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# THE IMPLEMENTATION OF IFRS 8 AND THE EFFECTS ON THE QUALITY OF FINANCIAL REPORTING

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**Abstract**
*This study examines the long-run implications of IFRS 8 Operating Segments for segment disclosure and operating performance in EU-listed non-financial firms. Using a balanced panel of 60 firms over 2005-2023, we estimate firm fixed-effects models with two-way clustered standard errors to assess within-firm changes around the mandatory adoption of IFRS 8 in 2009. Disclosure outcomes are measured using three distinct dimensions: checklist-based disclosure completeness (Quality of Disclosure Index, QDI), geographic disaggregation (Geographical Disclosure Diversity, GeoDiv), and segment-structure stability (Consistency). We find a statistically significant post-adoption increase in QDI and GeoDiv, while Consistency does not improve systematically. Performance tests show no robust association between QDI and operating cash-flow margins, and GeoDiv shows only marginal evidence of a positive association with OCF margin. Sector interaction tests provide no evidence of systematic heterogeneity across major EU industries. Overall, the results suggest that IFRS 8 strengthened the informational environment primarily through improved geographic disclosures, highlighting that economically salient disaggregation matters more than formal checklist compliance alone.*

**Keywords:** *IFRS 8; operating segments; disclosure quality; geographic disclosure; operating performance; European Union*.

**JEL Classification:** *M41*

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## INTRODUCTION

Segment reporting provides one of the clearest channels through which diversified firms can explain how performance and risk are distributed across activities and geographic markets. For EU-listed multinationals, geographic disaggregation is particularly informative because aggregate figures may conceal materially different exposures across regions, affecting users' assessments of risk concentration, international exposure, and the credibility of strategic narratives (Healy and Palepu, 2001; Leuz and Verrecchia, 2000). The EU's mandatory adoption of IFRS 8 Operating Segments in 2009 redesigned this disclosure space by replacing IAS 14's risks-and-returns approach with a management approach that aligns external segment disclosures with internal reports reviewed by the Chief Operating Decision Maker (CODM). While this alignment is intended to enhance relevance, it also embeds substantial managerial discretion over segment identification and aggregation, raising persistent concerns about cross-firm comparability and the potential for strategic aggregation—especially in the geographic domain (Crawford et al., 2012; Nichols et al., 2013; Verrecchia, 2001). European evidence on IFRS 8 remains non-uniform, in part because "disclosure quality" is multidimensional and sensitive to how it is operationalized. Multi-dimensional EU studies show that adoption effects vary across completeness, granularity, and consistency, implying that single-proxy assessments can be incomplete (Aboud et al., 2019; Nichols et al., 2013). In particular, geographic reporting—central to the European policy debate—exhibits systematic post-adoption changes that are consistent with greater disaggregation on average, yet with substantial cross-firm heterogeneity because firms may continue to aggregate geography when it is not central to CODM reporting (Leung and Verriest, 2015). Geographic

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disaggregation may also be economically relevant, as investors' valuation of foreign earnings responds to changes in IFRS 8 geographic disclosures (Wong et al., 2018).

Moreover, the broader IFRS adoption literature cautions that observed disclosure and economic effects often evolve gradually and depend on institutional conditions and enforcement rather than the standard text alone (Barth et al., 2008; Daske et al., 2008; De George et al., 2016). Against this backdrop, this study provides updated long-horizon EU evidence on how IFRS 8 adoption relates to segment reporting outcomes and operating performance. Using a balanced panel of 60 EU-listed non-financial firms observed annually from 2005 to 2023, the analysis estimates firm fixed-effects models to capture within-firm changes associated with the post-2009 period. The study's contribution lies in separating complementary disclosure dimensions rather than relying on a single "quality" proxy. Specifically, it distinguishes checklist-based disclosure completeness (Quality of Disclosure Index, QDI) from economically salient geographic disaggregation (Geographical Disclosure Diversity, GeoDiv) and from segment-structure stability (Consistency), a dimension directly relevant to intertemporal comparability (Aboud et al., 2019; Leung and Verriest, 2015; Nichols et al., 2013). These disclosure dimensions are then related to operating performance using operating cash-flow margins, allowing the analysis to assess whether post-adoption "improvements" reflect informative transparency or compliance that can coexist with strategically motivated aggregation, as emphasized by agency- and incentives-based perspectives on disclosure (Berger and Hann, 2007; Verrecchia, 2001).

Overall, the study contributes by (i) offering long-horizon EU evidence on IFRS 8 beyond short transition windows, (ii) clarifying measurement by disentangling completeness, geographic transparency, and stability, and (iii) evaluating whether these disclosure changes align with economically meaningful operating outcomes.

## I. LITERATURE REVIEW

Segment reporting is widely viewed as a cornerstone of disclosure because it provides disaggregated information that helps investors and other users interpret diversified firms' risk exposures and performance drivers, thereby mitigating information asymmetry (Healy and Palepu, 2001; Leuz and Verrecchia, 2000). Classic disclosure theory predicts that the net level and granularity of disclosure reflect a trade-off between capital-market benefits (e.g., a lower cost of equity) and proprietary or competitive costs of revealing sensitive information (Botosan, 1997; Verrecchia, 1983, 2001). These trade-offs are particularly salient in segment reporting because managers can aggregate segments or selectively disclose line items, potentially obscuring unusually high profits (proprietary costs) or underperforming units (agency costs) (Berger and Hann, 2003, 2007). The shift to a management approach under IFRS 8—aligning external segment disclosures with internal reports reviewed by the Chief Operating Decision Maker (CODM)—was intended to increase relevance, yet it also expanded managerial discretion in identifying segments and determining aggregation boundaries, raising concerns about comparability and strategic reporting choices (Crawford et al., 2012; Nichols et al., 2013; Zeff, 2025). This broader political-economy dimension is consistent with evidence that accounting standard-setting can be influenced by stakeholder incentives and lobbying dynamics, where technical argument quality and institutional pressures shape rule design and interpretation (Bernado and Moraes, 2026; Zeff, 2025). European evidence on IFRS 8 consequently presents a non-uniform picture that cannot be reduced to a single verdict of "improved quality." Multi-dimensional EU studies show that post-adoption changes depend on how "quality" is defined—whether as completeness, fineness/granularity, or consistency—implying that reliance on a single proxy can be misleading (Aboud et al., 2019; Nichols et al., 2013). Descriptive and early EU assessments similarly suggest that IFRS 8 can alter the number of reported segments and the nature of entity-wide disclosures, while not necessarily improving all line-items uniformly (Nichols et al., 2012; Crawford et al., 2012). The geographic domain—central to EU debates about the management approach—has attracted particular attention: evidence indicates that geographic disclosure changes after IFRS 8 can be consistent with increased disaggregation on average, but with substantial cross-firm heterogeneity because firms may continue to aggregate geography when it is not central to CODM reporting (Leung and Verriest, 2015). More broadly, EU work on managerial disclosure choices under IFRS 8 reinforces that adoption effects vary across dimensions and firms (Aboud and Roberts, 2018), while country-level studies document that benefits may be limited or uneven in settings where proprietary and agency incentives remain binding (Lenormand and Touchais, 2014, 2021; Franzen and Weißenberger, 2015; Gisbert et al., 2024). Related European evidence examining economic consequences, such as the cost of capital, further underscores the need to distinguish between formal compliance and investor-relevant transparency (Saleh et al., 2023), consistent with broader IFRS adoption research showing that observed outcomes are shaped by incentives, enforcement, and institutional complementarities rather than standards alone (Barth et al., 2008; Daske et al., 2008; De George et

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al., 2016). Recent research extends these arguments by linking segment disclosure to governance and taxation incentives. Governance characteristics can influence disclosure granularity: senior executive gender diversity has been associated with greater geographic disaggregation, suggesting that leadership composition can shape transparency under discretionary reporting regimes (Aboud and Zalata, 2026.). Tax-related incentives are also relevant because geographic disclosure can intersect with tax planning visibility: evidence from the U.S. context links the withdrawal of geographic earnings disclosure to tax avoidance incentives (Hope et al., 2013), while IFRS-based evidence suggests that discretion in applying segment rules may be used strategically to obscure tax-related transparency, with lower effective tax rates associated with lower segment disclosure scores (Guo et al., 2026). Complementary capital-market evidence on tax transparency indicates that making previously confidential tax information public can impose reputational and proprietary costs that may outweigh information-environment benefits from an investor perspective (Müller et al., 2024), reinforcing the idea that firms may rationally limit disaggregation when expected proprietary or scrutiny costs are high (Verrecchia, 2001; Berger and Hann, 2007). Methodologically, the mixed evidence in IFRS 8 settings also motivates careful inference in long panels; in particular, serial correlation can inflate significance in pre/post or DiD-style designs, making robustness checks and dynamic specifications important when evaluating adoption effects over extended horizons (Bertrand et al., 2004). Building on this literature, the present study contributes long-horizon EU evidence (2005–2023) by separating disclosure completeness/compliance (QDI) from geographic disaggregation (GeoDiv) and segment-structure stability (Consistency), and by relating these distinct disclosure dimensions to operating performance (OCF_Margin). This design directly addresses the literature's central implication that IFRS 8 effects are multidimensional, that "quality" cannot be inferred from a single proxy, and that economically meaningful transparency may be driven more by content-relevant disaggregation than by checklist compliance alone (Aboud et al., 2019; Leung and Verriest, 2015; Nichols et al., 2013; Saleh et al., 2023).

## II. RESEARCH METHODOLOGY

To achieve the objectives of this study and to examine the effects of IFRS 8 adoption on segment disclosure practices and operating performance, a quantitative research design was employed. The analysis is based on a balanced panel dataset comprising 60 non-financial companies listed in the European Union, observed over the period 2005–2023. The sample includes firms from major EU countries and industries, ensuring adequate representativeness of the European non-financial reporting environment. Sample selection and data. The sample is constructed as a strict balanced panel of 60 EU listed non-financial firms with complete annual-report availability and segment-disclosure information for every year from 2005 through 2023. The balanced-panel criterion is imposed to ensure consistent measurement of the hand-collected disclosure items used to build the QDI and to avoid distortions from intermittent reporting gaps when tracking disclosure dynamics over time. Because QDI coding requires applying the same rubric across 19 years for each firm, the balanced-panel design also reflects a deliberate trade-off between breadth and measurement precision that is common in disclosure-index research. Although this requirement limits the cross-sectional scope (and may reduce power in fine-grained sectoral splits), it improves comparability across firms and years and strengthens internal validity for long-horizon disclosure analyses.

**Table 1**. Definition and Measurement of Variables

| Category | Variable | Symbol | Measurement / Definition |
|---|---|---|---|
| Dependent | Disclosure Quality Index | QDI | Checklist-based index of IFRS 8 disclosure items.<br>Formula: $QDI_{it} = B_{it} / A_{it}$<br>A = number of applicable items (C1–C16); B = total points across applicable items (1 = fully disclosed; 0.5 = mandatory but justified non-disclosure; 0 = mandatory but not disclosed). Non-applicable items are excluded from both numerator and denominator. |
| Dependent | Geographical Disclosure Diversity | GeoDiv | Geographical revenue dispersion index.<br>$HHI_{it} = \Sigma_r (s_{r,it})^2$, where $s_{r,it} = Revenue_{r,it} / Total\ Revenue_{it}$.<br>$GeoDiv_{it} = 1 - HHI_{it}$.<br>Higher GeoDiv indicates greater dispersion across geographical areas. |
| Dependent | Segment Consistency | Consistency | Dummy variable capturing stability of the geographical segmentation structure. |

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| Category | Variable | Symbol | Measurement / Definition |
|---|---|---|---|
| | | | $Consistency_{it}$ = 1 if the number and names of geographical regions are unchanged between t and t−1; 0 otherwise. |
| Dependent | Operating Performance | OCF Margin | Operating cash flow scaled by net sales. OCF $Margin_{it}$ = $OCF_{it}$ / Net $Sales_{it}$. |
| Independent | IFRS 8 Adoption | IFRS8 | Post-adoption indicator for the EU effective year. $IFRS8_{it}$ = 1 for 2009–2023; 0 for 2005–2008. |
| Control | Firm Size | Size | Natural logarithm of total assets. $Size_{it}$ = ln (Total $Assets_{it}$). |
| Control | Leverage | Leverage | Financial leverage ratio. $Leverage_{it}$ = Total $Debt_{it}$ / Total $Assets_{it}$. |
| Control | Sales Growth | Sales Growth | Annual growth rate in net sales (as constructed in the dataset). |
| Moderator | Sector | Sector dummies | Sector indicator variables used for heterogeneity / interaction tests; baseline category as defined in the models. |

Source: Authors' elaboration based on IFRS 8 (paras. 23-34) and firms' annual reports (2005-2023).

Disclosure measures. The Quality of Disclosure Index (QDI) is constructed from 16 IFRS 8 disclosure items (Appendix B). Each item is scored using a transparent checklist approach and assigned equal weight to avoid imposing subjective importance rankings and to preserve replicability. As a sensitivity check, the index is also analyzed in sub-dimensions (segment-level items versus entity-wide geographical disclosures) to assess which components drive observed time trends.

To reduce subjectivity in checklist scoring, the QDI coding was guided by a written protocol anchored in IFRS 8 paragraph references (Appendix B). When item applicability depended on whether information was regularly reviewed by the chief operating decision maker (CODM), the coding relied on the annual report's descriptions and reconciliations. Ambiguous cases were revisited and logged so that the same rubric could be applied consistently across firms and across the 2005–2023 window.

Segment consistency is modeled as a binary indicator that captures economically meaningful breaks in the externally reported segment structure from one year to the next. This specification provides a clear measure of stability in segment reporting as observed by financial statement users. To address potential oversimplification, we also report robustness checks using continuous year-to-year change metrics based on segment counts (absolute and normalized changes). Estimation relies on firm fixed effects and year fixed effects to absorb time-invariant heterogeneity and common shocks, and inference in the baseline specifications is based on two-way clustered standard errors at the firm and year levels; as a robustness check, we also report firm-level clustered standard errors. Given the long panel structure, this approach is consistent with best-practice guidance on serial correlation and clustering in panel settings (Bertrand et al., 2004; Petersen, 2009).

Building on these measures and IFRS 8's management approach—under which externally reported segment information is expected to mirror the internal reports reviewed by the Chief Operating Decision Maker (CODM)—we examine whether the post-2009 period is associated with systematic changes in segment-reporting outcomes and whether these disclosure dimensions are linked to operating performance. Accordingly, we test the following hypotheses:

- **H1:** Average segment disclosure quality (QDI) is higher in the post-adoption period (2009–2023) than in the pre-adoption period (2005–2008).
- **H2:** The post-adoption period is associated with greater geographical disclosure diversity (GeoDiv).
- **H3:** The post-adoption period is associated with higher segment reporting consistency over time.
- **H4:** Higher disclosure quality and/or greater geographical transparency (QDI and/or GeoDiv) are associated with higher operating performance (OCF Margin).
- **H5:** The association between IFRS 8 adoption and disclosure outcomes varies across sectors (sectoral heterogeneity).

## III. RESULTS AND DISCUSSION

This section reports the updated empirical evidence based on the final regression tables and the event-study figure generated after the most recent data cleaning and re-estimation. The analysis is designed around the implementation of IFRS 8 under the "management approach", whereby external segment disclosures are aligned with the information used internally by the chief operating decision maker (CODM). IFRS 8 became effective for

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annual periods beginning on or after 1 January 2009, which motivates the post-2009 indicator used throughout the analysis. Methodologically, the regressions include firm fixed effects to control for time-invariant firm characteristics, and standard errors are clustered by both firm and year to address dependence within firms over time and common shocks across years—an approach consistent with well-known guidance for panel settings with serial correlation and shared time variation.

**Table 2.** Mapping of hypotheses, econometric models, and empirical evidence

| Hypothesis | Dependent variable (construction) | Key regressor(s) | Expected sign / rationale | Model reference | Empirical decision (latest results) |
|---|---|---|---|---|---|
| H | QDI: checklist-based disclosure quality index (IFRS 8 items; higher = better disclosure) | IFRS8 (post-2009 indicator) | + Management approach should be associated with higher segment disclosure quality | Eq. (1); Table 5 | Supported (IFRS8 positive and significant) |
| H1 | QDI (robustness/specification sensitivity) | IFRS8 under alternative treatments (winsorization; excluding crisis years; placebo diagnostic) | + Core QDI inference should remain stable when addressing outliers and crisis years | Eq. (1); Table 6 | Supported for robustness checks (winsor 1%, winsor 5%, excluding 2008–2010 remain positive and significant). Caution: placebo 2007 is significant, indicating possible time dynamics. |
| H2 | GeoDiv: $1 - \Sigma s_i^2$, where $s_i$ is the revenue share by geographical area | IFRS8 | + IFRS 8 may encourage broader/clearer geographical disclosure consistent with internal reporting | Eq. (2); Table 5 and Figure 1 | Supported (positive and highly significant; event-study pattern is consistent with post-2009 strengthening) |
| H3 | Consistency: 1 if segment structure is unchanged from t−1; 0 otherwise | IFRS8 | + Expected greater stability of segment definitions under the new regime | Eq. (3); Table 5 | Not supported (IFRS8 not statistically significant) |
| H4 | OCF Margin: operating cash flow ÷ net sales | IFRS8, QDI, GeoDiv, Consistency (in performance model) | + Improved disclosure could be associated with stronger information environment and, potentially, better operating outcomes | Eq. (4); Table 5 | Partially supported (weak evidence): IFRS8 and QDI are not significant; GeoDiv is marginally positive (10% level). |
| H5 | Sectoral heterogeneity (QDI / GeoDiv / Consistency / OCF Margin) | IFRS8 × sector dummies | Heterogeneity expected across industries due to incentives and reporting complexity | Eq. (5); Table 5 | Rejected / not supported (no robust evidence of systematic sector heterogeneity in updated estimates) |

Source: Authors' elaboration (based on the study's hypotheses and empirical models).

**Notes**: Table numbers refer to the final outputs generated from the updated dataset and re-estimated models. The placebo result is read as a diagnostic indicating possible time dynamics; it does not, by itself, negate the main post-2009 associations.

Table 2 summarizes the hypotheses, the corresponding models, and where each hypothesis is evaluated in the empirical results. This mapping helps because the paper tests multiple disclosure outcomes (QDI, GeoDiv, Consistency) and a performance outcome (OCF Margin) under one coherent design.

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**Table 3.** Descriptive Statistics

| | N | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| **QDI** | 1140 | 71.477 | 10.243 | 40.000 | 90.000 |
| **GeoDiv** | 1140 | 0.687 | 0.126 | 0.230 | 0.940 |
| **Consistency** | 1140 | 0.949 | 0.220 | 0.000 | 1.000 |
| **OCF Margin** | 1140 | 0.098 | 0.062 | -0.314 | 0.392 |
| **Size** | 1140 | 8.849 | 1.614 | 3.592 | 13.305 |
| **Leverage** | 1140 | 0.234 | 0.187 | 0.000 | 1.664 |
| **Sales Growth** | 1140 | 0.126 | 1.898 | -0.999 | 62.057 |
| **Segcount** | 1140 | 3.614 | 1.460 | 1.000 | 9.000 |
| **Geocount** | 1140 | 5.628 | 2.621 | 2.000 | 24.000 |
| **Net Sales** | 1140 | 17459.563 | 34359.787 | 67.220 | 322284.000 |
| **Total Assets** | 1140 | 25519.535 | 61174.495 | 36.300 | 600338.000 |
| **Total Debt** | 1140 | 8080.222 | 21939.529 | 0.000 | 193970.000 |

Source: Authors' calculations based on companies' annual reports (2005–2023) and official stock exchange data.

Table 3 shows substantial cross-sectional and time variation in the study variables. QDI has a mean of 71.477 (SD = 10.243) and ranges from 40 to 90, indicating meaningful dispersion in segment disclosure quality across firms and years. GeoDiv has a mean of 0.687 (SD = 0.126) with a wide range (0.230–0.940), suggesting material differences in the geographical disaggregation of reporting. The Consistency indicator is high on average (mean = 0.949), implying that many firms maintain stable externally reported segment structures, although the binary nature of this measure naturally concentrates mass at 1. Operating performance, measured by OCF Margin, averages 0.098 (SD = 0.062), with both negative and positive observations, reflecting heterogeneity in operating conditions across firms and years.

**Table 4.** Pre- and Post-IFRS 8 Comparison

| | Mean | | SD | |
|---|---|---|---|---|
| | Post (>=2009) | Pre (<2009) | Post (>=2009) | Pre (<2009) |
| **QDI** | 71.951 | 69.700 | 10.252 | 10.034 |
| **GeoDiv** | 0.698 | 0.643 | 0.120 | 0.138 |
| **Consistency** | 0.943 | 0.970 | 0.231 | 0.170 |
| **OCF Margin** | 0.101 | 0.088 | 0.064 | 0.051 |
| **Size** | 8.936 | 8.520 | 1.592 | 1.659 |
| **Leverage** | 0.235 | 0.233 | 0.184 | 0.200 |
| **Sales Growth** | 0.045 | 0.429 | 0.192 | 4.112 |

Source: Authors' calculations based on companies' annual reports (2005–2023) and official stock exchange data.

The pre-/post-adoption descriptive comparison in Table 4 aligns with the main regression evidence. Mean QDI is higher in the post-2009 period (71.951) than in the pre-2009 period (69.700), and GeoDiv increases from 0.643 (pre) to 0.698 (post). At the same time, the Consistency index is slightly lower post-2009 (0.943 vs. 0.970), which foreshadows the absence of a clear "stabilizing" effect in the consistency regressions. Because Sales Growth exhibits extreme outliers (max = 62.057), the main regressions winsorize continuous covariates at the 1st/99th percentiles; Table 6 reports robustness to alternative cutoffs.

**Table 5.** Main Regression Results (Winsorized continuous covariates at 1%)

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| | QDI | GeoDiv | Consistency | OCF Margin |
|---|---|---|---|---|
| **IFRS8** | 2.5388* | 0.0542*** | -0.0124 | 0.0056 |
| | (1.0319) | (0.0137) | (0.0162) | (0.0080) |
| | p=0.0242 | p=0.0010 | p=0.4559 | p=0.4975 |
| **Size** | -0.5458 | 0.0034 | -0.0285 | 0.0088 |
| | (0.9111) | (0.0146) | (0.0282) | (0.0097) |
| | p=0.5566 | p=0.8186 | p=0.3260 | p=0.3771 |
| **Leverage** | -0.9352 | -0.0391 | -0.0660 | -0.0932* |
| | (3.7477) | (0.0663) | (0.0700) | (0.0341) |
| | p=0.8058 | p=0.5624 | p=0.3582 | p=0.0137 |
| **Sales Growth** | 0.1525*** | 0.0008* | 0.0023+ | 0.0000 |
| | (0.0110) | (0.0003) | (0.0012) | (0.0002) |
| | p=<1e-04 | p=0.0265 | p=0.0574 | p=0.8850 |
| **QDI** | | | | 0.0000 |
| | | | | (0.0004) |
| | | | | p=0.9371 |
| **GeoDiv** | | | | 0.0539+ |
| | | | | (0.0298) |
| | | | | p=0.0870 |
| **Consistency** | | | | -0.0093 |
| | | | | (0.0072) |
| | | | | p=0.2160 |
| **Num.Obs.** | 1140 | 1140 | 1140 | 1140 |
| **R2** | 0.731 | 0.630 | 0.102 | 0.489 |
| **R2 Within** | 0.033 | 0.081 | 0.006 | 0.054 |
| **Std.Errors** | by: company & year | by: company & year | by: company & year | by: company & year |
| **FE: company** | X | X | X | X |
| • **p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001** | | | | |

Source: Authors' calculations based on companies' annual reports (2005–2023) and official stock exchange data.

**Note:** Continuous covariates (including Sales Growth and Leverage) are winsorized at the 1st and 99th percentiles.

Table 5 reports the main fixed-effects regressions. In the baseline QDI model, the adoption of IFRS 8 is associated with a statistically significant increase in segment disclosure quality: the post-2009 indicator (IFRS8) is positive and significant (p = 0.0242). This result is consistent with the managerial approach of IFRS 8, under which external segment disclosures are expected to reflect the information used internally for decision-making.

The results for GeoDiv provide an even clearer signal: IFRS8 is positive and highly significant (β = 0.0542, p = 0.0010), indicating greater geographic disaggregation in the post-adoption period. By contrast, IFRS8 is not statistically significant in the Consistency model (β = −0.0124, p = 0.4559), suggesting that IFRS 8 does not systematically alter the stability of firms' reported segment structures over time, which may instead be driven by strategic and organizational choices.

With respect to operating performance, the IFRS8 coefficient in the OCF margin model is not significant (β = 0.0056, p = 0.4975). Moreover, aggregate QDI is not statistically significantly correlated with the OCF margin in this specification (β ≈ 0.0000, p = 0.9371). GeoDiv shows a positive coefficient, but only marginal significance at the 10% level (β = 0.0539, p = 0.0870). Accordingly, the association with performance should be interpreted as suggestive rather than conclusive. Overall, the evidence indicates improvements in disclosure outcomes (QDI and GeoDiv), while the link with operating performance is weak, with GeoDiv reaching only marginal significance at the 10% level. Economic magnitude: he estimated effects are also economically meaningful. In the GeoDiv model, the post-2009 coefficient (0.0542) implies an increase of approximately 8.4% relative to the pre-2009 mean (0.643), corresponding to about 0.43 standard deviations (SD = 0.126). In the QDI model, the estimated increase

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of 2.54 points corresponds to an increase of approximately 3.6% relative to the pre-2009 mean (69.7), or about 0.25 standard deviations (SD = 10.24). Baseline means are drawn from the pre-2009 period (Table 4), while standard deviations are taken from the descriptive statistics for the full sample (Table 3). We next examine the timing of the GeoDiv response around the 2009 implementation using an event-study specification.

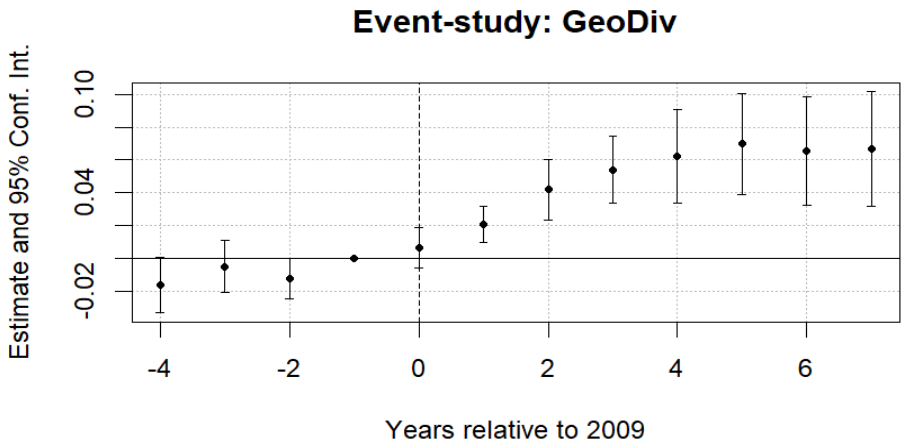


**Figure 1.** Event-study Results for Geographical Disclosure Diversity (GeoDiv)
Source: Authors' calculations based on companies' annual reports (2005–2023) and official stock exchange data.

**Note:** This figure plots annual coefficient estimates and **95%** confidence intervals from a dynamic specification with firm and year fixed effects and leads/lags relative to the IFRS 8 effective year (2009). Standard errors are two-way clustered by firm and year. A joint Wald test fails to reject the null that all pre-treatment lead coefficients are jointly equal to zero (Wald = 1.2878; p = 0.2772; df = 3, 1059), providing no statistical evidence of differential pre-existing trends in GeoDiv. Post-adoption coefficients turn positive and remain elevated, indicating that geographic disaggregation increases after 2009 and accumulates gradually. Because adoption is mandatory and simultaneous across firms, the figure is interpreted as descriptive evidence on timing and dynamics that complements the main regression results rather than a standalone quasi-experimental design. Analyses were conducted in R (RStudio).

**Table 6.** Robustness Checks

| | **Winsor 1%** | **Winsor 5%** | **No crisis** | **Placebo 2007** |
|---|---|---|---|---|
| **IFRS8** | 2.4428* | 2.2229* | 2.7553* | |
| | (1.0333) | (0.9404) | (1.0954) | |
| | p=0.0295 | p=0.0295 | p=0.0238 | |
| **Size** | -0.4639 | -0.3469 | -0.7532 | 0.1431 |
| | (0.9369) | (1.0824) | (0.8940) | (0.9932) |
| | p=0.6265 | p=0.7523 | p=0.4128 | p=0.8871 |
| **Leverage** | -0.9472 | -1.3396 | -1.1412 | -1.2813 |
| | (3.8482) | (4.0503) | (3.6711) | (3.6637) |
| | p=0.8084 | p=0.7447 | p=0.7602 | p=0.7306 |
| **Sales Growth** | -0.1883 | -0.4452 | 0.1623*** | 0.1459*** |
| | (0.1217) | (0.3276) | (0.0099) | (0.0169) |
| | p=0.1394 | p=0.1910 | p=<1e-04 | p=<1e-04 |
| **IFRS8_placebo2007** | | | | 1.8714* |
| | | | | (0.7724) |
| | | | | p=0.0262 |
| **Num.Obs.** | 1140 | 1140 | 960 | 1140 |
| **R2** | 0.731 | 0.741 | 0.741 | 0.726 |
| **R2 Within** | 0.031 | 0.032 | 0.035 | 0.014 |
| **Std.Errors** | by: company & year | by: company & year | by: company & year | by: company & year |
| **FE: company** | X | X | X | X |

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Source: Authors' calculations based on companies' annual reports (2005–2023) and official stock exchange data.

**Note**: Table 6 reports robustness checks using alternative winsorization cutoffs (1% and 5%), excluding crisis years (2008–2010), and a placebo adoption year (2007). p-values are reported to four decimals; identical values across specifications may arise due to rounding.

Table 6 shows that the central QDI finding is stable across key robustness tests. The IFRS8 coefficient remains positive and statistically significant when winsorizing at 1% ($\beta = 2.4428$, $p = 0.0295$) and at 5% ($\beta = 2.2229$, $p = 0.0295$), and when excluding crisis years 2008–2010 ($\beta = 2.7553$, $p = 0.0238$). Taken together, these results indicate that the post-2009 improvement in QDI is not an artefact of extreme observations or a narrow subset of years. At the same time, the placebo test (pretending adoption occurred in 2007) yields a positive and statistically significant coefficient ($\beta = 1.8714$, $p = 0.0262$). This indicates that part of the upward movement in QDI may reflect broader time dynamics that began before 2009, which calls for caution in reading the post-dummy coefficient as purely adoption-driven. In long panels, placebo significance can arise when outcomes are serially correlated or trending; therefore, the robustness checks are best interpreted alongside the event-study pattern. Overall, the results point to a clear message: the post-2009 period is associated with higher segment disclosure quality (QDI) and greater geographical disclosure diversity (GeoDiv), while there is no robust evidence of a systematic change in segment consistency or of an immediate improvement in operating cash-flow margins. This result aligns with IFRS 8 being a reporting change—one that reshapes the way segment information is presented to external users under the management approach—rather than an intervention expected to alter firms' underlying operations in the short run.

## IV. CONCLUSION

This study offers long-horizon EU evidence (2005–2023) on how the mandatory adoption of IFRS 8 relates to segment-reporting outcomes and operating performance. Using a balanced firm-year panel (60 firms; 1,140 observations) and firm fixed-effects models with two-way clustered standard errors, we find that the post-2009 period is associated with higher disclosure completeness (QDI) and a sizable increase in geographical disclosure diversity (GeoDiv). We interpret these patterns as consistent with the logic of IFRS 8's management approach: external segment reporting should mirror the internal reporting package reviewed by the chief operating decision maker, and the geographic dimension appears to be one area where this alignment becomes especially visible. At the same time, we do not observe a systematic post-adoption improvement in segment reporting consistency. This matters for how "quality" should be interpreted under IFRS 8. Prior EU work emphasizes that segment-reporting quality is multi-dimensional and that adoption effects can differ depending on whether quality is captured by completeness, granularity, or stability/consistency (e.g., Aboud et al., 2019; Nichols et al., 2013). Our long-horizon setting reinforces this point.

Segment structures often reflect organizational change, internal monitoring choices, and aggregation judgments—features that are part of a management-approach regime, not necessarily signs of weak implementation. A second implication is the difference between formal compliance and economically meaningful transparency. In the performance tests, the checklist-based QDI is not statistically related to operating cash-flow margins in our specifications. By contrast, GeoDiv shows only marginal evidence of a positive association with OCF margin (10% level). Accordingly, any performance implications should be interpreted as suggestive and warrant further investigation. This pattern indicates that "disclosing more items" is not automatically the pathway through which reporting changes connect to operating outcomes. Instead, the disclosure dimension that is closer to the firm's underlying economic footprint—geographic disaggregation—appears more consequential, which aligns with EU evidence that geographic reporting can change in information-relevant ways under IFRS 8 even when other segment items do not move uniformly (Leung and Verriest, 2015). More broadly, our results align with IFRS research stressing the role of incentives and institutional conditions in shaping the consequences of reporting changes, rather than assuming mechanical effects from the standard text alone (Daske et al., 2008; De George et al., 2016). They also fit an incentives-based view of segment disclosure. Managers weigh capital-market benefits against proprietary and agency costs when deciding how finely to disaggregate information (Verrecchia, 2001). Segment reporting is a natural setting for that trade-off: finer disclosure can reveal competitively sensitive details or expose weak internal performance, sustaining incentives to aggregate even when the regime permits more detail (Berger & Hann, 2007). This helps explain why improvements may concentrate in certain dimensions—such as geography—while stability/consistency remains largely unchanged. Robustness checks support the core patterns but also encourage restraint in interpretation.

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Winsorization and crisis-year exclusions do not overturn the central QDI inference, yet the significant placebo result indicates that disclosure outcomes may also reflect broader time dynamics. This is a known challenge in long panels, where serial correlation and common trends can inflate pre/post significance if not handled carefully (Bertrand et al., 2004; Petersen, 2009). Accordingly, we view the estimates primarily as strong within-firm associations consistent with IFRS 8 implementation and anticipation dynamics, potentially combined with a wider evolution in the European reporting environment. From a practical perspective, the evidence suggests that the long-run informational gains linked to IFRS 8 in this setting operate primarily through geographic transparency rather than through uniform improvement across all segment items or through increased stability of segment structures. If regulators and enforcers aim to strengthen the most economically informative dimension of segment reporting, our results point to entity-wide geographic disclosure as a particularly promising focal area. Several limitations deserve emphasis. First, EU adoption occurred at a broadly common time (2009), which makes it difficult to fully isolate standard effects from contemporaneous macroeconomic and regulatory developments; the placebo significance is consistent with this identification constraint. Second, despite fixed effects and clustered inference, the design remains largely associational, especially for outcomes that may adjust slowly. Third, some covariates contain extreme observations; robustness checks reduce this concern, but sensitivity to measurement choices cannot be ruled out. Finally, firm-year data cannot directly capture within-firm segment-level adjustments or the decision usefulness of disclosures for internal decision-making.

Future research could build segment-level panels to track changes in segment definitions and aggregation more precisely, and develop alternative disclosure metrics that capture granularity and comparability more directly. It would also be useful to extend the analysis to longer-run capital-market outcomes—such as analyst forecast properties or cost of capital—to assess whether the disclosure improvements documented here translate into broader valuation effects (e.g., Saleh et al., 2023). In addition, given growing interest in the intersection between reporting discretion and tax-sensitive settings, future work could integrate tax outcomes and enforcement heterogeneity to clarify when geographic disaggregation increases transparency versus when flexibility enables opacity.

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**Appendix**
Segment Disclosure Quality Index (QDI)

**Table A.** IFRS 8 Disclosure Items Used in the QDI

| No. | Item | Reference (para.) | Category |
|---|---|---|---|
| 1 | Entity-wide: products/services revenue by category | IFRS 8 paras32 | Entity-wide |
| 2 | Entity-wide: revenue by country/region + non-current assets (NCA) by location | IFRS 8 paras33 | Entity-wide |
| 3 | Segment revenue from external customers (per segment) | IFRS 8 paras23(a) | Segment/CODM |
| 4 | Intersegment revenue (per segment) | IFRS 8 paras23(b) | Segment/CODM |
| 5 | Depreciation & amortisation (per segment) | IFRS 8 paras23(e) | Segment/CODM |
| 6 | Segment profit or loss as reviewed by CODM | IFRS 8 paras23 | Segment/Core |
| 7 | Additions to non-current assets (Capex) (per segment) | IFRS 8 paras24(b) | Segment/CODM |
| 8 | Share of profit/loss of equity-accounted investees (per segment) | IFRS 8 paras23(g) | Segment/CODM |
| 9 | Segment assets (+ equity-accounted investees if assets presented) | IFRS 8 paras23 + paras24(a) | Segment/CODM |
| 10 | Segment liabilities | IFRS 8 paras23 | Segment/CODM |
| 11 | Reconciliations to consolidated totals (revenue, P/L, assets/liabilities) | IFRS 8 paras28 | Segment/Core |
| 12 | Impairment losses and reversals by segment (if applicable/material) | IFRS 8 paras23(f) | Segment/CODM |
| 13 | Material items of income/expense by segment (including impairment) | IFRS 8 paras23(f) / IAS 1 paras97 | Segment/CODM |
| 14 | Interest revenue and/or expense by segment | IFRS 8 paras23(c)–(d) | Segment/CODM |
| 15 | Income tax expense/benefit by segment | IFRS 8 paras23(h) | Segment/CODM |
| 16 | Entity-wide: major customers (≥10% of revenue) | IFRS 8 paras34 | Entity-wide |

Source: Authors' elaboration based on IFRS 8 (paras. 23-34) and IAS 1 (para. 97).

**Notes**: The Quality of Disclosure Index (QDI) is constructed from IFRS 8 disclosure requirements (paras23–34). CODM-based items are disclosed only if regularly reviewed by the Chief Operating Decision Maker. Each applicable item is scored as 1 if disclosed, 0.5 if explicitly justified, and 0 if omitted; non-applicable items are excluded from the denominator.

**Table B.** Joint pre-trends (leads) test for the GeoDiv event-study

| Test | Null hypothesis | Statistic | df1 | df2 | p-value | Variance–covariance |
|---|---|---|---|---|---|---|
| Joint Wald (F) test of leads | All pre-treatment lead coefficients = 0 | 1.2878 | 3 | 1059 | 0.2772 | Two-way clustered (firm & year) |

Source: Authors' calculations based on companies' annual reports (2005–2023) and official stock exchange data.

**Note:** The table reports a joint Wald (F) test of the null hypothesis that all pre-treatment lead coefficients are jointly equal to zero.
Standard errors are two-way clustered by firm and year.

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