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# Earnings Management in Europe Post IFRS: Do Cultural Influences Persist?

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**Abstract** We investigate the extent to which the mandatory adoption of International Financial Reporting Standards (IFRS) has restricted the previously documented association between national culture and international differences in earnings management practices. We analyze the earnings management behavior of publicly listed firms in 14 member countries of the European Union during the period 2000–2010. Our findings show that the tendency to engage in earnings management continues post IFRS and that cultural factors remain influential in explaining differences in the magnitude of earnings management behavior across countries.

**Keywords** Culture · Earnings management · Accounting standards · IFRS

## 1 Introduction

Earnings information is vital for decision-making by the users of financial statements. In addition to various firm-level factors, a number of studies have explored the impact of institutional factors at the country-level related to the quality of earnings such as the adoption of International Financial Reporting Standards (IFRS), legal investor protection and national culture (e.g., Leuz et al. 2003; Barth et al. 2008). Gray (1988) argues that national culture, as a key informal institutional

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factor (North 1990, 1994, 2005), also influences accounting measurement practices thus impacting earnings quality differentially across countries. While the earlier study by Han et al. (2010) documents an association between national culture and international differences in earnings management, it is not clear whether this relation persists under a single GAAP environment. Thus, the focus of our study is to examine the extent to which the mandatory adoption of uniform high quality accounting standards, IFRS in the European Union influences the impact of national culture on earnings management.

Earnings management, i.e., exercising earnings discretion in an opportunistic manner, is a matter of serious concern to shareholders, creditors, standard setters and regulators in global capital markets (e.g., Healy and Wahlen 1999; Leuz et al. 2003; Defond 2010). In the context of IFRS, Barth et al. (2008) report that the adoption of high quality reporting standards, IFRS, restricts earnings management in various jurisdictions. Their findings suggest that even though highly principles-based standards allow a considerable amount of accounting discretion to managers, they lead to less opportunistic reporting behaviors, presumably due to the fact that the standards do not permit certain accounting alternatives that have the potential of distorting corporate performance and hence could be used to manage earnings.

However, it is not entirely obvious that the adoption of IFRS necessarily leads to improved and harmonized reporting practices in all jurisdictions. For example, Bradshaw and Miller (2008) claim that harmonizing standards may not always result in a harmonization of accounting practices as compared to standards. Similarly, Sunder (2009) maintains that applying a single set of principles-based standards to companies in a worldwide context will not necessarily make financial statements more comparable and help financial statement users to make better decisions. Thus, it might be overly optimistic to assume that a single-set of high quality standards will harmonize accounting practices around the world and curb earnings management behavior given the persistence of international differences in institutional frameworks.

IFRS is a set of principles-based accounting standards that limits alternative accounting treatments. The idea is to have managers exercise their best judgment in choosing among a limited set of alternatives to measure and report the underlying economic situation. However, managers may potentially use any flexibility and discretion available under principles-based standards to manipulate earnings by deliberately choosing an accounting method that does not necessarily reflect the underlying economic situation in order to achieve personal goals, such as promotion, receiving bonuses, and so on.

Effective 2005, listed companies in the EU were required to use IFRS in their consolidated financial statements. The EU provides an ideal research setting to test the impact of IFRS as it has unique advantages not found in previous studies. For example, the EU has had a more or less unified legal system impacting accounting as each member state must adopt EU regulations directly and/or incorporate EU directives into local law. The EU securities markets are fairly homogeneous in the sense that laws, regulations and standards governing investment, securities and company activities are similar across national borders. Moreover, the EU has a single commercial market thus many aspects of the economic system and

regulations governing business transactions (e.g. banking) are relatively homogeneous compared to the rest of the world. At the same time, each member state appears to have maintained its distinct culture and tradition during the harmonization process. Thus the EU has remained a culturally diversified, but a politically, legally and financially integrated economy.[1] This research setting thus minimizes the impact of changes in formal institutional factors, apart from the adoption of IFRS, and enables us to single out the effects of national culture on earnings management in the post-IFRS era.

As opposed to a more rules-based system that often contains substantial detailed guidance with bright-line tests, IFRS provides limited interpretive and implementation instruction, thus theoretically increasing the need to apply professional judgment (Agoglia et al. 2011). As prior research has demonstrated that people tend to respond in accordance with cultural prescriptions under conditions of uncertainty and ambiguity, culture can play an important role in people's judgment and behavior in a new or innovative situation (Meglino et al. 1989; Ravlin et al. 2000). So the question is whether the adoption of IFRS would in fact have provided more or less opportunities and incentives to manage earnings and respond to cultural influences. In other words, to the extent that such principles-based standards allow managers to exercise judgment, is culture likely to be a persistent influence on financial reporting practices subsequent to the adoption of IFRS?

Prior studies document evidence that management contracts, compensation systems, performance evaluation and some institutional factors explain earnings management incentives and practices. Prior studies also show how cross-national differences in societal values (culture) affect capital markets and accounting practices (Chui et al. 2002; Hope 2003; Doupnik and Tsakumis, 2004). Most recently, Han et al. (2010) hypothesize and document an association between national culture and earnings management in an international context.

Our research applies Gray's (1988) model, as extended by Doupnik and Tsakumis (2004), and used by Han et al. (2010), in order to consider the impact of differences in culture across a number of European countries on the extent to which managers exercise discretion in measuring accounting earnings in the post IFRS period.

We use a sample of 15,258 firm–year observations of firms in the EU during the period 2000–2010 to examine how cultural values are related to a proxy for earnings management both in the pre- and post-IFRS periods. We confirm in our sample the relationship between the individualism and uncertainty avoidance dimensions of national culture and earnings management and, importantly, find that national culture significantly influences managers' reporting decisions in the post IFRS adoption period. This suggests that firms that report using a set of principles-based accounting standards such as IFRS are able to continue to engage in culture-driven earnings management. We also document that more extensive national disclosure

[1] EU integration or convergence is a continuing process which is subject to the influence of many factors. For example, the use of a common currency i.e. the Euro probably is one of the major forces for change. For more details of EU practice and policies on integration, see European Commission Website on Integration at http://ec.europa.ed/ewsi/en/practice/index.cfm. For a discussion of EU integration, see Hooghe and Marks 2001 and Dinan 2005.

regulations reduce the effect of IFRS on the culture-earnings management relationship, consistent with the view that transparency can reduce managers' reporting bias (e.g., Fischer and Verrecchia 2000).

Our study extends the literature in at least two ways, and has some broad implications for standard setters and regulators. First, our findings suggest that international accounting differences persist even after the adoption of uniform high quality principles-based reporting standards. This finding is consistent with the views expressed by Bradshaw and Miller (2008) and Sunder (2009), and implies that the adoption of a set of uniform reporting standards might not necessarily lead to accounting harmonization and that existing differences in informal institutional factors i.e. cultural values, across countries can continue to create accounting differences.

Second, our evidence suggests that extensive national disclosure regulations can constrain culture-driven earnings management. While a set of principles-based reporting standards might continue to enable managers, consistent with their cultural orientations, to exercise their potential for discretionary reporting in a more opportunistic manner, more transparent disclosure requirements about firm management and ownership (e.g., the disclosure of sensitive managerial compensation and insider ownership information), can increase managers' accountability and would appear to discourage opportunistic earnings management behavior.

The remainder of this paper is organized as follows. The next section reviews the previous literature and develops hypotheses. Section 3 discusses research methodology. The empirical findings are presented in Sects. 4 and 5 provides conclusions.

## 2 Literature Review and Hypothesis Development

### 2.1 Studies on Earnings Quality

The prior literature claims that accounting earnings contain information content that users regard as relevant in their investment decisions (Ball and Brown 1968; Kothari 2001; Francis et al. 2004). However, managers have incentives to manipulate accounting choices in order to ensure that earnings meet their preferred targets. Such incentives are related to debt covenants, management compensation, union negotiation, and other institutional factors (Fields et al. 2001). Earnings management can be income-increasing or income-decreasing (Burgstahler and Dichev 1997; Brown and Caylor 2005) so as to smooth earnings or lower their pre-managed earnings below current expectations in order to achieve higher future earnings (Kirschenheiter and Melumad 2002; Strong and Meyer 1987). However, such behavior is by no means a risk-free proposition. The costs may include significant negative stock market reaction as well as legal and political responses to allegations of earnings management or perceived earnings manipulation (Leuz et al. 2003; Dechow et al. 1995).

### 2.2 The Impact of International Financial Reporting Standards on Earnings Quality

As Barth et al. (2008: 468) note, "a goal of the International Accounting Standards Committee (IASC) and its successor body the International Accounting Standards Board (IASB), is to develop an internationally acceptable set of high quality financial reporting standards". However, the harmonization of national accounting standards and the adoption of IFRS is a matter of some controversy. Opponents argue that the nature of the national institutional and business environments is important and should influence the setting of accounting standards (e.g. Nobes and Parker 2012). Where national accounting standards have likely evolved in response to unique features of the local environment, mandating global accounting standards may eliminate accounting differences which exist for valid reasons. Further, restricting managerial discretion in choosing from among accounting alternatives could limit the ability to report financial information that is more reflective of a firm's true economic situation. At the same time, IFRS, as principles-based standards, do provide for some flexibility and may not enhance earnings quality (Ball et al. 2003; Christensen et al. 2008; Jeanjean and Stolowy 2008), if managers use the potential in IFRS to exercise their accounting discretion in an opportunistic fashion (e.g., Healy and Wahlen 1999).

On the other hand, proponents contend that the primary goal of global accounting convergence is an improvement in inter-firm comparability internationally, and that IFRS has reduced the number of accounting alternatives, and so limited management's opportunities to use their discretion (see Chen et al. 2010). Thus, it entails similar events being accounted for similarly and dissimilar events being accounted for dissimilarly. Hence, IFRS adoption would likely be beneficial to companies and information users.

### 2.3 IFRS Adoption and the Effects of Culture and Earnings Management

Despite the growing volume of research on IFRS there have been only a limited number of studies considering the impact of cultural dimensions on earnings management and assessing the role of institutional and cultural interactions. We focus on two dimensions of national culture that have been shown to explain earnings management, i.e., individualism and uncertainty avoidance. In a recent study, Han et al. (2010) hypothesize and document a positive association between individualism and earnings management in an international context. Han et al. (2010) examine how culture and formal institutional structures interact with each other as factors influencing earnings management using a sample of 96,409 firm-year observations from 32 countries for the period between 1992 and 2003. They find that the uncertainty avoidance and individualism dimensions of national culture do explain differences in managerial behavior across countries in terms of earnings management, and that this association varies according to the strength of investor protection.

Under Gray's (1988) model, as used by Han et al. (2010), managers and accountants in individualistic countries tend to have more flexibility in respect of

self-governance (professionalism) and also measurement (flexible or non-uniform) and are more likely to report optimistic earnings in contrast to a conservative approach to measurement which refers to "a preference for a cautious approach to measurement so as to cope with the uncertainty of future events, as opposed to a more optimistic, laissez-faire, and risk-taking approach" (Gray, 1988: 8). As a result, individualistic cultural environments tend to foster incentives to manage earnings more opportunistically as an individualistic manager/accountant might be more likely to seek, where regulation permits, to benefit himself/herself.

At the same time, Han et al. (2010) and Guan et al. (2005) suggest a negative relationship between discretionary accruals and uncertainty avoidance. According to Gray (1988), countries that tend to be more highly uncertainty avoidant are likely to have more accounting uniformity, more detailed rules and limited self-governance from the accounting profession (i.e. more statutory control) about how to present financial reports (uniformity) and that managers will tend to adopt a reporting approach that is more conservative. This will likely result in lower magnitudes of earnings management as in the interests of regulation and uniformity, these uncertainty avoidant societies would tend to provide fewer opportunities and incentives for earnings management. Further, in the EU, continental European firms tend to have higher concentrations of ownership (La Porta et al. 1998), which means that the owners are likely to monitor managers more closely. This can make earnings management riskier than in low ownership concentration environments.[2] Strong legal enforcement in the continental European countries might also curb managerial incentives to manage earnings.

More importantly, how the EU-wide adoption of IFRS impacted the relationship between national cultural factors and earnings management is an open question. As Barth et al. (2008) note, IFRS are high quality principles-based standards that limit allowable accounting alternatives and increase the extent to which the accounting numbers reflect a firm's underlying economics. The standards aim at inducing managers to choose among limited, most desirable accounting alternatives, in order to best capture the underlying economic situation and to limit opportunistic discretion (e.g., Barth et al. 2008; Ashbaugh and Pincus 2001). Barth et al. (2008) further note that the key to accomplishing the intended objectives of IFRS depends on how managers exercise their discretion or judgment in accordance with the more principles-based IFRS (e.g., Barth et al. 2008).

Choosing among alternatives involves accounting judgments and the judgments are likely to be influenced by culture. Thus, to the extent managers have more discretion among choosing accounting alternatives (albeit more limited alternatives) under IFRS, it seems that the influence of culture on accounting choice may be expected to persist in the post IFRS period. Principles-based standards such as IFRS only provide general guidance but leave a considerable amount of discretion to managers in choosing a particular accounting treatment (Nobes and Parker 2012, p. 117). Therefore, IFRS tends to offer more flexibility for managers to choose

[2] Despite this, there is a counter-argument that concentration of ownership suggests less information asymmetry so earnings management might be less likely. We thank one of our reviewers who pointed this out.

accounting methods for earnings determination. Hence more professional judgment is required to implement IFRS than a rules-based standard and such judgment is likely to be inherently subject to cultural influence.

If culture is a fundamental informal institution that is slow to change (e.g., North 1990, 1994, 2005), we expect to observe a persistent effect of culture on earnings management during the period when EU firms use a uniform set of accounting standards i.e. IFRS. Specifically, we predict the associations between individualism and uncertainty avoidance with earnings management will continue to be observable in the post IFRS period and formulate our first set of hypotheses as follows:

*Hypothesis 1a: There is a positive association between the cultural value of individualism and the magnitude of earnings management post IFRS in Europe.*

*Hypothesis 1b: There is a negative association between the cultural value of uncertainty avoidance and the magnitude of earnings management post IFRS in Europe.*

### 2.4 The Extensiveness of Disclosure Regulation and the Relation Between Culture and Earnings Management Post IFRS

Generally speaking, more extensive national disclosure regulation in addition to IFRS would result in a more transparent information environment, which facilitates outsiders to monitor insiders and makes earnings manipulation more detectable. Thus, in a country that requires more extensive transparency, it will be more difficult to manage earnings. Accordingly, it is likely that the posited relationship between culture and earnings management also varies with the extent of disclosure regulation.

Several aspects of mandatory disclosure regulation are likely to be particularly relevant for our purpose. Specifically, disclosure regulation related to previously identified determinants of earnings management such as managerial compensation contracts, ownership structure including insider ownership, and related party transactions, are likely have the most direct implication for constraining earnings management (e.g., Watts and Zimmerman 1990; Healy 1985). When managers are required to disclose information related to these corporate activities, they are likely to be less aggressive in managing earnings as such disclosures can increase both accountability and the risks of detection.

Even if the adoption of IFRS allows managers to continue to exercise discretion as hypothesized in H1, greater accountability and the possibility of legal sanctions from more transparent reporting requirements would likely induce managers to exercise their discretion more responsibly post-IFRS, and as a result, reduce any culture-driven accounting bias. Based on this reasoning, we develop our next set of hypotheses as follows:

*Hypothesis 2a: The extensiveness of disclosure regulations reduces the association between the cultural value of individualism and the magnitude of earnings management post IFRS in Europe.*

*Hypothesis 2b: The extensiveness of disclosure regulations reduces the association between the cultural value of uncertainty avoidance and the magnitude of earnings management post IFRS in Europe.*

In order to test H1, we add a binary variable, POST (1 = financial reporting using IFRS after 2005, zero otherwise) that is a contextual variable. We then create interaction variables of POST with cultural variables of individualism and uncertainty avoidance. The purpose of the interactions is to enable the extension of the relationships to a context that the previous research (e.g. Han, et al. 2010) did not consider, and they also help provide more detailed predictions about the relationships. In addition, we construct another variable, DISC that proxies for the level of financial disclosure at country level. We then test the impact of disclosure on earnings discretion as well as its impact on the relationship between culture and earnings discretion.

**Table 1** Variable definitions and measurement

| Variable | Definition and measurement |
|---|---|
| ED (earnings discretion) | |
| ED_PJM | Absolute value of discretionary accruals. Discretionary accruals are estimated using the cross-sectional Jones model with the last-year ROA |
| ED_PJM1 | Absolute value of discretionary accruals. Discretionary accruals are estimated using the cross-sectional modified Jones model with ROA |
| ED_PJM2 | Absolute value of discretionary accruals. Discretionary accruals are estimated using the cross-sectional modified Jones model with the last-year ROA |
| POST | Indicator variable equals 1 for observations in the POST IFRS period (2005–2009), and 0 for observations in the PRE IFRS period (2000–2004) |
| BIG4 | Indicator variable, which equals one if the auditor is Big 4, and zero otherwise |
| GROWTH | Ln (book to market value ratio) |
| SIZE | Log (market value of equity). Market value of equity is defined as stock price times the number of shares outstanding |
| LEV | Leverage, which equals total liabilities divided by total assets |
| LOSS | Indicator variable, which equals one if net income is negative in a given year, and zero otherwise |
| ISSUE | Indicator variable, which equals one if total issuance of equity and debt is larger than 5 % of year-end total assets, and zero otherwise |
| ENFORC | Enforcement index of one country is higher than median in 14 EU countries. Enforcement index is Legal Enforcement, which is measured as the mean score across three legal variables used in La Porta et al. (1998): (1) the efficiency of the judicial system, (2) an assessment of rule of law, and (3) the corruption index |
| DISC | Disclosure requirement index of one country. The disclosure requirement index is from La Porta et al. (2006) |
| IDV | Individualism value of one country from Hofstede (2008) |
| UAI | Uncertainty avoidance value of one country from Hofstede (2008) |

## 3 Research Design

### 3.1 Empirical Models

Consistent with Han et al. (2010), the following model is used as the starting point for our tests.

$$ED = \alpha_0 + \alpha_1 IDV + \alpha_2 UAI + \alpha_3 DISC + \alpha_4 ENFORC + \alpha_5 SIZE + \alpha_6 LEV + \alpha_7 GROWTH + \alpha_8 LOSS + \alpha_9 ISSUE + FE + \varepsilon \quad (1)$$

As detailed in Table 1, ED stands for earnings discretion, which is a measure of the magnitude of earnings management and earnings quality. The variables of interest are IDV (individualism), UAI (uncertainty avoidance) and DISC. DISC is the disclosure index developed by La Porta et al. (2006) to measure national mandatory disclosure levels. We also include ENFORC (legal enforcement) as a control variable because previous studies suggest it is related to earnings management (Leuz et al. 2003). ENFORC is measured by calculating the mean score across three legal variables used in La Porta et al. (1998): (1) the efficiency of the judicial system, (2) an assessment of rule of law, and (3) the corruption index.

We also include several variables to control for the effect of other earnings management incentives (Watts and Zimmerman 1990). First, we include the natural logarithm of annual sales ($SIZE_{i,t}$) to proxy for market monitoring. The larger the firm size, the more is the monitoring from the market and thus managers have less opportunity to manage earnings. Second, we include leverage ($LEV_{i,t}$) because highly leveraged firms receive more monitoring from debt-holders and thus reduce the probability of earnings management (DeFond and Jiambalvo 1994). Third, the market will likely penalize growth firms that experience adverse earnings surprises (Skinner and Sloan 2002), so these firms are more likely to manage earnings upward. We use $GROWTH_{i,t}$ to control for growth opportunities, which are proxied by the natural logarithm of book to market ratio. Fourth, previous literature finds that companies experiencing negative earnings tend to reduce earnings even further by using discretionary write-downs (Healy 1985; Healy et al. 1999), so we include a dummy variable ($LOSS_{i,t}$) indicating whether a firm suffers a loss in year t. Fifth, firms have more incentives to engage in window-dressing if they want to issue equity or debt. We use a dummy variable ($ISSUE_{i,t}$), which equals one if the proceeds from equity or debt issuance is larger than 5 % of total assets and zero otherwise (Teoh et al. 1998a, b). In sum, the signs of $GROWTH_{i,t}$, $LOSS_{i,t}$ $ISSUE_{i,t}$ ($SIZE_{i,t}$ $LEV_{i,t}$) are expected to be positive (negative).

We now develop Models (2) and (3) to test the effect of IFRS and disclosure regulations. We add an indicator variable, POST that equals one if the observation is in the post-IFRS period (2005–2010), and zero otherwise. The coefficient of POST is expected to be negative.

$$ED = \alpha_0 + \alpha_1 IDV + \alpha_2 UAI + \alpha_3 DISC + \alpha_4 ENFORC + \alpha_5 POST + \alpha_6 IDV * POST + \alpha_7 UAI * POST + \alpha_8 SIZE + \alpha_9 LEV + \alpha_{10} GROWTH + \alpha_{11} LOSS + \alpha_{12} ISSUE + FE + \varepsilon \quad (2)$$

$$ED = \alpha_0 + \alpha_1 IDV + \alpha_2 UAI + \alpha_3 DISC + \alpha_4 ENFORC + \alpha_5 POST + \alpha_6 IDV * POST + \alpha_7 UAI * POST + \alpha_8 IDV * POST * DISC + \alpha_9 UAI * POST * DISC + \alpha_{10} SIZE + \alpha_{11} LEV + \alpha_{12} GROWTH + \alpha_{13} LOSS + \alpha_{14} ISSUE + FE + \varepsilon \quad (3)$$

### 3.2 Measurement of Earnings Quality

The concept of earnings quality can be defined as the usefulness of the earnings information for decision-makers. For example, Dechow et al. (2010) suggest higher-quality earnings provide more information about the features of a firm's financial performance that is relevant to users. The literature also develops empirical proxies for earnings quality. Generally speaking, there are three broad categories of earnings quality proxies: namely, properties of earnings, investor responsiveness to earnings, and external indicators of earnings misstatements (Dechow et al. 2010). However, there is no consensus as to which is the single best measure of earnings quality. Researchers typically use the earnings response coefficient as a proxy for investor responsiveness; this measure is not suitable for our study, as this is an indirect measure of earnings quality. External indicators, such as earnings restatements, are available for a limited number of firms. Therefore, the properties of earnings appear appropriate to measure quality of earnings in our study. Earnings properties typically refer to earnings persistence and accruals, earnings smoothness, asymmetric timeliness and timely loss recognition, or target beating. These proxies are used to indicate the degree of earnings management, which is assumed to erode earnings quality. However, there is an inherent limitation in these measures, because tests of the determinants/consequences of earnings management are joint tests of the theory and the metric as a proxy for earnings management. For example, in the case of accruals and abnormal accruals, the idea of the measure is to isolate the managed or error component of accruals from the normal level of accruals which depend on firm fundamentals. Due to the correlated omitted variables associated with fundamentals, the potential endogeneity of the hypothesized determinants/consequences with the fundamentals is of concern (Dechow et al., 2010). Despite these limitations, the use of these models has become the widely accepted methodology in accounting to capture discretion and it appears that they influence other measures and are suitable for our study.

Thus, based on previous studies, we use discretionary (abnormal) accruals to measure the extent of earnings management (Jones 1991; Dechow et al. 1995, 1996; DeFond 2010).[3] Because earnings management can use income-increasing or

[3] Earnings management is the alteration of companies' reported accounting numbers by insiders to either mislead stakeholders or to influence contractual outcomes (Healy and Wahlen 1999).

income-decreasing accruals, we adopt the magnitude of absolute discretionary accruals as the proxy of earnings discretion behavior (Reynolds and Francis 2000; Wang 2006; Chen et al. 2010).[4] A higher magnitude of absolute discretionary accruals indicates a greater level of earnings discretion, or lower earnings quality.

Discretionary accruals are defined as total accruals minus estimated normal accruals. We use the performance-matched modified Jones model to estimate normal accruals (Dechow et al. 1995, 1996; Kothari et al. 2005).[5] We use different versions of performance-matched models to estimated discretionary accruals to improve the robustness of our results. Following Han et al. (2010), we use performance-controlled accruals to proxy earnings discretion as follows:

$$TA_{it} = \alpha_1(1/Assets_{it-1}) + \alpha_2 \Delta REV_{it} + \alpha_3 PPE_{it} + \alpha_4 ROA_{it-1} + \varepsilon_{it} \quad (4)$$

$TA_{it}$ is total accruals scaled by lagged total assets for firm $i$ in year $t$, and total accruals is the difference between income before extraordinary items and operating cash flows; $Assets_{it-1}$ is the year-end total assets for company i in year t − 1; $\Delta REV_{it}$ is the change in sales from year $t-1$ to year $t$, and $PPE_{it}$ is gross property, plant, and equipment. $\Delta REV_{it}$ and $PPE_{it}$ are scaled by$Assets_{it-1}$. $ROA_{i,t-1}$ is return on assets for firm $i$ in year $t-1$ (Han et al. 2010). We estimate coefficients from cross-sectional industry regressions by country groups for the year. We require a minimum of 20 observations for each country-year group. The residual from the model is discretionary accruals and the absolute value of the residual is referred to as *ED_PJM*. Higher *ED_PJM* means more earnings discretion and lower earnings quality. We use another two specifications of the performance-matched modified Jones model to estimate earnings discretions and improve the robustness of our results. ED_PJM1 is calculated as the residual from the following model, in which $\Delta REC_{it}$ is the change in accounts receivable from year $t-1$ to year $t$.

$$TA_{it} = \alpha_1(1/Assets_{it-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 PPE_{it} + \alpha_4 ROA_{it} + \varepsilon_{it} \quad (5)$$

ED_PJM2 is calculated as the residual from the following model:

$$TA_{it} = \alpha_1(1/Assets_{it-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 PPE_{it} + \alpha_4 ROA_{it-1} + \varepsilon_{it} \quad (6)$$

### 3.3 Sample Selection

In the context of our study, each EU member state used its own national accounting standards, though broadly harmonized in accordance with EU accounting Directives, prior to 2005. In 2002 the EU Parliament passed a regulation requiring all publicly listed companies in the EU to adopt IFRS in the preparation of consolidated financial statements commencing from 1 January 2005.

In order to comprehensively assess the persistence of national culture in the post IFRS period, our sample period starts from the year 2000, when the International

[4] For example, managers may use income-increasing accruals to meet earnings thresholds, while they may use income-decreasing accruals to avoid political costs from regulations.

[5] Bartov et al. (2000) finds that cross-sectional models are better than time-series models to detect earnings management.

**Table 2** Country variables

| Country code | Country | Individualism | Uncertainty avoidance | Disclosure | Enforcement | 2001–2004 | 2005–2010 | Total |
|---|---|---|---|---|---|---|---|---|
| AUT | Austria | 0.55 | 0.7 | 0.25 | 9.4 | 58 | 178 | 236 |
| BEL | Belgium | 0.75 | 0.94 | 0.42 | 9.4 | 188 | 270 | 458 |
| DEU | Germany | 0.67 | 0.65 | 0.42 | 9.1 | 702 | 1382 | 2084 |
| DNK | Denmark | 0.74 | 0.23 | 0.58 | 10 | 266 | 329 | 595 |
| ESP | Spain | 0.51 | 0.86 | 0.50 | 7.1 | 275 | 319 | 594 |
| FIN | Finland | 0.63 | 0.59 | 0.50 | 10 | 316 | 399 | 715 |
| FRA | France | 0.71 | 0.86 | 0.75 | 8.7 | 1379 | 1607 | 2986 |
| GBR | United Kingdom | 0.89 | 0.35 | 0.83 | 9.2 | 2220 | 2053 | 4273 |
| GRC | Greece | 0.35 | 1.12 | 0.33 | 6.8 | 327 | 398 | 725 |
| IRL | Ireland | 0.7 | 0.35 | 0.67 | 8.4 | 130 | 122 | 252 |
| ITA | Italy | 0.76 | 0.75 | 0.67 | 7.1 | 53 | 438 | 491 |
| NLD | Netherlands | 0.8 | 0.53 | 0.50 | 10 | 327 | 410 | 737 |
| PRT | Portugal | 0.27 | 1.04 | 0.42 | 7.2 | 104 | 126 | 230 |
| SWE | Sweden | 0.71 | 0.29 | 0.58 | 10 | 403 | 479 | 882 |
| Total | | | | | | 6748 | 8510 | 15,258 |

To make regression parameters more understandable, we divided culture values by 100

Accounting Standards Committee (IASC) finished its core set of Standards and significantly improved their quality. In the same year, the document "IASC 2000 standards" was endorsed by the International Organization of Securities Commissions (IOSCO), who recommended to about 100 securities regulators to permit the use of International Accounting Standards for cross-border offerings and listings.

Our sample selection comprises all publicly listed firms in 14 European Union countries from 2000 to 2010 for which data is available. The 14 countries were selected on the basis of them being the most established and developed EU members i.e. membership by 1995, with well developed accounting systems. We exclude financial institutions and drop observations that have negative shareholder's equity. Next, we delete the observations that lack the data to calculate earnings quality measures and related control variables and we eliminate the industries that have less than 20 firms when calculating discretionary accruals. Finally, some firms had voluntarily adopted IFRS before 2005. In particular, prior literature documented evidence that many German companies voluntarily adopted IFRS prior to 2005 (Tendeloo and Vanstraelen 2005). If this is the case, this will blur the distinction between the pre and post IFRS period and the comparison between the pre and IFRS period will not be meaningful. Thus, we excluded all the early adopters of IFRS (not just German firms) at the pre IFRS period. The total number of IFRS adopters before 2005 which have been eliminated from our example is 1,130 observations.

The final sample consists of 15,258 observations in the 14 EU countries from 2000 to 2010. Table 2 reports the distribution of observations by country and period (Pre-IFRS period and Post-IFRS period). The total firm-year observations per

**Table 3** Descriptive statistics

| Variable | N | Mean | Median | Standard deviation | Minimum | Maximum |
|---|---|---|---|---|---|---|
| ED_PJM | 15,258 | 0.06 | 0.039 | 0.065 | 0.001 | 0.349 |
| ED_PJM1 | 15,258 | 0.06 | 0.039 | 0.065 | 0.001 | 0.349 |
| ED_PJM2 | 15,258 | 0.064 | 0.041 | 0.071 | 0.001 | 0.369 |
| POST | 15,258 | 0.558 | 1 | 0.497 | 0 | 1 |
| IDV | 15,258 | 0.725 | 0.71 | 0.145 | 0.27 | 0.89 |
| UAI | 15,258 | 0.605 | 0.65 | 0.257 | 0.23 | 1.12 |
| DISC | 15,258 | 0.632 | 0.667 | 0.178 | 0.25 | 0.833 |
| ENFORC | 15,258 | 8.944 | 9.2 | 0.876 | 6.8 | 10 |
| GROWTH | 15,258 | −0.533 | −0.503 | 0.809 | −2.983 | 1.309 |
| SIZE | 15,258 | 19.378 | 19.21 | 2.176 | 15.077 | 24.89 |
| LEV | 15,258 | 0.221 | 0.212 | 0.162 | 0 | 0.632 |
| LOSS | 15,258 | 0.216 | 0 | 0.411 | 0 | 1 |
| ISSUE | 15,258 | 0.171 | 0 | 0.376 | 0 | 1 |

ED_PJM is calculated using $TA_{it} = \alpha_1(1/Assets_{it-1}) + \alpha_2\Delta REV_{it} + \alpha_3 PPE_{it} + \alpha_4 ROA_{it-1} + \varepsilon_{it}$

ED_PJM1 is calculated using $TA_{it} = \alpha_1(1/Assets_{it-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 PPE_{it} + \alpha_4 ROA_{it} + \varepsilon_{it}$

ED_PJM2 is calculated using $TA_{it} = \alpha_1(1/Assets_{it-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 PPE_{it} + \alpha_4 ROA_{it-1} + \varepsilon_{it}$

All variables (except for dummy variables) are winsorized at the 1st and 99th percentiles to mitigate the effects of outliers. Please refer to Table 1 for variable definitions

**Table 4** Correlation matrix

| | ED_PJM | VIF | POST | IDV | UAI | DISC | ENFORC | GROWTH | SIZE | LEV | LOSS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| POST | −0.169*** | 1.08 | | | | | | | | | |
| IDV | −0.073*** | 5.53 | −0.056*** | | | | | | | | |
| UAI | 0.073*** | 2.70 | 0.059*** | −0.728*** | | | | | | | |
| DISC | −0.067*** | 3.35 | −0.098*** | 0.758*** | −0.446*** | | | | | | |
| ENFORC | −0.074*** | 2.55 | −0.042*** | 0.576*** | −0.675*** | 0.151*** | | | | | |
| GROWTH | −0.099*** | 1.23 | 0.042*** | −0.084*** | 0.109*** | −0.056*** | −0.092*** | | | | |
| SIZE | −0.203*** | 1.23 | 0.178*** | −0.031*** | 0.008 | −0.031*** | −0.030*** | −0.368*** | | | |
| LEV | −0.086*** | 1.11 | 0.027*** | −0.247*** | 0.184*** | −0.191*** | −0.174*** | 0.052*** | 0.131*** | | |
| LOSS | 0.110*** | 1.13 | −0.040*** | 0.014* | −0.020** | 0.026*** | −0.017** | 0.122*** | −0.309*** | 0.053*** | |
| ISSUE | 0.244*** | 1.12 | −0.127*** | −0.190*** | 0.155*** | −0.143*** | −0.157*** | −0.076*** | −0.125*** | 0.006 | 0.132*** |

*, **, *** denote significance at 10, 5 and 1 % level, respectively (two-tailed). VIFs are calculated by running the following regression: $ED = \alpha_0 + \alpha_1 IDV + \alpha_2 UAI + \alpha_3 DISC + \alpha_4 ENFORC + \alpha_5 SIZE + \alpha_6 LEV + \alpha_7 GROWTH + \alpha_8 LOSS + \alpha_9 ISSUE + \varepsilon$

country range from 230 observations (1.51 %) for Portugal to 4273 observations (28 %) for the United Kingdom, which is similar to the sample used by Daske et al. (2008). The second and third largest firm-year observations are France (2986) and Germany (2084). All financial data for our research is from the Worldscope database, culture data is from Hofstede (2008) and the enforcement index and disclosure index data are from La Porta et al. (2006).

## 4 Empirical Results

### 4.1 Summary Statistics and Correlation Analysis

Table 3 reports descriptive statistics. All variables (except for dummy variables) are winsorized at the 1st and 99th percentiles to mitigate the effects of outliers. Table 4 reports a Pearson correlation matrix. It shows Individualism is negatively correlated with earnings discretion, while uncertainty avoidance is positively associated with earnings discretion, which is the opposite to our hypotheses. This unexpected result is primarily due to the fact that this is a univariate analysis which does not take into account the impact of the control variables on the relationship between culture and earnings discretion. Thus, we also run a regression analysis to control for other confounding influences. In addition, Table 4 shows some high correlations between

**Table 5** IFRS, culture and earnings discretion

| ED_PJM | (1) | (2) |
|---|---|---|
| IDV | 0.028** (2.56) | 0.012 (0.91) |
| UAI | 0.006 (0.33) | 0.015 (0.89) |
| DISC | −0.037 (−1.41) | −0.056** (−2.12) |
| ENFORC | −0.002 (−0.61) | −0.004 (−1.32) |
| POST | −0.019*** (−8.02) | −0.028*** (−2.70) |
| IDV*POST | | 0.041*** (3.91) |
| UAI*POST | | −0.036*** (−6.36) |
| SIZE | −0.006*** (−20.83) | −0.006*** (−20.75) |
| LEV | −0.028*** (−7.99) | −0.028*** (−7.82) |
| GROWTH | −0.013*** (−15.54) | −0.013*** (−15.11) |
| LOSS | 0.006*** (4.15) | 0.007*** (5.09) |
| ISSUE | 0.026*** (14.49) | 0.023*** (13.08) |
| Constant | 0.183*** (3.76) | 0.220*** (4.42) |
| Industry country and year fixed effects | Yes | Yes |
| N | 15,258 | 15,258 |
| $R^2$ | 0.173 | 0.185 |
| Adj. $R^2$ | 0.169 | 0.180 |

The *t* statistics are based on heteroscedasticity-consistent standard errors and presented beneath the coefficients within parenthesis. *, **, *** denote significance at 10, 5 and 1 % level respectively (two-tailed)

**Table 6** IFRS, culture, disclosure regulation and earnings discretion

| ED_PJM | |
|---|---|
| IDV | 0.028* (1.87) |
| UAI | 0.024 (1.39) |
| DISC | −0.096*** (−3.43) |
| ENFORC | −0.005 (−1.53) |
| POST | 0.037*** (2.69) |
| IDV*POST | 0.033* (1.66) |
| UAI*POST | −0.163*** (−11.45) |
| IDV*POST*DISC | −0.098*** (−6.28) |
| UAI*POST*DISC | 0.180*** (9.63) |
| SIZE | −0.006*** (−21.17) |
| LEV | −0.027*** (−7.72) |
| GROWTH | −0.013*** (−15.15) |
| LOSS | 0.007*** (5.24) |
| ISSUE | 0.022*** (12.60) |
| Constant | 0.232*** (4.67) |
| Industry, country and year fixed effects | Y |
| N | 15,258 |
| $R^2$ | 0.191 |
| Adj. $R^2$ | 0.186 |

The *t* statistics are based on heteroscedasticity-consistent standard errors and presented beneath the coefficients within parenthesis. *, **, *** denote significance at 10, 5 and 1 % level respectively (two-tailed)

these explanatory variables. Therefore, it is necessary to examine the potential problem of multicollinearity. We then calculate the VIF values and report them in Table 4. The VIFs of these variables are well below the critical value of 10 suggesting multicollinearity is not a serious concern.

## 4.2 Main Results

### *4.2.1 The Effect of IFRS and Culture on Earnings Management*

We examine whether managers in highly individualistic (uncertainty avoidant) countries have a higher (lower) tendency to manage earnings in terms of the magnitude of discretionary accruals. Tables 5 and 6 provide tests of the explanatory power of cultural factors in explaining the magnitude of earnings management which can be achieved via income-increasing and/or income-decreasing accruals. The purpose of income-increasing accruals is to inflate profits while income-decreasing accruals could create a pool to manage earnings in the future, and both methods may achieve targeted earnings. Thus we use the absolute value of discretionary accruals to examine the extent to which cultural values constrain/promote either or both of these types of accruals. We attempt to examine whether individualism (IND) and uncertainty avoidance (UAI) constrain or promote earnings management in general, i.e. whether they are associated with the absolute value of accruals be they income-increasing or income-decreasing.

We report the main findings in Tables 5 and 6. Table 5 presents the results when we consider the impact of changing from national accounting standards and adopting IFRS. We use the dummy variable POST and two combined (interaction) variables, IDV*POST and UAI*POST to examine the impact of IFRS on the relationship between culture and earnings management. We find, consistent with previous research (Chen et al. 2010), a negative coefficient of POST suggesting earnings quality was improved after the adoption of IFRS in 2005 in the EU. However, the coefficients of both individualism and uncertainty avoidance are not significantly greater than zero with the incorporation of the two interaction variables. In contrast, Table 5 shows that the coefficient of the interaction variable, IDV*POST is significantly positive. This finding confirms that the significant relationship between earnings management and individualism exists post IFRS. This result does not allow us to reject Hypothesis 1a that there is a positive association between the individualism dimension of national culture and the magnitude of earnings management in the post IFRS period. Similarly, the coefficient of the interaction variable, UAI*POST is negative at the 1 % significance level. This evidence is consistent with the previous literature that managers in countries with higher values of uncertainty avoidance are likely to be involved in lower magnitudes of earnings management (Han et al. 2010). Again, our results show that this negative association is observable in the post IFRS period. The evidence does not allow us therefore to reject Hypothesis 1b that there is a negative association between uncertainty avoidance and the extent of earnings management. In sum, the results in Table 5 support the proposition that the cultural values of IND and UAI are important in explaining international differences in the magnitude of earnings management after controlling for the effect of non-cultural factors.

Note the binary variable, POST, is a contextual variable and the interaction variables, IDV*POST, and UAI*POST specify the condition under which the relationship applies (Andersson et al. 2014). The condition in our research setting is the adoption of IFRS in 2005. This is because the relationship between culture and earning discretion should be more observable after the adoption of IFRS as all the countries that have different cultures adopted the same accounting standards.[6]

As to the control variables, the results in Table 5 show that the coefficients of legal enforcement (ENFORC), SIZE and LEV are negative which is consistent with our expectations. The coefficients of LOSS and ISSUE are positive, suggesting loss firms attempt more earnings management in a bid to improve performance and firms issuing shares and bonds have stronger incentives to manage earnings to attract investors. However, high growth firms (GROWTH) tend to have less earnings management which is not consistent with our prediction.

[6] Although previous research (Han et al 2010) documents the influence of culture on earnings management in a setting before the widespread adoption of IFRS in the world, this result might be attributable to different accounting treatments in these countries rather than due to cultural differences. Even in the EU, there are considerable accounting differences between member states. For example, Bae et al (2008) have analyzed international GAAP accounting differences and its impact on foreign analysts. They identify 21 items that are subject to different accounting treatments between local standards and IAS in 2001, including tax accounting (item 2), lease (item 4), goodwill (item 8), fair value (item 11), and R and D (item 17). The results reveal that Finland has 15 different accounting treatments from IAS out of 21, UK has 1, Germany has 11, Netherlands has 4 and France and Italy has 12.

#### 4.2.2 The Effect of Disclosure Regulation and Culture on Earnings Discretion

Next, Hypotheses 2a and 2b are examined to assess the extent to which the effects of individualism (IND) and uncertainty avoidance (UAI) on earnings management are conditional on the regulatory environment (i.e. the extensiveness of transparency/disclosure regulations). In other words, is the association between IND (or UAI) and absolute discretionary accruals reduced as the extent of disclosure increases? Accordingly, we examine whether the roles of IND (or UA) in the level of earnings discretion varies across disclosure regulations internationally (DISC). For this purpose, we add two interaction variables: IND*POST*DISC and UAI*POST*-DISC in our model and report the results in Table 6. With these interaction items we examine the variation of the degree or strength of the relationship between the predictor variable, culture and earnings discretion with disclosure. We argue that disclosure has a direct effect on earnings discretion as well as a moderating effect on the relationship between culture and earnings discretion. Disclosure can affect earnings discretion directly because a higher level of financial transparency (disclosure) suggests stronger investor protection which reduces the tendency of earnings manipulation. In addition, we specify the theoretical rationale for the directionality of the interaction effects of disclosure on culture and earnings discretion. The reason why financial disclosure can mitigate the influence of culture on earnings management is because previous research suggests culture exercises an impact particularly in situations where there is a high level of uncertainty and ambiguity (e.g. Meglino et al. 1989; Ravlin et al. 2000). Therefore, when disclosure increases transparency and thus reduces uncertainty and ambiguity, it in turn decreases the influence of culture.[7]

Here, we find that the coefficient of disclosure (DISC) is significantly negative (Table 6) which is consistent with previous studies and our expectation, suggesting that a higher degree of transparency disincentivizes the management of earnings. The most important result in Table 6 is that, while the coefficient of IDV*POST is significantly positive, the coefficient of the interaction, IDV*POST*DISC is significantly negative. The positive coefficient of IDV*POST suggests the individualistic managers generally tend to engage in higher magnitudes of earnings management. However, the negative coefficient of IDV*POST*DISC means the association between individualism and absolute value of discretional accruals is less pronounced in countries with more extensive disclosure regulations. In other words, higher levels of disclosure regulation serve to limit earnings management and disclosure modifies (i.e. attenuates) the association between earnings management and individualism. Thus, the effect of individualism is less prevalent when disclosure regulation is increased. The finding that the interaction between individualism (IND) and the degree of disclosure tend to be negative supports our Hypothesis 2a. An increased level of transparency might enhance the degree of correspondence between earnings and its underlying economic reality by

[7] In our setting, the moderator, disclosure operates at a different level of analysis. Disclosure operates largely at a lower institutional level, while culture is likely operating at a higher national level. Thus, it is unlikely there is a reverse interaction from culture to the relationship between disclosure and earnings management (Andersson et al. 2014).

constraining opportunistic earnings reporting behavior. In other words, the more transparent system prevents managers under the influence of an individualistic culture from reporting earnings that are too aggressive. Therefore, the disclosure dimension of formal institutions tends to reduce the use of accruals discretion to lead to a more positive or negative result.

We also find evidence that the extensiveness of disclosure regulation plays a role in the relationship between uncertainty avoidance and earnings management. As shown in Table 6, the coefficient of UAI*POST is negative, suggesting low uncertainty avoiding managers tend to make more discretionary accruals in the post-IFRS period. However, the coefficient of UAI*POST*DISC is significantly positive (Table 6), which means the negative association tends to take place in less transparent countries. This finding suggests that countries with more transparent reporting institutions mitigate the negative association of uncertainty avoidance with earnings management. This result is consistent with Hypothesis 2b. Taken overall, the relationship between cultural values and earnings discretion varies with the strength of the national disclosure regulation system.

### 4.3 Robustness Checks and Additional Tests

We run several robustness tests to examine whether our findings are sensitive to the research design, including the empirical models adopted and the proxy variables used. First, apart from the models we used in the main tests, there are some alternative empirical models used in the literature. So we calculate earnings quality using different versions of the performance-matched Jones model (calculated by model (5) and model (6) in Sect. 3.2) and have two other earnings quality proxies as dependent variables. Then we re-ran these models and found the results (not tabulated) do not alter our inferences.

Second, we include an intercept in the discretionary accruals model (model (4) (5) and (6)) as an additional control for heteroscedasticity (Kothari et al. 2005). Third, we run discretionary accruals models with industry-year groupings and use the residuals as proxies for earnings management. The results (not tabulated) using these alternative techniques are qualitatively the same as the main tests reported in previous sections.

Fourth, there is ongoing debate on the measurements of Hofstede versus the GLOBE[8] cultural values (Hofstede 2006; Javidan et al. 2006; Smith 2006; House et al. 2004). We have chosen Hofstede's scores because (1) Smith and Bond (1999,

[8] The Hofstede study was based on the re-analysis of an existing database of employee attitude survey scores assembled by one single MNE, the IBM Corporation, from its subsidiaries in 72 countries, between 1967 and 1973, and later expanded through replications to 75 countries and/or regions (Hofstede 2001, pp. 500–502). On the other hand, the GLOBE study is another dominant paradigm and adopted a theory-based approach, and a priori dimensions were formulated based primarily on Hofstede's dimensions. GLOBE asked its culture questions in two formats: "in this society" and "in this organization." One half of the respondents received the first format, the other half the second. Basically, the same items were used in both contexts, and in their analysis the GLOBE researchers labeled the answers to the first format "societal" culture and those to the second "organizational" culture. In most cases, the societal and organizational culture dimension scores were closely correlated, and in the GLOBE book they are not treated separately (House et al. 2004).

p. 56, cited in Kirkman et al. 2006) concluded that large-scale studies published since Hofstede's work (1980) "have sustained and amplified [Hofstede's] conclusions rather than contradicted them";(2) most of the cultural dimensions in GLOBE are related conceptually and empirically to Hofstede's dimensions; (3) the vast majority of culture research in management and international business is built on these scores (e.g. Tosi and Greckhamer 2004; Kwok and Solomon 2006; Han et al. 2010; Smith et al. 2002); and (4) the validity of relatively more recent culture measures such as GLOBE is yet to be confirmed (Brewer and Venaik 2010). Thus, overall, Hofstede's values are expected to be relevant and useful in shedding light on international business activities. Despite this, we also applied GLOBE (House et al. 2004) as an additional source of data to provide alternative but relatively comparable proxies as a robustness check. While the mapping between the GLOBE scores and Hofstede scores are subject to debate, we generally obtain consistent results: uncertainty avoidance loads negatively and significantly while the coefficient of in-group collectivism (interpreted as the opposite of individualism) is also negative and significant. The results are consistent with Earley (2006) that both approaches provide very important empirical assessments of current cultural conditions.

Fifth, we further control for the influence of total accruals, Big 4 auditors, and the development of financial markets, because these factors may potentially affect earnings management. We add TACC, BIG4 and MarketDev as additional control variables. TACC is total accruals; which is measured as net income minus cash flow from operations. BIG4 is a dummy variable, which equals one if auditor is one of big 4 audit firms, zero otherwise. MarketDev is dummy variable to proxy for the extent of market development, which equals one if the firm is located in the U.K., Germany or France and zero otherwise. We report the results in Table 7 which shows that adding these control variables does not alter our main inferences. Table 7 shows that the coefficient of UAI becomes significant, but IDV*POST becomes insignificant, suggesting the impact of UAI on earnings management is the same in the pre and post IFRS period. All other results are the same.

### 4.4 Additional Tests: The Influence of Other Dimensions of Culture

#### *4.4.1 Masculinity (MAS)*

There are other cultural values that are potentially correlated with earnings management. Masculinity versus femininity refers to the distribution of emotional roles between the genders. Hofstede (1980, pp. 269–271) made the following conclusions: "Women compared with men tended to score inter-personal aspects, rendering service, and sometimes the physical environment as more important, and advancement, sometimes independence, responsibility, and earnings as less important" (Hofstede et al. 2010, p. 140). A masculine society tends to emphasize achievement and material success, whereas a feminine culture is supposed to attach more weight to quality of life rather than ego boosting, wealth, and recognition (Hofstede 1980, p. 298). Managers influenced under high value of MAS tend to focus on material success and financial achievement. Thus, their priority is likely an

**Table 7** Robustness tests adding total accruals, big 4 auditors and market development variables

| ED_PJM | (1) | (2) |
|---|---|---|
| IDV | 0.024* (1.88) | 0.041*** (2.85) |
| UAI | 0.022 (1.31) | 0.029* (1.73) |
| DISC | −0.045* (−1.78) | −0.083*** (−3.10) |
| ENFORC | −0.002 (−0.61) | −0.003 (−0.85) |
| POST | −0.011 (−1.05) | 0.047*** (3.60) |
| IDV*POST | 0.020* (1.90) | 0.002 (0.10) |
| UAI*POST | −0.033*** (−6.08) | −0.139*** (−9.81) |
| IDV*POST*DISC | | −0.072*** (−4.52) |
| UAI*POST*DISC | | 0.148*** (7.85) |
| SIZE | −0.005*** (−18.27) | −0.006*** (−18.61) |
| LEV | −0.025*** (−7.26) | −0.025*** (−7.23) |
| GROWTH | −0.013*** (−15.36) | −0.013*** (−15.38) |
| LOSS | 0.015*** (9.90) | 0.015*** (9.84) |
| ISSUE | 0.020*** (11.66) | 0.019*** (11.30) |
| TACC | 0.105*** (9.64) | 0.101*** (9.20) |
| BIG4 | −0.003*** (−2.62) | −0.003** (−2.47) |
| MarketDev | 0.008* (1.94) | 0.021*** (4.49) |
| Constant | 0.171*** (3.52) | 0.183*** (3.77) |
| Industry fixed effects | Y | Y |
| Country fixed effects | Y | Y |
| Year fixed effects | Y | Y |
| N | 15,258 | 15,258 |
| $R^2$ | 0.211 | 0.216 |
| Adj. $R^2$ | 0.207 | 0.211 |

The *t* statistics are based on heteroscedasticity-consistent standard errors and presented beneath the coefficients within parenthesis. *, **, *** denote significance at 10, 5 and 1 % level respectively (two-tailed). TACC is total accrual; which is measured as net income minus cash flow from operations. BIG4 is a dummy variable, which equals one if auditor is one of big 4 audit firms, zero otherwise. MarketDev is dummy variable to proxy for the extent of market development, which equals one if the firm is located in England, Germany or France and zero otherwise

economic objective. It can be argued that MAS may increase the probability of earnings management, because the use of earnings management is a convenient way to achieve this goal. So we expect there to be a greater frequency of earnings management practice in a country with a higher value of MAS.

### *4.4.2 Power Distance (PD)*

Power distance refers to "the extent to which the less powerful members of institutions and organizations accept and expect that power is distributed unequally" (Hofstede et al. 2010, p. 61). Higher PD societies are "more stratified economically, socially and politically; those in positions of authority expect and receive obedience" (Javidan et al. 2006). Higher PD cultures accept that the hierarchy

**Table 8** Robustness tests with other cultural dimensions

| ED_PJM | Control masculinity | | Control power distance | | Control long orientation | | Control all three | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| IDV | 0.156*** (3.07) | 0.139*** (2.72) | −0.006 (−0.00) | −0.004 (<0.00) | −0.035* (−1.74) | −0.007 (−0.33) | −0.190*** (−7.02) | −0.247*** (−8.06) |
| UAI | −0.125** (−2.10) | −0.084 (−1.40) | 0.053 (0.00) | 0.095 (<0.00) | 0.016 (0.93) | 0.024 (1.42) | −0.327*** (−6.54) | −0.425*** (−8.04) |
| DISC | −0.394*** (−3.11) | −0.355*** (−2.82) | 0.007 (0.00) | 0.024 (<0.00) | −0.026 (−1.06) | −0.073*** (−2.76) | −0.285*** (−6.39) | −0.375*** (−8.07) |
| ENFORC | −0.052*** (−2.86) | −0.042** (−2.30) | 0.001 (0.00) | 0.005 (<0.00) | −0.003 (−0.95) | −0.004 (−1.29) | 0.018*** (7.40) | 0.032*** (10.30) |
| POST | −0.028*** (−2.70) | 0.037*** (2.69) | −0.028*** (−2.70) | 0.037*** (2.69) | −0.028*** (−2.70) | 0.037*** (2.69) | −0.028*** (−2.70) | 0.037*** (2.69) |
| IDV*POST | 0.041*** (3.91) | 0.033* (1.66) | 0.041*** (3.91) | 0.033* (1.66) | 0.041*** (3.91) | 0.033* (1.66) | 0.041*** (3.91) | 0.033* (1.66) |
| UAI*POST | −0.036*** (−6.36) | −0.163*** (−11.45) | −0.036*** (−6.36) | −0.163*** (−11.45) | −0.036*** (−6.36) | −0.163*** (−11.45) | −0.036*** (−6.36) | −0.163*** (−11.45) |
| IDV*POST*DISC | | −0.098*** (−6.28) | | −0.098*** (−6.28) | | −0.098*** (−6.28) | | −0.098*** (−6.28) |
| UAI*POST*DISC | | 0.180*** (9.63) | | 0.180*** (9.63) | | 0.180*** (9.63) | | 0.180*** (9.63) |
| Masculinity | −0.082*** (−2.96) | −0.063** (−2.28) | | | | | 0.200*** (8.44) | 0.286*** (10.53) |
| PowerDistance | | | −0.031 (−0.00) | −0.059 (<0.00) | | | 0.572*** (7.80) | 0.782*** (9.72) |
| LongOrientation | | | | | 0.047*** (2.96) | 0.036** (2.28) | 0.167*** (7.76) | 0.206*** (9.22) |
| SIZE | −0.006*** (−20.75) | −0.006*** (−21.17) | −0.006*** (−20.75) | −0.006*** (−21.17) | −0.006*** (−20.75) | −0.006*** (−21.17) | −0.006*** (−20.75) | −0.006*** (−21.17) |
| LEV | −0.028*** (−7.82) | −0.027*** (−7.72) | −0.028*** (−7.82) | −0.027*** (−7.72) | −0.028*** (−7.82) | −0.027*** (−7.72) | −0.028*** (−7.82) | −0.027*** (−7.72) |
| GROWTH | −0.013*** (−15.11) | −0.013*** (−15.15) | −0.013*** (−15.11) | −0.013*** (−15.15) | −0.013*** (−15.11) | −0.013*** (−15.15) | −0.013*** (−15.11) | −0.013*** (−15.15) |

**Table 8** continued

| ED_PJM | Control masculinity | | Control power distance | | Control long orientation | | Control all three | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| LOSS | 0.007*** (5.09) | 0.007*** (5.24) | 0.007*** (5.09) | 0.007*** (5.24) | 0.007*** (5.09) | 0.007*** (5.24) | 0.007*** (5.09) | 0.007*** (5.24) |
| ISSUE | 0.023*** (13.08) | 0.022*** (12.60) | 0.023*** (13.08) | 0.022*** (12.60) | 0.023*** (13.08) | 0.022*** (12.60) | 0.023*** (13.08) | 0.022*** (12.60) |
| Constant | 0.838*** (3.47) | 0.705*** (2.94) | 0.139 (0.00) | 0.080 (<0.00) | 0.196*** (4.30) | 0.214*** (4.70) | 0.094*** (3.75) | −0.015 (−0.54) |
| Industry fixed effects | Y | Y | Y | Y | Y | Y | Y | Y |
| Country fixed effects | Y | Y | Y | Y | Y | Y | Y | Y |
| Year fixed effects | Y | Y | Y | Y | Y | Y | Y | Y |
| N | 15,258 | 15,258 | 15,258 | 15,258 | 15,258 | 15,258 | 15,258 | 15,258 |
| $R^2$ | 0.185 | 0.191 | 0.185 | 0.191 | 0.185 | 0.191 | 0.185 | 0.191 |
| Adj. $R^2$ | 0.180 | 0.186 | 0.180 | 0.186 | 0.180 | 0.186 | 0.180 | 0.186 |

The *t* statistics are based on heteroscedasticity-consistent standard errors and presented beneath the coefficients within parenthesis. *, **, *** denote significance at 10, 5 and 1 % level respectively (two-tailed)

**Table 9** IFRS, culture, disclosure, earnings discretion with different enforcement measures

| | Enforcement | Enforcement | Regulation quality | Regulation quality | Rule of law | Rule of law |
|---|---|---|---|---|---|---|
| IDV | 0.001 (0.05) | 0.020 (1.20) | −0.017 (−1.16) | 0.003 (0.16) | −0.043*** (−2.78) | −0.007 (−0.37) |
| UAI | 0.017 (0.96) | 0.027 (1.56) | 0.052*** (3.36) | 0.043*** (2.76) | 0.028** (2.50) | 0.039*** (3.42) |
| DISC | −0.053** (−1.97) | −0.098*** (−3.41) | −0.008 (−0.33) | −0.079*** (−3.01) | −0.026 (−1.35) | −0.079*** (−3.51) |
| POST | −0.034*** (−2.98) | 0.034** (2.27) | −0.030*** (−2.60) | 0.035** (2.29) | −0.024** (−2.07) | 0.035** (2.31) |
| IDV*POST | 0.048*** (4.14) | 0.038* (1.74) | 0.042*** (3.50) | 0.037 (1.64) | 0.038*** (3.23) | 0.036 (1.64) |
| UAI*POST | −0.035*** (−5.62) | −0.168*** (−10.67) | −0.036*** (−5.76) | −0.168*** (−10.47) | −0.041*** (−6.49) | −0.166*** (−10.41) |
| IDV*DISC*POST | | −0.102*** (−5.95) | | −0.101*** (−5.77) | | −0.099*** (−5.73) |
| UAI*DISC*POST | | 0.189*** (9.15) | | 0.187*** (8.87) | | 0.183*** (8.59) |
| ENFORC | −0.004 (−1.22) | −0.005 (−1.45) | | | | |
| Regulation quality | | | 0.021** (2.52) | 0.004 (0.42) | | |
| Rule of law | | | | | 0.024*** (3.89) | 0.007 (1.12) |
| Constant | 0.220*** (4.37) | 0.232*** (4.62) | 0.116*** (3.42) | 0.174*** (5.02) | 0.154*** (6.76) | 0.177*** (7.66) |
| Observations | 13,881 | 13,881 | 13,881 | 13,881 | 13,881 | 13,881 |
| $R^2$ | 0.185 | 0.192 | 0.185 | 0.192 | 0.186 | 0.192 |

The *t* statistics are based on heteroscedasticity-consistent standard errors and presented beneath the coefficients within parenthesis.*, **, *** denote significance at 10, 5 and 1 % level respectively (two-tailed).The total number of observation is 13,881 because we deleted some firms that have no data for alternative law enforcement variables

that exists between superiors and subordinates is extensive, customary, and legitimate. In such a society, power is more concentrated in the hands of only a few privileged individuals. Large PD inhibits the free exchange of ideas, which is contradictory to informational openness. Waldman et al. (2006, p. 826) stated that "such societies would be prone to the manipulative use of power for the pursuit of personal benefit, a lack of equal opportunities for minorities and women, and a lack of personal or professional development". Further, managers will feel less responsible to uphold community welfare. Based on the discussion, large power distance is expected to increase the tendency for earnings management, because management is less likely to care about the community benefit and shareholder interest and tend to abuse power. Large PD culture would encourage managers to consolidate their power, which will increase information asymmetry. Thus, managers are more likely misuse their position to manage earnings to achieve their personal goals. Excessive earnings management would give a false impression of financial condition and create a better picture of corporate performance under the control of the executives. Thus earnings management would help enhance the legitimacy of large PD. Based on this discussion, we predict a positive association between PD and the degree of earnings management.

#### *4.4.3 Long-Term Orientation (LTO)*

Long-term oriented cultures value "the fostering of virtue oriented towards future rewards—in particular, perseverance and thrift" (Hofstede et al. 2010, p. 239). LTO in society is the equivalent of LTO in business (Orij 2010). Thus, whereas low LTO tends to focus on current results and the bottom line, high LTO stresses long term relationships and reputation to achieve a more sustainable performance (Hofstede et al. 2010, p. 244). In addition, low LTO prefers immediate gratification of needs by spending money quickly, as opposed to high LTO, which defers gratification and saves funds to invest later (Freedman and Jaggi 2010). If we assume earnings management attempts to achieve short term goals, the discussion would suggest a negative association between LTO and earnings management.

Table 8 presents the results using the additional proxies of culture as control variables. Column one includes MAS as a control variable and the results for the interest variables, IDV, UA and the interaction variables are virtually the same as previous tests. Column two and three added PD and LTO as control variable respectively and the results show including these cultural variables do not change our main findings. In column four, we included all the three additional variables simultaneously and the results are still very similar which corroborates our interpretations. In addition, the coefficient of the MAS and PD are positive and significant which are consistent with our prediction. The coefficient of MAS is significantly positive as expected, suggesting MAS managers tend to achieve economic objectives via earnings management tools. Managers with high PD show the similar tendency as earnings management would improve financial performance and legitimate a large power distance. However, the coefficient of LTO is significantly positive which is unexpected. One possible explanation is that our prediction is based on the assumption of a short-term goal of earnings management.

However, if the manager has used earnings management to achieve a long-term goal, the LTO cultural tendency would increase earnings management in a way which focuses on long term effects. In addition, the positive association between long-term orientation and earnings management appears to be consistent with some of the prior studies that suggest some managers attempt to use earnings management techniques to provide useful information to investors when this information is largely private held and thus not available publicly (e.g. Chaney and Lewis 1995; Trueman and Titman 1988). If managers engage in informative (rather than opportunistic) earnings management (Holthausen and Leftwich 1983; Guay et al. 1996), and are forward looking toward earnings management, they would not only focus on short term benefits. Thus, the practice of earnings management could be positively correlated with a long-term cultural orientation. Finally, we use Regulation Quality and Rule of Law from World Bank data as alternative measures to proxy for enforcement. Observations decrease to 13,881 because data on Regulation Quality and Rule of Law are unavailable for some firms. The results are reported in Table 9 and are substantially the same as the main tests. Overall, the results of our tests using additional cultural dimensions and alternative proxies for legal enforcement are consistent with our main tests and reinforce our inferences that culture is an important factor which affects accounting practice.

## 5 Conclusions

Our study is motivated by the growing interest in the influences of culture on business practices including accounting. In this study, insights are provided about institutional factors, notably national culture, likely to impact managers' decisions regarding earnings management. That is, national cultural values exhibit explanatory power relating to earnings management after controlling for other institutional factors affecting managerial motivations. This is an extension of, but also complementary to, previous studies such as Guan et al. (2005), Han et al. (2010) and Kanagaretnam et al. (2011). Our evidence leads to the conclusion that accountants and managers in more individualistic countries tend to be more aggressive in exercising earnings measurement discretion while those in more uncertainty avoiding countries tend to be less aggressive. In particular, the positive association between individualism and discretionary accruals persists and is observable in the post IFRS era. Overall, this result is consistent with Gray's (1988) model in that in practice accountants and managers in more individualistic countries tend to be more flexible, risk-oriented, and optimistic in contrast to more uncertainty avoidant countries where a more conservative and cautious approach is evident. Additionally, our evidence confirms that formal institutions may play a role that mitigates informal cultural values. For example, the transparency dimension of regulatory institutions appears to impact earnings management behavior irrespective of culture. The interactions between the degrees of disclosure regulation and both individualism and uncertainty avoidance are also significantly associated with the magnitude of earnings management. Thus in more transparent reporting systems, where accounting numbers tend to be more widely used in managerial contracting, a

more highly individualistic culture and weaker uncertainty avoidant culture tends to be associated with a reduction in the magnitude of earnings management compared to countries with less transparent reporting systems.

Our results show that managerial discretionary accrual choices and the ability of formal institutions (e.g. standards and rules) to restrict earnings discretion (Leuz et al. 2003) vary according to national cultural influences. Some interesting consequences are evident, as accounting is now in the process of converging to a single global GAAP (IFRS). An important implication is that even with the supposed uniformity of standards, accounting judgements under IFRS vary across countries, owing for instance to cultural differences among those who apply IFRS. In other words, global and uniform reporting standards might not necessarily become realized in terms of uniform reporting practices. Further, our findings add to the increasing evidence in the literature that cultural differences are still important in our globalizing business environments. Recent studies, such as Kwok and Tadesse (2006), Leung et al. (2005), and Kirkman et al. (2006) suggest that the debate concerning cultural convergence and divergence has some way to go and that we need to better understand cultural influences if we are to fully explain global business developments. Finally, consistent with prior research we show that cultural values and other institutional factors interact to impact decisions that affect financial markets.

This study is subject to the following limitations. First, we use the indices of national culture (Hofstede 1980, 2001) which have been widely adopted in previous research. While these indices may be measured with error, to the extent that the measurement errors are random across countries this factor should not bring material and systematic biases to the findings. Second, we focus on nations with advanced capital markets and hence emerging/transition economies in the EU are not included. Despite these potential caveats, our unique contribution is to have offered evidence that national cultural value systems remain a valid and relevant factor, together with other institutional factors such as disclosure regulation, affecting managers' discretionary accounting choices. Future studies could explore the impact of culture on accounting practices in terms of different domains to those of the EU and different levels of convergence to IFRS. In addition, a sixth dimension of culture, "indulgence" has been proposed in the literature (Hofstede et al. 2010, p. 281) which could also be a focus of future study in this area.

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