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# Has global financial reporting comparability improved?

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BOSTON UNIVERSITY  
QUESTROM SCHOOL OF BUSINESS

Dissertation

**HAS GLOBAL FINANCIAL REPORTING  
COMPARABILITY IMPROVED?**

by

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Submitted in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy

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# **HAS GLOBAL FINANCIAL REPORTING COMPARABILITY IMPROVED?**

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## **ABSTRACT**

Motivated by ongoing worldwide efforts to improve the comparability of reported accounting numbers, this study examines the temporal trend in global financial reporting comparability and the factors that explain its variation. Despite regulatory interest in improving comparability, numerous frictions can limit the effectiveness of these efforts; examples include firm-specific incentives, investor protections, regulation, and enforcement. Using a broad cross-country sample focusing on the largest economies during 2000 to 2014, I first develop a firm-level measure of global financial reporting comparability. Next, I document—consistent across numerous specifications—that comparability is increasing over the sample period. Finally, I provide evidence of predictable cross-sectional variation: the increase in comparability is greater for firms that are smaller, using local GAAP, or domiciled in countries with weaker regulation and reduced for firms that are less profitable or have higher information asymmetry. Overall, the results are consistent with comparability increasing over time—reflecting systematic regulatory efforts and/or increasing economic integration—with the increase driven by firm- and country-level characteristics.

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## LIST OF ABBREVIATIONS

### Country Codes

AU.....	Australia
BR.....	Brazil
CA.....	Canada
CN.....	China
DE.....	Germany
ES.....	Spain
FR.....	France
GB.....	United Kingdom
IN.....	India
IT.....	Italy
JP.....	Japan
KR.....	South Korea
MX.....	Mexico
RU.....	Russia
US.....	United States

**LIST OF ABBREVIATIONS – *Continued***

Industry Codes

5010.....	Energy: Fossil Fuels
5020.....	Energy: Renewable
5110 .....	Basic Materials: Chemicals
5120.....	Basic Materials: Minerals
5130 .....	Basic Materials: Applied Resources
5210 .....	Industrials: Goods
5220.....	Industrials: Services
5240.....	Industrials: Transportation
5310.....	Consumer Cyclical: Automobiles
5320.....	Consumer Cyclical: Products
5330.....	Consumer Cyclical: Services
5340.....	Consumer Cyclical: Retailers
5410.....	Consumer Non-Cyclical: Food & Beverage
5420 .....	Consumer Non-Cyclical: Personal & Household
5430.....	Consumer Non-Cyclical: Food & Drug Retailing
5510.....	Financials: Banking & Investment Services
5530.....	Financials: Insurance
5540.....	Financials: Real Estate
5550.....	Financials: Collective Investments
5610.....	Healthcare: Services

**LIST OF ABBREVIATIONS – Continued**

Industry Codes – Continued

5620.....	Healthcare: Pharmaceuticals & Research
5710.....	Technology: Equipment
5720.....	Technology: Software & IT Services
5810.....	Telecommunication
5910.....	Utilities

## 1. INTRODUCTION

Motivated by ongoing worldwide efforts to improve the comparability of reported accounting numbers, this study examines the temporal trend in global financial reporting comparability and the factors that explain its variation.<sup>1</sup> The construct of accounting comparability is commonly defined as two firms reporting similar accounting amounts when faced with similar economic outcomes. Standard-setters, regulators, and other stakeholders around the world maintain that comparability is an important attribute for financial statement users. Both the United States Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) designate improved comparability of global accounting information as a commonly-shared goal.<sup>2</sup> Among the argued benefits of improved global financial reporting comparability are reduced costs for both users and preparers of financial statements and facilitated cross-border capital flows. Indeed, research confirms the market benefits of improving comparability (e.g., Aggarwal, Klapper, and Wysocki, 2005; Hail, Leuz, and Wysocki, 2010; DeFond, Hu, Hung, and Li, 2011). Motivated by these efforts and the findings of prior research, this paper assesses whether global efforts to improve comparability have succeeded in the long-term and examines the factors that accentuate or mitigate observed comparability trends.

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<sup>1</sup> The terms “financial reporting comparability”, “accounting comparability”, and “comparability” are used interchangeably throughout the paper.

<sup>2</sup> The FASB believes that pursuing more comparable global accounting standards is consistent with its core mission to establish accounting standards that result in financial reporting “that provides decision-useful information to investors and other users of financial reports” (<http://www.fasb.org/facts/>). Other standard-setters and regulators share this objective: for example, the IASB, Australia, Canada, New Zealand, and Japan include comparability in their “conceptual framework” equivalents.



First, the paper develops a firm-level measure of global financial reporting comparability. The basic intuition in operationalizing comparability is that economic outcomes of comparable firms should map similarly under each of their accounting systems, resulting in a higher comparability score. Accordingly, this paper builds on prior research (Barth, Landsman, Lang, and Williams, 2012) and develops an accounting system model within each country-industry-year using firm earnings, and estimates a given firm's economic outcome (stock return) under each country's model. A firm's comparability score is assessed as the median difference between fitted returns using its home country accounting model and fitted returns under the other sample country models: lower (higher) differences are indicative of a firm whose accounting is more (less) comparable with firms in the same industry and year across the sample. The measure is derived using a broad 15-country sample focusing on the world's largest economies between 2000 and 2014. The sample selection trades off capturing a significant share of the global economy (as defined representing over 75% of global gross domestic product) with the need for data availability and a sufficient number of firms within a given country-industry-year to allow estimation. Descriptive and empirical evidence provide construct validity of this measure.

Next, the paper examines the overall temporal trend in comparability by testing the prediction that comparability is improving over the sample period. This prediction is motivated by the collective and explicitly-stated efforts of standard-setters worldwide, including the FASB and IASB, as well as increasing economic integration across borders over time. Despite these expressed intentions, prior literature suggests numerous

frictions that can inhibit their outcomes, such as firm reporting incentives and the degree of enforcement within jurisdictions. The results reveal that average comparability is increasing over the sample period 2000 to 2014; the rate of improvement is conservatively estimated at 1.8% per year. However, the analysis also reveals year-to-year variability in the change in comparability.<sup>3</sup>

Finally, this paper applies regression analysis and principal component factor analysis to examine potential variation in the temporal trend of comparability. It begins by examining firm-level factors. Following prior research on the impact of firm reporting incentives on observed financial reporting (e.g., Ball, Robin, and Wu, 2003; Burgstahler, Hail, and Leuz, 2006; McVay, 2006), the paper provides construct validity by confirming that *average comparability* (i.e. level) is lower for firms with lesser information demands (small firms and low profit firms), not experiencing growth, not cross-listed, following local standards (versus US GAAP or IFRS), and having more information asymmetry. More importantly, the paper predicts and finds that the previously-documented increasing *comparability trend* is heightened for firms that are smaller or applying local standards and diminished for those that are less profitable. The latter results are consistent with (i) over-time improvements in comparability arising mostly from firms with lesser information demands, indirectly suggesting firms with higher informational demands have already reached their maximum relative comparability, (ii) jurisdictions strengthening their local GAAP over time (e.g., through global standard adoption and/or convergence efforts), and (iii) operational uncertainty restricting less profitable firms'

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<sup>3</sup> For example, comparability actually decreases during the global financial crisis.

ability to improve their comparability with peers.

Next, the paper examines country-level factors.<sup>4</sup> Following prior literature on the impact of countries' institutional frameworks on observed financial reporting (e.g., Ball, Kothari, and Robyn, 2000; Leuz, Nanda, and Wysocki, 2003; Bradshaw and Miller, 2008), it provides additional construct validity by confirming that *average comparability* is lower for countries of code law legal origin, poor regulatory quality, and smaller equity markets. More importantly, the paper then predicts and finds that the previously-documented increasing *comparability trend* is heightened for countries with weaker regulation. This indicates that the over-time improvements in comparability arise principally in jurisdictions with historically weaker regulation, implying improvements in their regulatory structure. Further, it indirectly suggests that jurisdictions with historically stronger regulation have already reached their maximum relative financial reporting comparability.

This study makes three contributions. First, it provides a firm-level time-series measure of global financial reporting comparability that is calculated using widely-available data. As such, this paper complements prior research by introducing an alternative measure by which the financial reporting construct of comparability can be empirically measured (e.g., De Franco, Kothari, and Verdi, 2011; Barth et al., 2012) and applied in cross-country settings. Second, it contributes to the literature on international accounting comparability (e.g., Barth, Landsman, and Lang, 2008; Brochet, Jagolinzer, and Riedl, 2013) by providing evidence of a long-term increase in global comparability

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<sup>4</sup> This analysis is conducted at the country level because these attributes are inherently non-varying at the firm level within a given country.

using a broad cross-country sample across US GAAP, IFRS, and local GAAP. Third, it documents firm- and country-level attributes that accentuate and mitigate observed reporting comparability. These insights should be relevant to regulators and standard-setters in their continuing efforts to improve accounting comparability.

The objective of this study is to identify the temporal trend in comparability that results from financial reporting changes. However, economic, political, and social forces are another potential explanation for a change in comparability over time. That is, globalization can result in not only more interconnected but also more homogenous economies. As the economic models of companies become more similar, their financial reporting also becomes more comparable (irrespective of changes to accounting). It is important to note that globalization and financial reporting changes are not mutually exclusive explanations for observed comparability trends; sensitivity analyses in the paper attempt to disentangle these differing drivers of comparability. Nonetheless, it is possible that economic effects provide a complementary (and not inconsistent) explanation to financial reporting changes for some portion of the observed increase in comparability over time.

Section 2 discusses the prior literature and hypothesis development. Section 3 presents the research design. Section 4 reviews the sample and descriptive statistics. Section 5 presents the results. Section 6 presents the supplemental analyses and Section 7 concludes.

## **2. PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT**

While regulators have explicitly attempted to converge accounting standards, prior studies document that the resulting impact on international accounting comparability has not been uniform. Much of this research focuses on effects associated with the adoption of IFRS. Several studies examine non-US firms applying domestic standards versus IFRS, finding greater comparability of accounting information under IFRS (e.g., Barth et al., 2008; Yip and Young, 2012; Brochet et al., 2013); however, Cascino and Gassen (2015) finds marginal results. Studies also examine earnings comparability of non-US firms cross-listed on US markets using IFRS-US GAAP earnings reconciliations, documenting higher comparability only in certain circumstances (e.g., Lang, Raedy, and Wilson, 2006; Henry, Lin, and Yang, 2009). Finally, Barth et al. (2012) compares accounting amounts of non-US to US firms, finding that comparability with the US is higher when non-US firms apply IFRS relative to their domestic standards.

Prior research argues that global reporting convergence cannot be accomplished by the adoption of standards (such as IFRS) alone (e.g., Daske et al. 2008; Christensen, Hail, and Leuz, 2013). The heterogeneous effect of accounting standards on comparability is a result of various firm- and country-level factors that impact financial reporting (e.g., Ball et al., 2003; Ball and Shivakumar, 2005; Burgstahler et al., 2006; Leuz, 2006; McVay, 2006; Kim, Park, and Wier, 2012; Alissa, Bonsall, Koharki, and Penn, 2013); examples documented by prior research include country-level convergence decisions (e.g. full adoption, substantial convergence, carve-outs, or non-adopters), institutional forces (e.g. regulation and enforcement), and firm-specific incentives.

Consequently, even when subject to the same accounting standards, considerable differences in reporting practices can exist across firms and countries because a firm's observed financial reporting is ultimately a cost-benefit trade-off determined by the factors influencing managerial incentives. This differing implementation can inhibit comparable financial statements—even for two firms ostensibly using the same accounting standards.

The paper's first objective is to assess the overall temporal trend in global financial reporting comparability. Regulatory efforts over the past decade explicitly aim to increase comparability; these include efforts by the FASB and IASB to converge the standards issued under US GAAP and IFRS, as well as broader efforts by domestic standard-setters. For example, many jurisdictions attempt to improve financial reporting comparability under their local GAAP (e.g., Canadian GAAP is essentially IFRS, Indian GAAP has evolved based on global standards, and Chinese GAAP is substantially converged with IFRS). Much of these efforts are driven by a capital market demand for information; allowing comparisons of firms across jurisdictions should facilitate more efficient capital allocation. Acknowledging these collective efforts, this paper predicts that global financial reporting comparability is increasing over time.

However, a number of frictions can inhibit efforts to improve comparability. These include frictions related to firm implementation, such as reporting incentives and financial reporting resources. They also include frictions related to accounting standard-setters, such as resources to cooperate with other standard-setters in developing appropriate reporting requirements and to provide implementation guidance to firms.

Finally, they include frictions related to country-level institutions, such as regulatory mechanisms. Examples of the latter include resources to ensure proper implementation, functioning judiciary systems to enact penalties when necessary, and market features (such as the presence of information intermediaries and institutional investors). All of these frictions provide tension, suggesting global financial reporting comparability may not improve over time.

Accordingly, the paper's second objective is to examine the impact of specific factors influencing the global financial reporting comparability trend. It considers both firm- and country-level characteristics that can improve and/or worsen observed changes in comparability over time. The paper begins by considering the findings of prior research, and how these characteristics affect the expected average (i.e., level) of comparability. Subsequently, it discusses how these characteristics affect the observed changes in comparability over time.

The following five firm-level attributes are assessed: external demand for information (i.e., size and profitability), growth, information asymmetry, cross-listing, and accounting standards. First, larger firms are associated with higher comparability; these firms experience greater investor demands for comparable financial information (Bradshaw, Bushee, and Miller, 2004) and are subject to more scrutiny from regulators and investors, which limits their financial reporting discretion. Related, comparability should be higher for more profitable firms, which are associated with more forthcoming disclosures (Cascino and Gassen, 2015)—in contrast to loss firms, which are associated with greater uncertainty and information asymmetry (e.g., Hayn, 1995; Collins, Pincus,

and Xie, 1999). Second, the association between firm growth and comparability is unsigned (Core 2001): on the one hand, firm growth can be indicative of greater uncertainty associated with new projects or growth opportunities that impede comparability; on the other hand, firms experiencing growth have greater external capital demands and may report more comparable accounting amounts to attract investors. Third, comparability should be lower for firms exhibiting higher information asymmetry: lower information asymmetry is associated with more frequent and higher quality reporting, thus reducing the dispersion in observed financial outcomes (Fu, Kraf, Zhang, 2012). Fourth, cross-listing is associated with higher comparability: cross-listed firms are subject to the laws and enforcement of foreign countries, with increased attention from capital market participants, which increase the potential costs of misreporting (e.g., Leuz, 2003; Lang et al., 2006). Finally, prior research documents that following the same accounting standards generally improves comparability (e.g., Lang, Raedy, and Wilson, 2006; Barth et al., 2008; Barth et al., 2012; Brochet et al., 2013); following similar standards narrows the set of permissible accounting treatments and decreases dispersion in observed financial outcomes.

The paper also considers the effect of country-level characteristics on comparability. Prior research shows that reported accounting amounts do indeed reflect differences in institutions (e.g., Ball et al., 2000; Leuz et al., 2003; Bradshaw and Miller, 2008).<sup>5</sup> A country's institutional infrastructure is comprised of the legal system, regulatory and enforcement agencies, industry associations, and standard-setters that

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<sup>5</sup> Similarly, these differences are insignificant when holding institutional factors constant (Leuz, 2003).



shape economic behavior (Hail et al., 2010). Accordingly, the following three country attributes are considered: legal origin, regulatory quality, and market development. First, legal origin broadly captures the level of investor protection in a country. Common law countries are associated with higher comparability, while code law countries have weaker investor protections and more concentrated firm ownership, resulting in greater information asymmetry (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1999). Second, stronger regulation is associated with higher comparability. Regulatory quality impacts how accounting standards are interpreted, implemented, and enforced, as well as managers' views on earnings management and fraudulent reporting. Companies in countries with strong regulation may be less willing to depart from mainstream accounting because of more severe potential consequences (Zeff, 2007). Third, more developed equity markets are associated with higher comparability. Equity markets develop jointly with other country characteristics; larger markets necessitate better regulation, involve greater investor oversight, and consequently create demand for high-quality, comparable financial statements. Conversely, less integrated capital markets support more relationship-lending and private communication channels, making observed financial reporting less comparable (e.g., Burghstahler et al., 2006; Bushman and Piotroski, 2006).

The aforementioned prior literature focuses on how *average* comparability (i.e., level) differs across firm- and country-level factors. However, the objective of this study is to explain variation in the long-term comparability *temporal trend*. If the incentives to, and benefits of, improving comparability are equivalent across all firms, then average

comparability may differ, but the rate of comparability change should be the same (i.e., the null hypothesis). Otherwise, there are four possible alternate outcomes for the impact of firm- and country-level determinants on the long-term trend in comparability. First, firms/countries with higher average comparability could continue to experience greater incentives and benefits of improved comparability, thus continuing to improve faster than their peers with lower average comparability. Second, firms/countries with higher average comparability could “drift” over time and revert to their previous conventions in making accounting judgments, thereby reducing their rate of improvement, not improving, or actually worsening their comparability over time, relative to their peers with lower average comparability. Third, firms/countries with weaker average comparability could experience greater increases in global financial reporting comparability. Given that this group is less comparable on average, these firms may be more subject to global improvement efforts than their peers with higher average comparability. Fourth, firms/countries with weaker average comparability may have fewer incentives on average to report in a comparable manner, suggesting they do not reach the point at which comparability becomes important; their rate of change may always be stagnant or worsening. For these reasons, the alternate form hypothesis is unsigned; this paper predicts the long-term comparability trend will vary across cross-sectional firm incentives and country institutions.

This paper differs from prior literature in two primary ways. First, it does not focus on the adoption of IFRS. Rather, it examines global accounting comparability in the long-term, and expects changes in accounting standards to only be one factor

influencing overall comparability. This difference in sample composition is important because the benefits of improved accounting comparability extend beyond US GAAP and IFRS jurisdictions. Second, the sample is based on global GDP coverage and extends beyond countries using IFRS or US GAAP. In doing so, the paper can provide evidence on global financial reporting comparability rather than IFRS-US GAAP comparability. Given intentions and efforts to improve comparability on a global scale, and the potential for comparability to fluctuate, it is important to understand the extent to which global efforts have succeeded, as well as the factors that accentuate or mitigate comparability over time.

### **3. RESEARCH DESIGN**

The research design first develops a measure of comparability, discusses potential concerns, and provides construct validity evidence. Then the measure is used in models to assess the overall comparability trend and its cross-sectional determinants.

#### **3.1 Measuring Comparability**

The FASB and IASB conceptual frameworks define comparability as two firms reporting similar accounting amounts when faced with similar economic outcomes. De Franco et al. (2011) (hereafter “DKV”) develops a measure of comparability to assess if a US firm’s earnings is comparable to that of other firms in its industry. DKV measures comparability using a time-series regression of quarterly earnings onto stock returns. Related, Barth et al. (2012) (hereafter “BLLW”) adapts the DKV measure to assess comparability of US GAAP and IFRS accounting systems in a cross-sectional setting. BLLW implements a regression of returns onto earnings to define comparability. Given

its prior use in an international setting and the lower availability of quarterly financial data for non-US firms, the comparability measure in this study builds upon the BLLW model.

The financial reporting comparability measure, *COMP*, is generated at the firm-level by year, and can incorporate firms following any set of accounting standards. Thus, it is a more generalizable estimation relative to the implementation of BLLW (which accommodates only two sets of accounting standards).<sup>6</sup> Furthermore, by using contemporaneous data, it is a more flexible estimation of comparability than DKV (which requires historical time-series data). The relaxed sample and data requirements make this a more comprehensive measure, allowing for investigation of changes in global financial reporting comparability over time. However, the measure's intuition follows both DKV and BLLW: if firms are comparable, then their economic outcomes should map similarly under each of their accounting systems, resulting in a high comparability score.

Construction of the comparability measure requires five steps.

First, estimate the relation between economic outcomes (stock return) and accounting amounts (earnings) within each country-industry-year having at least 10 firms:

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<sup>6</sup> The current measure of comparability differs from the BLLW measure in two primary ways. First, it is a firm-level measure incorporating firms using US GAAP, IFRS, or local GAAP; the BLLW measure is generated at a firm-pair level, using only firms reporting under US GAAP and IFRS. Second, it is computed at the industry level within each country over time; the BLLW measure is computed in a combined regression using industry and country fixed effects. Therefore, under the current construction a firm can have multiple counter-samples based on country-industry with each having a distinct accounting system model, whereas the BLLW model only has two subsamples (US and IFRS).

$$\begin{aligned}
RET_{it}^{C_j} &= \beta_{0t}^{C_j} + \beta_{1t}^{C_j}[NI_{it}/P_{it-1}] + \beta_{2t}^{C_j}[\Delta NI_{it}/P_{it-1}] + \beta_{3t}^{C_j}Loss_{it} \\
&\quad + \beta_{4t}^{C_j}Loss_{it} \times [NI_{it}/P_{it-1}] + \beta_{5t}^{C_j}Loss_{it} \times [\Delta NI_{it}/P_{it-1}] + \varepsilon_{it}^{C_j}
\end{aligned} \tag{1}$$

The superscript  $C_j$  denotes the pricing multiples relating to the accounting system for country  $C$  in industry  $j$ ; therefore, each  $\beta$  varies across each country-industry-year in the sample.  $NI$  ( $\Delta NI$ ) is net income before extraordinary items per share (change in net income before extraordinary items per share) for firm  $i$  at year-end  $t$ ,  $P$  is the share price, and  $RET$  is the buy-and-hold stock return beginning nine months before and ending three months after year-end.  $Loss$  is an indicator variable equal to 1 if  $NI$  is negative and zero otherwise, allowing the accounting system models to differ for loss firms (Hayn, 1995; Barth et al., 2012). All variables are measured in nominal US dollars.

Second, calculate the within-sample fitted stock return for each firm (i.e., estimate a firm's return using its *home country* model).

$$\begin{aligned}
\widehat{RET}_{it}^{C_j, C_j} &= \hat{\beta}_{0t}^{C_j} + \hat{\beta}_{1t}^{C_j}[NI_{it}/P_{it-1}] + \hat{\beta}_{2t}^{C_j}[\Delta NI_{it}/P_{it-1}] + \hat{\beta}_{3t}^{C_j}Loss_{it} \\
&\quad + \hat{\beta}_{4t}^{C_j}Loss_{it} \times [NI_{it}/P_{it-1}] + \hat{\beta}_{5t}^{C_j}Loss_{it} \times [\Delta NI_{it}/P_{it-1}]
\end{aligned} \tag{2}$$

Third, calculate the fitted stock return under each counter-sample model for each firm (i.e., estimate a firm's return using each of the *other countries'* models).<sup>7</sup> The model requires a minimum of two countries with sufficient firms in each industry-year.

$$\begin{aligned}
\widehat{RET}_{it}^{C_j, C_j^n} &= \hat{\beta}_{0t}^{C_j^n} + \hat{\beta}_{1t}^{C_j^n}[NI_{it}/P_{it-1}] + \hat{\beta}_{2t}^{C_j^n}[\Delta NI_{it}/P_{it-1}] + \hat{\beta}_{3t}^{C_j^n}Loss_{it} \\
&\quad + \hat{\beta}_{4t}^{C_j^n}Loss_{it} \times [NI_{it}/P_{it-1}] + \hat{\beta}_{5t}^{C_j^n}Loss_{it} \times [\Delta NI_{it}/P_{it-1}]
\end{aligned} \tag{3}$$

---

<sup>7</sup> The number of counter-sample fitted stock returns per firm can vary from one (if only a firm's home country and one other country have sufficient data a given industry-year) to  $N-1$  (if all  $N$  countries in the sample have sufficient data in the industry-year).

For example, calculate the fitted stock returns for a US firm (country  $C$ , industry  $j$ ) using the firm's  $NI$  and  $P$  and the pricing multiples of the same industry-year from each of the other sample countries ( $C_j^n$ , where  $n$  goes from one to  $N$  number of countries in the sample).

Fourth, calculate the absolute value of the difference between the within-sample and counter-samples fitted stock prices for each firm.

$$DIFF_{it}^{C_j, C_j^n} = |\widehat{RET}_{it}^{C_j, C_j} - \widehat{RET}_{it}^{C_j, C_j^n}| \quad (4)$$

Finally, define comparability as the natural logarithm of the median difference in fitted stock returns from Equation (4), multiplied by negative one. The objective is to aggregate the distances between the within-sample and counter-samples' fitted stock prices to one value representative of the comparability of that firm.

$$COMP_{it} = -\ln [\text{Median} (DIFF_{it}^{C_j, C_j^n})] \quad (5)$$

Measurement using the median improves stability, as the mean is susceptible to the influence of outlying values. On average, each industry-year includes six countries, thus five  $DIFF$  per firm; as such, one outlier country can significantly influence the mean.

The measure is also skewed by construction (the maximum value of  $DIFF$  is zero, while the minimum value is negative infinity), so the natural logarithm is used to improve the distribution. Lastly, the measure is multiplied by negative one to ease interpretation; larger values indicate higher financial reporting comparability. The result is a firm-year measure of  $COMP$ , based on an accounting system modeled by firms in the same country, industry, and year, relative to those of the counter-samples. Appendix 2

provides a detailed example of this calculation.

### **3.2 Comparability Measure Considerations and Construct Validity**

Three concerns regarding the proposed measurement of comparability warrant further discussion. First is the potential for market inefficiencies to skew the accounting system models in Equation (1). However, the sample is limited to the largest economies, thus mitigating concerns of totally inefficient or underdeveloped markets driving the results. The comparability model also includes two elements that address market inefficiencies: (i) the dependent variable *RET* is defined as the buy-and-hold return for the twelve-month period ending three months after fiscal year-end, which allows for a short delay in incorporating annual accounting information into the market, and (ii) the model includes the change in earnings from the prior period, which should capture any delayed relationship if it exists. In the event that the assumption of market efficiency is invalid in some sample countries and the model cannot capture the market delay, then there should be no relationship between earnings and returns. This would attenuate the coefficients in Equation (1) towards zero in the inefficient countries and add noise to the sample.

Second, the ability of the model to disentangle the effect of financial reporting changes from concurrent changes in market forces during the sample period could limit inferences. Given that economic globalization is arguably a joint explanation for predicted increases in comparability during the sample period, sensitivity analyses in Section 6.2 address the impact of economic forces.

Third, the possibility of measurement error in the comparability proxy is a

concern. Measurement error will add noise, biasing the results against finding significance in either direction.<sup>8</sup>

Descriptive statistics of the comparability measure are presented by year. Two tests are conducted to provide initial evidence of construct validity. First, *COMP* is computed using samples of country pairs expected (*ex ante*) to be similar and dissimilar. If countries are similar (dissimilar) in terms of size, economy, and culture, etc., then average comparability should be higher (lower). The reported *t*-statistic assesses whether the mean comparability scores differ in similar and dissimilar country pairs. Second, *COMP* is computed during periods of crisis (2007–2009) and non-crisis (2000–2006 and 2010–2014). An OLS regression of the overall temporal trend during crisis and non-crisis periods is estimated by regressing *COMP* on *Time*. The extreme financial uncertainty, in terms of both firm operations and investment valuations, provides a setting where observed comparability should decrease relative to non-crisis periods. Additional construct validity evidence is provided in the cross-sectional analysis of the average effect of firm- and country-level determinants. The comparability measure should reflect the on-average differences in comparability resulting from firm- and country-level determinants, as indicated by prior literature.

### **3.3 Comparability Trend**

The paper examines the overall trend in comparability during the sample period in two ways. First, the difference in mean comparability scores is assessed between “early”

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<sup>8</sup> Additionally, in a parsimonious model the effects of correlated omitted variables could be a concern. A potential correlated omitted variable in this scenario is globalization. The impact of globalization is addressed in a sensitivity analysis (see Section 6.2).



and “late” periods (defined in several ways); the reported  $t$ -statistic assesses whether the mean comparability scores differ in early- and late-periods. Second, the following OLS regression of the overall temporal trend is estimated:

$$COMP_{it} = \beta_0 + \beta_1 Time_{it} + \varepsilon_{it} \quad (6)$$

$COMP$  is firm  $i$ 's comparability score in year  $t$  (as defined in Section 3.1) and  $Time$  is a continuous variable ranging from 1 to 15, indicating the progression of time over calendar years 2000 to 2014. The comparability measure is calculated by industry-year; therefore, standard errors are clustered at both country and industry levels. If overall comparability is increasing (decreasing), the coefficient on  $Time$  ( $\beta_1$ ) will be positive (negative).

The following four analyses provide additional robustness testing of the overall comparability trend. First, a regression including country and industry fixed effects. Second, a regression using a sample that incorporates firms with March, June, and September fiscal year-ends, in addition to the main sample of December year-ends. This addresses concerns that results are driven by countries with disproportionately more calendar year-end observations.<sup>9</sup> However, this specification is weaker in terms of aligning the period of  $NI$  with  $RET$  across firms. Third, each country is systematically excluded from the sample; the comparability measure is regenerated and the regression analysis is performed on the new 14-country sample. This ensures no single country drives the results. This analysis reports the average regression results across the 15 new

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<sup>9</sup> For example, Japan has a relatively small number of firms using calendar year-ends; most Japanese firms use March 31 fiscal year-ends. Thus, the population of Japanese firms is underrepresented in the main sample.

samples and the proportion of those 15 regressions where the coefficient is statistically significant. Fourth, regressions are estimated by aggregating the firm-level *COMP* scores by industry and country (with standard errors clustered by industry and country, respectively). If the firm-level analysis is overweighted in magnitude or significance, assessing comparability at a more aggregated level will reduce power and determine the change in comparability with less impact from individual firms.

### **3.4 Comparability Trend Determinants**

The paper next analyzes the factors that constrain and accentuate the change in global financial reporting comparability over time. Section 2 predicts the long-term comparability trend will vary across the following firm characteristics: demand for information (i.e., size, profitability), growth, information asymmetry, cross-listing, and accounting standards. These constructs are captured using the following proxies (with attention to measures likely available given international data limitations): firm size by total assets (*Assets*); firm profitability by earnings per share (*EPS*); firm growth by the annual change in revenues (*Sales\_Growth*); firm information asymmetry by the standard deviation of daily returns over the prior year (*ST\_RET*); purely domestic versus cross-listed firms by cross-listed status (an indicator variable, *Crosslist*); and a firm's accounting standards by the proportion of sample countries that follow the same set of standards as firm *i* (*STDS\_PCT*). (See Appendix 1 for detailed variable definitions.)

The paper predicts the long-term comparability trend also will vary across the following country characteristics: legal origin, regulation, and equity market development. These constructs are captured using the following proxies, selected from

time-series, publically available data covering the entire sample period with consistent measurement techniques. Legal origin (*Common\_Law*) is captured by an indicator variable equaling one for countries with common law origin, and zero for countries with code law origin. Country-level regulatory characteristics are measured using: rule of law (*Rule\_of\_Law*), regulatory quality (*Reg\_Quality*), control of corruption (*Control\_of\_Corr*), and government effectiveness (*Govt\_Effective*). Higher values relate to superior performance. Finally, market characteristics are captured with: gross domestic product per capita (*GDPpc*), foreign direct investment as a percentage of GDP (*FDI*), market capitalization of public firms as a percentage of GDP (*Mkt\_Size*), and the number of public firms to 1,000 of population (*No\_Firms*). Higher values relate to larger equity markets. (See Appendix 1 for detailed variable definitions.)

The cross-sectional analysis begins with univariate evidence of the difference in mean comparability scores between “early” and “late” periods with firms classified into “low” and “high” groups based on the sample median of each of the firm- and country-level variables (i.e., a two-by-two design).<sup>10</sup> Four *t*-statistics are presented for each variable: (1) *low versus high group in the early years*; (2) *low versus high group in the late years*; (3) *high group in the early versus late years*; and (4) *low group in the early versus late years*. The reported *t*-statistics assess whether the mean comparability scores differ. If overall comparability is increasing, the change from early to late periods is expected to be positive and statistically significant in both the low and high groups across the board. Note that the univariate analysis is potentially affected by unequal sample

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<sup>10</sup> For example, firm-years with market capitalization greater than the sample median are “high,” and those less than or equal to the median are “low.”

sizes in each quadrant, as well as firms moving between low and high from the early to late periods. Thus, they provide preliminary evidence.

Next, the paper examines the effect of firm and country determinants on the trend in comparability using multivariate regression analysis. The firm and country determinants are assessed in separate regressions because multilevel data fails the fundamental assumption of independently and identically distributed variables.<sup>11</sup> The following OLS regression examines the impact of individual *firm-level factors* on global financial reporting comparability:

$$\begin{aligned}
 COMP_{it} = & \beta_0 + \beta_1 Time_{it} + \beta_2 Small\_Assets_{it} + \beta_3 Time_{it} * Small\_Assets_{it} \\
 & + \beta_4 Low\_EPS_{it} + \beta_5 Time_{it} * Low\_EPS_{it} \\
 & + \beta_6 Sales\_Growth_{it} + \beta_7 Time_{it} * Sales\_Growth_{it} \\
 & + \beta_8 High\_SD\_RET_{it} + \beta_9 Time_{it} * High\_SD\_RET_{it} \\
 & + \beta_{10} Not\_Crosslist_{it} + \beta_{11} Time_{it} * Not\_Crosslist_{it} \\
 & + \beta_{12} Low\_STDS\_PCT_{it} + \beta_{13} Time_{it} * Low\_STDS\_PCT_{it} + \varepsilon_{it} \quad (7)
 \end{aligned}$$

*COMP* and *Time* are as previously defined. Firm characteristics are multiplied by negative one so that higher values correspond to a predicted negative impact on average comparability, with the exception of *Sales\_Growth*. As a result, *Assets* is now interpreted as *Small\_Assets*, *EPS* as *Low\_EPS*, etc.; that is, increasing values correspond with fewer comparability incentives. Standard errors are clustered at the country and industry levels. If overall comparability is improving the coefficient on *Time* ( $\beta_1$ ) will be positive and significant. Following prior research, the coefficient on *Small\_Assets* ( $\beta_2$ ) is expected to

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<sup>11</sup> “Raising” country-level attributes to the firm level results in all firms in the country having the same value.

be negative: firms with fewer assets are expected to have lower demand for information, leading to lower comparability. More importantly, if the rate of change in comparability for firms with *Small\_Assets* is faster (slower) than the average comparability trend, then the interaction of *Time* and *Small\_Assets* ( $\beta_3$ ) will be positive (negative). Similar interpretations apply to the other variables and their interactions with *Time*.

For the country-level determinant analysis, the data suffers from a dimensionality problem: there are a high number of predictors (nine) relative to the annual sample size of 15 countries. In this case, factor analysis is an appropriate solution; it uses the correlation patterns in observed variables to identify unobserved latent factors. The number of factors to retain is based on Kaiser's (1960) criterion and Cattell's (1996) scree test. Once determined, a varimax rotation (linear transformation) is applied to obtain the set of orthogonal factors for the regression analysis. The following OLS regression examines the impact of *country-level factors* on global financial reporting comparability:

$$COMP_{it} = \beta_0 + \beta_1 Time_{it} + \sum_1^N (\beta_{2,N} FactorN_{it} + \beta_{3,N} Time_{it} * FactorN_{it}) + \varepsilon_{it} \quad (8)$$

*COMP* and *Time* are as previously defined.  $FactorN_{it}$  is firm *i*'s factor score for Factor *N* (*N* will range from 1 to *N*, depending on the number of factors retained in the analysis). Standard errors are clustered at the country level. If overall comparability is improving the coefficient on *Time* ( $\beta_1$ ) will be positive and significant. If *FactorN* has a positive (negative) effect on average comparability, the coefficient ( $\beta_{2,N}$ ) will be positive (negative) and significant. Further, if the rate of change in comparability attributable to *FactorN* is faster (slower) than the average comparability trend, then the interaction of *Time* and *FactorN* ( $\beta_{3,N}$ ) will be positive (negative) and significant.

#### 4. SAMPLE AND DESCRIPTIVE STATISTICS

The initial sample covers all publicly-traded companies from any country designated as within the top ten largest economies by gross domestic product (GDP) in any year over the period 2000 to 2014. This results in the following fifteen sample countries: Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Russia, South Korea, Spain, the United Kingdom, and the US.<sup>12</sup> These countries encompass, on average, 76.9% of the global GDP each year. The sample begins in 2000 to include data before worldwide comparability efforts became widespread and ends in 2014, the most recent year of data available at the time of the analysis.

Market data for US firms is obtained from The Center for Research in Security Prices and accounting data from Compustat North America.<sup>13</sup> All non-US firm data is obtained from Thomson Reuters Datastream/Worldscope. Country-level data is obtained from The Worldwide Governance Indicators 2015 Update and The World Bank's World Development Indicators August 2016 Update. The sample is restricted to firms with calendar year-ends. Holding companies are removed, as are firms with only one year of data. Firm-year observations missing data necessary to calculate the measure of comparability or missing variables used in the cross-sectional analysis are removed. Lastly, Firm-year observations in a country-industry-year that is too small (fewer than 10

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<sup>12</sup> Gross domestic product data obtained from the International Monetary Fund.

<sup>13</sup> US firm data was obtained from Compustat due to the ease of collection. A simple comparison of US firms (by CUSIP) across Compustat and Worldscope databases during the sample period reveals the following: (i) 700 Compustat firms are not identified in Worldscope, (ii) 2,451 Worldscope firms are not identified in Compustat, and (iii) 10,983 firms are identified in both Compustat and Worldscope. The final US sample consists of 5,820 firms from Compustat, all of which are also available in Worldscope. Therefore, it does not appear that the US sample is significantly affected by its data source.

firms) are excluded. Following BLLW, all variables are winsorized at the 5% and 95% levels to mitigate the effects of outliers.<sup>14</sup> The final sample comprises 15,294 firms and 129,144 firm-year observations as detailed in Table 1.

<Table 1>

Table 2, Panel A presents sample firms by country and year: the greatest proportion is from the US (35.1%), followed by China (18.6%) and South Korea (12.3%). Panel B provides an industry breakdown by year.<sup>15</sup> Sample firms are from various industries, with the Financial (5500's), Industrial (5200's), and Consumer Cyclical (5300's) sectors making up approximately 52% of the sample. Both panels show an increase in the number of firms entering the sample over time; later years have more observations than earlier.

<Table 2>

Table 3, Panel A shows descriptive statistics for all variables used in the analyses.

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<sup>14</sup> Variables are winsorized separately for pre- and post-2006 sample years, to avoid disproportionately winsorizing later observations, since 2007 and 2008 have a larger concentration of negative stock returns.

<sup>15</sup> Industries are defined by business sector using Thomson Reuters (TR) Business Classifications, as this is the most populated industry classification for the non-US firms. The TR Business Classifications are five levels: economic sector, business sector, industry group, industry, and activity (listed from general to specific). These are “static” classifications; firms are classified by their industry at the date of data retrieval only (July 2016), versus a “time series” industry classification that could vary over time for a given firm. US firms are classified based on Global Industry Classification Standard (GICS) industry groupings. Therefore, the GICS industry groupings were aligned with the TR business sector classifications and the US firms’ GICS were converted to TR business sectors. Industry classification at the second-most aggregated level (four-digit GICS and TR Business Sector) is sticky; however, if a firm changes focus over the sample period the static Thompson Reuters industry classification would be inaccurate. Given that GICS industry classifications can vary over time, the proportion of US firms that changed GICS industries during the sample period was examined. None of the US firms switched industries, therefore reducing concerns that the TR industry groupings are inaccurate.

The average (median) total assets of a sample firm is \$2,091 (\$287) million. Firms are generally profitable with mean (median) net income of \$61 (\$6) million annually. Across the entire sample period, approximately 16% of the firms cross-list in at least one other country and on average only a small proportion of the countries utilize the same accounting standards (17%). Due to the size of the US equity market relative to all other countries, the sample is weighted towards US firms that tend to be larger and more profitable than international firms; analyses are robust to excluding US firms and limiting their inclusion to a randomly selected 50 firms in each industry-year (Section 6.1). Table 3, Panel B presents correlations of the firm-level and country-level variables. Not surprisingly, the latter suffer from high correlations; therefore, the country determinant cross-sectional analysis is structured to specifically address the potential multicollinearity issue.

<Table 3>

## **5. EMPIRICAL RESULTS**

The results present descriptive statistics and construct validity evidence of the comparability measure, followed by evidence of the overall comparability trend and its cross-sectional determinants.

### **5.1 Comparability Measure Considerations and Construct Validity**

Figure 1 graphically depicts firm- and country-level comparability over time. Table 4, Panel A shows the corresponding distribution of firm-level comparability scores each year. Mean *COMP* in Table 4, Panel A corresponds to the sample mean depicted in Figure 1. The comparability exhibits considerable variation both within and across years:



the lowest firm comparability score is 2012 (−6.307) and the highest is 2007 (11.021). This equates to average differences in fitted returns of 548.249 and 0.00002 for the worst and most comparable firms, respectively, based on the inverse of the *COMP* natural logarithm. Additionally, the variation in *COMP* seems to be narrowing as time progresses; it appears that the standard deviation of *COMP* becomes smaller over time.

<Figure 1>

Concerns regarding the proposed measurement of comparability were identified and discussed in Section 3.2. To further address potential market inefficiencies, the resulting comparability scores (untabulated) are robust to redefining the measure with *RET* defined as the 12-month adjusted buy-and-hold stock return window ending six months after fiscal year end. To address the reverse scenario (where the accounting system is inefficient relative to the market), future period change in earnings is added to Equation (1) and the resulting comparability scores (untabulated) are robust. Lastly, Section 6.2 addresses the ability of the model to disentangle the effect of financial reporting changes from concurrent changes in market forces during the sample period.

To provide initial evidence of construct validity, *COMP* is computed using samples of countries expected (*ex ante*) to be similar and dissimilar. Table 4, Panel B shows two different comparisons of country-pairs with higher and lower *ex ante* comparability. If countries are similar (dissimilar) in terms of size, economy, and culture, then average comparability should be higher (lower). First, US and GB, higher *ex ante* comparability, are compared to US and CN, lower *ex ante* comparability. The mean (median) comparability across all firms/years in the sample of similar countries is

2.031 (1.951) and 1.287 (1.158) in the sample of dissimilar countries; the difference in means of 0.744 is significant statistically ( $t$ -stat=92.04) and in magnitude relative to the mean *COMP* within each sample. Second, CA and FR, higher *ex ante* comparability, are compared to the CA and RU, lower *ex ante* comparability. The mean (median) comparability across all firms/years in the sample of similar countries is 1.702 (1.637) and 1.191 (1.121) in the sample of dissimilar countries; difference in means of 0.511 is significant statistically ( $t$ -stat=22.22) and in magnitude relative to the mean *COMP* within each country.

Table 4, Panel C presents *COMP* during periods of crisis (2007–2009) and non-crisis (2000–2006 and 2010–2014). The extreme financial uncertainty, in terms of both firm operations and investment valuations, provides a setting where observed comparability should decrease relative to non-crisis periods. Column (1) shows the comparability trend is indeed decreasing during the crisis (–0.160,  $p < 0.10$ ), while Column (2) shows it increasing during non-crisis periods (0.022,  $p < 0.01$ ).

Therefore, Table 4 provides evidence that *COMP* appropriately captures the construct of comparability; additional construct validity evidence is provided in the cross-sectional analysis of the average effect of firm- and country-level determinants in Section 5.3.1. The comparability measure should reflect the on-average differences in comparability resulting from firm- and country-level determinants, as indicated by prior literature.

<Table 4>

## 5.2 Comparability Trend

Figure 1 provides initial evidence of the comparability trend. The Fitted Trend Line is the line of best fit from a linear regression of *COMP* on *Time*, suggesting that there is an overall increasing comparability trend over time. It is clear that comparability exhibits considerable variation from year-to-year and the change in average yearly comparability is not monotonic. While the overall comparability trend in Figure 1 appears to be increasing, it is evident in Figure 2 (financial reporting comparability over time by country) that firms in some countries are increasing comparability while others remain relatively constant or are decreasing.

<Figure 2>

Univariate and multivariate tests are used to assess the statistical significance of the overall trend. Table 5, Panel A presents univariate tests of the mean comparability score when the sample is partitioned into early and late periods. In all three scenarios (dividing the sample at 2006, at 2007, and comparing the first five to the last five sample years), average comparability is statistically increased ( $p < 0.01$ ) from the early to late period. The increase in comparability equates to the average difference in fitted returns being reduced by 0.051, 0.061, and 0.057 when the sample is partitioned at 2006, at 2007, and by the earliest and most recent five-year periods, respectively.

Table 5, Panel B presents the comparability trend regression analysis. Across all specifications, the coefficient on *Time* is significantly positive; supporting the prediction that average comparability is increasing over time. The coefficient of 0.018 ( $p < 0.01$ ) in the main specification (Column (1)) indicates that average comparability increases by

1.8% each year. The average annual increase is largest at 2.5% when including country and industry fixed effects (Column (2)). The coefficient of 0.013 ( $p < 0.01$ ) in Column (3) incorporates firms with March, June, and September fiscal year-ends, in addition to the main sample of December year-ends. This addresses concerns that results are driven by countries with disproportionately more calendar year-end observations; however, this specification is weaker in terms of aligning the period of *NI* with *RET* across firms. Column (4) indicates that results from the main specification remain when systematically excluding each country from the sample; suggesting the results are not driven by any single country. In the industry level regression, Column (5) shows that comparability increases by 2.0% annually ( $p < 0.01$ ). In the country-level analysis, Column (6) shows that comparability increases by 2.1% annually ( $p < 0.05$ ). The industry- and country-level regressions alleviate concerns that the firm-level analysis is overweighted in magnitude or significance.

Overall, these analyses indicate that global financial reporting comparability is increasing over the period 2000 to 2014, consistent with expectations. The results provide a conservative estimate of the increase at 1.8% annually, or a cumulative increase of 28.7% over the sample period.

<Table 5>

### **5.3 Comparability Trend Cross-Sectional Analysis**

Given variation across firm incentives and country institutions, it may not be optimal for all firms to produce similar reporting (e.g., Hail, Leuz, and Wysocki, 2010). Accordingly, the following sections examine how firm characteristics, reporting

incentives, and institutional frameworks explain the variation in the overall comparability trend identified in Figures 1 and 2.

### **5.3.1 Comparability Trend Cross-Sectional Analysis - Univariate**

Table 6 reports the results of two-by-two univariate tests on comparability determinants. The sample period is partitioned into “early” and “late” years with firms/countries divided into “high” and “low” groups based on the sample median of each of the aforementioned firm- and country-level variables. If overall comparability is increasing, the change from early to late periods is expected to be positive and statistically significant in both the low and high groups across the board. Recall that Section 2 predicts the long-term comparability trend will vary across the following characteristics: firm-level demand for information (i.e., size, profitability), growth, information asymmetry, cross-listing, accounting standards, and country-level legal origin, regulation, and equity market development. If prior literature indicates low levels of a given factor have a predicted negative effect on average comparability, then the difference between the low and high groups is expected to be negative and statistically significant, and vice versa. Moreover, the difference in the low versus high groups’ long-term comparability trend is presented in the lower right cells of Table 6. If the low (high) group has a more significant increase over the period, then the result is expected to be positive (negative). Due to the unequal sample sizes in each quadrant, and potential for firms to move between low and high groups from the early to late periods, the univariate analysis cannot assess whether the temporal trends of low and high groups differ.

<Table 6>

The Table 6 analyses provide descriptive evidence consistent with the overall comparability trend analysis. Across all partitions, both low and high groups are improving comparability from the early to late period; “Chg. Low” and “Chg. High” are positive and significant in all factor partitions with the exception of *Mkt\_Size* and *No\_Firms* (Chg. High is positive but not significant).

The results also generally confirm prior literature’s findings on average comparability levels and provide additional construct validity for the comparability measure. Table 6, Panel A reports the results of the univariate tests on firm level determinants of financial reporting comparability. Measures of a firm’s demand for information (*Assets* and *EPS*) show that firms with low demand for information have lower average comparability in both early and late periods. Firms experiencing more growth (*Sales\_Growth*) and cross-listed firms (*Crosslist*) have higher average comparability in both early and late periods, while firms with high information asymmetry (*SD\_RET*) have lower average comparability in both early and late periods. Counter-intuitively, the high *STDS\_PCT* group, where a high proportion of sample countries follow the same standards as the firm, appears to have lower average comparability than firms using domestic standards in the early period, but higher average comparability in the late period. This is likely a result of the fact that high and low groups are determined by the sample median, which is very low for *STDS\_PCT* due to the dispersion in accounting standards prior to the global accounting standards movement. Therefore, the low and high groups are not accurately represented in the univariate test.

Continuing to confirm prior literature's findings on average comparability levels and provide additional construct validity for the comparability measure, Table 6, Panel B reports the results of the univariate tests on country-level determinants of financial reporting comparability. Countries of code law legal origin (*Common\_Law*), weaker regulation (*Rule\_of\_Law*, *Reg\_Quality*, *Control\_of\_Corr*, and *Govt\_Effective*), and less developed markets (*GDPpc*, *FDI*, *Mkt\_Size*, and *No\_Firms*) generally demonstrate lower average comparability in both early and late periods; in all factor partitions the low group has lower average comparability in the early period (statistically significant in seven of nine partitions) and in seven of nine factor partitions the low group has lower average comparability in the late period (statistically significant in five of nine partitions).

Returning to the objectives of this analysis, the differences in the low versus high groups' long-term comparability trends are generally meaningful in magnitude relative to the average comparability scores in both Table 6, Panels A and B, suggesting that these variables are determinants of the comparability trend. However, recall that due to the unequal sample sizes in each quadrant, and potential for firms to move between low and high groups from the early to late periods, a multivariate analysis is necessary to determine whether the temporal trends of low and high groups differ.

### **5.3.2 Comparability Trend Cross-Sectional Analysis - Multivariate**

Multivariate results assessing the firm-level determinants of global financial reporting comparability are presented in Table 7. Recall that Section 2 predicts the long-term comparability trend will vary across the following firm characteristics: demand for information (i.e., size, profitability), growth, information asymmetry, cross-listing, and

accounting standards. Consistent with overall comparability increasing, the coefficient on *Time* remains positive and statistically significant (0.028,  $p < 0.01$ ). The main effect of *Small\_Assets* is negative and significant ( $-0.001$ ,  $p < 0.01$ ) and its interaction with *Time* is positive and significant (0.001,  $p < 0.01$ ); smaller firms are, on average, less comparable, but increase comparability more over time. The inverse interpretation for *Small\_Assets* is that larger firms are more comparable on average, but are no longer making significant comparability increases. This indirectly suggests that large firms may have reached a maximum comparability level relative to their peers, or they have little incentives or mechanisms left by which to increase comparability further while maintaining reporting quality. The main effect of *Low\_EPS* is not significant, but its interaction with *Time* is negative and significant ( $-0.005$ ,  $p < 0.10$ ); less profitable firms increase comparability relatively less over time. This finding indicates that operational uncertainty restricts less profitable firms' ability to increase their comparability with peers. Furthermore, the main effect of *STDS\_PCT* is negative and significant ( $-1.320$ ,  $p < 0.01$ ) and its interaction with *Time* is positive and significant (0.102,  $p < 0.05$ ); firms using local standards are less comparable on average, but over time they increase comparability relatively more. This result is consistent with jurisdictions strengthening their local GAAP over time (e.g., through global standard adoption and/or convergence efforts).

The main effect of *High\_SD\_RET* is negative and significant ( $-0.257$ ,  $p < 0.01$ ), consistent with prior literature, but its interaction with *Time* is not significant; firms with higher information asymmetry are less comparable on average and experience an average rate of increase. The *Sales\_Growth* and *Not\_Crosslist* attributes do not explain any



additional variation in comparability beyond that attributed to the aforementioned firm characteristics.

The firm-level cross-sectional analysis provides evidence of the firm characteristics that influence global financial reporting comparability.<sup>16</sup> Combined, these results show that smaller firms and firms using local accounting standards are, on average, less comparable, but that over time their comparability increases at a relatively higher rate. Less profitable firms are not dissimilar in terms of average comparability, but they experience a lesser rate of increase over time. Finally, firms with high information asymmetry are, on average, less comparable, but increase at the average rate.

<Table 7>

Next, the paper conducts a factor analysis on country-level determinants of global financial reporting comparability; Table 8 presents the results. The correlations reported in Table 3, Panel B indicate that regressions using the raw country measures will suffer from multicollinearity. This issue, coupled with the sample's dimensionality problem,

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<sup>16</sup> A factor analysis using the principal components method on the firm-level determinants is performed as a robustness check. All variables from the main model are included, plus the following measures: market capitalization (firm size), return on equity (profitability), market to book ratio (growth), and a local GAAP accounting standards indicator. The analysis identifies four underlying firm characteristic factors. Factor 1 captures firm size, Factor 2 captures profitability and information asymmetry, Factor 3 captures cross-listing and accounting standards, and Factor 4 captures growth. Untabulated results show that smaller firms are on average less comparable, but that over time their comparability improves at relatively higher rate. Firms using local accounting standards and purely domestic firms have lower comparability on average, but they also improve comparability at a higher rate. Firms experiencing growth are on average more comparable with average improvement over time, and less profitable firms and firms with higher information asymmetry are not different on average, but they experience lower rates of comparability improvement over time. The cross-sectional firm-level factor analysis supplements the disaggregated analysis presented in Table 7 and provides further evidence on the firm characteristics that are influential to global financial reporting comparability.

supports the use of factor analysis in the country-level setting. The number of factors retained is based on Kaiser's (1960) criterion and Cattell's (1996) scree test.<sup>17</sup> The analysis indicates that there are three underlying country characteristic factors. Panel A presents statistics on the two retained factors after varimax rotation. Combined, the factors explain 86.8% of the total observed variation in country attributes, with Factor 1 explaining 52.2% alone.

The rotated factor loadings in Panel B show the weights and correlations between variables and factors. For ease of interpretation, only factor loadings larger than 0.4 are shown. The factors are named based on the relevance of the variables within it. Factor1 clearly captures regulatory characteristics of the country (*Rule\_of\_Law* loading of 0.956, *Reg\_Quality* loading of 0.966, *Control\_of\_Corr* loading of 0.962, *Govt\_Effective* loading of 0.959, and *GDPpc* loading of 0.851). Factor2 captures market development and legal origin (*Common\_Law* loading of 0.849, *Mkt\_Size* loading of 0.798, and *No\_Firms* loading of 0.655). Factor3 captures foreign direct investment (*FDI* loading of 0.987). All factors are multiplied by negative one so larger values correspond to a predicted negative impact on average comparability, therefore Factor1 increases with “poor regulatory quality”, Factor2 is larger for “developing markets”, and Factor3 increases with “low foreign direct investment”.

The regression analysis in Table 8, Panel C uses country scores for the three retained factors. The resulting *Time* coefficient is positive and significant (0.025,  $p < 0.01$ ), indicating overall comparability is increasing. Recall that Section 2 predicts the

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<sup>17</sup> Kaiser's (1960) criterion is to retain all factors with eigenvalues greater than one. Cattell's (1996) scree test retains all factors above the point of inflection in the eigenvalue graph.

long-term comparability trend will vary across the following characteristics: legal origin, regulation, and equity market development. The main effect of Factor1 (poor regulatory quality) is negative and significant ( $-0.360$ ,  $p<0.01$ ) and its interaction with *Time* is positive and significant ( $0.023$ ,  $p<0.01$ ); countries with weaker regulation are, on average, less comparable, but over time they increase comparability relatively more. Factor2 and Factor3 are not significant in their main effects or their interactions with *Time*. Thus, it appears that market development and foreign direct investment do not have a significant impact on comparability beyond what can be attributed to a country's regulatory quality.

<Table 8>

The country-level results are consistent with Figure 3, which depicts the financial reporting comparability trend by geographic cluster. Geographic clusters that include countries with weaker regulatory and enforcement (e.g. South America and Asia) appear to have lower comparability on average and increase at a faster rate than those with stronger regulators (e.g. North America and Europe).

<Figure 3>

The country-level analysis concludes that country regulatory quality is a major determinant of observed financial reporting comparability. Countries with weaker regulatory characteristics are significantly less comparable on average, though they increase at a relatively higher rate. The inverse interpretation is that countries with better regulatory quality are more comparable on average, but are no longer making significant comparability increases. This indirectly suggests that countries with better regulatory

quality may have reached conditions for their maximum comparability level relative to their peers, or they have little incentive to increase comparability further.

The cross-sectional analysis provides evidence of variation in the change of comparability that reflects firm characteristics, reporting incentives, and institutional frameworks. Overall, these results conclude that comparability has increased; the increase is heightened for small firms and firms using local GAAP and diminished for less profitable firms. Further, countries with weaker regulation exhibit relatively larger increases over the period.

## **6. SENSITIVITY ANALYSIS**

This section assesses the robustness of the results using different specifications of the comparability measure and alternative samples. Robustness tests are performed on the overall trend analysis and the firm- and country-level determinant analyses. In addition, the impact of globalization on global financial reporting comparability is examined, which is arguably a joint explanation for predicted increases in comparability.

### **6.1 Alternate Samples and Specifications**

Alternate samples and specifications of the comparability measure are employed to assess the robustness of the results. The sample is redefined in three ways: (i) remove firms that are a poor fit for the comparability accounting model, (ii) randomly select 50 firms from each country-industry-year, and (iii) balanced panel. The first alternate sample involves removing firms that are not a good fit for their home-country accounting system model. If a firm is a poor fit for its home-country accounting model, then it is either misclassified or an outlier in the country-industry-year. Retaining these firms in

the main tests provides the most comprehensive representation of accounting comparability; however, it also adds noise. The estimated counter-sample returns of poorly fit firms are compared to bad estimates of their of home-country returns, thus adding noise to their *COMP* score. Therefore, firms are dropped from the sample if their difference between actual *RET* and predicted *RET* in Section 3.1 Equation (2) is more than two standard deviations from the mean across all firm-years.

Second, the sample is limited to 50 randomly selected firms in each country-industry-year (or all available observations in countries with fewer than 50 firms in an industry-year). This addresses concerns that countries with disproportionately more industry-year observations drive the results.<sup>18</sup> Third, the sample is restricted to a balanced panel of firms. This reduces concerns about economic disparity in the sample, and that results are driven by variation in firms entering and exiting the sample.

The comparability measure is redefined in three ways: (i) *COMP* calculated using abnormal firm *RET*, (ii) *COMP* defined at the mean, and (iii) *COMP* calculated using a reverse regression model. First, the comparability measure is computed using abnormal returns. Market adjusting the returns removes the global benchmark and in doing so may reduce noise in the comparability measure. Therefore, firm returns (*RET* in Section 3.1 Equation (1)) are adjusted by the corresponding Dow Jones Global Total Stock Market Index returns. The remainder of the *COMP* measurement process is conducted following the same steps as detailed in Section 3.1.

The second modification to *COMP* addresses a potential concern with the original

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<sup>18</sup> The 50 firm cutoff is chosen *ex post* based on the mean number of firms a country has in an industry-year: 52.

comparability measure: defining *COMP* at the median difference (*DIFF* in Section 3.1 Equation (4)) between a firm’s fitted returns using its home country versus counter-sample country models can be biased toward countries that make up a greater proportion of the sample. If this bias does exist, then the comparability measure would potentially be interpreted as comparability relative to a specific country instead of *global* comparability. Table 2, Panel A documents that the US makes up 35.1% of the sample and the next largest country (China) only makes up 18.6%, which makes this concern valid. However, untabulated results show the distribution of countries pulling as the median *DIFF* is only marginally inclined towards the US. The US is identified as the median *DIFF* in 18.0% of the 83,874 non-US firm-year observations, which is only 4.9% more than the next largest country. Therefore, the measure of comparability can be interpreted as capturing *global* comparability, rather than comparability relative to the US. To further address this concern, comparability is defined as the mean difference (*DIFF* in Section 3.1 Equation (4)) between a firm’s fitted returns using its home country versus counter-sample country models.

Third, comparability is defined using a “reverse regression” model, similar to that of De Franco et al., 2011. In this specification, the accounting system for a country-industry-year is estimated based on the following regression (i.e., Step 1 in Section 3.1):

$NI_{it}^{Cj} = \beta_{0t}^{Cj} + \beta_{1t}^{Cj}RET_{it} + \beta_{2t}^{Cj}Loss_{it} + \beta_{3t}^{Cj}Loss_{it} \times RET_{it} + \varepsilon_{it}^{Cj}$ . Where *NI* is firm *i*’s net income before extraordinary items scaled by beginning of period market value of equity, *RET* is buy-and-hold return over the fiscal year, and *Loss* is an indicator variable equal to 1 if *NI* is negative and zero otherwise. The remainder of the *COMP* measurement

process is conducted following the same steps as detailed in Section 3.1. The reverse method offers an alternative model to the forward approach of calculating comparability; however, due to the lack of quarterly data for non-US firms, this method may introduce additional noise to the comparability measure.<sup>19</sup> The reverse approach is also critiqued for reverse causality/simultaneity issues.

<Table 9>

Table 9 presents the results: Panel A reports the results of the overall trend analysis, Panels B and C report the results of firm- and country-level determinant analyses, respectively. The alternate samples and comparability measures are consistent across all three panels of Table 9. The coefficient on *Time* is significantly positive across all specifications in Panels A, B, and C; supporting the prediction that average comparability is increasing over time.

The firm-level cross-sectional analysis in Panel B provides results generally consistent with the prior findings. Smaller firms and firms using local accounting standards are, on average, less comparable, but over time their comparability increases at a relatively higher rate. Less profitable firms are not dissimilar in terms of average comparability, but they experience a lesser rate of increase over time. Firms with high information asymmetry are, on average, less comparable, but increase at the average rate. In addition, two factors now have an impact on the comparability trend, which was not present in the primary analysis: (i) in the balanced panel sample (Column (3)) purely

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<sup>19</sup> Recall that De Franco et al., 2011, performed the reverse model on quarterly data. This study implements a similar reverse method using annual data, due to limitations on non-US firm data.

domestic firms are not dissimilar in terms of average comparability, but they experience a higher rate of increase over time, and (ii) when defining *COMP* at the mean (Column (5)), firms experiencing growth are not dissimilar in terms of average comparability, but they experience a higher rate of increase over time. Lastly, the cross-sectional variation in the reverse regression model (Column (6)) is reduced to firms using local accounting standards (on average, less comparable, but increase at a relatively higher rate) and less profitable firms (no difference in average comparability, but increase at a relatively lower rate). Interestingly, although the number of factors that significantly explain the comparability trend variation have decreased, the explanatory power of the reverse model is greatest.

The country-level cross-sectional analysis in Panel C also provides results consistent with the prior findings. Countries with weaker regulatory characteristics are significantly less comparable on average, though they increase at a relatively higher rate. In addition, one factor that was not significant in the primary analysis now has an impact on the comparability trend: (i) in the reverse model (Column (6)) countries with lower foreign direct investment are not dissimilar in terms of average comparability, but they experience a higher rate of increase over time.

Overall, the results of sensitivity analyses on the long-term comparability trend and cross-sectional forces support the main findings. The alternative samples mitigate concerns that the findings are contingent upon the sample composition, and the alternative measures provide robust evidence of the results.



## 6.2 Economic Forces Analysis

The focus of this paper is to examine the broad trend in global financial reporting comparability and the factors that explain its variation over time. However, economic, political, and social forces are another potential explanation for observed changes in comparability over time. That is, over time globalization can result in not only more interconnected economies, but also more homogenous economies. As the economic models of companies become more similar, their financial reporting becomes more comparable (irrespective of changes to accounting). Economic globalization and financial reporting changes are not mutually exclusive explanations for an observed increase in comparability during the sample period. This section attempts to disentangle the effect of financial reporting changes from concurrent changes in market forces and provide evidence of the extent to which economic globalization explains the primary findings.

To assess the effect of globalization on the comparability measure, the paper first examines the temporal trends of the comparability model coefficients. If globalization is changing the nature of the relationship between *RET* and *NI* over the sample period, then there should be evidence of a systematic trend in the coefficients from the accounting system models used to measure comparability. Therefore, an OLS regression is estimated by individually regressing each beta from Section 3.1 Equation (1) on *Time*. The results are presented in Table 10, Panel A. Five out of six coefficients do not have a statistically significant temporal trend. That is, there is no systematic change in the coefficients over time. The coefficient on *Loss* in Column (4) is positive and significant,

reflecting the fact that more firms are loss firms in the later years of the sample; consistent with the financial crisis falling in the second half of the sample period. The results of this analysis suggest that the relationship between *RET* and *NI* is not changing in a systematic way over the sample period.

To disentangle the effect of financial reporting changes from concurrent changes in market forces, the main OLS regression is estimated while controlling for *Trade*; results are presented in Table 10, Panel B. *Trade* is the value-weighted sum of country-level exports and imports of goods and services, measured as a percentage of GDP in Columns (1) and (2) and in US dollars in Columns (3) and (4).<sup>20</sup> The coefficient on *Time* is significantly positive across all specifications; supporting the prediction that average comparability is increasing over time. The coefficient on *Trade* is positive and generally significant, in line with the notion that globalization does increase comparability; however, it does not reduce the magnitude of the overall comparability trend (*Time*). In the one scenario where the interaction of *Time* and *Trade* is positive and significant (Column (2)), the impact only accentuates the comparability increase over time. Taken together, Panel B indicates that controlling for *Trade* does not diminish the overall comparability trend; rather, it is an additional factor explaining the observed comparability trend that only accentuates the increase over time.

<Table 10>

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<sup>20</sup> After review of various common indexes of economic globalization, it is evident that the largest contributing factor to these empirical measures is *Trade*. Measures reviewed include the KOF Index of Globalization, A.T. Kearney/Foreign Policy Magazine Globalization Index, and New Globalization Index.

## 7. CONCLUSION

Motivated by ongoing worldwide efforts to improve comparability of reported accounting numbers, this study examines the temporal trend in global financial reporting comparability and factors that accentuate and mitigate comparability over time. First, the paper develops a firm-level measure of global financial reporting comparability using a broad 15-country sample focusing on the world's largest economies from 2000 to 2014. Consistent with the common definition of comparability, the intuition of the measure is that economic outcomes of comparable firms should map similarly under each of their accounting systems, resulting in a higher comparability score. Descriptive and empirical evidence provide construct validity of this measure. Second, the paper examines the temporal trend in overall comparability, providing compelling evidence that average comparability increases over the period (conservatively estimated at a 1.8% annual increase). Finally, this paper applies regression analysis and principal component factor analysis to explain the observed variation in comparability over time. The documented increase in comparability is heightened for small firms, firms using local GAAP, and diminished for less profitable firms. In addition, a country's regulatory quality directly impacts observed comparability: firms in countries with weaker regulation exhibit a relatively larger rate of improvement. Additional analyses confirm the robustness of these findings.

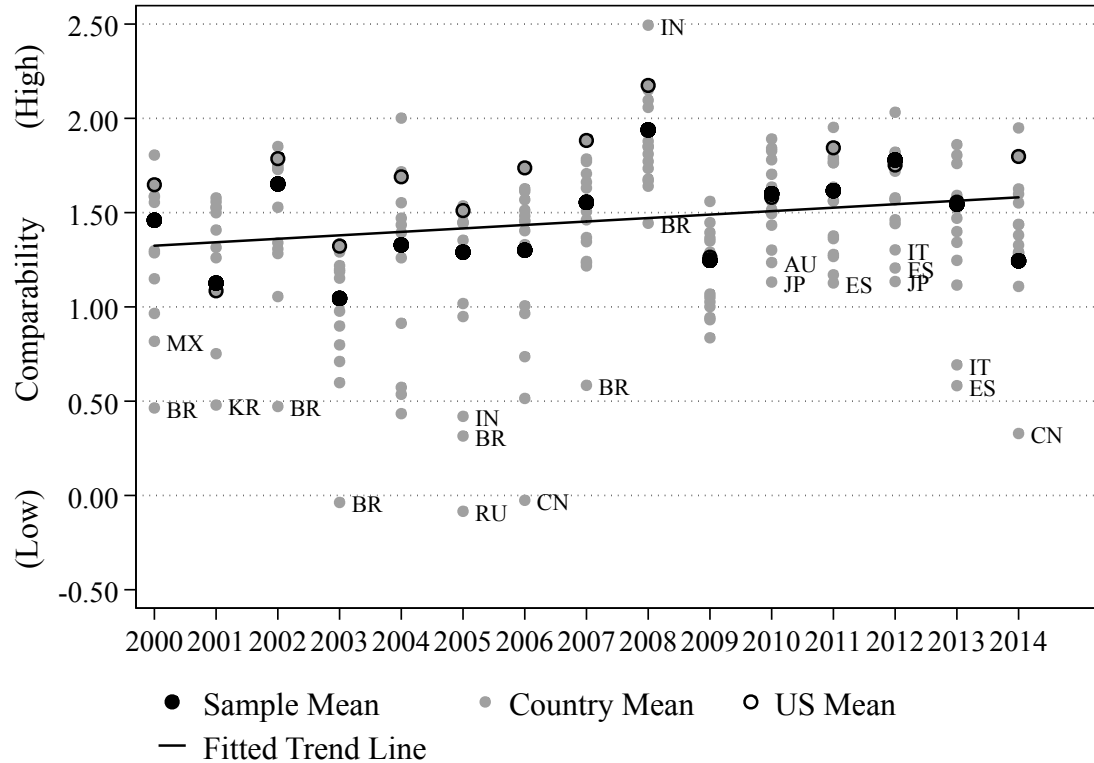
One caveat to the above inferences is that the observed increase in comparability can be attributable (in part) to economic forces surrounding increased globalization over the sample period. Of note, international integration and financial reporting changes are

not mutually exclusive explanations; it is difficult to disentangle the two. However, this paper documents that (i) there is no systematic change in the relationship between firm returns and net income over the sample period, and (ii) controlling for global trade does not negate, but rather accentuates, the observed increase in comparability over time. This suggests that the results are at least partially attributed to reporting changes.

Overall, the results indicate that worldwide efforts to improve accounting comparability have been successful; that is, global financial reporting comparability is increasing. However, this increase in comparability is accentuated and mitigated by several firm and country attributes. These insights should be relevant to regulators and standard-setters, in their continuing efforts to improve accounting comparability.

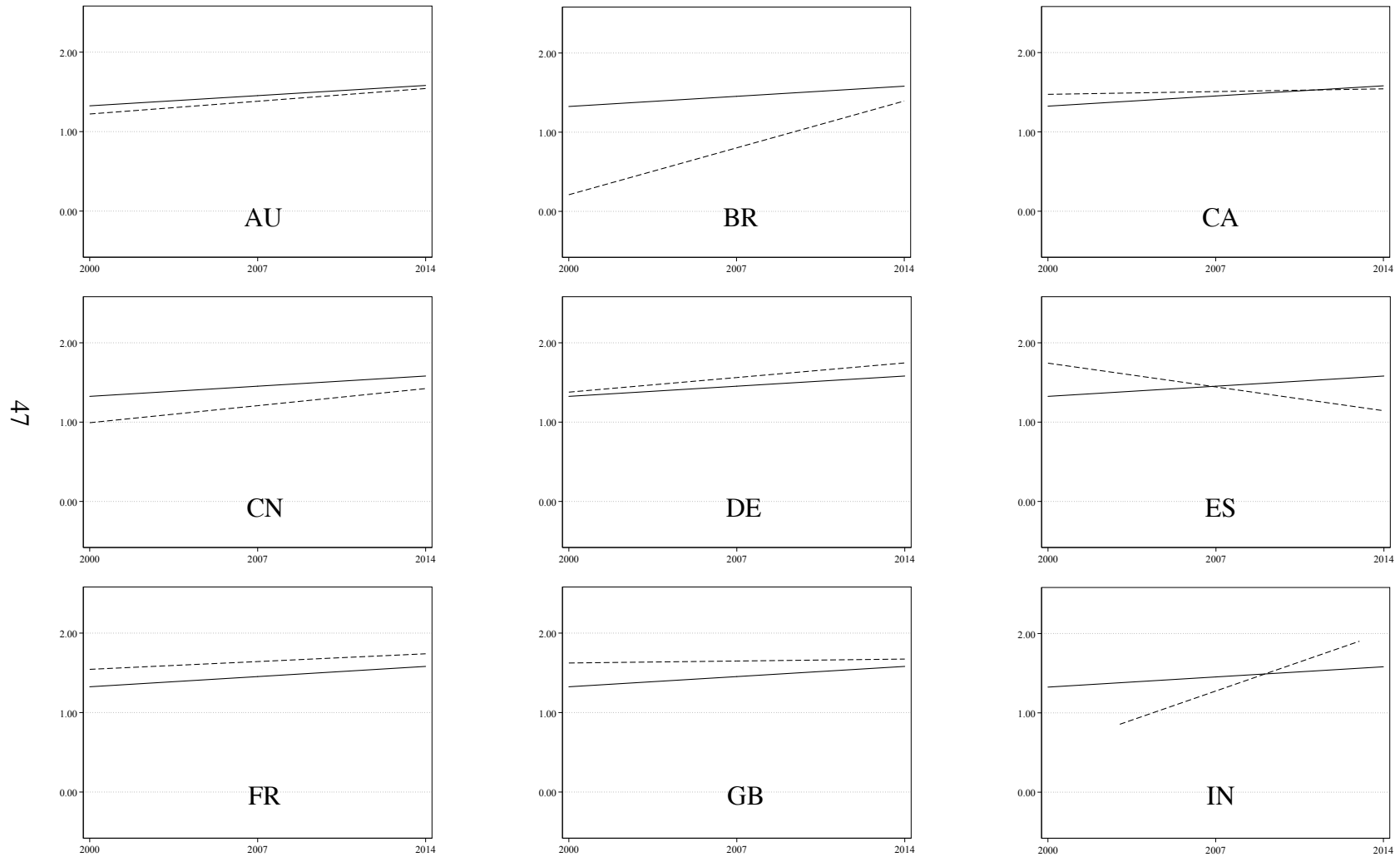
## FIGURES

**Figure 1: Global Financial Reporting Comparability by Year**

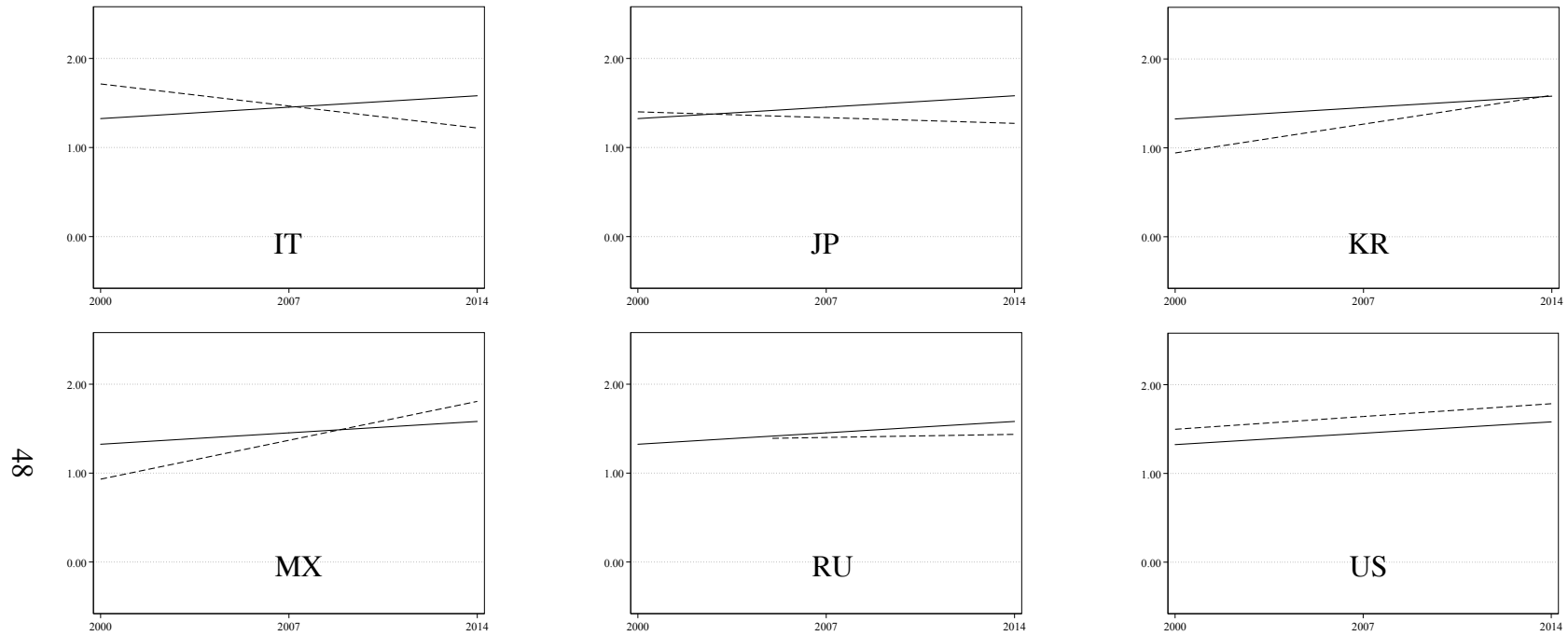


This figure presents descriptive information for the comparability measure (*COMP*); larger values indicate higher comparability. The trend line is determined based on firm-level comparability. Average (mean) yearly comparability is presented for the entire sample (N=129,144) and by country. Average yearly comparability for the United States is identified separately for illustrative purposes. Countries are labeled when their mean is more than two standard deviations from the overall sample mean.

**Figure 2: Global Financial Reporting Comparability by Country**

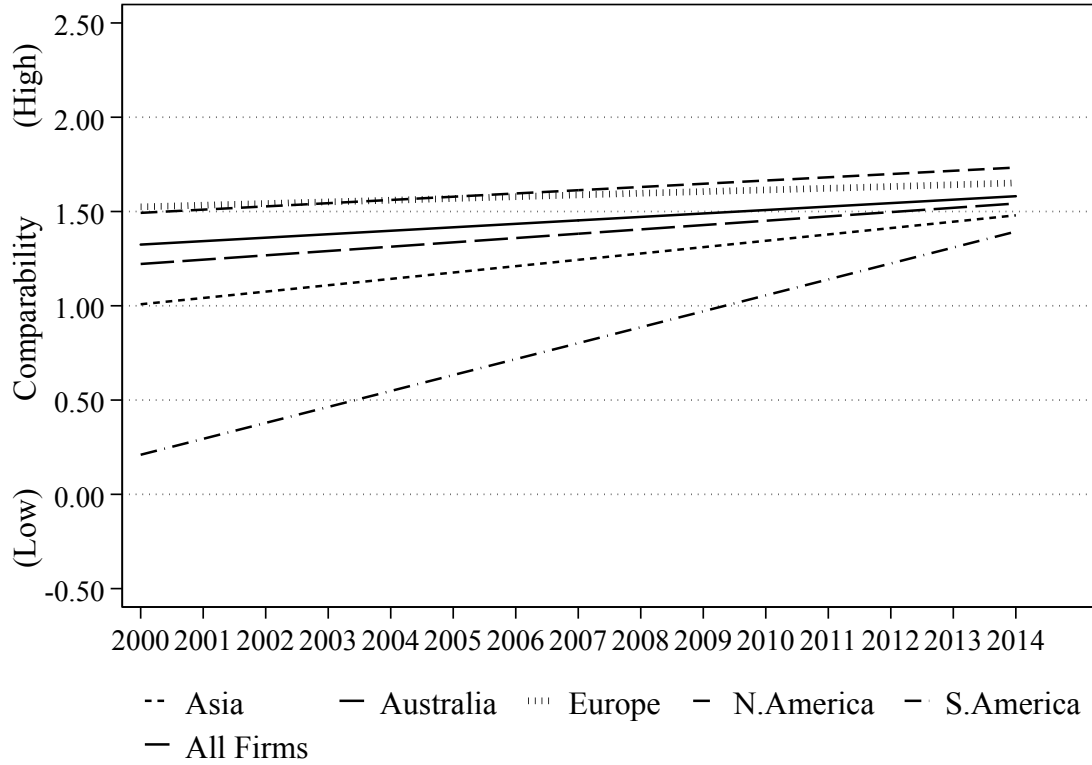


**Figure 2: Global Financial Reporting Comparability by Country – Continued**



This figure presents the financial reporting comparability trend by country. The trend lines are determined based on firm-level comparability. The comparability trend line for the entire sample ( $N=129,144$ ) is presented as a solid black line and that of each individual country is presented as a dashed line.

**Figure 3: Global Financial Reporting Comparability by Geographic Cluster**



This figure presents the financial reporting comparability trend by geographic cluster. Firms are grouped together by geographic location: Asia, Australia, Europe, North America, and South America. The comparability trend line for the entire sample ( $N=129,144$ ) is also presented.



## TABLES

**Table 1: Sample Selection**

	<b>Firms</b>	<b>Firm-Years</b>
Firms with calendar year-ends during 2000–2014	28,828	235,311
Less:		
holding companies	–5,435	–27,115
observations missing data to calculate comparability measure	–6,802	–65,871
firms without a minimum of two consecutive years of data	–378	–378
firms in industries without a minimum of 10 firms/country-industry-year and at least two countries in each industry-year	–827	–10,372
observations missing cross-sectional data	–92	–2,431
Final Sample	15,294	129,144

This table presents the sample selection. The initial sample begins with all publically-traded firms with a calendar-year-end in a country designated as within the top ten largest economies by gross domestic product in any year over the period 2000 to 2014. This results in the following fifteen sample countries: Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Russia, South Korea, Spain, the United Kingdom, and the United States of America.

**Table 2: Sample Distribution****Panel A. Sample Distribution by Country and Year**

<b>Country</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
AU	15	42	43	49	50	55	70	78	93
BR	209	233	329	348	358	352	369	399	458
CA	129	164	204	283	330	387	664	758	811
CN	874	1,020	1,138	1,203	1,264	1,365	1,383	1,423	1,551
DE	298	390	508	515	512	522	555	631	659
ES	29	32	47	47	49	48	50	55	61
FR	285	334	380	385	394	413	456	517	568
GB	156	208	243	270	278	325	393	476	503
IN				10	11	12	15	16	17
IT	79	106	122	124	139	144	161	181	211
JP	87	104	120	127	145	159	177	195	213
KR	337	382	480	583	648	726	1,177	1,242	1,331
MX	36	45	52	54	55	62	61	62	65
RU						14	86	137	229
US	3,124	3,402	3,241	3,164	3,076	3,112	3,106	3,035	3,040
<b>Total</b>	<b>5,658</b>	<b>6,462</b>	<b>6,907</b>	<b>7,162</b>	<b>7,309</b>	<b>7,696</b>	<b>8,723</b>	<b>9,205</b>	<b>9,810</b>
<b>%</b>	<b>4.4</b>	<b>5.0</b>	<b>5.3</b>	<b>5.5</b>	<b>5.7</b>	<b>6.0</b>	<b>6.8</b>	<b>7.1</b>	<b>7.6</b>

<b>Country</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Total</b>	<b>%</b>	<b>Firms</b>
AU	84	89	97	102	107	107	1,081	0.8	160
BR	445	433	426	416	400	389	5,564	4.3	555
CA	812	807	811	764	736	712	8,372	6.5	1,065
CN	1,627	1,727	2,078	2,363	2,517	2,525	24,058	18.6	2,543
DE	625	608	596	545	521	500	7,985	6.2	815
ES	49	47	57	67	54	53	745	0.6	94
FR	533	524	488	455	442	462	6,636	5.1	704
GB	485	434	420	412	411	397	5,411	4.2	660
IN	16	15	13	13	13		151	0.1	18
IT	221	219	217	193	166	160	2,443	1.9	254
JP	216	217	210	225	243	269	2,707	2.1	325
KR	1,418	1,447	1,468	1,514	1,532	1,585	15,870	12.3	1,800
MX	66	66	67	56	67	71	885	0.7	93
RU	271	292	307	257	199	174	1,966	1.5	388
US	2,939	2,845	2,805	2,777	2,749	2,855	45,270	35.1	5,820
<b>Total</b>	<b>9,807</b>	<b>9,770</b>	<b>10,060</b>	<b>10,159</b>	<b>10,157</b>	<b>10,259</b>	<b>129,144</b>	<b>100.0</b>	<b>15,294</b>
<b>%</b>	<b>7.6</b>	<b>7.6</b>	<b>7.8</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>	<b>100.0</b>		

**Table 2: Sample Distribution – Continued****Panel B.** Sample Distribution by Industry and Year

<b>Industry</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
5010	251	300	317	345	367	406	511	588	645
5020							20	40	46
5110	169	195	227	231	246	255	270	303	310
5120	263	303	356	389	404	431	492	533	571
5130	119	128	131	132	140	147	158	159	160
5210	451	490	538	564	585	620	715	740	803
5220	330	364	400	411	422	458	518	569	603
5240	132	140	150	165	171	183	236	255	282
5310	150	175	194	201	204	215	245	250	269
5320	355	382	420	421	428	460	494	508	532
5330	293	330	368	388	402	422	469	497	515
5340	115	132	143	152	143	144	147	143	147
5410	215	244	290	296	318	333	356	369	388
5420				43	41	45	56	60	84
5430	32	32	33	31	32	28	29		28
5510	743	813	840	860	847	866	915	930	978
5530	139	163	162	166	166	177	180	178	170
5540	415	433	459	476	489	504	524	560	589
5550							80	97	106
5610	205	237	244	254	239	239	276	278	291
5620	255	334	344	361	364	401	438	466	464
5710	352	424	447	438	462	492	613	644	697
5720	377	495	481	467	454	455	516	537	589
5810	91	123	122	120	129	134	141	138	150
5910	206	225	241	251	256	281	324	363	393
<b>Total</b>	<b>5,658</b>	<b>6,462</b>	<b>6,907</b>	<b>7,162</b>	<b>7,309</b>	<b>7,696</b>	<b>8,723</b>	<b>9,205</b>	<b>9,810</b>
<b>%</b>	<b>4.4</b>	<b>5.0</b>	<b>5.3</b>	<b>5.5</b>	<b>5.7</b>	<b>6.0</b>	<b>6.8</b>	<b>7.1</b>	<b>7.6</b>

**Table 2: Sample Distribution – Continued****Panel B.** Sample Distribution by Industry and Year – *Continued*

<b>Industry</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Total</b>	<b>%</b>	<b>Firms</b>
5010	636	625	659	650	647	635	12,592	5.9	986
5020	50	61	62	52	53	55	5,459	0.3	94
5110	333	338	359	375	383	391	9,495	3.4	478
5120	613	628	662	668	665	656	12,754	5.9	831
5130	149	150	153	155	156	157	7,324	1.7	220
5210	819	841	920	982	1004	993	16,275	8.6	1,300
5220	612	610	643	651	660	658	13,129	6.1	903
5240	273	274	285	279	267	261	8,593	2.6	373
5310	276	277	294	323	318	311	9,012	2.9	392
5320	533	538	553	559	567	562	12,632	5.7	767
5330	510	489	486	508	481	495	11,983	5.2	816
5340	153	156	153	162	161	165	7,556	1.7	253
5410	393	402	407	411	394	396	10,622	4.0	540
5420	74	73	62	61	72	75	6,166	0.6	118
5430	30	30	32	36	38	39	5,880	0.3	56
5510	961	932	913	885	878	883	18,754	10.3	1,531
5530	163	155	154	146	137	147	7,933	1.9	251
5540	575	579	596	590	604	633	13,566	6.2	911
5550	94	77	70	65	57	58	6,254	0.5	132
5610	287	272	279	280	281	296	9,568	3.1	535
5620	435	456	477	496	500	538	11,949	4.9	816
5710	709	701	742	740	753	754	14,678	6.9	1,106
5720	580	574	589	601	618	647	13,700	6.2	1,149
5810	132	123	90	86	92	85	7,566	1.4	246
5910	417	409	420	398	371	369	10,834	3.8	490
<b>Total</b>	<b>9,807</b>	<b>9,770</b>	<b>10,060</b>	<b>10,159</b>	<b>10,157</b>	<b>10,259</b>	<b>264,274</b>	<b>100.0</b>	<b>15,294</b>
<b>%</b>	<b>7.6</b>	<b>7.6</b>	<b>7.8</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>	<b>100.0</b>		

This table presents descriptive information for the sample. Panel A (B) presents the sample distribution by country-year (industry-year). Country codes and industry codes are located in the List of Abbreviations.

**Table 3: Summary Statistics****Panel A. Descriptive Statistics**

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>
<u>Firm-Level (N = 129,144)</u>			
<i>COMP</i>	1.466	1.547	0.826
<i>Assets</i>	2,091.332	287.033	4,533.652
<i>NIBE</i>	60.938	6.272	149.158
<i>EPS</i>	0.929	0.147	2.105
<i>Sales_Growth</i>	0.129	0.081	0.308
<i>Price</i>	14.086	5.750	18.413
<i>RET</i>	0.132	0.046	0.515
<i>SD_RET</i>	0.031	0.027	0.016
<i>Crosslist</i>	0.163	0	0.369
<i>STDS_PCT</i>	0.170	0.067	0.218
<u>Country-Level (N = 216)</u>			
<i>Mean_COMP</i>	1.388	1.451	0.414
<i>Common_Law</i>	0.259	0	0.439
<i>Rule_of_Law</i>	0.839	1.176	0.866
<i>Reg_Quality</i>	0.878	1.089	0.727
<i>Control_of_Corr</i>	0.799	1.193	0.986
<i>Govt_Effective</i>	0.972	1.245	0.781
<i>GDPpc</i>	29.477	36.822	16.462
<i>FDI</i>	2.368	2.163	1.289
<i>Mkt_Size</i>	73.599	66.878	34.245
<i>No_Firms</i>	0.024	0.013	0.028

**Table 3: Summary Statistics – Continued**

**Panel B. Correlations**

Firm-Level Variables

<b>Variable</b> ( <i>N</i> = 129,144)	<b>COMP</b>	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Time</i> (2)	<b>0.093</b>	1								
<i>Assets</i> (3)	<b>0.109</b>	<b>0.079</b>	1							
<i>NIBE</i> (4)	<b>0.134</b>	<b>0.069</b>	<b>0.757</b>	1						
<i>EPS</i> (5)	<b>0.077</b>	<b>-0.020</b>	<b>0.331</b>	<b>0.516</b>	1					
<i>Sales_Growth</i> (6)	<b>0.010</b>	<b>-0.094</b>	<b>-0.062</b>	<b>0.021</b>	<b>0.042</b>	1				
<i>Price</i> (7)	<b>0.287</b>	<b>-0.013</b>	<b>0.352</b>	<b>0.390</b>	<b>0.537</b>	<b>-0.017</b>	1			
<i>RET</i> (8)	<b>-0.232</b>	<b>0.030</b>	<b>-0.005</b>	<b>0.050</b>	<b>0.113</b>	<b>0.089</b>	<b>-0.098</b>	1		
<i>SD_RET</i> (9)	<b>-0.171</b>	<b>-0.114</b>	<b>-0.225</b>	<b>-0.275</b>	<b>-0.302</b>	<b>-0.022</b>	<b>-0.210</b>	<b>-0.074</b>	1	
<i>Crosslist</i> (10)	<b>0.046</b>	<b>0.050</b>	<b>0.199</b>	<b>0.189</b>	<b>0.132</b>	0.002	<b>0.060</b>	<b>-0.012</b>	<b>-0.033</b>	1
<i>STDS_PCT</i> (11)	<b>0.044</b>	<b>0.415</b>	<b>0.034</b>	0.003	<b>0.022</b>	<b>-0.091</b>	<b>0.019</b>	<b>-0.054</b>	<b>-0.050</b>	<b>0.300</b>

Country-Level Variables

<b>Variable</b> ( <i>N</i> = 216)	<b>Mean_COMP</b>	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Time</i> (2)	<b>0.214</b>	1								
<i>Common_Law</i> (3)	<b>0.119</b>	0.004	1							
<i>Rule_of_Law</i> (4)	<b>0.393</b>	-0.047	<b>0.350</b>	1						
<i>Reg_Quality</i> (5)	<b>0.366</b>	-0.039	<b>0.275</b>	<b>0.938</b>	1					
<i>Control_of_Corr</i> (6)	<b>0.327</b>	-0.109	<b>0.333</b>	<b>0.962</b>	<b>0.953</b>	1				
<i>Govt_Effective</i> (7)	<b>0.373</b>	-0.095	<b>0.305</b>	<b>0.961</b>	<b>0.944</b>	<b>0.962</b>	1			
<i>GDPpc</i> (8)	<b>0.378</b>	0.019	<b>0.347</b>	<b>0.838</b>	<b>0.850</b>	<b>0.846</b>	<b>0.804</b>	1		
<i>FDI</i> (9)	0.022	<b>-0.214</b>	0.071	0.015	0.076	0.099	0.108	<b>-0.161</b>	1	
<i>Mkt_Size</i> (10)	<b>0.189</b>	-0.030	<b>0.580</b>	<b>0.462</b>	<b>0.436</b>	<b>0.483</b>	<b>0.472</b>	<b>0.541</b>	0.086	1
<i>No_Firms</i> (11)	<b>0.138</b>	0.093	<b>0.438</b>	<b>0.463</b>	<b>0.467</b>	<b>0.482</b>	<b>0.433</b>	<b>0.519</b>	<b>0.211</b>	<b>0.554</b>

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This table presents descriptive statistics and correlations for the sample. Panel A presents the mean, median, and standard deviation of individual variables. Panels B and C present Pearson correlations for the firm-level and country-level variables, respectively. Correlations in bold are significant at the 10% level or better. All variables are defined in Appendix 1.

**Table 4: Comparability Measure Statistics and Validity****Panel A.** Comparability Statistics by Year

<b>Year</b>	<b><i>N</i></b>	<b>Mean <i>COMP</i></b>	<b>Median <i>COMP</i></b>	<b>Standard Deviation <i>COMP</i></b>	<b>Minimum <i>COMP</i></b>	<b>Maximum <i>COMP</i></b>
2000	5,658	1.459	1.508	0.882	-3.363	8.109
2001	6,462	1.126	1.209	0.705	-3.614	4.077
2002	6,907	1.652	1.715	0.794	-4.160	6.067
2003	7,162	1.045	1.118	0.866	-3.193	4.520
2004	7,309	1.328	1.387	0.928	-3.517	4.120
2005	7,696	1.290	1.365	0.836	-6.307	4.278
2006	8,723	1.301	1.510	0.922	-3.075	6.592
2007	9,205	1.554	1.624	0.718	-3.361	6.340
2008	9,810	1.939	1.960	0.716	-2.737	5.063
2009	9,807	1.246	1.318	0.742	-3.044	6.479
2010	9,770	1.600	1.657	0.744	-4.064	5.790
2011	10,060	1.616	1.641	0.680	-3.209	11.021
2012	10,159	1.779	1.894	0.744	-3.727	9.133
2013	10,157	1.545	1.564	0.757	-2.741	5.839
2014	10,259	1.244	1.285	0.847	-3.005	7.884

**Panel B.** Similar and Dissimilar Countries

<b>Sample</b>	<b><i>N</i></b>	<b>Mean <i>COMP</i></b>	<b>Median <i>COMP</i></b>	<b>Standard Deviation <i>COMP</i></b>
Similar Countries: US & GB	42,957	2.031	1.951	1.369
Dissimilar Countries: US & CN	63,904	1.287	1.158	1.179
Difference		0.744 ***		
<i>t</i> -stat		(92.04)		
Similar Countries: CA & FR	12,508	1.702	1.637	1.352
Dissimilar Countries: CA & RU	10,722	1.191	1.121	1.521
Difference		0.511 ***		
<i>t</i> -stat		(22.22)		



**Table 4: Comparability Measure Statistics and Validity – Continued****Panel C. Crisis and Non-Crisis Periods**

<b>Sample:</b>		<b>Crisis Period (2007–2009)</b>	<b>Non-Crisis Period 2000–2006 &amp; 2010–2014</b>
<b>Variable</b>	<b>Predicted Sign</b>	<b>Coeff (<i>t</i>-stat)</b>	<b>Coeff (<i>t</i>-stat)</b>
		(1)	(2)
<i>Time</i>	– Crisis + Non-Crisis	–0.160 ** (2.13)	0.022 *** (3.15)
<i>Intercept</i>	?	3.020 *** (4.12)	1.279 *** (10.79)
<i>SE Cluster</i>		Country & Industry	Country & Industry
<i>Number of Observations</i>		28,822	100,322
<i>Number of Firms</i>		10,658	15,014
<i>Adj-R<sup>2</sup></i>		0.028	0.008

This table presents summary statistics and evidence of validity for the comparability measure *COMP*, the comparability score for firm *i* in year *t* as defined in Section 3.1. Panel A presents descriptive statistics of *COMP* by year for the entire sample. Panel B presents the mean, median, and standard deviation of *COMP* for similar and dissimilar country pairs. Panel C presents multivariate analyses during crisis and non-crisis periods in columns (1) and (2), respectively. The dependent variable is *COMP*. The independent variable is *Time*, a continuous variable from 1 to 15 representing the progression of time over calendar years 2000 to 2014. *t*-statistics are in parentheses. All variables are defined in Appendix 1. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels for the indicated one- or two-tailed tests of significance.

**Table 5: Global Financial Reporting Comparability Trend****Panel A. Univariate Analysis of Comparability**

<b>Period</b>	<b>COMP</b>	<b>N</b>
2000–2006 [7 years]	1.348	59,122
2007–2014 [8 years]	1.566	70,022
Difference	0.218***	
<i>t</i> -stat	(47.30)	
2000–2007 [8 years]	1.310	49,917
2008–2014 [7 years]	1.565	79,227
Difference	0.255 ***	
<i>t</i> -stat	(53.12)	
2000–2004 [5 years]	1.317	33,498
2010–2014 [5 years]	1.556	50,405
Difference	0.239 ***	
<i>t</i> -stat	(40.55)	

**Table 5: Global Financial Reporting Comparability Trend – Continued**

**Panel B.** Multivariate Analysis of Comparability

Sample:		<i>Firm-Level</i>	<i>Firm-Level Country &amp; Industry Fixed Effects</i>	<i>Firm-Level Add Mar., Jun., &amp; Sept. Year-Ends</i>	<i>Firm-Level Exclude Each Country</i>	<i>Industry- Level</i>	<i>Country- Level</i>
Variable	Predicted Sign	Coeff ( <i>t</i> -stat)	Coeff ( <i>t</i> -stat)	Coeff ( <i>t</i> -stat)	Coeff (# of Samples)	Coeff ( <i>t</i> -stat)	Coeff ( <i>t</i> -stat)
		(1)	(2)	(3)	(4)	(5)	(6)
<i>Time</i>	+	0.018 *** (3.34)	0.025 *** (4.94)	0.013*** (2.98)	0.020 (15/15)	0.020 *** (3.67)	0.021 ** (2.17)
<i>Intercept</i>	?	1.306 *** (10.02)		1.372 *** (16.58)	1.292 (15/15)	1.243 *** (19.87)	1.218 *** (10.05)
<i>SE Cluster</i>		Country & Industry	Country & Industry	Country & Industry	Country & Industry	Industry	Country
<i>Number of Observations</i>		129,144	129,144	224,945	122,512	359	216
<i>Number of Firms</i>		15,294	15,294	24,882	13,737		
<i>Adj-R<sup>2</sup></i>		0.009	0.102	0.005	0.010	0.032	0.041

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This table reports the overall trend in global financial reporting comparability. Panel A reports mean comparability scores with the sample partitioned into early and later years. Panel B presents multivariate analyses. The dependent variable is *COMP*, the comparability score for firm *i* in year *t* as defined in Section 3.1. The independent variable is *Time*, a continuous variable from 1 to 15 representing the progression of time over calendar years 2000 to 2014. Panel C, Column (1) presents results from the main sample with standard errors clustered by country and industry. Panel C, Column (2) presents results from the main sample with standard errors clustered by country and industry, including country and industry fixed effects. Panel C, Column (3) presents results using a sample that incorporates firms with March, June, and September fiscal-years ends, in addition to the main sample of December year-ends. Panel C, Column (4) presents the mean coefficient across 15 regressions using samples where each country is excluded once. *# of Samples* indicates the proportion of the 15 samples with two-tailed significance at > 5%. The number of observations, number of firms, and *Adj-R<sup>2</sup>* in Column (4) are the mean of the 15 regressions. Panel C, Column (5) presents the results of an industry level regression, where the dependent variable *COMP* is averaged (mean) by industry-year. Panel C, Column (6) presents the results of a country level regression, where the dependent variable *COMP* is averaged (mean) by country-year. *t*-statistics are in parentheses. All variables are defined in Appendix 1. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels for the indicated one- or two-tailed tests of significance.

**Table 6: Univariate Tests of Global Financial Reporting Comparability**

**Determinants**

**Panel A. Firm-Level Determinants**

**Assets** (Pred. Sign: -)

	Low	High	Diff.
Early	1.224 [31,884]	1.494 [27,238]	-0.271 *** (39.01)
Late	1.484 [32,688]	1.637 [37,334]	-0.153 *** (25.75)
Chg.	0.261 *** (39.77)	0.143 *** (22.56)	0.118

**EPS** (Pred. Sign: -)

	Low	High	Diff.
Early	1.113 [27,443]	1.552 [31,679]	-0.439 *** (64.16)
Late	1.420 [37,129]	1.731 [32,893]	-0.312 *** (53.55)
Chg.	0.306 *** (47.11)	0.179 *** (28.99)	0.127

**Sales Growth** (Pred. Sign: ?)

	Low	High	Diff.
Early	1.325 [24,873]	1.365 [34,249]	-0.040 *** (5.60)
Late	1.540 [39,699]	1.600 [30,323]	-0.059 *** (10.01)
Chg.	0.215 *** (31.63)	0.235 *** (37.13)	-0.019

**SD\_RET** (Pred. Sign: +)

	Low	High	Diff.
Early	1.489 [31,032]	1.193 [28,090]	0.296 *** (42.47)
Late	1.658 [33,540]	1.481 [36,482]	0.177 *** (30.13)
Chg.	0.169 *** (27.93)	0.288 *** (42.29)	-0.119

**Crosslist** (Pred. Sign: -)

	No	Yes	Diff.
Early	1.326 [50,485]	1.476 [8,637]	-0.149 *** (16.47)
Late	1.558 [57,628]	1.605 [12,394]	-0.047 *** (6.25)
Chg.	0.231 *** (45.47)	0.129 *** (12.17)	0.102

**STDS\_PCT** (Pred. Sign: -)

	Low	High	Diff.
Early	1.341 [23,316]	1.353 [35,806]	-0.011 *** (1.53)
Late	1.626 [42,405]	1.473 [27,617]	0.153 *** (25.00)
Chg.	0.285 *** (41.97)	0.121 *** (18.29)	0.164

**Table 6: Univariate Tests of Global Financial Reporting Comparability**

**Determinants – Continued**

**Panel B. Country-Level Determinants**

**Common Law** (Pred. Sign: -)

	No	Yes	Diff.
Early	1.244 [83]	1.352 [29]	-0.108 (1.28)
Late	1.482 [77]	1.598 [27]	-0.116 (1.50)
Chg.	0.238 *** (3.72)	0.246 *** (2.60)	-0.008

**Rule of Law** (Pred. Sign: -)

	Low	High	Diff.
Early	1.053 [54]	1.476 [58]	-0.423 *** (5.65)
Late	1.452 [54]	1.577 [50]	-0.125 * (1.88)
Chg.	0.399 *** (4.64)	0.101 ** (1.97)	0.298

**Reg Quality** (Pred. Sign: -)

	Low	High	Diff.
Early	1.049 [54]	1.480 [58]	-0.431 *** (5.80)
Late	1.424 [54]	1.608 [50]	-0.184 *** (2.82)
Chg.	0.375 *** (4.47)	0.127 ** (2.44)	0.248

**Control of Corr** (Pred. Sign: -)

	Low	High	Diff.
Early	1.039 [53]	1.481 [59]	-0.442 *** (5.92)
Late	1.446 [55]	1.586 [49]	-0.140 ** (2.13)
Chg.	0.407 *** (4.78)	0.105 ** (2.03)	0.302

**Govt Effective** (Pred. Sign: -)

	Low	High	Diff.
Early	1.049 [54]	1.480 [58]	-0.430 *** (5.78)
Late	1.444 [54]	1.586 [50]	-0.142 ** (2.15)
Chg.	0.395 *** (4.63)	0.106 ** (2.07)	0.288

**GDPpc** (Pred. Sign: -)

	Low	High	Diff.
Early	1.062 [54]	1.468 [58]	-0.405 *** (5.35)
Late	1.439 [54]	1.592 [50]	-0.153 ** (2.33)
Chg.	0.376 *** (4.34)	0.124 ** (2.45)	0.253

**FDI** (Pred. Sign: -)

	Low	High	Diff.
Early	1.220 [49]	1.313 [63]	-0.093 (1.09)
Late	1.488 [59]	1.544 [45]	-0.057 (0.80)
Chg.	0.268 *** (3.43)	0.231 *** (2.93)	0.037

**Mkt Size** (Pred. Sign: -)

	Low	High	Diff.
Early	1.084 [53]	1.441 [59]	-0.357 *** (4.55)
Late	1.554 [59]	1.457 [45]	0.097 (1.45)
Chg.	0.470 *** (5.61)	0.016 (0.27)	0.454

**No Firms** (Pred. Sign: -)

	Low	High	Diff.
Early	1.105 [52]	1.417 [60]	-0.312 *** (3.85)
Late	1.535 [56]	1.486 [48]	0.049 (0.72)
Chg.	0.430 *** (5.00)	0.069 (1.12)	0.361

This table reports results of univariate tests on comparability levels with the sample partitioned into early and later years. The “Early” period is 2000 to 2007 and the “Late” period is 2008 to 2014. Mean comparability for the subsample is presented in each quadrant. “Chg.” is the change in average comparability from the Early to Late period and “Diff.” is the difference between average comparability in the Low and High groups. The predicted sign (“Pred. Sign”) indicates the expected difference between the “Low” and “High” groups (Low – High) average comparability. Panel A presents results at the firm level using test variable *COMP*, the comparability score for firm *i* in year *t* as defined in Section 3.1. A firm is classified into the “High” group if its measure is greater than the sample median for each indicated variable. Panel B presents results at the country level using the test variable *Mean\_COMP*, the average (mean) financial reporting comparability aggregated by country-year. A country is classified into the “High” group if its measure is greater than the sample median for each indicated variable. The number of observations are in brackets. *t*-statistics are in parentheses. All variables are defined in Appendix 1. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels for two-tailed tests of significance.

**Table 7: Multivariate Test of Global Financial Reporting Comparability**

**Firm-Level Determinants**

<b>Variable</b>	<b>Predicted Sign</b>	<b>Coeff (t-stat)</b>
<i>Time</i>	+	0.028 *** (3.57)
<i>Small_Assets</i>	-	-0.001 *** (4.02)
<i>Time* Small_Assets</i>	+ / -	0.001 *** (3.83)
<i>Low_EPS</i>	-	0.043 (1.03)
<i>Time* Low_EPS</i>	+ / -	-0.005 * (2.06)
<i>Sales_Growth</i>	+ / -	-0.004 (0.04)
<i>Time* Sales_Growth</i>	+ / -	0.009 (0.92)
<i>High_SD_RET</i>	-	-0.257 *** (4.49)
<i>Time* High_SD_RET</i>	+ / -	-0.001 (0.21)
<i>Not_Crosslist</i>	-	-0.018 (0.09)
<i>Time* Not_Crosslist</i>	+ / -	-0.001 (0.01)
<i>Low_STDS_PCT</i>	-	-1.320 *** (2.63)
<i>Time* Low_STDS_PCT</i>	+ / -	0.102 ** (2.96)
<i>Intercept</i>	?	1.306 *** (10.96)
<i>SE Cluster</i>		Country & Industry
<i>Number of Observations</i>		129,144
<i>Number of Firms</i>		15,294
<i>Adj-R<sup>2</sup></i>		0.056



This table presents results from a regression analysis of firm-level determinants of global financial reporting comparability. The dependent variable is *COMP*, the comparability score for firm *i* in year *t* as defined in Section 3.1. The independent variable *Time* is a continuous variable from 1 to 15 representing the progression of time over calendar years 2000 to 2014. The other variables of interest are multiplied by negative one so that higher values correspond to a predicted negative impact, with the exception of *Sales\_Growth*. For example, *Assets* multiplied by negative one is increasing (decreasing) as the level of firm assets decreases (increases), thus it is interpreted as *Small\_Assets*. The prediction for *Sales\_Growth* is unsigned, therefore it increases (decreases) as the change in revenue is greater (smaller). *t*-statistics are in parentheses. All variables are defined in Appendix 1. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels for the indicated one- or two-tailed tests of significance.

**Table 8: Multivariate Test of Global Financial Reporting Comparability**

**Country-Level Determinants**

**Panel A.** Variation Explained by Retained Factors

<b>Factor</b>	<b>Eigenvalue</b>	<b>Variation Explained</b>	<b>Cumulative Variation Explained</b>
Factor 1	4.696	0.522	0.522
Factor 2	2.020	0.224	0.746
Factor 3	1.100	0.122	0.868

**Panel B.** Rotated Factor Loadings

<b>Variable</b>	<b>Factor1</b>	<b>Factor2</b>	<b>Factor3</b>
<i>Common_Law</i>		0.849	
<i>Rule_of_Law</i>	0.956		
<i>Reg_Quality</i>	0.966		
<i>Control_of_Corr</i>	0.962		
<i>Govt_Effective</i>	0.959		
<i>GDPpc</i>	0.851		
<i>FDI</i>			0.987
<i>Mkt_Size</i>		0.798	
<i>No_Firms</i>		0.655	

**Table 8: Multivariate Test of Global Financial Reporting Comparability****Country-Level Determinants – Continued****Panel C. Multivariate Test**

<b>Variable</b>	<b>Predicted Sign</b>	<b>Coeff (t-stat)</b>
<i>Time</i>	+	0.025 *** (3.33)
<i>Factor1</i> “Poor Regulatory Quality”	–	–0.360 *** (4.56)
<i>Time* Factor1</i>	+ / –	0.023 *** (3.57)
<i>Factor2</i> “Developing Markets”	–	0.001 (0.01)
<i>Time* Factor2</i>	+ / –	–0.001 (0.19)
<i>Factor3</i> “Low Foreign Direct Investment”	–	0.015 (0.28)
<i>Time* Factor3</i>	+ / –	–0.003 (0.53)
<i>Intercept</i>	?	1.177 *** (14.30)
<i>SE Cluster</i>		Country
<i>Number of Observations</i>		216
<i>Number of Countries</i>		15
<i>Adj-R<sup>2</sup></i>		0.229

This table presents results from a factor analysis of country-level determinants of global financial reporting comparability. The factor analysis is performed using the principal components method. Factors are retained based on Kaiser’s criterion (Kaiser, 1960) in conjunction with a scree test (Cattell, 1966). The retained factors represent a balance between (i) explaining a large proportion of the variation, (ii) retaining factors with substantial incremental explanatory power, and (iii) finding a parsimonious solution. Panel A reports statistics for the factor analysis. Panel B reports the variable loadings on the two latent country factors after varimax rotation. For ease of interpretation, only factor loadings larger than 0.4 are shown. Panel C presents the results of regressions of comparability on the factor scores and their interaction with *Time*. Factors scores are

multiplied by negative one so that higher values correspond to a predicted negative impact on comparability; *Factor1* increases (decreases) as regulatory quality decreases (increases), *Factor2* increases (decreases) as equity market development decreases (increases), and *Factor3* increases (decreases) as foreign direct investment decrease (increases). The dependent variable is *Mean\_COMP*, the average (mean) comparability score for country *c* in year *t*. The independent variable *Time* is a continuous variable from 1 to 15 representing the progression of time over calendar years 2000 to 2014. All variables are defined in Appendix 1. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels for the indicated one- or two-tailed tests of significance.

**Table 9: Sensitivity Analysis**

**Panel A. Global Financial Reporting Comparability Trend**

<b>Sample:</b>		<i>Remove Outliers</i>	<i>Random 50</i>	<i>Balanced Panel</i>	<i>Original</i>	<i>Original</i>	<i>Original</i>
<b>COMP Measure:</b>		<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Abnormal RET</b>	<b>Mean</b>	<b>Reverse</b>
<b>Variable</b>	<b>Predicted Sign</b>	<b>Coeff</b>	<b>Coeff</b>	<b>Coeff</b>	<b>Coeff</b>	<b>Coeff</b>	<b>Coeff</b>
		(t-stat)	(t-stat)	(t-stat)	(t-stat)	(t-stat)	(t-stat)
		(1)	(2)	(3)	(4)	(5)	(6)
<i>Time</i>	+	0.013 *** (2.86)	0.025 *** (3.62)	0.029 *** (4.52)	0.021 *** (4.13)	0.015 * (1.88)	0.023 *** (3.63)
<i>Intercept</i>	?	1.392 *** (10.59)	1.198 *** (9.31)	1.255 *** (7.01)	1.274 *** (10.18)	0.844 *** (12.79)	2.695 *** (25.88)
<i>SE Cluster</i>		Co. & Ind.	Co. & Ind.	Co. & Ind.	Co. & Ind.	Co. & Ind.	Co. & Ind.
<i>Number of Observations</i>		76,458	78,257	45,495	129,144	129,144	130,325
<i>Number of Firms</i>		9,947	13,317	3,033	15,294	15,294	15,346
<i>Adj-R<sup>2</sup></i>		0.004	0.014	0.025	0.012	0.002	0.016

**Panel B.** Global Financial Reporting Comparability Firm-Level Determinants

Sample: COMP Measure:		<i>Remove Outliers</i>	<i>Random 50</i>	<i>Balanced Panel</i>	<i>Original</i>	<i>Original</i>	<i>Original</i>
Variable	Predicted Sign	Original Coeff (t-stat)	Original Coeff (t-stat)	Original Coeff (t-stat)	Abnormal RET Coeff (t-stat)	Mean Coeff (t-stat)	Reverse Coeff (t-stat)
		(1)	(2)	(3)	(4)	(5)	(6)
<i>Time</i>	+	0.023 ** (2.60)	0.025 *** (4.42)	0.018 ** (2.10)	0.028 *** (3.50)	0.021 *** (3.27)	0.027 ** (1.85)
<i>Small_Assets</i>	-	-0.001 *** (3.78)	-0.001 *** (4.69)	-0.001 *** (4.64)	-0.001 *** (3.77)	0.001 *** (4.18)	
<i>Time*Small_Assets</i>	+ / -	0.001 *** (3.50)	0.001 *** (4.80)	0.000 *** (5.55)	0.001 *** (3.63)	0.001 *** (4.40)	
<i>Time*Low_EPS</i>	+ / -		-0.006 ** (2.58)	-0.007 ** (2.24)		-0.007 ** (2.19)	-0.005 ** (2.67)
71 <i>Time*Sales_Growth</i>	+ / -					0.013 * (2.02)	
<i>Time*Not_Crosslist</i>	+ / -			0.018 ** (2.62)			
<i>High_SD_RET</i>	-	-0.298 *** (4.34)	-0.247 *** (4.98)	-0.265 *** (3.09)	-0.296 *** (5.52)	-0.297 *** (6.52)	
<i>Low_STDS_PCT</i>	-	-0.917 ** (2.09)	-1.255 *** (2.91)	-1.669 ** (2.53)	-1.263 ** (2.49)	-1.328 *** (2.69)	-1.180 *** (3.56)
<i>Time*Low_STDS_PCT</i>	+ / -	0.074 ** (2.60)	0.095 *** (3.06)	0.128 ** (2.53)	0.095 ** (2.73)	0.108 *** (3.03)	0.093 *** (3.20)
<i>Intercept</i>	?	1.392 *** (10.59)	1.363 *** (16.69)	1.403 *** (11.55)	1.283 *** (10.50)	1.016 *** (9.03)	2.703 *** (18.97)
<i>SE Cluster</i>		Co. & Ind.	Co. & Ind.	Co. & Ind.	Co. & Ind.	Co. & Ind.	Co. & Ind.
<i>Number of Observations</i>		76,458	78,257	45,495	129,144	129,144	130,325
<i>Number of Firms</i>		9,947	13,317	3,033	15,294	15,294	15,346
<i>Adj-R<sup>2</sup></i>		0.004	0.067	0.081	0.060	0.064	0.106

**Table 9: Sensitivity Analysis – Continued**

**Panel C. Global Financial Reporting Comparability Trend Country-Level Determinants**

<b>Sample:</b>		<i>Remove Outliers</i>	<i>Random 50</i>	<i>Balanced Panel</i>	<i>Original</i>	<i>Original</i>	<i>Original</i>
<b>COMP Measure:</b>		<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Abnormal RET</b>	<b>Mean</b>	<b>Reverse</b>
<b>Variable</b>	<b>Predicted Sign</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>
		(1)	(2)	(3)	(4)	(5)	(6)
<i>Time</i>	+	0.023 *** (3.07)	0.026 *** (3.42)	0.024 *** (3.44)	0.028 *** (3.62)	0.020 ** (2.04)	0.019 *** (2.77)
<i>Factor1</i> <i>“Poor Reg. Qual.”</i>	-	-0.388 *** (4.64)	-0.354 *** (4.52)	-0.324 *** (3.83)	-0.344 *** (4.37)	-0.699 ** (1.79)	-0.235 ** (2.04)
<i>Time*Factor1</i>	+/-	0.024 *** (3.29)	0.022 *** (3.36)	0.012 * (1.83)	0.022 *** (3.33)	0.030 *** (3.49)	0.016 ** (2.54)
72 <i>Time*Factor3</i>	+/-						0.012 ** (2.22)
<i>Intercept</i>	?	1.215 *** (15.15)	1.167 *** (14.31)	1.278 *** (14.78)	1.152 *** (13.89)		2.658 *** (24.79)
<i>SE Cluster</i>		Country	Country	Country	Country	Country	Country
<i>Number of Observations</i>		216	216	195	216	216	218
<i>Number of Countries</i>		15	15	13	15	15	15
<i>Adj-R<sup>2</sup></i>		0.273	0.237	0.347	0.236	0.146	0.192

This table presents sensitivity analyses using alternate specifications of the comparability measure and alternate samples. Panel A reports results of the overall global financial reporting comparability trend. Panel B reports results of the firm-level determinant analysis. Panel C reports results of the country-level determinant analysis using the principal component factor analysis method. The columns are consistent across all three panels; only significant coefficients are presented. In Columns (1), (2), and (3) the dependent variable is *COMP*, the comparability score for firm *i* in year *t* as defined in Section 3.1. Column (1) reports results after removing firms that are not a good fit for their home-country accounting system model. Firms are dropped from the sample if their difference between actual *RET* and predicted *RET* in Section 3.1 Equation (2) is more than two standard deviations from the mean difference across all firm-years. Column (2) reports results using a sample of 50 randomly selected firms from each country-industry-year; all observations are used in country-industry-years with fewer than 50 firms. Column (3) reports results using a balanced panel of firms. Column (4) reports results where the *RET* used in Section 3.1 Equation (1) is market adjusted by the corresponding Dow Jones Global Total Stock Market Index returns. The remainder of the *COMP* measurement process is conducted following the same steps as detailed in Section 3.1. Column (5) reports results where the dependent variable, *COMP*, is defined as the mean *DIFF* from Section 3.1 Equation (4). Column (6) reports results when the dependent variable, *COMP*, is defined based on a “reverse regression” approach (similar to De Franco, Kothari, and Verdi, 2011). In this specification, the accounting system for a country-industry-year is estimated based on the following regression (Step 1 in Section 3.1):  $NI_{it}^{Cj} = \beta_{0t}^{Cj} + \beta_{1t}^{Cj}RET_{it} + \beta_{2t}^{Cj}Loss_{it} + \beta_{3t}^{Cj}Loss_{it} \times RET_{it} + \varepsilon_{it}^{Cj}$ . *NI* is firm *i*'s net income before extraordinary items scaled by beginning of period market value of equity, *RET* is buy-and-hold return over the fiscal year, and *Loss* is an indicator variable equal to 1 if *NI* is negative and zero otherwise. The remainder of the *COMP* measurement process is conducted following the same steps as detailed in Section 3.1. In all Panel C analyses, the (untabulated) retained factors and rotated factor loadings are comparable in magnitude and interpretation to the firm- and country-level factors previously reported in Table 8; factors scores are multiplied by negative one so that higher values correspond to a predicted negative impact on comparability. *t*-statistics are in parentheses. All variables are defined in Appendix 1. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels for the indicated one- or two-tailed tests of significance.



**Table 10: Economic Forces Analysis**

**Panel A. Comparability Model Coefficients**

<b>Dependent Variable:</b>		$\beta_{0t}^{Cj}$	$\beta_{1t}^{Cj}$	$\beta_{2t}^{Cj}$	$\beta_{3t}^{Cj}$	$\beta_{4t}^{Cj}$	$\beta_{5t}^{Cj}$
		Intercept	$[NI_{it}/P_{it-1}]$	$[\Delta NI_{it}/P_{it-1}]$	$Loss_{it}$	$Loss_{it} \times [NI_{it}/P_{it-1}]$	$Loss_{it} \times [\Delta NI_{it}/P_{it-1}]$
<b>Variable</b>	<b>Predicted Sign</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>
		(1)	(2)	(3)	(4)	(5)	(6)
<i>Time</i>	?	0.002 (0.40)	0.025 (1.67)	0.031 (1.47)	0.008 ** (2.33)	0.217 (1.18)	-0.395 (1.15)
<i>Intercept</i>	?	0.089 * (1.85)	0.448 *** (3.21)	0.383 (1.57)	-0.181 *** (9.99)	0.978 (0.49)	1.022 (0.70)
<i>SE Cluster</i>		Country & Industry	Country & Industry	Country & Industry	Country & Industry	Country & Industry	Country & Industry
<i>Number of Observations</i>		2,619	2,619	2,619	2,465	2,159	2,246
<i>Adj-R<sup>2</sup></i>		0.001	0.001	0.001	0.001	0.001	0.001

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**Table 10: Economic Forces Analysis – Continued****Panel B. Comparability Controlling for Trade**

<b>Variable</b>	<b>Predicted Sign</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>	<b>Coeff (t-stat)</b>
		(1)	(2)	(3)	(4)
<i>Time</i>	+	0.019 *** (3.11)	0.016 *** (3.14)	0.018 *** (2.98)	0.017 *** (2.81)
<i>Trade</i>	+	0.882 ** (2.31)	0.142 (0.24)	0.001 *** (5.01)	0.001 *** (3.85)
<i>Time*Trade</i>	?		0.086 * (2.13)		0.001 (0.43)
<i>Intercept</i>	?	1.280 *** (8.78)	1.301 *** (9.42)	1.266 *** (9.31)	1.269 *** (9.11)
<i>SE Cluster</i>		Country & Industry	Country & Industry	Country & Industry	Country & Industry
<i>Number of Observations</i>		129,144	129,144	129,144	129,144
<i>Number of Firms</i>		15,294	15,294	15,294	15,294
<i>Adj-R<sup>2</sup></i>		0.012	0.013	0.019	0.019
<i>Trade Variable Scale</i>		% of GDP	% of GDP	in USD	in USD

This table presents sensitivity analyses examining the impact of economic forces on comparability. Panel A presents analyses of the trends in fitted coefficients (pricing multiples) used in measuring firm-level comparability. The dependent variable is  $\beta$ , each fitted coefficient from the estimated country-industry-year accounting system models in Section 3.1 Equation (1). The independent variable is *Time*, a continuous variable from 1 to 15 representing the progression of time over calendar years 2000 to 2014. Panel B presents the results of multivariate analyses controlling for country-level trade. The dependent variable is *COMP*, the comparability score for firm *i* in year *t* as defined in Section 3.1. The independent variable is *Time*, a continuous variable from 1 to 15 representing the progression of time over calendar years 2000 to 2014. *Trade* is the value-weighted sum of exports and imports of goods and services, measured as a percentage of gross domestic product (Columns (1) and (2)) or in USD (Columns (3) and (4)). *t*-statistics are in parentheses. All variables are defined in Appendix 1. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels for the indicated one- or two-tailed tests of significance.

## APPENDICES

### Appendix 1: Variable Definitions

Variable	Definition
<i>COMP</i>	Firm-year measure of financial reporting comparability; defined as discussed in Section 3.1 (see also Appendix 2 for an example).
<i>Mean_COMP</i>	Average (mean) financial reporting comparability aggregated by country-year or industry-year, as indicated in the analysis.
<i>Time</i>	Continuous variable from 1 to 15 representing the progression of time over calendar years 2000 to 2014.

#### *Firm Characteristics*

<i>Assets</i>	Beginning of year total assets, in millions of USD.
<i>NIBE</i>	Net income before extraordinary items, in millions of USD.
<i>EPS</i>	Net income before extraordinary items in USD divided by the number of common shares outstanding at year-end .
<i>Sales_Growth</i>	Percentage change in total revenues over the year ( $[Total\ Revenues_t - Total\ Revenues_{t-1}] / Total\ Revenues_{t-1}$ ).
<i>Price</i>	Prior year-end adjusted closing stock price, in USD.
<i>RET</i>	Buy-and-hold return beginning nine months before and ending three months after year-end.
<i>SD_RET</i>	Standard deviation of daily returns during the year.
<i>High_SD_RET</i>	Indicator variable equal to one if a firm has a standard deviation of daily returns during the year greater than the sample median, and zero otherwise.
<i>Crosslist</i>	Indicator variable equal to one if a firm is cross-listed on a foreign exchange, and zero otherwise.
<i>STDS_PCT</i>	Proportion of sample countries that use the same accounting standards as a given firm each year.
<i>Trade</i>	Value-weighted sum of a country's exports and imports of goods and services, measured as a percentage of gross domestic product or in USD.**

### *Country Characteristics*

<i>Common_Law</i>	Indicator variable equal to one if a country is of common law legal origin, and zero if of code law legal origin.
<i>Rule_of_Law</i>	Higher values reflect strong rule of law, based on perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.*
<i>Reg_Quality</i>	Higher values reflect superior regulatory quality, based on perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.*
<i>Control_of_Corr</i>	Higher values reflect better control of corruption, based on perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.*
<i>Govt_Effective</i>	Higher values reflect strong governance performance, based on perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.*
<i>GDPpc</i>	Gross domestic product per capita in USD.**
<i>FDI</i>	Net inflows of foreign direct investment as a percentage of GDP.**
<i>Mkt_Size</i>	Market capitalization of listed domestic companies as a percentage of GDP.**
<i>No_Firms</i>	Ratio of the number of listed domestic companies to country population in thousands.**

\* Obtained from The World Governance Indicators dataset.

\*\* Obtained from The World Development Indicators dataset.

## Appendix 2: Measuring Comparability Example

As an example, detailed below is the calculation of the financial reporting comparability measure for the US firm Ford Motor Company in the auto industry for 2014. There are six countries with sufficient (10 or more) firms within this industry for 2014: US, China, France, Germany, Japan, and South Korea, for a total of 284 automobile companies.

1. Estimate the accounting system by country-industry-year using all available firms.

$$\begin{aligned}
 RET_{it}^{Cj} = & \beta_{0t}^{Cj} + \beta_{1t}^{Cj}[NI_{it}/P_{it-1}] + \beta_{2t}^{Cj}[\Delta NI_{it}/P_{it-1}] + \beta_{3t}^{Cj}Loss_{it} \\
 & + \beta_{4t}^{Cj}Loss_{it} \times [NI_{it}/P_{it-1}] + \beta_{5t}^{Cj}Loss_{it} \times [\Delta NI_{it}/P_{it-1}] + \varepsilon_{it}^{Cj}
 \end{aligned} \quad (1)$$

Estimate the model for the 2014 auto industry within each country. The resulting model for the US auto industry is:

$$\begin{aligned}
 \text{Model}^{US}: \quad RET_{i,2014}^{US} = & 0.0432 + 0.1920*[NI_{it}/P_{it-1}] + 0.9665*[\Delta NI_{it}/P_{it-1}] \\
 & + (-0.0714)*Loss_{it} + 3.8874*Loss_{it} \times [NI_{it}/P_{it-1}] \\
 & + (-3.0932)*Loss_{it} \times [\Delta NI_{it}/P_{it-1}]
 \end{aligned}$$

Each of the other countries has their own 2014 accounting model (Model<sup>CHN</sup>, Model<sup>FRA</sup>, Model<sup>GER</sup>, Model<sup>JAP</sup>, and Model<sup>KOR</sup>).

2. Estimate Ford's return using its home country model.

$$\begin{aligned}
 \widehat{RET}_{it}^{Cj,Cj} = & \hat{\beta}_{0t}^{Cj} + \hat{\beta}_{1t}^{Cj}[NI_{it}/P_{it-1}] + \hat{\beta}_{2t}^{Cj}[\Delta NI_{it}/P_{it-1}] + \hat{\beta}_{3t}^{Cj}Loss_{it} \\
 & + \hat{\beta}_{4t}^{Cj}Loss_{it} \times [NI_{it}/P_{it-1}] + \hat{\beta}_{5t}^{Cj}Loss_{it} \times [\Delta NI_{it}/P_{it-1}]
 \end{aligned} \quad (2)$$

Because Ford is a US company, input Ford's 2014  $NI_{it}$ ,  $P_{it-1}$ ,  $\Delta NI_{it}$ , and  $Loss_{it}$  data into the Model<sup>US</sup>. The result is Ford's within-sample fitted stock return:

$$\widehat{RET}_{Ford,2014}^{US} = -0.919\%$$

3. Estimate Ford's return using the counter-sample countries' models.

$$\begin{aligned} \widehat{RET}_{it}^{C_j, C_j^n} = & \hat{\beta}_{0t}^{C_j^n} + \hat{\beta}_{1t}^{C_j^n} [NI_{it}/P_{it-1}] + \hat{\beta}_{2t}^{C_j^n} [\Delta NI_{it}/P_{it-1}] + \hat{\beta}_{3t}^{C_j^n} Loss_{it} \\ & + \hat{\beta}_{4t}^{C_j^n} Loss_{it} \times [NI_{it}/P_{it-1}] + \hat{\beta}_{5t}^{C_j^n} Loss_{it} \times [\Delta NI_{it}/P_{it-1}] \end{aligned} \quad (3)$$

Input Ford's 2014  $NI_{it}$ ,  $P_{it-1}$ ,  $\Delta NI_{it}$ , and  $Loss_{it}$  data into the other countries' models (Model<sup>CHN</sup>, Model<sup>FRA</sup>, Model<sup>GER</sup>, Model<sup>JAP</sup>, and Model<sup>KOR</sup>) to get Ford's predicted returns under the counter-sample models.

$$\begin{aligned} \widehat{RET}_{Ford,2014}^{CHN} &= 91.210\% & \widehat{RET}_{Ford,2014}^{JAP} &= 19.080\% \\ \widehat{RET}_{Ford,2014}^{FRA} &= -1.411\% & \widehat{RET}_{Ford,2014}^{KOR} &= 2.978\% \\ \widehat{RET}_{Ford,2014}^{GER} &= -4.220\% \end{aligned}$$

4. Calculate the absolute value of the difference between Ford's US predicted return and Ford's predicted returns from the other countries.

$$\begin{aligned} DIF_{it}^{C_j, C_j^n} &= |\widehat{RET}_{it}^{C_j, C_j} - \widehat{RET}_{it}^{C_j, C_j^n}| \quad (4) \\ DIF_{Ford,2014}^{US, CHN} &= |-0.919 - (91.210)| = 92.129\% \\ DIF_{Ford,2014}^{US, FRA} &= |-0.919 - (-1.411)| = 0.492\% \\ DIF_{Ford,2014}^{US, GER} &= |-0.919 - (-4.220)| = 3.301\% \\ DIF_{Ford,2014}^{US, JAP} &= |-0.919 - 19.080| = 19.999\% \end{aligned}$$

$$DIFF_{Ford,2014}^{US,KOR} = |-0.919 - 2.978| = 3.897\%$$

5. Calculate Ford's comparability score (*COMP*) as the negative natural log of the median difference from Step 4.

$$COMP_{it} = -\ln [\text{Median} (DIFF_{it}^{c_j, c_j^n})] \quad (5)$$

$$COMP_{Ford,2014} = -\ln(3.897\%) = 3.245$$

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**CURRICULUM VITAE**

