natural log of total assets of firm i at the end of year t,
$LEV_{i,t}$	=	total debt to total assets of firm i at the end of year t, and
$(M/B)_{i,t}$	=	market-to-book ratio of firm i at the end of year t.

Table 4  
Correlation Matrix

	RULEOFLAW <sub>k</sub>	GAAPDIFF <sub>k</sub>	GDPGROW <sub>k,t</sub>	$\Delta INDEX_{k,t}$	MCGDP <sub>k,t</sub>	REVGROW <sub>W</sub>	ACC <sub>i,t</sub>	SIZE <sub>i,t</sub>	LEV <sub>i,t</sub>
GAAPDIFF <sub>k</sub>	-0.257***								
GDPGROW <sub>k</sub>	0.012	0.075***							
$\Delta INDEX_{k,t}$	0.145***	-0.008	-0.106***						
MCGDP <sub>k,t</sub>	0.020**	-0.560***	0.246***	0.381***					
REVGROW <sub>i</sub>	0.027***	-0.021**	0.088***	0.020*	0.061***				
ACC <sub>i,t</sub>	0.068***	-0.036***	-0.083***	0.060***	-0.003	0.036***			
SIZE <sub>i,t</sub>	-0.153***	0.060***	0.052***	-0.010	-0.031***	-0.012	-0.159***		
LEV <sub>i,t</sub>	-0.099***	0.127***	0.012	-0.036***	-0.106***	-0.023**	-0.002	0.372***	
(M/B) <sub>i,t</sub>	0.027***	-0.049***	0.053***	0.054***	0.097***	0.013	0.044***	-0.015	0.138** *

**Table 5.** Results of running regressions

$ DACC_{i,t} $	=	$a + \beta_1 TS + \beta_2 ENFOR + \beta_3 TS*ENFOR + \beta_4 LEGAL_k + \beta_5 RULEOFLAW_k + \beta_6 GAAPDIFF_k + \beta_7 GDPGROWTH_{k,t} + \beta_8 \Delta INDEX_{k,t} + \beta_9 MCGDP_{k,t} + \beta_{10} REVGROW_{i,t} + \beta_{11}  ACC_{i,t}  + \beta_{12} SIZE_{i,t} + \beta_{13} LEV_{i,t} + \beta_{14} (M/B)_{i,t} + Industry\ Dummies + \varepsilon_{i,t}$	(2)	
$PDACC_{i,t}$	=	$a + \beta_1 TS + \beta_2 ENFOR + \beta_3 TS*ENFOR + \beta_4 LEGAL_k + \beta_5 RULEOFLAW_k + \beta_6 GAAPDIFF_k + \beta_7 GDPGROWTH_{k,t} + \beta_8 \Delta INDEX_{k,t} + \beta_9 MCGDP_{k,t} + \beta_{10} REVGROW_{i,t} + \beta_{11}  ACC_{i,t}  + \beta_{12} SIZE_{i,t} + \beta_{13} LEV_{i,t} + \beta_{14} (M/B)_{i,t} + Industry\ Dummies + \varepsilon_{i,t}$	(3)	
$NDACC_{i,t}$	=	$a + \beta_1 TS + \beta_2 ENFOR + \beta_3 TS*ENFOR + \beta_4 LEGAL_k + \beta_5 RULEOFLAW_k + \beta_6 GAAPDIFF_k + \beta_7 GDPGROWTH_{k,t} + \beta_8 \Delta INDEX_{k,t} + \beta_9 MCGDP_{k,t} + \beta_{10} REVGROW_{i,t} + \beta_{11}  ACC_{i,t}  + \beta_{12} SIZE_{i,t} + \beta_{13} LEV_{i,t} + \beta_{14} (M/B)_{i,t} + Industry\ Dummies + \varepsilon_{i,t}$	(4)	
Variable		Model (2)	Model (3)	Model (4)
Intercept		0.033 (4.757***)	0.052 (5.304***)	-0.004 (-0.402)
TS		0.013 (7.014***)	0.014 (5.599**)	-0.011 (-4.617***)
ENFOR		-0.001 (-0.406)	-0.000 (-0.071)	0.001 (0.699)
TS*ENFOR		-0.006 (-3.252***)	-0.007 (-2.785***)	0.006 (2.254**)
LEGAL		0.013 (4.574***)	0.013 (3.255***)	-0.014 (-3.512***)
RULEOFLAW <sub>k</sub>		-0.010 (-4.204***)	-0.012 (-3.692***)	0.008 (2.634***)
GAAPDIFF <sub>k</sub>		-0.000 (-0.319)	-0.000 (-0.190)	-0.000 (-0.595)
GDPGROWTH <sub>k,t</sub>		0.001 (3.119***)	-0.000 (-0.280)	-0.002 (-6.474***)
$\Delta INDEX_{k,t}$		-0.005 (-2.490**)	0.000 (0.087)	0.012 (4.080***)
MCGDP <sub>k,t</sub>		-0.000 (-0.010)	-0.000 (-0.146)	-0.000 (-0.456)
REVGROW <sub>i,t</sub>		-0.000 (-0.010)	-0.000 (-0.439)	-0.000 (-0.106)
$ ACC_{i,t} $		0.399 (66.534***)	0.344 (30.999***)	-0.513 (-68.166***)
SIZE <sub>i,t</sub>		-0.003 (-11.860***)	-0.003 (-9.266***)	0.002 (7.606***)
LEV <sub>i,t</sub>		-0.007 (-3.010***)	-0.014 (-4.341***)	-0.006 (-1.822*)
(M/B) <sub>i,t</sub>		-0.000 (-0.939)	0.000 (-0.139)	0.000 (0.987)
Industry Dummies		Included	Included	Included
Pseudo R-squared		0.395	0.246	0.574
N		9339	4900	4439
Notes: ***, **, and * indicate two-tailed significance at 1 percent, 5 percent and 10 percent, respectively, t-statistics (two-tailed) are in parentheses.				
$ DACC_{i,t} $	=	absolute discretionary accruals of firm i of year, t estimated from accrual model (1).		
$PDACC_{i,t}$	=	positive discretionary accruals of firm i of year t estimated from accrual model (1).		

$NDACC_{i,t}$	=	negative discretionary accruals of firm $i$ of year $t$ estimated from accrual model (1).
$TS$	=	1 if the observation is from the treatment sample, 0 otherwise,
$ENFOR$	=	1 if the observation is from the period 2008-2010, 0 otherwise,
$TS*ENFOR$	=	interaction between $TS$ and $ENFOR$ ,
$LEGAL$	=	1 if the observation is from a common law country, 0 otherwise, and
<i>Industry Dummies</i>	=	eight industry dummies are used to represent nine industries.
Other variables are as defined in Table 3.		