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Earnings quality and analysts' information environment: Evidence from the EU market

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Abstract

This study examines the relationship between earnings quality and analysts' information environment as measured by analysts following, analysts' forecasts dispersion, and analysts' forecasts accuracy. Using a sample of all non-financial listed firms in the 15 European Union (EU) member states, we find that higher earnings quality leads to more analysts following, less dispersion of analysts' forecasts, and more accurate forecasts from analysts. We also provide evidence of a positive link between the strength of this relationship and both International Financial Reporting Standards (IFRS) and the strength of enforcement regimes in EU countries. Further, we find that the innate component of earnings quality dominates the effect on analysts' information environment proxies, whereas the discretionary component is likely to have a negligible impact. These findings shed light on the vital role of earnings quality in helping analysts and investors to make better financial investment decisions.

Keywords: earnings quality; analysts following; analysts' forecasts dispersion; analysts' forecasts accuracy; IFRS; Europe

1. Introduction

In this study, we examine whether analysts' information environment measured by the number of analysts following each firm, analysts' forecasts dispersion, and analysts' forecasts accuracy are associated with earnings quality. We investigate this by using a sample of firms listed in the European Union (EU) over the period 2000–2015. We also examine the relationship between earnings quality and analysts' information environment while controlling for the joint effects of the adoption of International Financial Reporting Standards (IFRS) and the enforcement regime. Financial analysts play a pivotal role as one of the most important information agents in the capital markets (Barker & Imam, 2008; Brown et al., 2015; Abraham & Bamber, 2017). Their earnings forecasts and research recommendations are widely read, and used by other market participants (Lys & Sohn, 1990; Schipper, 1991; Womack, 1996; Cox & Kleiman, 2002; Fogarty & Rogers, 2005; Matsumoto et al., 2011; Gu et al., 2018). Consequently, the role of analysts' services is of great interest to participants in capital markets, including investors, preparers of financial reports, regulators, and standards setters.

In light of this, a body of research investigates the factors influencing analysts' services. One strand of this research examines the association between firm characteristics that proxy for information asymmetry and both the number of analysts following each firm and the properties of analysts' earnings forecasts. The main body of this research focuses on general disclosure quality using self-constructed scores (Bhattacharya et al., 2013). However, limited work has examined information asymmetry and analysts' information environment using earnings quality - one of the most direct inputs used by analysts in formulating their forecasts.

Eames and Glover (2003), Behn et al. (2008), and Lobo et al. (2012) are among the few studies to make significant contributions in advancing our understanding of the relationship between earnings quality and analysts' information environment. Eames and Glover (2003) found no association between analysts' forecasts accuracy and earnings predictability as a measure of earnings quality. However, Behn et al. (2008) found a positive association between analysts' forecasts accuracy and audit quality as an indirect measure of earnings quality. In contrast, Lobo et al. (2012) found a negative association between analysts following and earnings quality as measured by accruals quality. Each of these studies used a single proxy to measure earnings quality, found varying results, and was based on firms listed in a single country, the United States (US). Our study extends this research and makes the following contributions to the literature.

First, we examine the relationship between earnings quality and analysts' information environment using four different accounting-based proxies of earnings quality (accruals quality, earnings persistence, earnings predictability, and earnings smoothness). This is important because prior studies demonstrate that earnings quality is a multifaceted concept, and the various proxies used are not substitutes for each other (Francis et al., 2004; Dechow et al., 2010; Walker, 2013; Eliwa et al., 2016). Using the above four proxies also helps us to determine the impact of each proxy on analysts' decision making.

Second, earnings quality proxies can be broken down into two components: innate and discretionary. The innate component, considered to be relatively stable, is driven by economic fundamentals: the operating environment and the business model of the firm. The discretionary component is influenced by management's financial reporting decisions and managerial choices and is considered to be more variable. Guay et al. (1996) and Subramanyam (1996) provided a framework that explains why discretionary and innate accruals have distinct effects on the cost of capital. Subsequent empirical work found that the innate accruals quality (a singular measure of earnings quality) has a greater effect on the cost of capital (Francis et al., 2005; Eliwa et al., 2016; Eliwa et al., 2019), information asymmetry (Bhattacharya et al., 2013), and analysts following (Lobo et al., 2012). Our study extends this line of research by examining the relationship between the two components for each of the four earnings proxies and the analysts' information environment proxies.

Third, our sample consists of firms from 15 countries in the EU over the period 2000–2015. Using a sample of European countries within a single economic bloc counterbalances country-specific factors and, therefore, makes our results more generalizable. Furthermore, our sample and time period allow us to examine the impact of the largest change in financial reporting within the EU in 30 years – the transition to IFRS – on the relationship between earnings quality and analysts' information environment (Jermakowicz & Gornik-Tomaszewski, 2006). Prior studies that compared IFRS with Domestic Accounting Standards (DAS) found that switching to IFRS improves earnings quality (e.g., Gassen & Sellhorn, 2006; Ding et al., 2007; Barth et al., 2008; Christensen et al., 2009; Chen et al., 2010; Iatridis, 2010;) and analysts' information environment overall (Ashbaugh & Pincus, 2001; Cuijpers & Buijink, 2005; Byard et al., 2011; Tan et al., 2011; Jiao et al., 2012; Choi et al., 2013; Horton et al., 2013). This is attributed to the principles-based and capital-markets-focused standards of the IFRS compared with DAS. Nonetheless, several studies have also shown that the impact of adopting IFRS varies according to the strength of the enforcement regime (e.g., Ball et al., 2003; Leuz, 2003; Ball & Shivakumar, 2005; Burgstahler et al., 2006). Our study is the first to examine the relationship between earnings quality and analysts' information environment while controlling for the joint effects of IFRS adoption and enforcement regime.

We find evidence that, on average, higher earnings quality leads to a richer analysts' information environment, as measured by the higher number of analysts following, lower dispersion of analysts' forecasts, and greater accuracy of their forecasts. We also find that analysts pay more attention to the quality of the time-series behavior of earnings, as measured by earnings predictability and earnings persistence, than to the association between earnings and cash flow, as measured by accruals quality and earnings smoothness. This finding supports the notion that the four proxies of earnings quality are not substitutes for each other and suggests significant differences in the underlying notion of earnings quality captured by each measure (Dichev et al., 2013).

The results also show that the innate component of all earnings quality proxies is larger in magnitude and stronger in statistical significance than the discretionary component in regressions with analysts' information environment proxies. Thus, analysts give greater weight to the innate component, which reflects the business environment, than to the discretionary component, which reflects management's choices and discretion. This supports the notion that information risk, which results from operating a business model, dominates the risk from reporting uncertainty, which can easily shift from period to period. It also evidences that the discretionary component is better suited to an information asymmetry interpretation than the innate component.

Further, we find that the relationship between earnings quality proxies and analysts' information environment is significantly improved after the EU's adoption of IFRS, particularly in countries that have a strong enforcement regime. These results highlight the important role that enforcement regimes play in determining the impact of IFRS on the relationship between earnings quality and analysts' information environment. Our evidence is robust to several sensitivity tests, including tests for potential endogeneity issues. One concern is that close monitoring by financial analysts in itself can be a potential reason for improved earnings quality. In order to control for this issue, we use a Two-Stage Least Squares (2SLS) regression approach, and find that the endogeneity concern is not likely to be driving our primary evidence.

This study has implications for capital market participants who are interested in the economic consequences of public accounting information and the relevance of earnings quality to financial analysts. In particular, our findings speak to investors who use analysts' forecasts in their decision making, by showing that firms with higher earnings quality are more likely to attract accurate forecasts. Policymakers and standards' setters interested in the joint effects of both accounting standards and enforcement regimes on firms' and analysts' information environment will also gain insights.

The remainder of this paper proceeds as follows: Section 2 discusses the related literature and hypotheses. Section 3 discusses the methodology and sample size. Section 4 reports the empirical results. Finally, Section 5 offers conclusions.

2. Literature and hypotheses

There are two streams of literature based on the types of proxies used to measure analysts' information environment. The first stream examines the association between the quality of accounting information and the number of financial analysts following a firm. In this stream, there are two opposing views on the role of financial analysts in the capital market: that they are information intermediaries or that they are information providers. If analysts act as information intermediaries between firms and investors, then high-quality accounting information provided by a firm will enhance the quality of the services provided by analysts. This, consequently, increases the demand for the analysts' services, which leads to an increase in the number of analysts following the firm (Bhushan, 1989). However, if the analysts act as primary information providers competing with firms to provide users with information, then an improved accounting information quality from a firm will reduce the demand for analysts' services. In this case, improved quality of accounting information means a lower number of analysts following the firm (Lang & Lundholm, 1996).

Prior studies examining the association between the quality of accounting information and analysts following found mixed results. Lang and Lundholm (1996) found that firms with more informative disclosure policies have more analysts following. The findings of both Healy et al. (1999) and Botosan and Stanford (2005) also suggested a positive association between disclosure quality and analysts following. Conversely, Barth et al. (2001) and Lehavy (2009) found that firms that have less informative disclosure policies have more analysts following because the analysts' reports are likely to encounter greater demand from investors and, thus, to become more valuable. Further, in terms of earnings quality, Lobo et al. (2012) found a negative association between accruals quality and analysts following after controlling for operating uncertainty. Overall, the question of whether the quality of accounting information significantly impacts analysts following remains unanswered.

The second stream of literature examines the association between the quality of accounting information and the dispersion and accuracy of analysts' forecasts. The direction of the association between the quality of accounting information and the dispersion of analysts' forecasts relies on the reason for the differences between these forecasts. Do they differ because of the differing information available from firms or because of the differences in the forecasting models that analysts use, which entail giving different weights to the same pieces of information? If analysts use a common forecasting model and receive the same public accounting information and some private accounting information from a firm, they will give less weight to the private information if the quality of public information is high, which will lead to a lower dispersion of analysts' forecasts. However, if analysts are using different forecasting models and have the same public and private accounting information, higher quality accounting is likely to lead to analysts reaching different conclusions and, hence, greater dispersion of analysts' forecasts (Lang & Lundholm, 1996).

Regarding analysts' forecasts accuracy, the impact of the quality of accounting information on such accuracy seems to be clear to the extent that high quality of accounting information provided by the firm will raise the level of the firm's informativeness (Lang & Lundholm, 1996; Hope, 2003a). In this case, analysts will rely heavily on financial information in the annual report, which will help them to predict future earnings accurately. Therefore, high quality of accounting information increases the accuracy of analysts' forecasts.

Empirically, there is an extensive literature on the impact of disclosure quality on analysts' forecasts dispersion and accuracy (e.g., Lang & Lundholm, 1996; Barron et al., 1999; Hope, 2003a; Irani & Karamanou, 2003; Vanstraelen et al., 2003). But few studies have considered the impact of earnings quality on the dispersion and accuracy of these forecasts (e.g., Eames & Glover, 2003; Lobo et al., 2012). With regard to earnings quality, Lobo et al. (2012) investigated the association between accruals quality and analysts' forecasts dispersion and accuracy, finding that firms with lower accruals quality have greater forecasting errors by analysts and a high forecasts dispersion. However, Eames and Glover (2003) tested the association between earnings predictability and analysts' forecasts error, and found no significant association. Behn et al. (2008) tested the association between audit quality as an indirect measure of earnings quality and both analysts' forecasts dispersion and accuracy. They found a positive association between the accuracy of analysts' forecasts and audit quality, and found a negative association between audit quality and analysts' forecasts dispersion. Therefore, these findings provide evidence that earnings quality is a multifaceted construct, and using a different proxy of earnings quality may lead to different results.

Overall, there are mixed empirical results about the association between earnings quality and analysts' information environment proxies. Therefore, we test the following hypothesis:

H_1: There is no association between earnings quality and the quality of analysts' information environment.

Earnings quality consists of two components: innate and discretionary. The innate component reflects uncertainty due to intrinsic economic fundamentals, such as the firm's operating environment and business model(s). The discretionary component reflects uncertainty due to management discretion, such as its reporting choices and measurement error (Francis et al., 2004; Francis et al., 2005; Eliwa et al., 2016). Although there is no established theory concerning the impact of each component of earnings quality on information risk (Francis et al., 2005), the framework proposed by Guay et al. (1996) and Subramanyam (1996) that compares the impacts of innate and discretionary components on the cost of capital provides a good starting point. They show that whereas managerial opportunism increases information risk, performance measurement reduces information risk. Thus, each effectively mitigates the other and yields the average cost of capital effects, which is not observed in the innate component. The empirical work of Francis et al. (2005) and Gray et al. (2009) found that the innate part of accruals quality has a greater impact on the cost of equity than the discretionary part.

Conceptually, a firm's managers can reduce the information disadvantage of uninformed analysts and investors by choosing a more transparent accounting implementation. In contrast, the innate portion of earnings quality reflects economic fundamentals – volatility emanating from business models and operating environments – about which managers and, possibly, well-informed analysts and investors have much less of an information advantage in relation to market participants in general. As a result, it seems more (less) difficult to conceptualize the innate (discretionary) component of earnings quality to affect information asymmetry.

However, there is limited empirical work examining the impact of each component of earnings quality on analysts' information environment. Lobo et al. (2012), using a singular proxy for earnings quality (accruals quality), is the only study to examine how each component affects analysts following. Our study extends this line of research by examining the relationship between the two components of each of the four earnings proxies and analysts' information environment. This leads to our second hypothesis:

H_2: The effect of the innate component of earnings quality on the quality of analysts' information environment is the same as the discretionary component effect.

Institutional and regulatory characteristics can also affect both earnings quality and analysts' information environment (Jiao et al., 2012). Some researchers investigated the impact of shifting from DAS to IFRS on analysts' information environment and earnings quality. The key argument is that the principles-based and capital market-oriented standards of IFRS better enhance the quality of financial reporting to users, such as investors and analysts, compared with DAS (Gassen & Sellhorn, 2006; Ding et al., 2007; Barth et al., 2008; Christensen et al., 2009; Chen et al., 2010; Iatridis, 2010;).

Consistent with this view, a numerous studies have found that after shifting from DAS to IFRS there is an improvement in analysts' information environment as evidenced by more analysts following a firm, less dispersion, and greater accuracy in analysts' forecasts (Ashbaugh & Pincus, 2001; Cuijpers & Buijink, 2005; Byard et al., 2011; Tan et al., 2011; Jiao et al., 2012; Choi et al., 2013; Horton et al., 2013;). Collectively, these studies suggest that firms that use IFRS have a higher quality of earnings and significant market responsiveness to earnings compared with firms that use DAS.

However, there is also a stream of research (e.g., Ball et al., 2003; Leuz, 2003; Ball & Shivakumar, 2005; Burgstahler et al., 2006) that cautions against focusing only on changes to accounting standards. This body of evidence informs us that the effect of a change in accounting standards is conditional on other external factors, the key one being the enforcement regime (Ball et al., 2003; Ball, 2006; Jeanjean & Stolowy, 2008; Beattie et al., 2011; Ahmed et al., 2013). Supporting this view, several studies have found that the strength of a country's enforcement regime has a significant effect on both earnings quality and analysts' information environment. For example, Hope (2003b) found a significant positive association between analysts' earnings forecast accuracy and the strength of the enforcement regime. Hope's study concluded that in a strong enforcement setting, managers are obliged to follow the rules, thus, improving forecast accuracy and reducing analysts' uncertainty. In relation to IFRS adoption, Horton et al. (2013) and Byard et al. (2011) showed that the adoption of IFRS is linked to higher forecast accuracy for countries with strong enforcement regimes. This supports the argument that using relatively high-quality financial accounting standards, such as IFRS, on their own does not necessarily result in a positive impact on earnings quality, analysts following, and forecast properties (Ball et al., 2000; Ball et al., 2003; Leuz et al., 2003; Ball, 2006; Holthausen, 2009).

Therefore, in the context of our study, the potential benefits of adopting IFRS in the EU may vary among countries reflecting differences in their enforcement regime. Despite the attention given to strengthening the enforcement of accounting standards in recent years, such variation still exists (Daske et al., 2013). Jermakowicz and Gornik-Tomaszewski (2006) found that EU preparers consider differences in the interpretation of standards to be a significant obstacle to achieving accounting convergence. Further, Armstrong et al. (2010) found that market reaction to announcements about the adoption of IFRS varies among European countries with less positive reactions in jurisdictions that have weaker enforcement regimes, strengthening the case for expecting country-level differences based on the enforcement regime.

Therefore, our study examines the relationship between earnings quality and analysts' information while controlling for the joint effects of IFRS adoption and the enforcement regime. This leads to our final hypothesis:

H_3: There is a stronger association after the adoption of IFRS between earnings quality and the quality of analysts' information environment in countries with a strong enforcement regime.

3. Methodology and sample selection

3.1 Earnings quality proxy (EQ Proxy)

Earnings quality is a multifaceted concept representing different angles (Francis et al., 2004; Dechow et al., 2010; Walker, 2013; Eliwa et al., 2016; Trimble, 2018). We focus on four accounting-based earnings quality proxies – accruals quality, earnings persistence, earnings predictability, and earnings smoothness – characterizing various aspects of earnings quality (Francis et al., 2004; Eliwa et al., 2016). In particular, the accruals quality proxy reflects the extent to which working capital accruals map onto last-period, current, and next-period cash flow from operations (Dechow & Dichev, 2002). The notion of using accruals quality as a proxy of earnings quality is based on the view that better quality of earnings is expected to map more closely onto cash flows (Francis et al., 2005).

Earnings persistence reflects the sustainability of earnings (Francis et al., 2004). If the earnings are sustainable, their quality is expected to be high. Earnings predictability reflects the extent to which current earnings are helpful for predicting future earnings. An earnings number likely to repeat itself is considered to be high quality.

Finally, earnings smoothness as a proxy of earnings quality is based on the notion that managers smooth out transitory fluctuations in earnings on the basis of their private information about future earnings, so as to report a more representative (normalized) reported earnings number. Thus, earnings that are more representative of future earnings are of higher quality. Smoother earnings indicate a higher quality of earnings (Francis et al., 2004).

3.1.1 Accruals quality

We base our measure for accruals quality on the Dechow and Dichev (2002) approach, as used by McNichols (2002) and Francis et al. (2005). Definitions of all variables are provided in Table 1:

$$\frac{TCA_{j.t}}{Assets_{j,t}} = \alpha_j + \beta_{1,j}\frac{CFO_{j,t-1}}{Assets_{j,t}} + \beta_{2,j}\frac{CFO_{j,t}}{Assets_{j,t}} + \beta_{3,j}\frac{CFO_{j,t+1}}{Assets_{j,t}} + \beta_{4,j}\frac{\Delta Sales_{j,t}}{Assets_{j,t}} + \beta_{5,j}\frac{PPE_{j,t}}{Assets_{j,t}} + v_{j,t} \qquad \text{Equation (1)}$$

where:

$TCA = \Delta CA - \Delta CL - \Delta Cash + \Delta CDEBT$= total current accruals in year *t*.
$Assets$ is the average of total assets of a firm in years *t* and *t*-1.
CFO is the operating cash flow of a firm in year *t*.
ΔCA is the change in current assets of a firm between years *t*-1 and *t*.
ΔCL is the change in current liabilities of a firm between years t-1 and *t*.
$\Delta Cash$ is the change in cash of a firm between years *t*-1 and *t*.
$\Delta CDEBT$ is the change in debt in current liabilities of a firm between years *t*-1 and *t*.
$\Delta Sales$ is the change in revenues of a firm between years *t*-1 and *t*.
PPE is the gross property, plant, and equipment of a firm in year *t*.
$Accruals\ quality = \sigma\ (v_{j,t})$ is the standard deviation of the residuals of a firm, computed from year *t*-4 to *t*.

[Insert Table 1 here]

Equation (1) is estimated in an annual cross-sectional basis for each of 14 industry sectors in which at least 12 firms are operating in year t. Higher standard deviations of residuals indicate poorer accruals quality because there is less precision about the mapping of current accruals into last-period, current, and future-period cash flow from operations.

3.1.2 Earnings persistence (Persistence)

This study follows the literature by measuring earnings persistence as the slope coefficient from a regression of current earnings on previous earnings (Francis et al., 2004; Richardson et al., 2005):

$$Earn_{j,t} = \emptyset_{0,j} + \emptyset_{1,j} * Earn_{j,t-1} + v_{j,t} \qquad \text{Equation (2)}$$

where:
$Earn_{j,t}$ is net income before extraordinary items of a firm in year t.
$Earn_{j,t-1}$ is net income before extraordinary items of a firm in year t-1.

Equation (2) is estimated for each firm-year by using maximum likelihood estimation and rolling ten-year windows. Firms with a higher value of $\emptyset_1$ have higher earnings persistence, and, hence, higher earnings quality (Francis et al., 2004).

3.1.3 Earnings predictability (Predictability)

This study follows Francis et al. (2004) by using the square root of the estimated error variance from Equation (2) to measure earnings predictability.

$$Predictability_{j,t} = \sqrt{\sigma^2(\hat{v}_{j,t})} \qquad \text{Equation (3)}$$

where:
$Predictability_{j,t}$ is the earnings predictability of a firm in year t.
$\sigma^2(\hat{v}_{j,t})$ is the error variance of a firm in year t calculated from the earnings persistence equation; if it is higher (lower) than the square root of the estimated error variance, it indicates lower (higher) predictability and lower (higher) earnings quality.

3.1.4 Earnings smoothness (Smoothness)

We measure earnings smoothness as the ratio of the standard deviation of earnings of a firm, to its standard deviation of cash flow operations, both deflated by beginning total assets (Pincus & Rajgopal, 2002; Francis et al., 2004).

$$Smoothness_{j,t} = \frac{Std(Earn_{j,t}/Assets_{j,t-1})}{Std(CFO_{j,t}/Assets_{j,t-1})} \qquad \text{Equation (4)}$$

where:
$Smoothness_{j,t}$ is earnings smoothness of a firm in year t.

Smoothness is measured as the ratio of earnings variability to cash flow variability. Hence, firms with higher values of earnings smoothness have poorer earnings quality (see Equation (4).

To compare coefficient estimates across earnings quality proxies, we rank each proxy by each year and form ten deciles. Firms in the bottom decile (decile 1) have proxies with the highest values, while firms in the top decile (decile 10) have proxies with the lowest values. Given the definitions of our proxies' measures, this ordering places firms with the worst (best) outcome for the proxy in the bottom (top) deciles. However, because earnings persistence moves in the opposite direction, we resit the sign of earnings persistence so that it is in the same direction as the three other proxies of earnings quality. Using the decile rank of each proxy rather than its raw value mitigates the effects of extreme observations (Francis et al., 2004; Francis et al., 2005; Eliwa et al., 2016).

3.2 Analysts' information environment proxies

We use the number of analysts following (*Analysts following*), analysts' forecasts dispersion (*Dispersion*), and analysts' forecasts accuracy (*Accuracy*) as proxies for analysts' information environment because these are more direct proxies of the impact of accounting information quality on analysts' information environment compared with other analyst-related proxies such as stock recommendations and the frequency of analysts' forecasts (Byard et al., 2011). We measure *Analysts following* as the maximum number of financial analysts forecasting annual earnings for a firm during the current year (Yu, 2010). *Dispersion* is measured as the standard deviation of financial analysts' forecasts in the fiscal year t deflated by the stock price and multiplied by 100 (Yu, 2010). Finally, *Accuracy* is measured by the negative of the absolute value of the difference between the actual earnings per share and the median of analysts' forecasts of earnings per share for a firm in the current year (analysts' forecasts error), divided by the stock price and multiplied by 100 (Lang & Lundholm, 1996; Hope, 2003a; Hope & Kang, 2005; Barniv, 2009). We use the stock price as a denominator in measuring analysts' forecasts dispersion and accuracy to scale the comparisons across firms. We use the negative sign of absolute analysts' error in our accuracy measurement to represent higher value because it implies more accurate forecasts by analysts.

We are interested in examining the impact of earnings quality on analysts' information environment in general, rather than on a particular announcement date. This is because there is no exact date in any year when the greatest impact of earnings quality on analysts' information environment over the course of a financial year could be examined. Although the financial information in an annual report is issued on a specific day, it is difficult to determine the date on which the financial information arrived at the stock market and impacted on the analysts' decisions, because companies release information from various sources over the course of a year. Therefore, the three dependent proxies of analysts are based on the annual analysts' forecasts of earnings made, calculated as the average of the proxy over the 12 months of a given year, following Lang & Lundholm (1996). Finally, all variables are winsorized to the 1 and 99 percentiles to mitigate the effects of the outliers (Francis et al., 2005).

3.3 Enforcement regime and IFRS

The quality of accounting enforcement (*AccEnforcement*) is used as a proxy of enforcement regimes (institutional settings) to differentiate between EU countries. This proxy was developed by Christensen et al. (2013) and is a comparatively updated proxy of enforcement. In this regard, Preiato et al. (2015) found that the explanatory power of *AccEnforcement* is higher than that of other legal enforcement regime proxies. *AccEnforcement* is a dummy variable that takes a value of 1 for countries with strong accounting enforcement regimes and 0 otherwise (Christensen et al., 2013). We expect to find a positive association between *AccEnforcement* and both *Analysts following* and *Accuracy* and a negative association with *Dispersion*. *IFRS* is measured using a dummy variable equals to 1 if the firm adopts IFRS in year *t* and 0 otherwise. A positive impact is expected on the joint effect of *AccEnforcement* and *IFRS* on analysts' information environment proxies.

3.4 Control variables

We add to our model six variables that are known to affect *Analysts following*: firm size (*Size*), the standard deviation of returns on equity (*Std ROE*), firm growth (*Growth*), audit quality (*Audit quality*), financial crisis (*Crisis*), and *IFRS*. Bhushan (1989) and Lang and Lundholm (1996) found a positive association between *Analysts following* and *Size*. Cohen (2003) found a significant positive association between *Growth* and *Analysts following*.

In relation to *Dispersion*, we add seven control variables: the log of analysts following (*LnFollowing*), *Size*, *Std ROE*, earnings surprise (*SURP*), *Audit quality*, *Crisis,* and *IFRS*. Prior studies suggested a negative association between *Dispersion* and *LnFollowing*, *Audit quality*, and *Size*, and a positive association between *Dispersion* and *Std ROE*, *SURP,* and *Audit quality* (e.g., Lang & Lundholm, 1996; Cohen, 2003; Eames & Glover, 2003; Behn et al., 2008; Lobo et al., 2012).

Moreover, we add seven control variables to our model to examine *Accuracy*: *LnFollowing*, *Size*, *Std ROE*, *SURP*, *Audit quality*, *Crisis,* and *IFRS*. Prior studies found a positive association between *Accuracy* and *LnFollowing*, *Size,* and *Audit quality*, and a negative association between *Accuracy* and both *Std ROE,* and *SURP* (Lang & Lundholm, 1996; Cohen, 2003; Eames & Glover, 2003; Behn et al., 2008; Lobo et al., 2012).

The interaction effects between *EQ Proxy*, *AccEnforcement,* and *IFRS* are added to the three models. We expect that the relationship between *EQ proxy* and analysts' information environment will be strengthened after the adoption of IFRS in countries with strong enforcement regimes.

Finally, we need to mitigate the issue of reverse causality, as analysts might act as external monitors resulting in firms improving their earnings quality, i.e., the analysts' coverage and forecasts in the previous period might affect current earnings quality (Jensen & Meckling, 1976; Healy & Palepu, 2001; Lobo et al., 2012). Therefore, we include the lagged analysts' information environment proxies as independent variables in our main models[1].

[1] We thank an anonymous referee for highlighting this issue.

3.5 Sample selection

Our sample covers all non-financial listed firms in EU countries from 2000 to 2015, and to avoid any survivorship bias, we include both active and dead equities. We use the DataStream/Worldscope and Institutional Brokers' Estimate System (I/B/E/S) databases for all variables. Our sample is constrained by the following two factors. First, each firm requires at least seven consecutive years of data because accruals quality is calculated as the standard deviation of five consecutive annual residuals. In addition, both lead and lag cash flows are required in the accruals quality regression (see Equation (1). Second, data for all four proxies of earnings quality are required for each firm year. In total, the sample comprises between 19,671 and 24,213 firm-year observations for 14 industries. We use the Industry Classification Benchmark (ICB) hierarchy, which provides 18 industries for identifying macroeconomic opportunities for investment and trading decisions as given by the DataStream database. Four industries are excluded, namely banks and financial services, insurance, real estate, and utilities.

The final sample is distributed across 15 EU countries (Table 2, Panel A). Luxembourg is excluded due to inadequate observations. Although Norway is not a member of the EU, we included it in the sample because it is a member of the European Economic Area (EEA) and has imposed IFRS on all listed companies since 2005. UK firms represent 38% of the sample, which is consistent with the sample distribution in most EU-based studies (Glaum et al., 2013; Filip & Raffournier, 2014). The sample contains countries with both weak and strong enforcement regimes.

4. Results

4.1 Descriptive results

Table 2, Panel B, provides descriptive statistics for the key variables used. With regard to the earnings quality proxies, the table reports the mean (median) of *Accruals quality* as 0.09 (0.06), *Persistence* as 0.38 (0.36), *Predictability* as 0.74 (0.07), and *Smoothness* as 1.23 (0.94). The mean and median of our earnings quality proxies are higher than those reported in prior studies (e.g., Francis et al., 2004; Francis et al., 2005), except for *Predictability*, where the results are lower. This comparison suggests that the EU sample has a lower quality of earnings than the US samples used in prior studies (e.g., Francis et al., 2004; Francis et al., 2005).

For the analysts' information environment proxies, the mean and median for *Analysts following* are 7 and 4, which is consistent with Lang et al. (2003), who found that the median of *Analysts following* in the EU market is around 4. Moreover, prior studies of the US indicated that mean (median) *Analysts following* is around 13 (9). For example, Lobo et al. (2012) and Lang and Lundholm (1996) found a mean (median) of 17 (16). Regarding *Dispersion*, we find the mean and median to be 0.82 and 0.36, respectively, and regarding *Accuracy*, these figures are -0.10 and -0.03, respectively.

4.1.1 Correlations among variables

Table 3 reports the correlations between the three types of variables: dependent, independent, and control. We find a significant negative correlation between *Analysts following* and

Dispersion, and a significant positive correlation between *Analysts following* and *Accuracy*. There are also significant positive correlations between the four proxies of earnings quality, but less than 20%, which suggests that the four earnings proxies measure different angles of earnings quality. Moreover, the correlations among the proxies of analysts' information environment and *EQ Proxy* indicate that there are significant correlations, as these range between 3% and 58%. The correlations between the control variables range between 1% and 24%. The correlations between the earnings quality proxies and control variables range from 1% to 54%, which suggests that multicollinearity is not significant among these variables. Finally, *Analysts following* and *Size* have the highest correlation (74%).

[Insert Table 2 here]

[Insert Table 3 here]

4.2 Earnings quality and analysts following

In this section, we discuss the results of the main tests that investigated the associations between *Analysts following* and the four earnings quality proxies considered individually: *Accruals quality*, *Persistence*, *Predictability*, and *Smoothness*. The control variables were the *Lagged Analysts following*, *Size, Growth, Std ROE, Crisis*, *Audit quality*, *IFRS,* and *AccEnforcement*. We used the following model to examine the associations between *Analysts following* and each *EQ Proxy* in addition to the control variables for the period 2000–2015[2].

$$\begin{aligned} Analysts\ following_{j,t} &= \alpha + \beta_1 Lagged\ Analysts\ following_{j,t} + \beta_2 Size_{j,t} \\ &+ \beta_3 Std\ ROE_{j,t} + \beta_4 Growth_{j,t} + \beta_5 SURP_{j,t} + \beta_6 Crisis_{j,t} \\ &+ \beta_7 Audit\ quality_{j,t} + \beta_8 IFRS_{j,t} + \beta_9 AccEnforcement_{j,t} \\ &+ \beta_{10} IFRS * AccEnforcement_{j,t} + \beta_{11} EQ\ Proxy_{j,t}^{k} \\ &+ \beta_{12} IFRS * EQ\ Proxy_{j,t}^{k} \\ &+ \beta_{13} AccEnforcement * EQ\ Proxy_{j,t}^{k} \\ &+ \beta_{14} IFRS * AccEnforcement * EQ\ Proxy_{j,t}^{k} \\ &+ \beta_{15} YearFixedEffect_{t} + \beta_{16} IndustryFixedEffect_{j} + \varepsilon_{j,t} \end{aligned} \qquad \text{Equation (5)}$$

where:

$Lagged\ Analysts\ following$ is the number of analysts following a firm in year *t-1*.
$Size$ is the log of total assets of a firm for year *t*.
$Std\ ROE$ is the standard deviation of returns on equity calculated over the preceding 10 years.
$Growth$ is the log of one plus the firm's growth in book value of equity over the preceding 5 years.
$EQ\ Proxy_{j,t}^{k}$ is the decile rank of a firm's value of the kth earnings quality proxy in year t, $k \in \{AccrualsQuality, Persistence, Predictibility, Smoothness\}$.

$Audit\ quality_{j,t}$ is a dummy variable that equals 1 for a Big Four auditor and 0 otherwise.

[2] We used equation (5) without adding the interaction terms to test H_1, then we added the interaction terms to test H_3.

$Crisis_{j,t}$ is a dummy variable that equals 1 if the years are 2008 and 2009 and 0 otherwise. All other variables are previously defined in the text and/or their definitions are in Table 1.

Following Frankel et al. (2011), we used a clustered standard errors pooled regression to control for cross-sectional correlation. Year dummies were also included to control for time-series correlation. We expected a positive coefficient on *EQ Proxy*, indicating that firms with higher earnings quality attract more analysts. Table 4 (odd columns) provides both the estimates of coefficients and the t-statistics as a result of estimating Equation (5) after separately adding each *EQ Proxy* to the model and without adding the interaction terms. Consistent with prior studies, the results indicate a significant positive association between *Analysts following* and all earnings quality proxies except *Smoothness*. Therefore, our results indicate that firms with higher earnings quality have a larger number of analysts following them.

Comparing the coefficients of each *EQ Proxy*, we find that *Predictability* has the greatest impact on *Analysts following* ($\beta = 0.063$; $p < 0.01$), followed by *Accruals quality* ($\beta = 0.054$; $p < 0.01$), *Persistence* ($\beta = 0.033$; $p < 0.01$), and finally *Smoothness* ($\beta = 0.0094$; $p > 0.10$). This is consistent with prior evidence that financial analysts are primarily concerned with sustainable and predictable earnings (Barker & Imam, 2008). This result suggests that financial analysts play an important role as intermediaries between firms and investors, rather than as primary information providers who compete with firms to introduce information directly to investors. Thus, we find evidence against H_1 and suggest a positive association between the quality of earnings reported by firms and the number of analysts following those firms.

Table 4 (even columns) provides both the estimates of coefficients and the t-statistics as a result of estimating Equation (5) after adding the interaction terms. The results indicate that the relationship between *Analysts following* and each *EQ Proxy* is significantly stronger after the adoption of IFRS in countries with strong enforcement regimes compared to countries that adopt IFRS and have weak enforcement regimes. Therefore, we accept H_3. Also, this finding supports the notion that analysts consider high earnings smoothness as high earnings quality and, in countries that adopt IFRS and have strong enforcement regimes, prefer to follow firms that exhibit high earnings smoothness.

With regard to the control variables, the results indicate a significant positive association between *Analysts following* and *Size*. This is consistent with Bhushan (1989) and Lang and Lundholm (1996), who provide evidence that analysts tend to follow larger firms. However, we find a significant positive association between *Analysts following* and *Std ROE*, which runs counter to the suggestion from Bhushan's results that analysts follow firms with low variability in their performance. Moreover, we find a significant positive association between *Analysts following* and *Growth*. The results show no significant association between *Audit quality* and *Analysts following*. Finally, the average of the explanatory powers of the four models of regression is around 87%, which is higher than that in prior studies, where the average R^2 value is around 38%.

[Insert Table 4 here]

4.3 Earnings quality and dispersion of analysts' forecasts

In the second test, we examined the association between the dispersion of analysts' forecasts and earnings quality proxies. In general, analysts' forecasts dispersion reflects the uncertainty among analysts. But it also reflects how greatly the analysts depend on private or public information in their valuation models. We used *Lagged Dispersion*, *LnFollowing*, *Size, Std ROE*, *SURP*, *Audit quality*, *IFRS,* and *AccEnforcement* in each EU country as control variables (see Equation 6)[3]. We examined the associations between *Dispersion* and each *EQ Proxy*, using the clustered standard errors pooled regression as in Equation (5).

$$\begin{aligned} Dispersion_{j,t} = \ & \alpha + \beta_1 Lagged\ Dispersion_{j,t} + \beta_2 LnFollowing_{j,t} \\ & + \beta_3 Size_{j,t} + \beta_4 Std\ ROE_{j,t} + \beta_5 SURP_{j,t} + \beta_6 Crisis_t \\ & + \beta_7 Audit\ quality_{j,t} + \beta_8 IFRS_{j,t} + \beta_9 AccEnforcement_{j,t} \\ & + \beta_{10} IFRS * AccEnforcement_{j,t} + \beta_{11} EQ\ Proxy^k_{j,t} \\ & + \beta_{12} IFRS * EQ\ Proxy^k_{j,t} \\ & + \beta_{13} AccEnforcement * EQ\ Proxy^k_{j,t} + \beta_{14} IFRS \\ & * AccEnforcement * EQ\ Proxy^k_{j,t} + \beta_{15} YearFixedEffect_t \\ & + \beta_{16} IndustryFixedEffect_j + \varepsilon_{j,t} \end{aligned}$$

Equation (6)

where:
$Lagged\ Dispersion$ is the standard deviation of financial analysts' forecasts in the fiscal year t-1, deflated by stock price in the same year multiplied by 100.
$SURP$ is the absolute value of the difference between the earnings per share for years t and t-1. deflated by the stock price at the beginning of year t.
All other variables are previously defined in the text and/or their definitions are in Table 1.

Table 5 (odd columns) provides both the estimates of coefficients and the t-statistics as a result of estimating Equation (6) without adding the interaction terms. It indicates a significant negative association between *Dispersion* and three variables: *Predictability* (β= -0.13; p < 0.01), *Accruals quality* (β= -0.060; p < 0.01), and *Smoothness* (β= -0.025; p < 0.01). This suggests that firms with higher earnings quality have lower analysts' forecasts dispersion (higher analysts' consensus) than firms with poor earnings quality. Therefore, this finding suggests that when firms have higher earnings quality, analysts use more publicly available information. Thus, we reject H_1.

Table 5 (even columns) provides both the estimates of coefficients and the t-statistics as a result of estimating Equation (6) after adding the interaction terms. Additionally, all earnings quality proxies show significant negative associations with *Dispersion* in countries that have adopted IFRS and have strong enforcement regimes. Therefore, we accept H_3.

Comparing the coefficients of earnings quality proxies after the adoption of IFRS for countries with strong enforcement regimes, we find that *Predictability* has the largest impact on *Dispersion*, followed by *Accruals quality*, *Persistence,* and finally *Smoothness* (β= -0.013; p < 0.1). This finding suggests that financial analysts give more attention to their forecasts' valuation models to accounting-based earnings quality information.

[3] We used equation (6) without adding the interaction terms to test H_1, then we added the interaction terms to test H_3.

As regards the control variables, the results indicate a negative association between *Dispersion* and *LnFollowing*. We also find a significant positive association between *Dispersion* and performance variability, suggesting that for firms with high performance variability, there is less consensus among analysts. Consistent with prior studies, the association between *Dispersion* and *SURP* is also positive, indicating that firms with larger *SURP* have higher dispersion in their analysts' forecasts. Moreover, consistent with Behn et al. (2008), our results indicate a significant negative association between *Dispersion* and *Audit quality*, suggesting that firms with high audit quality have lower dispersion in their analysts' forecasts. However, there is a significant positive association between *Dispersion* and *Size*, indicating that larger firms have higher dispersion in their analysts' forecasts. Finally, the average explanatory power of the regression models is around 25%, which is lower than that in the literature. For example, Lang and Lundholm (1996) show an average explanatory power of around 38%.

[Insert Table 5 here]

4.4 Earnings quality and analysts' forecasts accuracy

This section examines the association between *Accuracy* and *EQ Proxy* in addition to the control variables[4].

$$\begin{aligned} Accuracy_{j,t} = {} & \alpha + \beta_1 Lagged\ Accuracy_{j,t} + \beta_2 LnFollowing_{j,t} \\ & + \beta_3 Size_{j,t} + \beta_4 Std\ ROE_{j,t} + \beta_5 SURP_{j,t} + \beta_6 Crisis_t \\ & + \beta_7 Audit\ quality_{j,t} + \beta_8 IFRS_{j,t} + \beta_9 AccEnforcement_{j,t} \\ & + \beta_{10} IFRS * AccEnforcement_{j,t} + \beta_{11} EQ\ Proxy^k_{j,t} \\ & + \beta_{12} IFRS * EQ\ Proxy^k_{j,t} \\ & + \beta_{13} AccEnforcement * EQ\ Proxy^k_{j,t} + \beta_{14} IFRS \\ & * AccEnforcement * EQ\ Proxy^k_{j,t} + \beta_{15} YearFixedEffect_t \\ & + \beta_{16} IndustryFixedEffect_j + \varepsilon_{j,t} \end{aligned} \qquad \text{Equation (7)}$$

where:

$Lagged\ Accuracy$ is the negative of the absolute value of the financial analysts' forecast error, deflated by the stock price of a firm in year *t-1*.

All other variables are previously defined in the text and/or their definitions are in Table 1.

The results in Table 6 (odd columns) indicate a significant positive association between *Accuracy* and all earnings quality proxies. This suggests that earnings quality is a key determinant of analysts' forecasts accuracy. Thus, we find evidence against H_1. Comparing the coefficient of *EQ Proxy*, the results indicate that *Predictability* (β= 0.014; $p < 0.01$) has the greatest effect on *Accuracy*, followed by *Smoothness* (β= 0.0070; $p < 0.01$), *Persistence* (β= 0.0039; $p < 0.01$), and finally, *Accruals quality* (β= 0.0019; $p < 0.05$). Thus, for firms with high earnings quality, their analysts' forecasts have greater accuracy. Table 6 (even columns) reports results that indicate that the associations between all *EQ Proxy* and *Accuracy* are stronger after the adoption of IFRS in countries with strong enforcement regimes. Therefore, we accept H_3.

[4] We used equation (7) without adding the interaction terms to test H_1, then we added the interaction terms to test H_3.

Moving onto control variables, the results indicate a positive association between *Accuracy* and *Analysts following*, indicating that for firms with a high *Analysts following*, their analysts' forecasts have greater accuracy. The results also show a positive association between *Accuracy* and *Size*, indicating that analysts' forecasts for larger firms have greater accuracy. Moreover, consistent with the literature (e.g., Jiao et al., 2012), we find negative associations between *Accuracy* and both *Std ROE* and *SURP*. As volatility increases, the informativeness of firm reports decreases, thus, decreasing *Accuracy*. The results demonstrate a positive but non-significant association between *Accuracy* and *Audit quality,* except for the *Predictability* regression that shows a significant positive association between *Accuracy* and *Audit quality* (columns 5 and 6).

Finally, the results suggest that this model explains a significant portion of the variation in analysts' forecasts accuracy with an average R^2 value of around 52%, which is higher than in prior studies. For example, Lang and Lundholm (1996) have an average R^2 value of around 38%.

[Insert Table 6 here]

4.5 Innate versus discretionary components of earnings quality

We used the same method as Francis et al. (2005) and Eliwa et al. (2016) to disentangle the innate from the discretionary earnings quality. This method uses summary indicators to compute the effects of the operating environment and the business model, namely, *Size*, the standard deviation of cash flows for the preceding ten years (*Std CFO*), the standard deviation of revenues for preceding ten years (*Std Sales*), the length of the operating cycle (*OperCycle*), and the frequency of negative realized earnings for the preceding ten years (*NegEarn*). It uses predicted values estimated from regressing *EQ Proxy* on these summary indicators to compute the innate portion of the earnings quality proxy (*InnateEQ*), with the residuals from this regression representing the discretionary portion of earnings quality (*DiscEQ*) (see Equation 8).

$$\begin{aligned} EQ\ Proxy^{k}_{j,t} = {} & \lambda_{0,j} + \lambda_{1,j} Size_{j,t} + \lambda_{2,j} Std\ CFO_{j,t} + \lambda_{3,j} Std\ Sales_{j,t} \\ & + \lambda_{4,c} OperCycle_{j,t} + \lambda_{5,j} NegEarn_{j,t} + v_{j,t} \end{aligned} \qquad \text{Equation (8)}$$

All variables are previously defined in the text and their definitions are also in Table 1.

4.5.1 The association between analysts following and both components of earnings quality

Using the coefficient estimates acquired from the annual regressions of Equation (8), we computed innate earnings quality and discretionary earnings quality. As Table 7 shows, all innate components of earnings quality proxies have a significant impact on *Analysts following*. However, the discretionary component showed less or no significant impact on analysts following. In addition, the results indicate that *InnateEQ* coefficient is larger than *DiscEQ* coefficient and exhibits stronger statistical significance than *DiscEQ* coefficient. This finding suggests that *InnateEQ* has a greater impact on *Analysts following* than *DiscEQ*. This finding suggests that analysts in the EU give greater weight to *InnateEQ*, influenced by economic fundamentals, than to *DiscEQ*, influenced by management choices. The average goodness of fit of the four regressions is 87%.

The evidence in Table 7 rejects the null H_2 of no differences between the effects of *InnateEQ* and *DiscEQ* on *Analysts following*. This supports the argument that *InnateEQ* has a greater impact than *DiscEQ* on *Analysts following*. The results also indicate that both *InnateEQ* and *DiscEQ* have stronger significant associations with *Analysts following* after the adoption of IFRS in countries with strong enforcement regimes.

[Insert Table 7 here]

4.5.2 The association between analysts' forecasts dispersion and both components of earnings quality

The results in Table 8 indicate that *InnateEQ* has a relatively large significant negative impact on *Dispersion*, whereas *DiscEQ* has a positive or no significant impact. This finding suggests that for firms with poor earnings quality due to the innate component, there is higher dispersion of analysts' forecasts than for firms that have poor earnings quality due to the discretionary component. The average goodness of fit of the four regressions is 35%. The results also demonstrate that after the adoption of IFRS for countries with strong enforcement regimes, there are stronger associations between *InnateEQ* and *Dispersion*, but a negligible impact of *DiscEQ*.

These results point toward rejection of the null H_2 of no differences between the effects of *InnateEQ* and *DiscEQ* on *Dispersion* (H_2). Our findings suggest that the innate portion of earnings quality has a dominant influence on analysts' forecasts dispersion, while the discretionary portion of earnings quality has less or no impact on analysts' forecasts dispersion.

[Insert Table 8 here]

4.5.3 The association between analysts' forecasts accuracy and both components of earnings quality

The results in Table 9 indicate that *InnateEQ* has a larger significant positive association with *Accuracy* than *DiscEQ*. In general, *InnateEQ* coefficient is greater than *DiscEQ* coefficient and exhibits stronger statistical significance than *DiscEQ* coefficient. This suggests that for firms with poor earnings quality due to its innate component, *Accuracy* is lower than for firms with poor earnings quality due to its discretionary component. The average goodness of fit of the four regressions is 52%. Table 9 also shows that after the adoption of IFRS in countries with strong enforcement regimes, there are stronger associations between *InnateEQ* and *Accuracy*, but no or weaker associations between *DiscEQ* and *Accuracy*.

These results point to the rejection of the null H_2 of no differences between the effects of *InnateEQ* and *DiscEQ* on *Accuracy.* Our findings supporti the opinion that the innate portion of each earnings quality proxy has a larger impact than the discretionary portion on analysts' forecasts accuracy.

[Insert Table 9 here]

4.6 Sensitivity tests

Sensitivity tests were conducted to check the results of three main tests (using Equations 5–7). First, we used Tobit regression instead of clustered standard errors pooled regression on the three main models and find the same results (details not reported). Second, we used the fixed and random effects panel data models (results reported in Table 10, Panels A–C). The advantage these models is that they control for unobservable firm-specific characteristics that may affect the dependent variable (analysts' information environment proxies) (Wooldridge, 2010). In general, we find that higher earnings quality leads to a richer analysts' information environment, consistent with the main results. It also shows that these associations are stronger in both magnitude and statistical significance after the adoption of IFRS in countries with strong enforcement regimes.

[Insert Table 10 here]

Third, all our hypotheses assume that earnings quality influences the observed level of analysts' information environment proxies. However, it is possible that the direction of causality is in the opposite direction (i.e., analysts serve to discipline the firm and, hence, when more analysts follow firms, their level of earnings quality increases) or that our evidence on the effect of earnings quality on analysts' may have been driven by omitted variables that are correlated with both earnings quality and analysts' information environment (see Waddock and Graves, 1997). These issues may limit the interpretation of the causal relationship between earnings quality and analysts' information environment. Therefore, we used two approaches to ensure the robustness of our results to endogeneity and reverse-causality concerns. First, we included lagged analysts' information environment proxies as independent variables in the main models to deal with the potential reverse causality issues. Second, we applied the instrumental variables estimation method to the primary model. We used the average industry scores of earnings quality and a dummy variable for whether the previous year's earnings were negative (losses) as instrumental variables for earnings quality. The results indicate that it is not likely that our primary evidence is driven by endogeneity concerns (see Table 11, Panels A-C)[5].

[Insert Table 11 here]

Fourth, prior studies suggested that a country's legal system (common-law vs code-law countries) has a significant effect on accounting practices and users of accounting information (e.g., La Porta et al., 1997; Ball et al., 2000; Ball, 2006). Common-law countries, such as the UK and Ireland, tend to have better enforcement regimes, more transparent accounting systems, stronger investor protection mechanisms, more accurate analysts' forecasts, and more robust corporate governance practices than code-law countries, such as Germany, France, and Italy (Gaio, 2010; Houqe et al., 2014). Based on La Porta et al. (1997), we classified all 15 EU countries into two groups – code-law and common-law countries – and ran the main tests. In

[5] We thank an anonymous referee for highlighting this issue.

general, we find that firms in common-law countries have a significantly richer analysts' information environment than firms in code-law countries after the adoption of IFRS (see Table 12, Panels A-C). We also run the main models in five major EU countries (France, Germany, Italy, Sweden, and the UK) and find consistent results. Further, we used a country dummy variable as an alternative to *AccEnforcement* and re-ran the main tests. All inferences remained the same (results not tabulated)[6]. Finally, our sample shows a high representation of UK firms (38%), which is a common characteristic of sample distributions in most EU-based studies (e.g., Daske et al., 2008; Aharony et al., 2010; Byard et al., 2011; Glaum et al., 2013). To ensure robustness of the findings, we regressed the main models after excluding UK firms from the sample, and the findings remain the same (results not tabulated).

[Insert Table 12 here]

Fifth, Eames and Glover (2003) find that when controlling for the level of earnings, there is no association between forecast error (forecasts accuracy) and earnings predictability. Thus, we control for the level of earnings, measured by returns in equity (*ROE*), to test whether the association between *EQ Proxy* and *Accuracy* remains significant. The results show that the documented relationships between *Accuracy* and *EQ Proxy* are not due to the omitted variable, that is, the level of earnings (results not tabulated)[7].

5. Discussion and conclusions

Limited work has examined information asymmetry and both the number of analysts following each firm as well as the properties of analysts' earnings forecasts using one of the most direct inputs employed by analysts in formulating their forecasts, namely, earnings. (e.g., Eames & Glover, 2003; Behn et al., 2008; Lobo et al., 2012). However, each of these studies used a single proxy of its own to measure earnings quality, found varying results, and was based on firms listed in a single country, the US. Our study extended this research and investigated the association between four accounting-based earnings quality proxies and three variables, representing analysts' information environment (analysts following, analysts' forecasts dispersion, and analysts' forecasts accuracy) for a sample of EU listed firms over the period 2000–2015. Further, we examined the impact of both innate and discretionary components of each earnings quality proxy on analysts' information environment proxies to gain insights into which proxy has the strongest influence on analysts' information environment. Finally, we tested the joint effects of both IFRS and enforcement regimes on the association between earnings quality and analysts' information environment.

Overall, we provided evidence that earnings quality has a statistically and economically significant association with analysts' information environment, which helps to reduce information asymmetry among investors, who are anxious to learn about future prospects and enrich the information environment. This evidence is consistent with the view that analysts act as information intermediaries between firms and investors rather than as primary information providers competing with firms to introduce information directly to investors. Our results also

[6] We thank an anonymous referee for highlighting this issue.
[7] We thank an anonymous referee for highlighting this issue.

provide evidence that analysts are influenced more by the quality of the time-series behavior of earnings, as measured by earnings predictability and earnings persistence, than by the association between earnings and cash flow as measured by accruals quality and smoothness. This finding provides us with information on which earnings quality proxy matters most to analysts. We also find that, overall, the analysts' forecasts environment improved after the adoption of IFRS, particularly in countries with strong enforcement regimes.

Further, our results indicate that the innate component of earnings quality has a greater impact on all analysts' information environment proxies than its discretionary. This suggests that analysts give more attention and weight to the innate factors than to the discretionary factors of earnings quality. This evidence also supports the notion that a lower quality of this innate component will allow analysts to generate more private information about a firm.

It is hoped that this study will be of interest to investors, standards setters, and policymakers around the world, who would like to know the economic consequences of public accounting information and the relevance of earnings quality to financial analysts. In particular, our findings should be useful to investors who use analysts' forecasts in their decisions, as it suggests that firms with higher earnings quality are more likely to attract accurate forecasts. Our findings may also be useful to policymakers and standards setters in evaluating the costs and benefits of mandatory IFRS adoption and the importance of an effective enforcement regime in maximizing the benefits.

Future research might consider applying the same analysis to other geographical locations with different institutional structures. This would provide better global insights into the relationship between earnings quality and analysts' information environment. As noted in our discussion, the measurement of earnings quality remains vague and lacks consensus. Our findings show that earnings quality proxies are not substitutes, with little overlap between them. As an extension of our work, it would be interesting if future research could use both accounting-based earnings quality and market-based earnings quality proxies and compare their impact on analysts' information environment. Further, given that audit quality and earnings quality are related, it is recommended that future research focuses on investigating the joint effect of earnings quality and audit quality on analysts' information environment after controlling for other explanatory variables.

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Table 1: Variables definition

Variable	Definition
Panel A: Analysts' information environment proxies	
Analysts following	Total number of financial analysts following a firm in year *t*.
Lagged Analysts following	Total number of financial analysts following a firm in year *t*-1.
LnFollowing	Natural logarithm of total number of financial analysts following a firm in year *t*.
Dispersion	Analysts' forecasts dispersion of a firm in year *t*, measured as the standard deviation of financial analysts' forecasts in the fiscal year *t*, deflated by stock price multiplied by 100.
Lagged Dispersion	Analysts' forecasts dispersion of a firm in year *t*-1, measured as the standard deviation of financial analysts' forecasts in the fiscal year *t*-1, deflated by stock price in year *t*-1 multiplied by 100.
Accuracy	Analysts' forecasts accuracy of a firm in year *t*, measured as the negative of the absolute value of the financial analysts' forecast error, deflated by stock price of a firm in year *t*.
Lagged Accuracy	Analysts' forecasts accuracy of a firm in year *t*-1, measured as the negative of the absolute value of the financial analysts' forecast error, deflated by stock price of a firm in year *t*-1.
Panel B: Earnings quality proxies	
EQ Proxy	Earnings quality proxy, which is estimated based on one of the following measures: *Accruals Quality, Persistence, Predictability and Smoothness*.
Accruals quality	Accruals quality of a firm in year *t*, measured on the basis of the Dechow and Dichev's (2002) approach as used by McNichols (2002) and Francis et al. (2005) (see Equation 1).
Persistence	Earnings persistence of a firm in year *t*, measured on the basis of the slope coefficient from a regression of current earnings on previous earnings (see equation 2).
Predictability	Earnings predictability of a firm in year *t*, measured on the basis of square root of estimated error variance from regressing current earnings on previous earnings (see Equation 3).
Smoothness	Earnings smoothness of a firm in year *t*, measured as the ratio of the standard deviation of earnings of a firm, to its standard deviation of cash flow operations, both deflated by beginning total assets (see Equation 4).
InnateEQ	Innate component of earnings quality proxy.
DiscEQ	Discretionary component of earnings quality proxy.
Panel C: Other variables	
AccEnforcement	Quality of the accounting enforcement regime: a dummy variable equal to 1 if the country has a strong enforcement regime and 0 otherwise.
Assets	Average of total assets of a firm in years *t* and *t*-1.
Audit quality	Dummy variable equal to 1 if a firm is audited by a Big Four auditor and 0 otherwise.
CFO	Operating cash flow of a firm in year *t*.
Crisis	Financial crisis: Dummy variable equal to 1 if the year is 2008 or 2009 and 0 otherwise.
Earn	Net income before extraordinary items of a firm in year *t*.
Growth	The natural logarithm of 1 plus the percentage change in the book value of equity for the previous five years.

IFRS	Dummy variable equal to 1 if the firm adopts IFRS in year *t* and 0 otherwise.
LegalTradition	Dummy variable equal to 1 if a firm is listed in a common-law country and 0 if a firm is listed in a code-law country.
$NegEarn$	Number of years that a firm achieved net loss out of ten years.
$OperCycle$	Natural logarithm of the operating cycle of a firm in year *t*.
PPE	Gross Property, Plant, and Equipment of a firm in year *t*.
ROE	Returns on equity of a firm in year *t*.
Size	The natural logarithm of total assets in year *t*.
Std CFO	Standard deviation of operating cash flow of a firm calculated over rolling ten-year windows.
Std ROE	Standard deviation of returns on equity of a firm calculated over rolling ten-year windows.
Std Sales	Standard deviation of net revenue of a firm calculated over rolling ten-year windows.
SURP	Earnings surprise, calculated as the absolute value of the difference between the earnings per share for years *t* and *t*-1 deflated by stock price at the beginning of year *t*.
TCA	Total current accruals of a firm in year *t*.
ΔCA	Change in current assets of a firm between years *t*-1 and *t*.
$\Delta Cash$	Change in cash of a firm between years *t*-1 and *t*.
$\Delta CDEBT$	Change in debt in current liabilities of a firm between years *t*-1 and *t*.
$\Delta Sales$	Change in revenues of a firm between years *t*-1 and *t*.

Table 2: Descriptive Statistics

Panel A: Number of firms per country

Country	Total observations		*AccEnforcement*	*LegalTradition*
Austria	625	2%	0	0
Belgium	913	2%	0	0
Denmark	1,152	3%	0	0
Finland	1,281	3%	1	0
France	5,677	15%	0	0
Germany	3,787	10%	1	0
Greece	1,077	3%	0	0
Ireland	607	2%	1	1
Italy	1,939	5%	0	0
Netherlands	1,213	3%	1	0
Norway	1,187	3%	1	0
Portugal	465	1%	0	0
Spain	2,172	6%	0	0
Sweden	636	2%	1	0
United Kingdom	13,960	38%	1	1
Total	**36,691**	**100%**		

Panel B: Descriptive statistics of earnings quality, analysts' information environment, and firm characteristics, 2000–2015

	Mean	25%	Median	75%
Accruals quality	0.087	0.035	0.060	0.105
Persistence	0.378	0.047	0.357	0.678
Predictability	0.735	0.030	0.074	0.188
Smoothness	1.233	0.708	0.943	1.450
Analysts following	7	2	4	10
Dispersion	0.82	0.14	0.36	0.78
Accuracy	-0.10	-0.09	-0.03	-0.01
Size	12.24	10.76	12.14	13.72
Assets (£mils)	2,686.69	47.24	187.39	904.11
Sales (£mils)	2,158.9	36.93	180.14	875.72
SURP	0.215	0.014	0.042	0.140
Std ROE	0.916	0.069	0.147	0.450
Audit quality	0.699	0	1	1

Notes: The sample size ranges between 19,671 and 36,691 firm-year observations over the period 2000-2015 (14 industries). Table 1 provides definitions of all variables.

Table 3. Correlation between analysts' information environment proxies, earnings quality proxies, and control variables

	Analysts following	*Dispersion*	*Accuracy*	*Accruals quality*	*Persistence*	*Predictability*	*Smoothness*	*Size*	*Growth*	*Std ROE*	*SURP*
Analysts following											
Dispersion	-0.137										
	0.0000										
Accuracy	0.137	-0.5270									
	0.0000	*0.0000*									
Accruals quality	0.170	-0.1245	-0.1125								
	0.0000	*0.0000*	*0.0000*								
Persistence	0.083	-0.058	0.0098	0.0445							
	0.0000	*0.0000*	*0.0021*	*0.0000*							
Predictability	0.583	-0.0219	0.0166	0.0870	0. 1155						
	0.0000	*0.0000*	*0.0075*	*0.0000*	*0.0000*						
Smoothness	0.030	-0.1310	0.2664	0.0989	0.1645	0.1425					
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*					
Size	0.7392	-0.0945	0.1447	0.3614	0.1094	0.5412	0.1392				
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*				
Growth	0.0012	-0.1212	0.1721	-0.0540	0.1412	0.0598	0.1197	0.0883			
	0.8512	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*			
Std ROE	-0.0822	0.0935	-0.1557	-0.2414	-0.0552	-0.0221	-0.2063	-0.2408	-0.0113		
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0416*		
SURP	-0.1191	0.4524	-0.6940	-0.1331	-0.0795	0.0117	-0.2888	-0.1618	-0.1831	0.1898	
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0267*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	
Audit quality	0.2625	-0.0665	0.0799	-0.1472	0.0694	0.1797	0.0617	0.4314	0.0231	-0.1141	-0.1024
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*

Notes: Pearson correlations are reported. The p-value is reported in italics below each correlation. Table 1 provides definitions of all variables.

Table 4. Pooled regressions of analysts following on each earnings quality proxy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Analysts following		*Analysts following*		*Analysts following*		*Analysts following*	
	EQ Proxy =		*EQ Proxy =*		*EQ Proxy =*		*EQ Proxy =*	
	Accruals quality		*Persistence*		*Predictability*		*Smoothness*	
Lagged Analysts following	0.83***	0.83***	0.83***	0.83***	0.83***	0.83***	0.83***	0.83***
	(220.2)	*(219.9)*	*(219.2)*	*(219.3)*	*(220.6)*	*(219.5)*	*(220.5)*	*(220.2)*
Size	0.57***	0.57***	0.56***	0.56***	0.62***	0.62***	0.56***	0.56***
	(36.3)	*(36.3)*	*(36.4)*	*(36.4)*	*(31.5)*	*(31.7)*	*(36.3)*	*(36.3)*
Std ROE	0.017*	0.017*	0.024**	0.023**	0.030***	0.029***	0.019*	0.018*
	(1.73)	*(1.68)*	*(2.35)*	*(2.30)*	*(2.95)*	*(2.87)*	*(1.86)*	*(1.79)*
Growth	0.18***	0.18***	0.17***	0.17***	0.16***	0.16***	0.19***	0.19***
	(9.25)	*(9.07)*	*(8.53)*	*(8.46)*	*(7.57)*	*(7.44)*	*(9.68)*	*(9.60)*
Crisis	0.15	0.15	0.14	0.14	0.17*	0.17*	0.14	0.14
	(1.57)	*(1.57)*	*(1.52)*	*(1.54)*	*(1.81)*	*(1.81)*	*(1.52)*	*(1.55)*
Audit quality	-0.022	-0.017	-0.032	-0.028	0.0065	0.0078	-0.025	-0.021
	(-0.46)	*(-0.35)*	*(-0.64)*	*(-0.57)*	*(0.13)*	*(0.16)*	*(-0.50)*	*(-0.43)*
IFRS	1.72***	1.44***	1.69***	1.66***	1.69***	0.65***	1.73***	1.96***
	(13.8)	*(8.35)*	*(13.6)*	*(9.61)*	*(13.6)*	*(3.20)*	*(13.8)*	*(11.7)*
AccEnforcement	0.43***	0.59***	0.46***	0.44***	0.45***	0.75***	0.42***	0.26**
	(9.88)	*(5.52)*	*(10.4)*	*(4.11)*	*(10.3)*	*(5.43)*	*(9.53)*	*(2.49)*
EQ Proxy	0.054***	0.049***	0.039***	0.033**	0.063***	0.15***	0.0094	0.0089
	(3.67)	*(3.30)*	*(5.70)*	*(2.29)*	*(5.05)*	*(8.34)*	*(1.37)*	*(0.63)*
IFRS**AccEnforcement*		1.67**		1.16**		2.55***		0.85
		(2.27)		*(2.08)*		*(3.47)*		*(1.19)*
*AccEnforcement*EQ Proxy*		0.052		0.0025		-0.15		0.029
		(0.48)		*(0.027)*		*(-1.50)*		*(0.26)*
*IFRS*EQ Proxy*		0.043**		0.046*		0.14***		0.043**
		(2.16)		*(1.84)*		*(6.45)*		*(2.24)*
IFRS**AccEnforcement * EQ Proxy*		0.035**		0.0034**		0.10***		0.011*
		(2.01)		*(1.98)*		*(5.61)*		*(1.69)*
Constant	-8.17***	-8.04***	-8.40***	-8.37***	-8.55***	-7.95***	-8.15***	-8.26***
	(-38.7)	*(-35.5)*	*(-39.2)*	*(-36.8)*	*(-38.4)*	*(-32.8)*	*(-38.3)*	*(-36.7)*
N	22,353	22,353	22,353	22,353	22,353	22,353	22,353	22,353
adj. R^2	0.873	0.873	0.873	0.873	0.873	0.874	0.873	0.873
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; t-statistics in parentheses and italics. The sample consists of 23,353 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables. The odd number columns represent the model without the interaction terms, and the even number columns represent the model with the interaction terms.

Table 5. Pooled regressions of analysts' forecasts dispersion on each earnings quality proxy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dispersion EQ Proxy = Accruals quality		*Dispersion EQ Proxy = Persistence*		*Dispersion EQ Proxy = Predictability*		*Dispersion EQ Proxy = Smoothness*	
Lagged Dispersion	0.31***	0.31***	0.31***	0.31***	0.30***	0.30***	0.31***	0.31***
	(40.8)	*(40.8)*	*(41.5)*	*(41.5)*	*(39.9)*	*(39.8)*	*(41.3)*	*(41.2)*
LnFollowing	-0.29***	-0.30***	-0.27***	-0.27***	-0.30***	-0.30***	-0.27***	-0.28***
	(-8.91)	*(-8.92)*	*(-8.17)*	*(-8.17)*	*(-8.99)*	*(-9.09)*	*(-8.26)*	*(-8.44)*
Size	0.039**	0.040**	0.013	0.013	-0.100***	-0.098***	0.012	0.014
	(2.47)	*(2.50)*	*(0.81)*	*(0.81)*	*(-5.30)*	*(-5.22)*	*(0.74)*	*(0.87)*
Std ROE	0.018*	0.018*	0.024**	0.025**	0.012	0.012	0.020**	0.020**
	(1.81)	*(1.81)*	*(2.49)*	*(2.50)*	*(1.22)*	*(1.22)*	*(2.06)*	*(2.04)*
SURP	2.84***	2.84***	2.85***	2.85***	2.73***	2.74***	2.82***	2.82***
	(50.6)	*(50.6)*	*(50.6)*	*(50.6)*	*(47.9)*	*(48.0)*	*(49.4)*	*(49.5)*
Crisis	0.84***	0.84***	0.83***	0.83***	0.82***	0.82***	0.83***	0.83***
	(9.28)	*(9.24)*	*(9.15)*	*(9.15)*	*(9.00)*	*(9.04)*	*(9.15)*	*(9.16)*
Audit quality	-0.18***	-0.17***	-0.18***	-0.18***	-0.24***	-0.24***	-0.19***	-0.19***
	(-3.27)	*(-3.21)*	*(-3.36)*	*(-3.36)*	*(-4.40)*	*(-4.44)*	*(-3.44)*	*(-3.44)*
IFRS	0.41***	0.40**	0.40***	0.47***	0.38***	-0.094	0.42***	0.80***
	(3.65)	*(2.48)*	*(3.51)*	*(2.90)*	*(3.34)*	*(-0.45)*	*(3.70)*	*(5.17)*
AccEnforcement	-0.18***	-0.012	-0.19***	-0.22**	-0.22***	0.15	-0.21***	-0.49***
	(-4.26)	*(-0.12)*	*(-4.37)*	*(-2.07)*	*(-5.10)*	*(0.91)*	*(-4.84)*	*(-4.87)*
EQ Proxy	-0.060***	-0.047***	-0.0013	-0.0084	-0.13***	-0.11***	-0.025*	-0.0033
	(-8.44)	*(-3.33)*	*(-0.20)*	*(-0.61)*	*(-10.7)*	*(-6.11)*	*(-1.92)*	*(-0.25)*
IFRS AccEnforcement*		-0.48		-0.76		-0.90		-1.99***
		(-0.72)		*(-1.45)*		*(-1.26)*		*(-3.14)*
*AccEnforcement *EQ Proxy*		-0.074		-0.10		-0.10		-0.26***
		(-0.76)		*(-1.22)*		*(-1.09)*		*(-2.62)*
*IFRS*EQ Proxy*		-0.0029		-0.011		-0.061***		-0.064***
		(-0.15)		*(-0.59)*		*(-2.67)*		*(-3.54)*
IFRS AccEnforcement *EQ proxy*		-0.045***		-0.019*		-0.028*		-0.025*
		(-2.59)		*(-1.74)*		*(-1.85)*		*(-1.71)*
Constant	1.62***	1.54***	1.58***	1.54***	2.23***	2.38***	1.74***	1.57***
	(7.77)	*(6.92)*	*(7.42)*	*(6.81)*	*(10.3)*	*(9.99)*	*(8.19)*	*(6.98)*
N	17,686	17,686	17,686	17,686	17,686	17,686	17,686	17,686
adj. R^2	0.338	0.338	0.335	0.335	0.340	0.340	0.334	0.337
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; t-statistics in parentheses and italics. The sample consists of 17,686 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables. The odd number columns represent the model without the interaction terms, and the even number columns represent the model with the interaction terms.

Table 6. Pooled regressions of analysts' forecasts accuracy on each earnings quality proxy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Accuracy EQ Proxy = Accruals quality		*Accuracy EQ Proxy = Persistence*		*Accuracy EQ Proxy = Predictability*		*Accuracy EQ Proxy = Smoothness*	
Lagged Accuracy	0.017**	0.017**	0.013*	0.013*	0.033***	0.033***	0.027***	0.027***
	(2.55)	*(2.56)*	*(1.88)*	*(1.90)*	*(4.90)*	*(4.96)*	*(4.00)*	*(4.02)*
LnFollowing	0.023***	0.023***	0.024***	0.024***	0.025***	0.026***	0.023***	0.024***
	(12.9)	*(12.9)*	*(13.5)*	*(13.6)*	*(14.3)*	*(14.5)*	*(13.2)*	*(13.3)*
Size	-0.0042***	-0.0042***	-0.0038***	-0.0038***	0.0091***	0.0091***	-0.0036***	-0.0036***
	(-4.07)	*(-4.07)*	*(-3.78)*	*(-3.79)*	*(7.55)*	*(7.51)*	*(-3.57)*	*(-3.59)*
Std ROE	-0.0047***	-0.0048***	-0.0051***	-0.0050***	-0.0035***	-0.0035***	-0.0038***	-0.0038***
	(-7.59)	*(-7.59)*	*(-8.16)*	*(-8.10)*	*(-5.63)*	*(-5.61)*	*(-6.16)*	*(-6.15)*
SURP	-0.43***	-0.43***	-0.44***	-0.44***	-0.42***	-0.42***	-0.43***	-0.43***
	(-117.4)	*(-117.3)*	*(-118.0)*	*(-118.0)*	*(-113.8)*	*(-113.8)*	*(-115.3)*	*(-115.3)*
Crisis	-0.063***	-0.063***	-0.063***	-0.063***	-0.061***	-0.061***	-0.063***	-0.063***
	(-10.6)	*(-10.6)*	*(-10.4)*	*(-10.4)*	*(-10.3)*	*(-10.3)*	*(-10.6)*	*(-10.6)*
Audit quality	0.00054	0.00050	0.0012	0.0011	0.0080**	0.0082**	0.0022	0.0023
	(0.17)	*(0.15)*	*(0.37)*	*(0.33)*	*(2.47)*	*(2.53)*	*(0.69)*	*(0.70)*
IFRS	0.00020	0.0056	0.0027	-0.0061	0.0015	0.026**	-0.0058	-0.013
	(0.026)	*(0.53)*	*(0.35)*	*(-0.56)*	*(0.19)*	*(2.09)*	*(-0.76)*	*(-1.23)*
AccEnforcement	-0.0047	-0.0089	-0.0075***	-0.015**	-0.0016	-0.011	0.0013	0.0073
	(-1.64)	*(-1.28)*	*(-2.62)*	*(-2.22)*	*(-0.56)*	*(-1.22)*	*(0.46)*	*(1.09)*
EQ Proxy	0.0019***	0.0022**	0.0039***	0.0059***	0.014***	0.012***	0.0070***	0.0066***
	(4.03)	*(2.39)*	*(9.03)*	*(6.44)*	*(18.0)*	*(10.9)*	*(15.7)*	*(7.44)*
IFRS AccEnforcement*		-0.021		-0.086**		-0.031		-0.042
		(-0.47)		*(-2.41)*		*(-0.65)*		*(-0.94)*
*AccEnforcement*EQ Proxy*		-0.0035		-0.017***		-0.0052		-0.0044
		(-0.52)		*(-2.87)*		*(-0.81)*		*(-0.64)*
*IFRS*EQ Proxy*		0.0093		-0.0015		0.0035**		-0.0011
		(0.74)		*(-1.22)*		*(2.51)*		*(-0.94)*
*IFRS*AccEnforcement *EQ Proxy*		0.0038**		0.0029***		0.0022*		0.0011*
		(3.16)		*(2.66)*		*(1.84)*		*(1.69)*
Constant	-0.059***	-0.061***	-0.034**	-0.022	-0.14***	-0.15***	-0.096***	-0.093***
	(-4.38)	*(-4.25)*	*(-2.48)*	*(-1.54)*	*(-9.63)*	*(-9.73)*	*(-7.02)*	*(-6.47)*
N	22,431	22,431	22,431	22,431	22,431	22,431	22,431	22,431
adj. R^2	0.515	0.515	0.516	0.516	0.521	0.521	0.520	0.520
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; *t*-statistics in parentheses and italics. The sample consists of 22,431 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables. The odd number columns represent the model without the interaction terms, and the even number columns represent the model with the interaction terms.

Table 7. Pooled regressions of analysts following on both innate and discretionary components of each earnings quality proxy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Analysts following EQ Proxy = Accruals quality		*Analysts following EQ Proxy = Persistence*		*Analysts following EQ Proxy = Predictability*		*Analysts following EQ Proxy = Smoothness*	
Lagged Analysts following	0.82***	0.82***	0.82***	0.82***	0.81***	0.81***	0.82***	0.82***
	(203.2)	*(202.3)*	*(201.8)*	*(201.1)*	*(195.4)*	*(193.0)*	*(202.2)*	*(201.4)*
Size	0.57***	0.57***	0.58***	0.58***	0.71***	0.73***	0.56***	0.57***
	(29.2)	*(29.2)*	*(30.4)*	*(30.5)*	*(24.5)*	*(25.1)*	*(32.2)*	*(32.3)*
Std ROE	0.0083	0.0099	0.014	0.015	0.011	0.011	0.015	0.015
	(0.65)	*(0.78)*	*(1.10)*	*(1.21)*	*(0.90)*	*(0.84)*	*(1.19)*	*(1.15)*
Growth	0.21***	0.20***	0.19***	0.19***	0.23***	0.22***	0.20***	0.20***
	(9.25)	*(8.93)*	*(8.32)*	*(7.99)*	*(9.85)*	*(9.65)*	*(8.72)*	*(8.57)*
Crisis	0.15	0.15	0.15	0.15	0.21**	0.22**	0.14	0.15
	(1.45)	*(1.43)*	*(1.43)*	*(1.44)*	*(2.07)*	*(2.12)*	*(1.40)*	*(1.41)*
Audit quality	-0.016	-0.019	-0.019	-0.023	0.048	0.038	-0.015	-0.0066
	(-0.29)	*(-0.34)*	*(-0.36)*	*(-0.42)*	*(0.88)*	*(0.70)*	*(-0.27)*	*(-0.12)*
IFRS	1.69***	1.98***	1.66***	1.10***	1.64***	0.013	1.67***	1.77***
	(12.6)	*(9.04)*	*(12.5)*	*(4.83)*	*(12.3)*	*(0.040)*	*(12.5)*	*(8.04)*
AccEnforcement	0.46***	0.45***	0.49***	0.52***	0.43***	1.01***	0.44***	0.26
	(9.70)	*(2.98)*	*(10.2)*	*(3.19)*	*(9.13)*	*(4.43)*	*(9.20)*	*(1.59)*
InnateEQ	0.032***	0.055***	0.058***	0.047***	0.100***	0.16***	0.038***	0.020*
	(4.10)	*(3.09)*	*(2.73)*	*(2.67)*	*(9.54)*	*(5.35)*	*(4.47)*	*(1.82)*
DiscEQ	0.0062	0.021	0.036***	0.039***	0.028**	0.061***	-0.025***	-0.0032
	(0.56)	*(1.31)*	*(5.02)*	*(2.61)*	*(1.98)*	*(2.88)*	*(-3.23)*	*(-0.21)*
IFRS AccEnforcement*		-0.67		-1.61		-0.97		-0.96
		(-0.70)		*(-1.43)*		*(-0.56)*		*(-0.91)*
AccEnforcement InnateEQ*		-0.11		0.063		-0.00043		0.084
		(0.91)		*(0.50)*		*(0.0027)*		*(0.75)*
IFRS InnateEQ*		0.082***		0.089***		0.18***		0.023
		(3.60)		*(4.10)*		*(6.32)*		*(1.08)*
*IFRS*AccEnforcemen* InnateEQ*		0.086***		0.085***		0.14***		0.074**
		(4.39)		*(4.40)*		*(5.67)*		*(2.35)*
AccEnforcement DiscEQ*		-0.018		-0.0092		-0.17		-0.13
		(-0.13)		*(-0.093)*		*(-1.07)*		*(-1.03)*
IFRS DiscEQ*		0.0063		-0.0086		0.084***		-0.050**
		(0.29)		*(-0.44)*		*(3.14)*		*(-2.37)*
IFRS AccEnforcement* DiscEQ*		0.019		0.00090		0.023		-0.012
		(0.98)		*(0.051)*		*(0.97)*		*(-0.64)*
Constant	-8.61***	-8.79***	-8.84***	-8.43***	-10.5***	-9.67***	-8.38***	-8.40***
	(-28.6)	*(-27.5)*	*(-36.1)*	*(-31.4)*	*(-36.1)*	*(-28.3)*	*(-34.7)*	*(-31.8)*
N	19,777	19,777	19,777	19,777	19,777	19,777	19,777	19,777
adj. R^2	0.872	0.872	0.872	0.872	0.873	0.873	0.872	0.872
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; *t*-statistics in parentheses and italics. The sample consists of 19,777 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables. The odd number columns represent the model without the interaction terms, and the even number columns represent the model with the interaction terms.

Table 8. Pooled regressions of analysts' forecasts dispersion on both innate and discretionary components of each earnings quality proxy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	EQ Proxy = Accruals quality		*EQ Proxy = Persistence*		*EQ Proxy = Predictability*		*EQ Proxy = Smoothness*	
	Dispersion		*Dispersion*		*Dispersion*		*Dispersion*	
Lagged Dispersion	0.30***	0.30***	0.30***	0.29***	0.30***	0.30***	0.28***	0.28***
	(38.0)	*(38.0)*	*(36.7)*	*(36.6)*	*(37.4)*	*(37.3)*	*(35.1)*	*(34.9)*
LnFollowing	-0.29***	-0.28***	-0.24***	-0.23***	-0.27***	-0.28***	-0.21***	-0.21***
	(-8.68)	*(-8.40)*	*(-7.09)*	*(-6.94)*	*(-8.14)*	*(-8.20)*	*(-6.25)*	*(-6.33)*
Size	0.17***	0.17***	0.17***	0.16***	-0.32***	-0.32***	0.11***	0.11***
	(9.36)	*(9.31)*	*(9.37)*	*(9.22)*	*(-11.7)*	*(-11.7)*	*(6.48)*	*(6.56)*
Std ROE	0.0022	0.00070	-0.0034	-0.0048	-0.0013	-0.0014	0.0058	0.0047
	(0.20)	*(0.064)*	*(-0.31)*	*(-0.43)*	*(-0.12)*	*(-0.13)*	*(0.53)*	*(0.43)*
SURP	2.71***	2.71***	2.73***	2.74***	2.70***	2.69***	2.71***	2.71***
	(46.8)	*(46.9)*	*(47.3)*	*(47.3)*	*(46.1)*	*(46.0)*	*(46.4)*	*(46.5)*
Crisis	0.95***	0.94***	0.91***	0.91***	0.73***	0.73***	0.90***	0.90***
	(10.2)	*(10.2)*	*(9.86)*	*(9.84)*	*(7.83)*	*(7.84)*	*(9.77)*	*(9.79)*
Audit quality	-0.19***	-0.18***	-0.24***	-0.24***	-0.25***	-0.26***	-0.23***	-0.23***
	(-3.40)	*(-3.31)*	*(-4.40)*	*(-4.45)*	*(-4.56)*	*(-4.65)*	*(-4.19)*	*(-4.20)*
IFRS	0.38***	0.14	0.42***	0.82***	0.40***	0.16	0.41***	1.03***
	(3.40)	*(0.71)*	*(3.72)*	*(3.94)*	*(3.52)*	*(0.58)*	*(3.69)*	*(5.32)*
AccEnforcement	-0.20***	-0.29**	-0.25***	-0.58***	-0.23***	0.17	-0.18***	-0.70***
	(-4.78)	*(-2.10)*	*(-5.95)*	*(-3.77)*	*(-5.45)*	*(0.88)*	*(-4.18)*	*(-4.75)*
InnateEQ	-0.17***	-0.12***	-0.18***	-0.15***	-0.32***	-0.31***	-0.16***	-0.14***
	(-16.5)	*(-7.32)*	*(-17.7)*	*(-8.87)*	*(-15.3)*	*(-11.2)*	*(-20.5)*	*(-9.64)*
DiscEQ	0.022***	0.018	0.029***	0.022*	0.031***	0.054***	0.064***	0.080***
	(3.05)	*(1.24)*	*(4.62)*	*(1.67)*	*(3.63)*	*(3.16)*	*(9.01)*	*(5.67)*
IFRS AccEnforcement*		-0.11		2.54**		-0.15		-2.59***
		(-0.14)		*(2.47)*		*(-0.11)*		*(-3.05)*
AccEnforcement InnateEQ*		-0.045		-0.16		-0.048		-0.036
		(-0.45)		*(-1.38)*		*(-0.37)*		*(-0.38)*
IFRS InnateEQ*		-0.057***		-0.020		-0.00074		-0.010
		(-3.10)		*(-1.09)*		*(-0.033)*		*(-0.60)*
*IFRS*AccEnforcement* InnateEQ*		-0.084***		-0.062***		-0.043*		-0.053***
		(-3.95)		*(-3.03)*		*(-1.67)*		*(-2.79)*
AccEnforcement DiscEQ*		0.12		-0.17**		-0.076		-0.32***
		(1.01)		*(-2.11)*		*(-0.58)*		*(-2.92)*
IFRS DiscEQ*		-0.013		0.0090		-0.017		-0.048**
		(-0.67)		*(0.53)*		*(-0.80)*		*(-2.55)*
*IFRS*AccEnforcement* DiscEQ*		0.015		0.010		-0.037*		-0.0042
		(0.88)		*(0.66)*		*(-1.88)*		*(-0.24)*
Constant	-1.37***	-1.15***	0.54**	0.42*	3.89***	3.85***	0.95***	0.74***
	(-5.15)	*(-4.07)*	*(2.46)*	*(1.71)*	*(14.9)*	*(12.8)*	*(4.39)*	*(3.07)*
N	15,875	15,875	15,875	15,875	15,875	15,875	15,875	15,875
adj. R^2	0.351	0.352	0.353	0.354	0.351	0.351	0.360	0.360
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; *t*-statistics in parentheses and italics. The sample consists of 15,875 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables. The odd number columns represent the model without the interaction terms, and the even number columns represent the model with the interaction terms.

Table 9. Pooled regressions of analysts' forecasts accuracy on both innate and discretionary components of each earnings quality proxy (decile rank)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Accuracy		*Accuracy*		*Accuracy*		*Accuracy*	
	EQ Proxy = Accruals quality		*EQ Proxy = Persistence*		*EQ Proxy = Predictability*		*EQ Proxy = Smoothness*	
Lagged Accuracy	-0.042***	-0.042***	-0.045***	-0.046***	-0.048***	-0.049***	-0.056***	-0.057***
	(-5.84)	*(-5.84)*	*(-6.28)*	*(-6.37)*	*(-6.67)*	*(-6.75)*	*(-7.81)*	*(-7.88)*
LnFollowing	0.023***	0.023***	0.022***	0.022***	0.023***	0.024***	0.021***	0.021***
	(12.3)	*(12.3)*	*(11.9)*	*(12.1)*	*(12.7)*	*(12.9)*	*(11.1)*	*(11.3)*
Size	-0.014***	-0.014***	-0.015***	-0.015***	0.022***	0.022***	-0.0084***	-0.0085***
	(-11.5)	*(-11.5)*	*(-12.8)*	*(-13.0)*	*(12.2)*	*(12.1)*	*(-7.86)*	*(-7.96)*
Std ROE	-0.0036***	-0.0036***	-0.0031***	-0.0031***	-0.0028***	-0.0027***	-0.0028***	-0.0029***
	(-4.89)	*(-4.92)*	*(-4.20)*	*(-4.28)*	*(-3.78)*	*(-3.72)*	*(-3.92)*	*(-3.95)*
SURP	-0.44***	-0.44***	-0.44***	-0.44***	-0.43***	-0.43***	-0.43***	-0.43***
	(-110.5)	*(-110.5)*	*(-111.7)*	*(-111.7)*	*(-109.8)*	*(-109.7)*	*(-109.0)*	*(-109.0)*
Crisis	-0.060***	-0.060***	-0.059***	-0.058***	-0.046***	-0.046***	-0.058***	-0.058***
	(-9.55)	*(-9.52)*	*(-9.38)*	*(-9.36)*	*(-7.34)*	*(-7.35)*	*(-9.32)*	*(-9.33)*
Audit quality	0.0021	0.0022	0.0062*	0.0061*	0.0066*	0.0068**	0.0054	0.0051
	(0.62)	*(0.66)*	*(1.84)*	*(1.80)*	*(1.94)*	*(2.00)*	*(1.59)*	*(1.51)*
IFRS	-0.0012	-0.016	-0.0024	0.015	-0.0015	0.031*	-0.0047	-0.021
	(-0.16)	*(-1.19)*	*(-0.31)*	*(1.11)*	*(-0.19)*	*(1.65)*	*(-0.60)*	*(-1.61)*
AccEnforcement	-0.0031	0.0052	-0.0029	-0.022**	-0.00056	-0.028**	-0.00025	0.0097
	(-1.08)	*(0.55)*	*(-0.99)*	*(-2.18)*	*(-0.19)*	*(-2.03)*	*(-0.087)*	*(0.97)*
InnateEQ	0.011***	0.011***	0.012***	0.014***	0.024***	0.022***	0.012***	0.012***
	(16.0)	*(10.7)*	*(18.4)*	*(13.2)*	*(17.5)*	*(12.4)*	*(22.1)*	*(12.4)*
DiscEQ	0.00036	0.00049	0.0055***	0.0071***	0.0044***	0.0041***	0.0030***	0.0012
	(0.77)	*(0.52)*	*(13.0)*	*(8.06)*	*(7.20)*	*(3.26)*	*(6.24)*	*(1.32)*
IFRS AccEnforcement*		0.049		0.19***		0.030		0.080
		(0.82)		*(2.67)*		*(0.29)*		*(1.26)*
*AccEnforcement *InnateEQ*		0.0050		0.014*		0.0074		0.0049
		(0.67)		*(1.76)*		*(0.75)*		*(0.71)*
*IFRS*InnateEQ*		0.00050		0.0016		0.0011		0.00037
		(0.36)		*(1.43)*		*(0.71)*		*(0.29)*
*IFRS*AccEnforcement*InnateEQ*		0.0013*		0.0037***		0.0037**		0.00070*
		(1.87)		*(2.82)*		*(2.14)*		*(1.67)*
AccEnforcement DiscEQ*		0.0080		0.021***		0.00083		0.0050
		(0.95)		*(3.52)*		*(0.083)*		*(0.63)*
*IFRS*DiscEQ*		0.0020		0.0013		0.0017		0.0016
		(1.58)		*(1.12)*		*(1.05)*		*(1.37)*
IFRS AccEnforcement *DiscEQ*		0.00060		0.0021**		0.00043		0.0035***
		(0.52)		*(1.99)*		*(0.30)*		*(2.75)*
Constant	0.13***	0.13***	0.041***	0.040**	-0.22***	-0.23***	-0.078***	-0.070***
	(6.98)	*(6.91)*	*(2.82)*	*(2.48)*	*(-12.9)*	*(-11.4)*	*(-5.38)*	*(-4.39)*
N	19,827	19,827	19,827	19,827	19,827	19,827	19,827	19,827
adj. R^2	0.524	0.524	0.529	0.529	0.525	0.525	0.530	0.530
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; t-statistics in parentheses and italics. The sample consists of 19,827 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables. The odd number columns represent the model without the interaction terms, and the even number columns represent the model with the interaction terms.

Table 10. Fixed and random panel regressions of analysts' information environment on each earnings quality proxy from 2000 to 2015

Panel A: By analysts following on each earnings quality proxy (decile rank)

	(1) *EQ Proxy = Accruals quality Analysts following*		(2) *EQ Proxy= Persistence Analysts following*		(3) *EQ Proxy = Predictability Analysts following*		(4) *EQ Proxy= Smoothness Analysts following*	
	Fixed	*Random*	*Fixed*	*Random*	*Fixed*	*Random*	*Fixed*	*Random*
Size	1.94***	2.32***	1.89***	2.29***	2.10***	2.32***	1.93***	2.31***
	(33.9)	*(75.0)*	*(32.9)*	*(74.9)*	*(36.4)*	*(64.0)*	*(33.5)*	*(75.0)*
Std ROE	0.025	0.060***	0.022	0.063***	0.024	0.059***	0.041**	0.070***
	(1.20)	*(3.46)*	*(1.07)*	*(3.66)*	*(1.20)*	*(3.42)*	*(2.01)*	*(4.00)*
Growth	0.20***	0.11***	0.21***	0.11***	0.16***	0.11***	0.19***	0.12***
	(7.08)	*(4.17)*	*(7.19)*	*(4.04)*	*(5.56)*	*(4.06)*	*(6.60)*	*(4.35)*
Crisis	0.45***	0.48***	0.43***	0.47***	0.48***	0.49***	0.46***	0.49***
	(7.42)	*(8.12)*	*(7.24)*	*(7.98)*	*(8.12)*	*(8.36)*	*(7.73)*	*(8.21)*
Audit quality		0.10		0.099		-0.0037		0.11
		(0.63)		*(0.62)*		*(-0.023)*		*(0.68)*
IFRS	-0.34*	-0.69***	0.18	-0.10	-2.46***	-3.29***	1.23***	1.08***
	(-1.77)	*(-3.76)*	*(0.96)*	*(-0.58)*	*(-8.74)*	*(-13.3)*	*(6.45)*	*(5.95)*
AccEnforcement	1.39***	1.65***	0.98***	1.24***	-0.61*	0.67**	0.75***	0.87***
	(7.07)	*(9.40)*	*(5.42)*	*(7.43)*	*(-1.86)*	*(2.49)*	*(3.88)*	*(4.91)*
IFRS AccEnforcement*	0.36	0.21	-0.61	-0.78	-0.51	-1.37	-1.98**	-2.08**
	(0.41)	*(0.24)*	*(-0.92)*	*(-1.19)*	*(-0.57)*	*(-1.55)*	*(-2.28)*	*(-2.39)*
EQ Proxy	0.090***	0.12***	0.012*	0.0096	0.52***	0.47***	0.16***	0.11***
	(4.59)	*(6.19)*	*(1.67)*	*(0.52)*	*(18.1)*	*(17.7)*	*(7.84)*	*(5.88)*
*AccEnforcement*EQ Proxy*	0.19	0.19	-0.020	-0.021	-0.22*	-0.18	-0.28**	-0.29**
	(1.49)	*(1.51)*	*(-0.18)*	*(-0.19)*	*(-1.86)*	*(-1.48)*	*(-2.09)*	*(-2.18)*
IFRS EQ Proxy*	-0.15***	0.16***	0.068***	0.067***	0.44***	0.51***	0.10***	0.13***
	(-5.50)	*(6.20)*	*(2.60)*	*(2.60)*	*(12.5)*	*(16.1)*	*(3.77)*	*(4.79)*
IFRS AccEnforcement * EQ Proxy*	0.12***	0.11***	0.11***	0.084***	0.67***	0.60***	0.040*	0.059***
	(5.27)	*(4.99)*	*(4.86)*	*(3.87)*	*(25.8)*	*(24.7)*	*(1.77)*	*(2.71)*
Constant	-18.7***	-23.6***	-18.5***	-24.0***	-17.6***	-21.0***	-19.9***	-24.8***
	(-25.7)	*(-63.2)*	*(-24.9)*	*(-63.7)*	*(-24.7)*	*(-52.5)*	*(-26.8)*	*(-65.8)*
N	23,639	23,639	23,639	23,639	23,639	23,639	23,639	23,639
Hausman		*0.0000*		*0.0000*		*0.0000*		*0.0000*

Notes: *** p <0.01, ** p <0.05, * p <0.1; t-statistics in parentheses and italics. The sample consists of 23,639 firm-year observations. Table 1 provides definitions of all variables.

Panel B: By analysts' forecasts dispersion on each earnings quality proxy (decile rank)

	(1)		(2)		(3)		(4)	
	EQ Proxy = Accruals quality Dispersion		*EQ Proxy= Persistence Dispersion*		*EQ Proxy = Predictability Dispersion*		*EQ Proxy= Smoothness Dispersion*	
	Fixed	*Random*	*Fixed*	*Random*	*Fixed*	*Random*	*Fixed*	*Random*
LnFollowing	-0.30***	-0.32***	-0.32***	-0.33***	-0.28***	-0.32***	-0.29***	-0.31***
	(-6.48)	*(-7.69)*	*(-6.76)*	*(-7.75)*	*(-6.01)*	*(-7.54)*	*(-6.22)*	*(-7.40)*
Size	-0.18***	-0.057**	-0.21***	-0.075***	-0.26***	-0.25***	-0.19***	-0.073***
	(-3.83)	*(-2.17)*	*(-4.43)*	*(-2.88)*	*(-5.43)*	*(-8.22)*	*(-3.91)*	*(-2.80)*
Std *ROE*	-0.0021	0.031**	-0.0013	0.035***	-0.0069	0.021	-0.0054	0.028**
	(-0.13)	*(2.37)*	*(-0.080)*	*(2.67)*	*(-0.43)*	*(1.58)*	*(-0.33)*	*(2.13)*
SURP	2.91***	3.11***	2.91***	3.12***	2.82***	2.97***	2.88***	3.07***
	(50.4)	*(57.4)*	*(50.4)*	*(57.5)*	*(48.0)*	*(53.8)*	*(49.5)*	*(56.1)*
Crisis	0.39***	0.39***	0.38***	0.39***	0.39***	0.39***	0.38***	0.39***
	(8.10)	*(8.43)*	*(7.90)*	*(8.28)*	*(8.13)*	*(8.32)*	*(8.04)*	*(8.34)*
Audit quality		-0.32***		-0.33***		-0.44***		-0.33***
		(-2.75)		*(-2.83)*		*(-3.82)*		*(-2.88)*
IFRS	-0.36**	-0.25*	-0.75***	-0.56***	-0.52**	-0.50**	-0.38**	-0.22
	(-2.30)	*(-1.74)*	*(-5.03)*	*(-4.00)*	*(-2.07)*	*(-2.39)*	*(-2.53)*	*(-1.56)*
AccEnforcement	0.21	0.20	0.50***	0.39***	0.32	0.20	0.11	0.033
	(1.32)	*(1.44)*	*(3.37)*	*(2.99)*	*(1.06)*	*(0.86)*	*(0.70)*	*(0.24)*
IFRS* *AccEnforcement*	0.33	0.30	-0.24	-0.079	-0.73	-0.64	1.38**	1.51**
	(0.48)	*(0.45)*	*(-0.46)*	*(-0.15)*	*(-0.97)*	*(-0.89)*	*(2.08)*	*(2.33)*
EQ Proxy	-0.029*	-0.018	-0.013*	-0.011	-0.16***	-0.19***	-0.051***	-0.044***
	(-1.95)	*(-1.12)*	*(-1.86)*	*(-0.75)*	*(-6.76)*	*(-8.97)*	*(-3.17)*	*(-3.00)*
*AccEnforcement * EQ Proxy*	0.100	0.094	0.066	0.079	-0.044	-0.046	0.26***	0.28***
	(1.00)	*(0.96)*	*(0.77)*	*(0.93)*	*(-0.45)*	*(-0.49)*	*(2.58)*	*(2.78)*
IFRS* *EQ Proxy*	-0.019	-0.0090	-0.028	-0.00048	-0.023	-0.031	-0.022	-0.0036
	(-0.87)	*(-0.44)*	*(-1.57)*	*(-0.028)*	*(-0.76)*	*(-1.17)*	*(-1.01)*	*(-0.18)*
IFRS**AccEnforcement * EQ Proxy*	-0.0069**	-0.017	-0.083***	-0.057***	0.0021*	-0.0069	-0.029**	-0.00049
	(-2.37)	*(-0.98)*	*(-3.97)*	*(-2.87)*	*(-1.86)*	*(-0.32)*	*(-1.97)*	*(-0.028)*
Constant	4.41***	3.19***	4.64***	3.22***	4.28***	4.36***	4.66***	3.50***
	(7.18)	*(10.3)*	*(7.41)*	*(10.2)*	*(7.02)*	*(13.1)*	*(7.40)*	*(11.1)*
N	19,617	19,617	19,617	19,617	19,617	19,617	19,617	19,617
Hausman		*0.0000*		*0.0000*		*0.0000*		*0.0000*

Notes: *** p <0.01, ** p <0.05, * p <0.1; t-statistics in parentheses and italics. The sample consists of 19,617 firm-year observations. Table 1 provides definitions of all variables.

Panel C: By analysts' forecasts accuracy on each earnings quality proxy (decile rank)

	(1)		(2)		(3)		(4)	
	EQ Proxy = Accruals quality Accuracy		*EQ Proxy= Persistence Accuracy*		*EQ Proxy = Predictability Accuracy*		*EQ Proxy= Smoothness Accuracy*	
	Fixed	*Random*	*Fixed*	*Random*	*Fixed*	*Random*	*Fixed*	*Random*
LnFollowing	0.021***	0.022***	0.023***	0.024***	0.020***	0.024***	0.019***	0.022***
	(8.03)	*(10.2)*	*(8.81)*	*(11.1)*	*(7.47)*	*(10.8)*	*(7.32)*	*(10.1)*
Size	0.0064**	-0.0027*	0.010***	-0.0024*	0.014***	0.012***	0.0044	-0.0031**
	(2.05)	*(-1.91)*	*(3.22)*	*(-1.74)*	*(4.41)*	*(7.35)*	*(1.40)*	*(-2.21)*
Std ROE	-0.0039***	-0.0050***	-0.0037***	-0.0051***	-0.0030***	-0.0034***	-0.0026**	-0.0037***
	(-3.59)	*(-6.43)*	*(-3.39)*	*(-6.65)*	*(-2.79)*	*(-4.45)*	*(-2.35)*	*(-4.80)*
SURP	-0.37***	-0.40***	-0.38***	-0.40***	-0.36***	-0.38***	-0.37***	-0.39***
	(-109.0)	*(-126.8)*	*(-110.0)*	*(-127.9)*	*(-104.3)*	*(-119.5)*	*(-106.2)*	*(-122.8)*
Crisis	-0.031***	-0.033***	-0.030***	-0.033***	-0.031***	-0.033***	-0.030***	-0.033***
	(-9.42)	*(-10.6)*	*(-9.15)*	*(-10.4)*	*(-9.61)*	*(-10.5)*	*(-9.27)*	*(-10.6)*
Audit quality		0.0088		0.0098*		0.018***		0.010*
		(1.60)		*(1.77)*		*(3.25)*		*(1.90)*
IFRS	0.030***	0.029***	0.029***	0.020**	0.041**	0.042***	0.031***	0.024***
	(2.86)	*(3.20)*	*(2.88)*	*(2.20)*	*(2.56)*	*(3.44)*	*(2.98)*	*(2.63)*
AccEnforcement	-0.012	-0.015*	-0.036***	-0.033***	-0.027	-0.023*	-0.014	-0.0059
	(-1.08)	*(-1.82)*	*(-3.64)*	*(-4.05)*	*(-1.43)*	*(-1.83)*	*(-1.34)*	*(-0.68)*
IFRS AccEnforcement*	0.0048	0.0059	-0.039	-0.050	-0.027	-0.024	-0.0034	-0.0070
	(0.10)	*(0.13)*	*(-1.07)*	*(-1.43)*	*(-0.53)*	*(-0.50)*	*(-0.073)*	*(-0.16)*
EQ Proxy	0.0019*	0.0023**	0.0092***	0.0083***	0.018***	0.015***	0.012***	0.010***
	(1.82)	*(2.32)*	*(9.04)*	*(8.73)*	*(11.8)*	*(11.8)*	*(11.1)*	*(10.4)*
*AccEnforcement *EQ Proxy*	0.0010	0.0013	0.014**	0.015***	0.0081	0.0071	0.0025	0.0018
	(0.15)	*(0.20)*	*(2.27)*	*(2.58)*	*(1.19)*	*(1.09)*	*(0.35)*	*(0.27)*
*IFRS*EQ Proxy*	0.0033**	0.0026*	0.0033**	0.00077	0.0025	0.0032**	0.0031**	0.0021
	(2.23)	*(1.93)*	*(2.34)*	*(0.59)*	*(1.27)*	*(2.06)*	*(2.07)*	*(1.57)*
IFRS AccEnforcement * EQ Proxy*	0.0034***	0.0017	0.0026**	0.00037	0.0052**	0.0013	0.0030**	0.0022**
	(2.67)	*(1.52)*	*(2.32)*	*(0.30)*	*(2.35)*	*(1.04)*	*(2.44)*	*(1.99)*
Constant	-0.18***	-0.072***	-0.16***	-0.016	-0.14***	-0.16***	-0.21***	-0.11***
	(-4.49)	*(-4.33)*	*(-4.00)*	*(-0.97)*	*(-3.71)*	*(-9.15)*	*(-5.20)*	*(-6.82)*
N	24,213	24,213	24,213	24,213	24,213	24,213	24,213	24,213
Hausman		*0.0000*		*0.0000*		*0.0000*		*0.0000*

Notes: *** *p* <0.01, ** *p* <0.05, * *p* <0.1; *t*-statistics in parentheses and italics. The sample is 24,213 firm-year observations. Table 1 provides definitions of all variables.

Table 11. Instrumental variables (2SLS) regressions of analysts' information environment on each earnings quality proxy from 2000 to 2015

Panel A: By analysts following on each earnings quality proxy

	(1) *EQ Proxy =* *Accruals quality* *Analysts following*	(2) *EQ Proxy =* *Persistence* *Analysts following*	(3) *EQ Proxy =* *Predictability* *Analysts following*	(4) *EQ Proxy =* *Smoothness* *Analysts following*
EQ Proxy	0.18^{*}	0.50^{***}	0.61^{***}	-0.26^{***}
	(1.74)	*(4.12)*	*(7.20)*	*(-4.75)*
Size	2.96^{***}	2.90^{***}	3.54^{***}	2.94^{***}
	(96.4)	*(138.5)*	*(42.0)*	*(162.4)*
Std ROE	0.10^{***}	0.14^{***}	0.20^{***}	0.17^{***}
	(5.39)	*(7.69)*	*(9.59)*	*(8.08)*
Growth	0.029	-0.20^{***}	-0.28^{***}	-0.083^{*}
	(0.78)	*(-2.97)*	*(-5.04)*	*(-1.94)*
Crisis	1.03^{***}	0.95^{***}	1.24^{***}	1.07^{***}
	(6.39)	*(5.79)*	*(7.51)*	*(6.58)*
Audit quality	-0.32^{***}	-0.45^{***}	-0.042	-0.28^{***}
	(-3.88)	*(-4.99)*	*(-0.45)*	*(-3.31)*
IFRS	-1.79^{***}	-1.91^{***}	-1.98^{***}	-1.97^{***}
	(-9.82)	*(-10.2)*	*(-10.6)*	*(-10.4)*
AccEnforcement	2.11^{***}	2.45^{***}	2.31^{***}	2.36^{***}
	(28.4)	*(22.1)*	*(28.9)*	*(25.8)*
Constant	-31.3^{***}	-33.4^{***}	-34.8^{***}	-32.7^{***}
	(-101.2)	*(-59.1)*	*(-62.5)*	*(-81.2)*
N	23,639	23,639	23,639	23,639
adj. R^2	0.594	0.583	0.585	0.580
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; t-statistics in parentheses and italics. The sample is 23,639 firm-year observations. Table 1 provides definitions of all variables.

Panel B: By analysts' forecasts dispersion on each earnings quality proxy

	(1) *EQ Proxy = Accruals quality Dispersion*	(2) *EQ Proxy = Persistence Dispersion*	(3) *EQ Proxy= Predictability Dispersion*	(4) *EQ Proxy = Smoothness Dispersion*
EQ Proxy	-1.08***	-1.41***	-1.58***	-1.04***
	(-16.0)	*(-13.8)*	*(-22.7)*	*(-20.0)*
LnFollowing	-0.76***	0.47***	-0.67***	-0.48***
	(-14.5)	*(5.40)*	*(-14.9)*	*(-9.91)*
Size	0.50***	-0.25***	-1.37***	-0.015
	(13.1)	*(-7.18)*	*(-21.4)*	*(-0.64)*
Std ROE	-0.077***	-0.00080	-0.10***	-0.13***
	(-4.85)	*(-0.045)*	*(-7.19)*	*(-7.53)*
SURP	3.09***	2.53***	1.77***	1.84***
	(38.2)	*(20.7)*	*(17.0)*	*(16.0)*
Crisis	1.06***	1.17***	0.72***	0.87***
	(7.98)	*(6.79)*	*(5.97)*	*(6.38)*
Audit quality	-0.10	-0.0096	-0.92***	-0.35***
	(-1.37)	*(-0.098)*	*(-12.2)*	*(-4.43)*
IFRS	0.28*	0.96***	0.63***	1.09***
	(1.82)	*(4.80)*	*(4.57)*	*(6.82)*
AccEnforcement	-0.13**	-1.37***	-0.57***	-1.10***
	(-2.03)	*(-12.1)*	*(-9.85)*	*(-14.5)*
Constant	2.88***	12.1***	10.1***	8.81***
	(9.84)	*(15.3)*	*(23.6)*	*(20.2)*
N	19,617	19,617	19,617	19,617
adj. R^2				
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes

Notes: *** p-value <0.01, ** p-value <0.05, * p-value <0.1. *t* statistics in parentheses and italics. The sample is 19,617 firm-year observations. Table 1 provides definitions of the variables.

Panel C: By analysts' forecasts accuracy on each earnings quality proxy (decile rank)

	(1) *EQ Proxy =* *Accruals quality* *Accuracy*	(2) *EQ Proxy=* *Persistence* *Accuracy*	(3) *EQ Proxy =* *Predictability* *Accuracy*	(4) *EQ Proxy=* *Smoothness* *Accuracy*
EQ Proxy	0.043***	0.054***	0.050***	0.035***
	(12.2)	*(9.06)*	*(15.4)*	*(14.9)*
LnFollowing	0.031***	-0.0023	0.031***	0.026***
	(14.6)	*(-0.64)*	*(16.4)*	*(13.9)*
Size	-0.022***	0.0025*	0.042***	-0.0048***
	(-11.5)	*(1.76)*	*(13.5)*	*(-4.52)*
Std ROE	0.00039	-0.0030***	0.00057	0.0010
	(0.50)	*(-3.73)*	*(0.82)*	*(1.42)*
SURP	-0.40***	-0.39***	-0.36***	-0.37***
	(-108.4)	*(-72.0)*	*(-74.7)*	*(-76.5)*
Crisis	-0.067***	-0.074***	-0.061***	-0.068***
	(-9.89)	*(-9.32)*	*(-9.88)*	*(-10.6)*
Audit quality	-0.00040	-0.0029	0.029***	0.0097***
	(-0.11)	*(-0.70)*	*(7.88)*	*(2.86)*
IFRS	-0.0020	-0.027***	-0.016**	-0.027***
	(-0.26)	*(-2.88)*	*(-2.23)*	*(-3.65)*
AccEnforcement	-0.0081**	0.036***	0.0055*	0.025***
	(-2.51)	*(6.18)*	*(1.84)*	*(6.88)*
Constant	-0.083***	-0.39***	-0.32***	-0.24***
	(-5.53)	*(-9.50)*	*(-14.6)*	*(-12.9)*
N	24,213	24,213	24,213	24,213
adj. R^2	0.329	0.105	0.455	0.411
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes

Notes: *** p-value <0.01, ** p-value <0.05, * p-value <0.1. *t* statistics in parentheses and italics. The sample is 24,213 firm-year observations. Table 1 provides definitions of all variables.

Table 12. Pooled regressions of analysts' information environment on each earnings quality proxy, and Legal Tradition

Panel A: By analysts following

	(1) *Analysts following EQ Proxy = Accruals quality*	(2) *Analysts following EQ Proxy = Persistence*	(3) *Analysts following EQ Proxy = Predictability*	(4) *Analysts following EQ Proxy = Smoothness*
Lagged Analysts following	0.83***	0.83***	0.83***	0.83***
	(223.7)	*(223.3)*	*(222.0)*	*(223.3)*
Size	0.56***	0.55***	0.60***	0.55***
	(36.0)	*(36.0)*	*(31.3)*	*(36.2)*
Std ROE	0.014	0.019*	0.025**	0.016
	(1.37)	*(1.94)*	*(2.46)*	*(1.60)*
Growth	0.18***	0.17***	0.16***	0.19***
	(8.99)	*(8.56)*	*(7.52)*	*(9.35)*
Crisis	0.13	0.13	0.15	0.13
	(1.42)	*(1.34)*	*(1.57)*	*(1.40)*
Audit quality	0.010	0.0065	0.050	0.0044
	(0.21)	*(0.13)*	*(1.01)*	*(0.089)*
IFRS	1.94***	2.14***	1.53***	2.38***
	(10.7)	*(12.0)*	*(7.13)*	*(13.3)*
LegalTradition	0.44***	0.43***	0.70***	0.12
	(4.24)	*(4.28)*	*(5.49)*	*(1.20)*
EQ Proxy	0.056***	0.034*	0.090***	0.0070
	(2.92)	*(1.83)*	*(4.00)*	*(0.38)*
IFRS LegalTradition*	0.064	0.12	0.56**	0.10
	(0.30)	*(0.56)*	*(2.16)*	*(0.50)*
*LegalTradition *EQ Proxy*	0.018	0.0094	0.10***	0.082***
	(0.60)	*(0.32)*	*(3.24)*	*(2.79)*
*IFRS*EQ Proxy*	-0.022	0.010	-0.034	0.00088
	(-0.97)	*(0.45)*	*(-1.38)*	*(0.040)*
*IFRS*LegalTradition*EQ Proxy*	0.039*	0.047**	0.083***	0.038*
	(1.83)	*(2.19)*	*(3.51)*	*(1.84)*
Constant	-8.20***	-8.55***	-8.47***	-8.47***
	(-33.7)	*(-35.3)*	*(-31.9)*	*(-34.7)*
N	22,353	22,353	22,353	22,353
adj. R^2	0.873	0.873	0.874	0.873
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; t-statistics in parentheses and italics. The sample consists of 23,353 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables.

Panel B: By analysts' forecasts dispersion

	(1) *Dispersion* *EQ Proxy =* *Accruals quality*	(2) *Dispersion* *EQ Proxy =* *Persistence*	(3) *Dispersion* *EQ Proxy =* *Predictability*	(4) *Dispersion* *EQ Proxy =* *Smoothness*
Lagged Dispersion	0.30***	0.30***	0.29***	0.30***
	(39.6)	*(40.1)*	*(38.3)*	*(39.7)*
LnFollowing	-0.32***	-0.30***	-0.33***	-0.31***
	(-9.75)	*(-9.02)*	*(-10.1)*	*(-9.50)*
Size	0.035**	0.0077	-0.11***	0.010
	(2.21)	*(0.50)*	*(-5.84)*	*(0.68)*
Std ROE	0.027***	0.033***	0.021**	0.027***
	(2.71)	*(3.37)*	*(2.10)*	*(2.77)*
SURP	2.85***	2.86***	2.74***	2.81***
	(50.9)	*(51.0)*	*(48.3)*	*(49.6)*
Crisis	0.84***	0.83***	0.81***	0.83***
	(9.25)	*(9.15)*	*(9.02)*	*(9.17)*
Audit quality	-0.13**	-0.14**	-0.20***	-0.15***
	(-2.49)	*(-2.56)*	*(-3.67)*	*(-2.75)*
IFRS	0.086	0.052	-0.088	0.070
	(0.52)	*(0.31)*	*(-0.42)*	*(0.42)*
LegalTradition	-0.26**	-0.43***	0.23	-0.67***
	(-2.53)	*(-4.46)*	*(1.55)*	*(-7.24)*
EQ Proxy	-0.065***	0.017	-0.16***	0.062***
	(-3.72)	*(0.97)*	*(-7.30)*	*(3.71)*
IFRS LegalTradition*	-0.69***	-0.50**	-0.22	-0.45**
	(-3.18)	*(-2.38)*	*(-0.75)*	*(-2.35)*
*LegalTradition *EQ Proxy*	-0.011	-0.021	-0.061**	-0.054***
	(-0.58)	*(-1.01)*	*(-2.52)*	*(-2.62)*
*IFRS*EQ Proxy*	0.0093	-0.016	-0.022	-0.010
	(0.43)	*(-0.81)*	*(-0.96)*	*(-0.54)*
IFRS LegalTradition*EQ Proxy*	-0.058**	-0.054*	0.088***	-0.089***
	(-2.03)	*(-1.92)*	*(2.67)*	*(-3.13)*
Constant	2.00***	2.04***	2.46***	2.31***
	(8.62)	*(8.69)*	*(9.78)*	*(9.77)*
N	17,686	17,686	17,686	17,686
adj. R^2	0.343	0.340	0.346	0.342
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes

Notes: *** p <0.01, ** p <0.05, * p <0.1; t-statistics in parentheses and italics. The sample consists of 17,686 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables.

Panel C: By analysts' forecasts accuracy

	(1) *Accuracy* *EQ Proxy = Accruals quality*	(2) *Accuracy* *EQ Proxy = Persistence*	(3) *Accuracy* *EQ Proxy = Predictability*	(4) *Accuracy* *EQ Proxy = Smoothness*
Lagged Accuracy	0.017**	0.013*	0.034***	0.027***
	(2.55)	*(1.89)*	*(5.03)*	*(4.11)*
LnFollowing	0.022***	0.023***	0.026***	0.023***
	(12.6)	*(13.2)*	*(14.6)*	*(13.3)*
Size	-0.0034***	-0.0029***	0.0096***	-0.0029***
	(-3.38)	*(-2.95)*	*(8.07)*	*(-2.94)*
Std ROE	-0.0048***	-0.0051***	-0.0036***	-0.0040***
	(-7.72)	*(-8.25)*	*(-5.72)*	*(-6.34)*
SURP	-0.43***	-0.44***	-0.42***	-0.43***
	(-117.4)	*(-118.0)*	*(-113.8)*	*(-115.2)*
Crisis	-0.063***	-0.063***	-0.061***	-0.063***
	(-10.5)	*(-10.4)*	*(-10.2)*	*(-10.6)*
Audit quality	0.000047	0.00045	0.0071**	0.0020
	(0.015)	*(0.14)*	*(2.17)*	*(0.63)*
IFRS	-0.0065	-0.011	0.040***	-0.0017
	(-0.58)	*(-1.02)*	*(2.98)*	*(-0.15)*
LegalTradition	0.0099	0.015**	-0.024***	0.013**
	(1.49)	*(2.35)*	*(-2.84)*	*(2.04)*
EQ Proxy	0.0023*	0.0043***	0.012***	0.0073***
	(1.72)	*(3.68)*	*(8.30)*	*(6.37)*
*IFRS*LegalTradition*	-0.016	0.0067	0.042**	0.0029
	(-1.20)	*(0.50)*	*(2.55)*	*(0.23)*
*LegalTradition*EQ Proxy*	-0.0022	0.0027	0.0013	-0.00035
	(-1.17)	*(1.46)*	*(0.64)*	*(-0.19)*
*IFRS*EQ Proxy*	-0.00084	-0.0019	0.0050***	-0.00019
	(-0.62)	*(-1.44)*	*(3.34)*	*(-0.15)*
*IFRS*LegalTradition*EQ Proxy*	0.00032	0.00033	0.0013	0.00039
	(0.22)	*(0.24)*	*(0.85)*	*(0.28)*
Constant	-0.067***	-0.044***	-0.16***	-0.11***
	(-4.36)	*(-2.86)*	*(-9.79)*	*(-7.29)*
N	22,431	22,431	22,431	22,431
adj. R^2	0.515	0.516	0.522	0.520
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes

Notes: *** *p* <0.01, ** *p* <0.05, * *p* <0.1; *t*-statistics in parentheses and italics. The sample consists of 22,431 firm-year observations covering the years 2000 to 2015. Table 1 provides definitions of all variables.