The Effect of Economic Integration on Accounting Comparability: Evidence from the Adoption of the Euro

Sudarshan Jayaraman
Olin Business School
Washington University in St. Louis
jayaraman@wustl.edu

Rodrigo Verdi
MIT Sloan School of Management
rverdi@mit.edu

September 2013

Abstract

We examine the effect of economic integration on accounting comparability. Using the adoption of the euro as a shock to economic integration, we document two effects. First, we show a *direct* effect around the adoption of the euro – accounting comparability increases among industries in European Union (EU) countries that adopted the common currency relative to non-adopters in the EU; and this effect is driven by increases in arm's length financing. Second, economic integration has an *interactive* effect, by influencing the effect of accounting standards harmonization (proxied by IFRS adoption) on accounting comparability. Specifically, we find the post-IFRS increase in accounting comparability within the EU is concentrated in euro countries, and that non-euro EU countries depict no observable increase after IFRS adoption. Our paper highlights the role of economic integration and its interplay with accounting standards harmonization in shaping accounting comparability.

Key words: Accounting comparability, Euro, European Union, accounting standard, reporting incentives.

We appreciate helpful comments from John Core, Rich Frankel, Michelle Hanlon, S.P. Kothari, Patricia Naranjo, Daniel Saavedra, Hojun Seo, Lakshmanan Shivakumar, Nemit Shroff, and workshop participants at Erasmus University, the GIA conference, London Business School, MIT and UCLA. We thank Dan Amiram for help with the CPIS database and Patricia Naranjo for excellent research assistance.

1. Introduction

A large literature in international accounting studies the roles accounting standards and reporting incentives play in driving variation in observed accounting practices (e.g., Ball et al., 2000, 2003; Leuz et al., 2003; Bushman and Piotroski, 2006). Despite several studies in this area, a number of issues are still not well understood. For instance, while prior research has studied the role of institutional factors such as legal origins and enforcement, less is known about economic forces such as bilateral trade and cross-border capital flows (which we broadly define as 'economic integration'). In addition, accounting standards and reporting incentives can be complements or substitutes in shaping accounting behavior. Finally, most of the prior research is cross-sectional in nature, as institutional factors are generally time-invariant. An opportunity, however, exists to study the importance of time-varying factors such as economic integration (see Christensen et al., 2013 for a focus on enforcement). Our study contributes to the literature by focusing on the role of economic integration and by asking two questions: (i) whether and to what extent does economic integration affect similarity in financial reporting behavior (which we label "accounting comparability") and (ii) what role does economic integration play in the effect of accounting standards harmonization on accounting comparability?

To answer these questions, we use the adoption of a common currency – the euro – as a shock to economic integration. Conceptually, this setting has a several desirable features. First, it allows for a direct examination of the effect of economic integration on accounting comparability around euro adoption in 1999 (we label this the "*direct*" effect). Second, it allows us to estimate the subsequent effect of economic integration at the time of accounting standards harmonization. Specifically, we look at changes in accounting comparability around the European Union's adoption of IFRS in 2005, conditional on euro membership (we label this the "*interactive*" effect).

This setting also provides several desirable empirical features: first, membership in a currency union integrates product markets by boosting bilateral trade and fosters cross-border arm's length financing through higher capital mobility (Frankel and Rose, 1998; Rose, 2000; Glick and Rose, 2002; Micco et al., 2003; Rajan and Zingales, 2003). These effects bolster the case for using euro adoption as our instrument for economic integration. Second, countries' decision to adopt the euro was driven by political concerns made several years prior to the effective date and can be regarded as exogenous to accounting practices at the time of adoption.[1] Finally, out of the 27 countries in the EU, 11 adopted the euro in 1999 and 2001 but 16 did not, giving us a set of treatment and control groups within the EU to operationalize a difference-in-differences (henceforth DiD) research design.

Our first research question pertains to the *direct* effect of economic integration on accounting comparability. The premise is that financial reporting is shaped not only by accounting standards (and other country-level institutional factors) but also by the underlying economic environment in which firms operate. Because economic forces such as product and capital market segmentation differ across countries and over time, these can be a deterrent to accounting convergence, despite countries' efforts to harmonize accounting practices. Consequently, one way to achieve accounting convergence is through a convergence in these underlying economic determinants (Ball, 2006). A counterargument is that economic integration will have an immaterial effect when evaluated incrementally to accounting standards as well as to other institutional factors such as legal regime, strength of enforcement, and creditor rights.

[1] An important issue in the macroeconomics literature is the direction of causality between economic integration and euro adoption (e.g., Glick and Rose, 2002). Micco et al. (2003), among others, document a distinct "euro effect" on bilateral trade of around 8% to 16% — which is the discontinuity in economic integration that we exploit. The direction of the causality is less contentious in our setting as we use the adoption of the euro as a proxy for economic integration to test for changes in financial reporting behavior. In other words, our identification strategy requires that the adoption of the euro proxy for a change in economic integration and that the decision itself not be driven by variation in accounting comparability (which seems reasonable).

The adoption of the euro can affect financial reporting in two ways: first, membership in a currency union can directly change the "economics" of firms. The adoption of the euro has been shown to increase bilateral trade, thereby integrating product markets. This leads to greater convergence in market shares and profit margins thus affecting reported sales and profitability. Second, the euro can influence the "mapping" between the economics and reported accounting information, due to changes in the demand for financial reporting. Specifically, the adoption of the euro had a substantial impact on arm's length financing due to greater capital mobility among member countries (Rajan and Zingales, 2003). When firms borrow capital from arm's length providers rather than from domestic banks, there is a greater demand for financial reporting transparency, as arm's length financiers are more likely to use financial statements to monitor borrowers (Ball et al., 2000). To the extent there is a simultaneous increase within euro countries in their reliance on arm's-length financing, we expect these increases to create a more homogeneous demand for financial reporting transparency.[2]

Our second research question pertains to the relation between economic integration and accounting standards harmonization in shaping accounting comparability (the *interactive* effect). Ball (2006) discusses the interaction between these constructs and illustrates that economic integration and accounting standards harmonization can be either complements or substitutes. On one hand, accounting standards harmonization could bring about greater accounting comparability when the underlying economic environment is more similar. This is because a lack of economic integration creates heterogeneity in the incentives to provide financial reporting transparency,

[2] In this example, the convergence in demand for greater transparency leads to higher accounting comparability. It is conceptually possible for a convergence in the demand for *lower* transparency (if, for example, firms move from dispersed arm's length financing to common private capital providers) to also result in higher comparability. This prediction, however, is hard to validate in our sample as the euro was characterized by an increase in arm's length financing and consequently a higher demand for financial reporting transparency.

thereby inhibiting accounting standards convergence from translating into a convergence in reporting behavior. On the other hand, accounting standards harmonization could have a stronger effect when economic integration has not already made financial reporting outcomes more comparable. In this case, the harmonization of accounting standards would be more binding among firms that were not already doing so. We test these arguments by studying whether economic integration (proxied by euro membership) and accounting standards harmonization (proxied by IFRS adoption) have substitutive or complementary effects on accounting comparability.

To examine the *direct* effect of economic integration around the adoption of the euro, we use data from Worldscope and Datastream for 15 EU countries (11 adopters and 4 non-adopters) for the period from 1994 to 2004. Our sample comprises 20,449 industry-country-year-pair observations. To measure accounting comparability, we use the measure developed by De Franco et al. (2011). This measure attempts to capture the FASB's notion of comparability, which refers to the extent to which similar transactions translate to similar financial statements.[3] Specifically, the measure compares how similar are two firms' mapping from their economics to their reported income. Firms are deemed to be comparable when, given a similar set of economic transactions, they report similar income.

Consistent with the *direct* effect, we find an increase of around 15% in accounting comparability relative to pre-adoption levels for euro adopters as compared to non-adopters. We further verify that there is no difference between these two groups in the pre-adoption period (i.e., the parallel-trends assumption). In these tests, we control for several factors affecting our measure of accounting comparability, such as differences in growth opportunities, risk and market

[3] Strictly speaking, the FASB [1980, p. 40] states that "comparability is the quality of information that enables users to identify similarities and differences between two sets of economic phenomena."

efficiency. In addition, we show that euro adoption is not confounded by other institutional changes during this period, such as first-time enforcement of insider trading laws.

One concern with our proxy for accounting comparability is that it could simply be capturing differences in the underlying economics as opposed to the mapping from the economics to the reporting. While our main analysis controls for a series of economic factors, we perform two additional analyses to mitigate this concern. First, we conduct cross-sectional tests to examine whether the effect of the euro on accounting comparability stems from greater arm's length financing. Rajan and Zingales (2003) attribute the post-euro increase in arm's length financing to a reduction in foreign currency exchange risk. Following this argument, we predict that the effect of the euro on accounting comparability will be more pronounced in countries with more volatile currencies in the pre-adoption period. In addition to this ex-ante test, we also perform an ex-post test where we predict more accounting comparability in countries experiencing larger increases in Foreign Portfolio Investments (*FPI*) between the pre and post adoption periods. Our results are consistent with these predictions and highlight the importance of arm's length financing in the effect of economic integration and accounting comparability.

Second, we use the mapping from the underlying economics to cash flows (i.e., cash flow comparability) as a counter-factual to the mapping from economics to reported income. While we find an increase in cash flow comparability, both the time-series and the cross-sectional partitions show that this effect is neither centered on euro adoption nor is it driven by increases in arm's length financing. Thus, these results suggest that our findings are unique to *accounting* comparability, in the sense that they are not replicated by cash flow comparability, do not document increases before euro adoption, but rather immediately after, and furthermore are prevalent among firms more likely to be affected by increases in arm's length financing.

Having documented a *direct* effect of economic integration around the adoption of the euro, we turn our attention to the *interactive* effect of economic integration around the adoption of IFRS. To do so, we use data for the same 15 EU countries but center the research design on IFRS adoption in 2005. Our sample is comprised of 19,591 industry-country-year-pair observations over the 2002 to 2007 period.[4] We find that the increase in accounting comparability around IFRS adoption is primarily driven by euro countries. These findings support the idea that economic integration and accounting standards harmonization act as complementary mechanisms in bringing about greater accounting comparability. We verify, in additional tests, that euro membership is not merely capturing other institutional splits previously documented (e.g., differences between local GAAP and IFRS, the ex-ante level of enforcement, or concurrent changes in enforcement).

Our paper contributes to the literature by isolating the effect of economic integration on financial reporting outcomes. A large literature has examined the role of factors, other than accounting standards, such as legal origins, private benefits of control, and strength of enforcement in shaping incentives to provide reporting transparency (e.g., Ball et al., 2000, 2003; Bushman and Piotroski, 2006; Leuz et al. 2003). Yet little is known about the role of economic integration. We find that economic integration has an important direct effect on accounting comparability, which complements the findings in the "incentives" literature. In addition, economic integration has a feedback effect on the impact of accounting standards harmonization on accounting comparability (which contributes to the "standards" literature). Specifically, we show that economic integration and accounting standards harmonization act as complements in bringing about greater accounting comparability. Our findings complement prior evidence that IFRS effects vary with other factors

[4] Several EU countries such as Cyprus, Estonia, Malta, and Slovenia, adopted the euro subsequent to adopting IFRS. Theoretically, this would have allowed us to focus on economic integration once the convergence in accounting rules was stepped up. However, data availability precludes us from performing this analysis.

such as the ex-ante level and changes in enforcement, and differences in local standards (e.g., Christensen et al., 2013; Daske et al., 2008).

Before we proceed, it is pertinent to note that our study does not take a stance on whether greater economic integration and accounting comparability are "optimal". After all, recent events in the euro zone highlight how currency unions can bring about unintended consequences such as cross-border contagion and systemic risk. Thus, any purported claim of the optimality of greater economic integration (and accounting comparability) requires a fuller examination of all costs and benefits. Our goal is to show that economic integration is not only an important driver of accounting comparability but also a key determinant of the effectiveness of accounting standards in increasing accounting comparability. An implication of our results is that efforts to increase accounting comparability amongst countries are likely to be more successful if adopters are economically more integrated. Conversely, declines in economic integration (as seen by the recent euro zone crisis) could lead to deterioration in accounting comparability, despite the harmonization of accounting standards over the past several years.

The rest of the paper is as follows. Section 2 presents the motivation, followed by the hypotheses. Section 3 outlines the empirical design and Section 4 describes the results. Section 5 presents the robustness tests and Section 6 concludes.

2. Motivation and hypothesis development

There has been a resurgence of interest in accounting comparability in recent years, most notably due to the adoption of IFRS by several countries across the globe. A motivating factor driving IFRS is the idea that a common set of accounting standards can result in greater accounting comparability. Consistent with this argument, Barth et al. (2012) and Yip and Young (2012) show

that accounting comparability increased subsequent to the adoption of IFRS both within IFRS countries and vis-à-vis U.S firms.

A separate literature focuses on underlying economic fundamentals and institutional structures across countries and their effect on reporting practices. For example, Ball et al. (2000, 2003) show that reporting practices are affected by reporting incentives such as "arm's length" financing. Similarly, research has shown that country-level differences in enforcement and other legal institutions influence financial reporting outcomes (Leuz et al., 2003; Bushman and Piotroski, 2006; Joos and Wysocki, 2007). Overall, prior research suggests that both accounting standards as well as underlying economics (broadly defined to encompass reporting incentives) appear to have a role in shaping reporting practices.

While the above studies on the importance of institutional factors explore important drivers of accounting practices, they do not directly examine economic integration, the construct of interest in our study. Nor do they speak to the interaction between economic factors and accounting standards. Ball (2006) directly confronts the question of financial reporting comparability and discusses the role of accounting standards versus that of institutional features in influencing accounting comparability. Ball (2006, pg. 11) notes that "*convergence* in actual financial reporting practice is a different thing than convergence in financial reporting standards…because capital markets are not perfectly integrated (debt markets in particular), and because more generally economic and political integration are both far from being complete, the logic of national *differences* should be equally evident" (our emphasis). Ball's argument implies that integration in accounting practices is expected to be a function of the underlying forces driving reporting practices such as economic integration.

Our paper seeks to examine the role of economic factors on accounting comparability. We particularly examine two related questions – first, does economic integration affect accounting comparability, and if so, how important is this effect? And second, does economic integration have a role to play in how accounting standards harmonization affects accounting comparability? In the following section, we make the case for using the adoption of the common euro currency by countries in the EU as our shock for economic integration.

2.1. Adoption of the euro currency

The European Union (which was formed as part of the Maastricht Treaty of 1992) instituted the common euro currency in 1999 as the culmination of efforts to achieve greater economic integration among its members. EU countries were allowed to adopt the common currency as long as they met certain criteria (known as the convergence criteria) that would ensure price stability within the region.[5] Two channels through which a common currency affects economic integration are bilateral trade and cross-border arm's length financing.

A large literature in international economics studies the effect of currency unions on bilateral trade. Rose (2000) finds that countries with a common currency experience a substantial increase in trade and Micco et al. (2003) document an increase of 8 to 16% in bilateral trade after euro adoption. Further, Frankel and Rose (1998) find that greater bilateral trade between two countries results in greater economic integration (using several measures, including real GDP and industrial production) Using an instrumental variables methodology, they attempt to confirm that the direction of causality runs from bilateral trade to economic integration.

[5] The convergence criteria broadly encompassed fiscal and budgetary restrictions such as not having high inflation rates, government deficit not exceeding 3% of GDP, government deficit to GDP being less than 60%, and long-term interest rates not being more than 2% higher than benchmark countries.

With regard to arm's length financing, Rajan and Zingales (2003) show that the introduction of the euro led to an explosion of public debt financing. In other words, the euro adoption had a significant impact on capital mobility, which facilitated cross-border arm's length financing. We expect this shift to alter the nature of the financial reporting demanded from a firm. In particular, when firms borrow from arm's length providers rather than from domestic banks, there is a greater demand for financial reporting transparency, and this *convergence* in demand for greater transparency translates into higher accounting comparability.

For example, take two firms – one from Austria and the other from Germany. Suppose that prior to the euro, each firm accessed local sources of capital, i.e., from an Austrian bank and German bank, respectively. In this case, the financial reporting attributes of these firms will be shaped by the idiosyncratic information demands of the two banks. However, after euro adoption, both firms can now access international capital markets and borrow from arm's length financiers. Given that these financiers demand greater financial reporting transparency, we expect the convergence in demand for financial reporting to increase the extent of accounting comparability between these two firms.

2.2. Hypotheses

2.2.1. The *direct* effect of economic integration

Our first prediction pertains to a direct effect of euro adoption on accounting comparability. We predict that the adoption of the euro increases accounting comparability. This hypothesis relies on two main arguments. First, we rely on prior research that shows that the euro resulted in significant economic integration (proxied by the boost in bilateral trade) and in greater arm's length financing. Second, we rely on Ball's (2006) argument that the extent of economic

integration shapes differences in financial reporting comparability across firms. In short, our prediction is that the euro adoption increased economic integration, which in turn, translated into greater accounting comparability. We formalize our hypothesis as follows:

H1: There is an increase in accounting comparability after the adoption of the euro.

2.2.2. The *interactive* effect of economic integration

Our second prediction pertains to an *interactive* effect of economic integration on accounting comparability in combination with accounting standards harmonization. Specifically, we test Ball's (2006) conjecture that the harmonization of accounting standards via the adoption of IFRS will result in greater accounting comparability when the underlying economic environment is more similar. Ball argues that merely mandating an international set of accounting standards is unlikely to result in greater comparability. This is because firms that do not have an incentive to provide greater transparency will not change their reporting behavior even if there is a change in their countries' accounting standards. On the other hand, if firms' incentives change due to higher economic integration, they might be more likely to change their reporting behavior in response to the adoption of a common set of standards.[6] This argument predicts a *complementary* effect between economic integration and accounting standards harmonization.

An alternative argument is that the adoption of IFRS brings about larger economic effects in countries that are not yet economically integrated. For example, Ball (2006) argues that the implementation of IFRS promises more accurate, comprehensive, and timely financial statement information and that "to the extent the financial statement information is not known from other

[6] An example would be the imposition of a unique accounting guideline (e.g., bad debt expense provisions) to firms with very different credit policies. Because business models differ, accruals estimates are also likely to differ. However, if integration is such that credit terms become standard throughout an industry, a single guideline is more likely to translate into (relatively more) homogeneous accounting estimates.

sources, this should lead to more-informed valuation in the equity markets." Further, Ball (2006) argues that the indirect benefits of IFRS to investors arise from improving the usefulness of financial statement information in contracting, thereby reducing agency costs and enhancing corporate governance. As well integrated countries have incentives to provide greater financial reporting transparency irrespective of local accounting standards, they are likely to benefit less from an exogenous increase in "high quality" standards than do countries that are not well integrated. In other words, the marginal effect of a migration to a "higher quality" reporting standard is likely to be greater for non-integrated economies, since integrated economies have incentives to voluntarily adopt high quality reporting. This argument predicts a *substitutive* effect between economic integration and accounting standards harmonization. Given the above opposing arguments, we do not make a directional prediction on how euro membership influences the effectiveness of IFRS adoption. Our second hypothesis (stated in the null) is:

H2: The effect of IFRS adoption on accounting comparability is unrelated to euro membership.

3. Sample, research design and variable descriptions

3.1. Sample

We obtain our data from several sources – accounting data from Worldscope, stock return data from Datastream, euro adoption dates from Bekaert et al. (2012), IFRS adoption dates from Daske et al. (2008), and macroeconomic variables from the World Development Indicators (WDI) database of the World Bank and the Trade and Coordinated Portfolio Investment Survey (CPIS) database of the IMF. As described in more detail below, our notion of comparability refers to similarity in accounting practices among firms, which we estimate at the industry-country-year-pair level. Thus, we use data at the firm-year level to collapse them to an industry-country-year-

pair level for the estimation of accounting comparability. To avoid the influence of firms' voluntary adoption choices, we remove firms that voluntarily adopted IAS or U.S. GAAP from the sample. The data on voluntary adopters come from Daske et al. (2013). In addition, we exclude financial institutions as their accruals differ from other industries and utilities as these firms operate in regulated environments.

The final sample for the *direct* effect around euro adoption is comprised of 20,449 industry-country-year pair observations over the period 1994 to 2004 and spans 15 EU countries. Table 1 shows that of these 15 countries, 11 (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain) adopted the euro while 4 (Denmark, Poland, Sweden, and the United Kingdom) did not.[7] Panel A of Table 2 presents a breakdown of the sample by country-pair. None of the countries dominates the sample. This is expected as we aggregate firm-year observations at the industry level leading to a more balanced sample representation. The treatment group comprises both countries adopting the euro (shaded in dark) and includes 9,981 industry-country-year pair observations. The remaining three cells of the matrix (shaded lighter) indicate the control group. These comprise 8,758 (4,271+4,487) observations where one of the two countries adopted the euro and 1,710 observations where neither did. Our results are robust to deleting the off-diagonals and comparing only $EURO_i$=1 & $EURO_j$=1 with $EURO_i$=0 & $EURO_j$=0.

Tests of the *interactive* effect around IFRS adoption are based on a sample of 19,591 industry-country-year-pair observations for the same 15 countries over the years 2002 to 2007.

[7] Out of the 27 EU countries, we lose one euro adopter – Luxembourg – due to insufficient data. We also exclude three countries that more recently adopted the euro (Slovenia in 2007, Cyprus and Malta in 2008) and eight non-adopters (Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romania, and Slovakia) due to insufficient data. Our sample includes countries that joined the EU in 2004 (e.g., Poland), but our results are robust to these countries' exclusion.

3.2. Research design

To estimate the *direct* effect of euro adoption on accounting comparability, we estimate the following DiD specification:

$$EARNMAP = \omega_0 EURO + \omega_1 POST99 + \omega_2 EURO * POST99 + Controls. \quad (1)$$

EARNMAP is a proxy for accounting comparability as defined in DeFranco et al. (2011), *EURO* is an indicator variable coded as '1' when both countries adopted the euro, and *POST99* is an indicator variable for the years after 1999 (2001 onwards for industry-country-pairs involving Greece).

In addition, we estimate a model that includes industry-country-pair fixed-effects as well as year effects. Specifically we estimate the following:

$$EARNMAP = \alpha_c + \mu_t + \omega_2 EURO * POST99 + Controls. \quad (2)$$

where α_c and μ_t are the industry-country-pair and year fixed effects, respectively.[8] Since the *EURO* indicator does not vary over time for a given industry-country-pair, it gets subsumed by the industry-country-pair fixed effects. Similarly, the year fixed effects are a non-parametric representation of the *POST* indicator and thus subsume the latter. As a result, these main effects drop out of eq. (2). As euro adoption is hypothesized to increase accounting comparability, the coefficient on ω_2 in Eq. (1) and (2) is expected to be positive.

To test the *interactive* effect, we focus on a specification that is similar to eq. (1) and (2), but centers around IFRS adoption in 2005 as opposed to euro adoption in 1999. Our two specifications are as follows:

$$EARNMAP = \gamma_0 EURO + \gamma_1 POST05 + \gamma_2 EURO * POST05 + Controls. \quad (3)$$

[8] The industry-country-pair fixed effect includes within-country-across-industry effects (e.g., manufacturing vs. technology firms in France) and also within-industry-across country effects (e.g., manufacturing firms in France vs. manufacturing firms in Germany). Thus it subsumes separate country and industry effects.

$$EARNMAP = \beta_c + \eta_t + \gamma_2 EURO * POST05 + Controls \quad (4)$$

where *POST05* is an indicator variable for the years after 2005. In eq. (3) and (4), *EURO*POST05* captures the incremental effect of IFRS on comparability for EU-euro countries. The substitutive effect between economic integration and IFRS adoption predicts $\gamma_2 < 0$, while the complementary effect predicts $\gamma_2 > 0$.

3.3. Primary variables

3.3.1. Accounting comparability (*EARNMAP*)

Our measure of comparability is from De Franco et al. (2011). De Franco et al. (2011) define accounting comparability (*EARNMAP*) as the similarity between two firms' reported earnings given a common set of economic events (as proxied by a change in the stock price). This measure attempts to isolate the accounting channel by measuring the closeness of two firms' reporting functions that map their economic events (proxied by stock returns) to earnings.

Following Barth et al. (2012), we adapt De Franco et al.'s (2011) measure to estimate comparability cross-sectionally among industry-country-year observations (rather than in time-series by firm). This allows us to capture time-series variation in comparability, which we then use as a dependent variable in our DiD research design. Specifically, we first estimate the following cross-sectional regression for each industry-country-year (industry is defined by the one-digit ICB code) in our sample with at least 10 firms:

$$EPS_{ck,i,t} = \alpha_{ck,t} + \beta_{ck,t}\ RET_{ck,i,t} + \varepsilon_{ck,i,t}\,. \quad (5)$$

$EPS_{ck,i,t}$ represents earnings per share at year *t* scaled by the beginning period stock price for firm *i* in industry *k* in country *c* and *RET* represents the stock return for the firm during the 15-month period starting at the beginning of the fiscal year and ending three months after the end.

In Eq. (5), the accounting function for industry *k* in country *c* in year *t* is proxied by $\hat{\alpha}_{ck,t}$ and $\hat{\beta}_{ck,t}$. The accounting function, which we term the accounting mapping, captures the extent to which an economic event (proxied by the stock return) is recognized in the financial statements (as proxied by earnings). A similar mapping is generated for each country-industry-year (i.e., $\hat{\alpha}_{dk,t}$, $\hat{\beta}_{dk,t}$) in our sample. We compute the accounting comparability between industry *k* in country *c* and industry *k* in country *d* in a given year as follows:

$$EARNMAP_{c-d,k,t} = -1*\left|\left[\hat{\alpha}_{c,k,t} + \hat{\beta}_{c,k,t}\overline{RET}_{c-d,k,t}\right] - \left[\hat{\alpha}_{d,k,t} + \hat{\beta}_{d,k,t}\overline{RET}_{c-d,k,t}\right]\right| . \quad (6)$$

Accounting comparability between industry *k* in country *c* and industry *k* in country *d* is the difference between the expected earnings of each industry-country pair, *given the average return in these two industry-country pairs*. In other words, Eq. (6) computes the difference in the predicted earnings in the hypothetical scenario that both industries had the same stock returns. That is, we hold the economic event constant and estimate accounting comparability as the difference in the accounting mapping between two industry-countries at a given point in time.[9]

Before we proceed, we note that *EARNMAP* is similar in some sense to the well-known "ERC" metric used in prior studies (e.g., Collins and Kothari, 1989). Thus, it is possible that *EARNMAP* might be driven by the underlying fundamentals that drive ERCs, as opposed to differences in the accounting mapping. For example, it could be driven by differences in the risk-free rate, in growth opportunities, and also by differences in market efficiency across countries and also over time. To mitigate this concern, we do two things: First, as described in Section 3.4 below, we control for the well-known determinants of ERCs.

[9] In DeFranco et al.'s (2011) methodology, the intercept α captures the conditional average earnings to price ratio in the regression, whereas the coefficient β captures the earnings response coefficient. As an alternative methodology, we compute *ACCT_COMP* simply as differences in β times *RET* (i.e., we do not include differences in α). Our inferences are similar to those presented in the paper.

Second, we follow Collins, Hribar and Tian (2013) and use cash flow from operations as a counter factual of the "mapping function" in De Franco et al.'s methodology. That is, we contrast the mapping of economic events to earnings (as done in accrual accounting) to the mapping of these events to cash flows from (as done in cash accounting). We contend that the mapping to cash flows provide a reasonable counter-factual to accrual accounting, as it is likely to also be affected by confounding effects such as market efficiency differences, but not by accrual choices. We estimate the cash flow mapping function (*CFOMAP*) analogously to the estimation of *EARNMAP* with the only difference that we replace earnings in eq. (5) by cash flow from operations.

3.4. Control variables

We control for the average industry return across each industry-country-year pair during the year (*MEAN_RET)*. To ensure that our measure of stock returns is not confounded by differences in market efficiency before versus after the euro, we control for stock liquidity using the proportion of zero return days (*ZRET_DIFF*). As our measure of accounting comparability is similar in spirit to differences in ERCs, we control for factors shown to be related to ERCs (Collins and Kothari, 1989). In particular, we control for differences in the risk-free rate, earnings persistence, risk, and growth using differences in the annual 10-year treasury yield (*RF_DIFF*), earnings-to-price ratio (*EP_DIFF*) and the book-to-market ratio (*BM_DIFF*).[10]

In addition, we also control for time-varying macroeconomic factors related to countries' decision to adopt the euro that might also be correlated with accounting comparability. In particular, we control for differences in the level and growth of GDP (*GDP_DIFF* and *GDPGROW_DIFF*) and annual inflation (*INFL_DIFF*). We also control for differences in

[10] To mitigate the influence of large outliers, we use the industry median *EP* ratio rather than the mean.

financial market development across countries by including the absolute value of the difference in the equity market cap of listed firms to GDP (*MKTCAP_DIFF*) and the stock turnover of listed firms to GDP (*TURNOVER_DIFF*). This is relevant given that our instrument (the euro) captures cross-border economic integration and thus the inclusion of these variables allows us to better control for domestic financial market events.[11]

Finally, we include year and industry-country-pair fixed effects to control for EU-wide macroeconomic events and time-invariant variation at the industry-country-pair level. The inclusion of industry-country-pair effects is especially important given that *EARNMAP* is likely to differ systematically across industries and countries (e.g., industry-specific effects such as differences in operating cycles across industries; as well as country-specific effects such as differences in language, geographical location, culture), respectively. The fixed effects capture any such time-invariant, cross-sectional differences across industry-country-pairs allowing us to identify an (arguably) causal effect of economic integration on accounting comparability. Thus, the inclusion of industry-country-pair effects implies that our identification strategy exploits *within-industry-country-pair* variation, which is what our instrument captures.

3.5. Descriptive statistics

Table 3 presents the descriptive statistics for our main variables. The first section contains all main variables of interest – accounting comparability (*EARNMAP*), cash flow comparability (*CFOMAP*) and the euro indicator (*EURO*). *EARNMAP* has a mean value of -9.985, which represents a difference in earnings of around 10% of market value. There is, however, wide cross-

[11] While controlling for time-varying macroeconomic factors aids in identifying the euro effect beyond the inclusion of country-pair dummies, a concern is that they might be overcorrecting. For example, euro adoption has been shown to reduce GDP correlations (e.g., Frankel and Rose, 1998).

sectional variation within the sample. The least comparable pair differs by 42% of market value while the most comparable only by 0.13%. Approximately half the sample comprises of industry-pairs in which both industries are from countries that adopted the Euro. The next set of controls is defined at the industry-country-pair level. The average returns between the two industries in the industry pair is 19%. The difference in zero return days between the two industries in the pair is around 15%. The final set presents macroeconomic controls defined at the country-pair – risk-free rate, the level and growth in GDP, financial market development and inflation. For observations that are in the same country, these values take the value of zero (as depicted by the minimum values). Overall, the sample depicts rich heterogeneity with respect to economic characteristics.

4. Results

4.1. The *direct* effect of euro adoption on accounting comparability

Table 4 presents results of the *direct* effect of the euro on accounting comparability. Model 1 presents the main results with the main effects (*EURO* and *POST99*) in eq. (1) whereas Model 2 presents the fixed effects regression of eq. (2).

The coefficient on *POST99* in Model 1 is negative and significant, while that on *EURO*POST99* is positive and significant. The former result is consistent with studies in the macroeconomics literature (e.g., Micco et al., 2003) who report a decrease in economic integration for non-euro adopters during this period and attribute it to the global economic slowdown around this period. They, however, show the adoption of the Euro helps mitigate this divergence in bilateral integration for the treatment countries. The positive and significant coefficient on *EURO*POST99*, which is consistent with hypothesis *H1*, mirrors this effect. It indicates that the adoption of the common euro currency resulted in relatively more accounting comparability within euro countries as compared to their non-euro counterparts. This result is robust to the inclusion of

the industry-country-pair and year fixed effects, as seen by the positive and significant coefficient on *EURO*POST99* in Model 2. This coefficient of 0.966 corresponds to a 15% increase in comparability (given a pre-adoption mean of -6.507 for euro countries).

A potential concern, especially given the global divergence in bilateral trade during this period, is that this effect might be merely picking up ongoing time trends in accounting comparability that might have started prior to the euro adoption date. To address this concern, we follow the methodology of Bertrand and Mullainathan (2003) and examine the dynamic effect of euro adoption. In particular, we create an additional indicator variable to denote the year immediately preceding euro adoption ($POST99_{-1}$) and interact it with *EURO*. We also decompose the post period into $POST99_{1}$, $POST99_{2}$ and $POST99_{3+}$ to indicate year the first two years immediately following adoption as well as all subsequent years. We interact each of these with *EURO*. As our sample excludes the year of adoption, we do not include a $POST99_{0}$ indicator. The time trend interpretation predicts a significant coefficient on $EURO*POST99_{-1}$. Model 3 of Table 4 presents results of this dynamic effect. The coefficient on $EURO*POST99_{-1}$ is insignificant, while that on $EURO*POST99_{1}$, $EURO*POST99_{2}$, and $IFRS*POST99_{3+}$ are all significant. These results suggest that there was no differential change in accounting comparability between euro and non-euro countries in the year prior to euro adoption. In contrast, there is positive differential change in accounting comparability amongst euro countries relative to non-euro countries in the post adoption period. These results reinforce the impact of euro adoption on accounting comparability and help disentangle the adoption-effect from a time-trend effect.[12]

[12] In unreported results, we examine whether our results are due to country-level changes other than euro adoption. To do this, we use insider trading enforcement as the proxy for overall changes in enforcement (following Hail et al., 2013; Jayaraman, 2012). We define *ITENF* to denote country pairs where both countries enforced insider trading laws for the first time during our sample period and interact it with *POST99*. The coefficient on *EURO*POST99* remains positive and significant, while that on *ITENF*POST99* is negative and significant, indicating that inside trading enforcement reduces accounting comparability with other countries in the sample.

4.2. Cross-sectional variation in the *direct* effect: the role of arm's length financing

In this section, we explore cross-sectional variation in the euro adoption effect to bolster our inference that the direct *effect* of the euro on accounting comparability is driven by increases in arm's length financing. The adoption of the euro brought with it an immense opportunity to tap external debt markets for financing. Rajan and Zingales (2003) argue that firms were reluctant to issue large amount of long-term bonds denominated in foreign currencies because of the foreign exchange risk involved in repayments. They find that the introduction of the euro resulted in a tripling of the amount of domestic and international corporate debt issued by euro members, and conclude that the euro had a large effect in promoting the development of arm's length markets. Given that arm's length lenders rely on financial reporting information to monitor borrowers (Ball et al., 2000; Leuz et al., 2009), we expect the increase in arm's length financing to affect the demand for financial reporting. Further, to the extent that there is a convergence in the demand for financial reporting, it would translate into an increase in accounting comparability.

We test this argument in two ways. First, we use the volatility of the country's national currency as an ex-ante split, based on Rajan and Zingales's (2003) argument that the post-euro increase in arm's length financing should be stronger for countries with volatile currencies in the period leading up to adoption. We estimate the foreign exchange volatility of the national currency in the pre-euro period (*FXVOL*) and split the sample into "High" and "Low" subsamples based on whether both countries fall into the above median group of *FXVOL*. Second, we explore increases in the extent of bilateral foreign portfolio investment (*FPI*) after the adoption as an ex-post proxy for increases in arm's length financing. We calculate the change in bilateral *FPI* flows between the pre and post periods for each country pair using data from the IMF Coordinated Portfolio

Investment Survey (CPIS). We divide our sample into "High" and "Low" based on above median increases in FPI inflows.

Table 5 presents these results. Consistent with our expectations, the coefficient on *EURO*POST99* in the *FXVOL* splits is larger in magnitude in the "High" subsample (3.774) compared to the "Low" subsample (0.666). In economic terms, the increase in accounting comparability in the "High" *FXVOL* subsample is 58% relative to pre-adoption levels, compared to 10% in the "Low" group. These inferences carry over to the *FPI* tests, where the coefficient on *EURO*POST99* equals 3.106 for the "High" *FPI* subsample and is indistinguishable from zero for the "Low" group. These results reinforce the important effect of euro adoption on arm's length financing documented by Rajan and Zingales (2003) and the effect of arm's length financing on financial reporting (e.g., Ball et al., 2000; Leuz et al., 2009).

4.3. Using cash flow comparability as a falsification test

Table 6 presents results of the full-sample and sub-sample analyses using cash flow comparability as a falsification test. The first specification presents the results of the fixed effects specification. The coefficient on *EURO*POST99* is positive and significant, indicating an increase in cash flow comparability in the post euro-adoption period. However, the dynamic effects model casts doubt on whether this increase can be attributed to euro adoption *per se*. In particular, the coefficients on $EURO*POST99_1$ and $EURO*POST99_2$ are both insignificant, indicating no increase in cash flow comparability in the two years immediately succeeding adoption. Instead, the positive coefficient on *EURO*POST* is driven by the third year after adoption of the euro.

Next, we use cash flow comparability in the context of our cross-sectional partitions. In contrast to the results with accounting comparability, the increase in cash flow comparability

during the post-adoption period occurs in both the high and the low FX volatility groups. In addition, increases in cash flow comparability are, if anything, pronounced (but not statistically) in the *low* FPI-changes subsample as compared to the high FPI-changes subsample. These results are inconsistent with accounting comparability simply capturing cross-sectional differences in the underlying economics, and more likely be driven by differences in arm's length financing driven the demand for accrual accounting (the construct that our measure seeks to capture).

Overall, these differential effects between accounting comparability and cash flow comparability indicate that our results are likely to be driven by reporting effects rather than mechanical fundamental effects.

4.4. The *interactive* effect of economic integration and IFRS adoption

We now turn to our second hypothesis – the *interactive* effect of economic integration and accounting standards harmonization on accounting comparability. We do so by shifting our focus to the adoption of IFRS by the European Union in 2005. To maintain consistency with the tests on the *direct* effect, we restrict our sample of IFRS adopters to the EU. The drawback here is that since all countries in the EU adopted IFRS, we are left with no control group. However, as we are interested in variation *within* the EU depending on whether IFRS adopters belong to the common euro currency, we proceed with only EU countries.

To ensure that our euro splits do not merely capture other institutional determinants shown to be related to IFRS effects, we control for these previously documented factors. First we note that, while prior studies show that IFRS adoption effects are larger in the EU (e.g., Daske et al., 2008), our sample is restricted to EU countries and we are therefore documenting within-EU variation. However, euro membership could be correlated with other institutional splits such as differences in local accounting standards (e.g., Bae et al., 2008; Barth et al., 2013) or levels and

concurrent changes in enforcement (e.g., Daske et al., 2008; Christensen et al., 2013). To mitigate this concern, we control for these effects to verify whether our results survive. In particular, we follow Barth et al. (2013) and define *NI_DIFF* as the adjustment needed to restate domestic net income to IFRS-based net income and interact it with *POST05*.[13] Similarly, we define *RULELAW* as the difference in the rule of law index of Kaufmann et al. (2007) across the two countries of the pair and interact it with *POST05*. Finally, we define Δ*ENF* as an indicator to denote country pairs where both members undertook concurrent changes in enforcement (these are Finland, Germany, the Netherlands and the U.K – see Christensen et al., 2013) and interact it with *POST05*.

We present four specifications in Table 7. The first two pertain to accounting comparability (*EARNMAP*) while the next two to cash flow comparability (*CFOMAP*). The first specification in each case excludes the fixed effects and instead includes the main effects of *EURO* and *POST05*. The next specification in each case presents the fixed effects specification.

Turning to Model 1, the coefficient on *POST05* is insignificant while that on *EURO*POST05* is positive and highly significant. The latter remains positive and significant even in the fixed-effects specification of Model 2. These results suggest that IFRS adoption results in a pronounced increase in accounting comparability when there is already greater economic integration among the adopters, suggesting that economic integration and accounting standards harmonization act as complements rather than substitutes.

Models 3 and 4 indicate that the above effects do not spill over to cash flow comparability. In other words, there is neither an increase in cash flow comparability for the non-euro group; nor

[13] We use the measure from Barth et al. (2013) rather than that in Bae et al. (2008) because the former focuses on net income effects, which can directly influence our measure of comparability. Our results are, however, robust to using the measure in Bae et al. (2008).

an incremental effect for euro countries. In particular, the coefficient on *POST05* is insignificant in Model 3 while that on *EURO*POST05* is insignificant in both Model 3 and in Model 4.

5. Conclusion

We use the adoption of the euro as a common currency by several European Union countries in 1999 as a shock to economic integration to provide evidence on two related questions: what impact does economic integration have on accounting comparability? And how does economic integration influence the effect of accounting standards harmonization on accounting comparability? We find that economic integration has a *direct* effect on increasing accounting comparability, and that these effects are concentrated in cases where countries experience increases in arm's length financing. Thus, the mechanism driving accounting comparability is greater demand for reporting transparency stemming from arm's length capital providers.

In addition to the above direct effect, we find that economic integration also has an *interactive* effect; it plays an important role in the extent to which accounting standards harmonization (proxied by IFRS adoption) increases accounting comparability. In particular, we find that conditioning the IFRS adoption effect on euro membership provides evidence of significant heterogeneity – the post-IFRS increase in accounting comparability within the EU is concentrated in euro countries. There is no detectable increase for non-euro EU countries.

Our paper contributes to the rapidly growing literature on accounting comparability. However, in contrast to most studies, we document not only the important role of economic integration on accounting comparability, but also the dynamic interactive effects between economic integration and accounting standards harmonization on accounting comparability. Our

findings are relevant to academics, regulators, and standard setters as more countries (most notably the U.S.) contemplate switching to IFRS in the coming years.

Appendix 1: Validation tests

We begin our empirical exercise by validating our instrument, i.e., that the adoption of the euro increased economic integration. To do so, we follow prior studies (e.g., Rose, 2000; Micco et al., 2003) and document the effects of euro adoption on bilateral trade. In particular, we obtain bilateral trade data from the Direction of Trade Statistics (DOTS) database of the IMF and define *BITRADE* as the (log of the) product of total imports and exports between the country pair. This model is analogous to the DiD specification in Eq. (1) but uses bilateral trade at the country-pair-year level as the dependent variable. Following Micco et al. (2003), we control for the product of the country-pair's GDP (*GDP*), in addition to our other macroeconomic controls. We expect bilateral trade between euro countries to increase after adoption, i.e., the coefficient on *EURO*POST99* to be positive and significant.

The first specification of the adjoining table presents these results. As *BITRADE* is defined at the country-pair-year level, we collapse our sample to a country-pair-year panel. Consistent with prior studies, we find that the coefficient on *EURO*POST99* is positive and significant, indicating that euro adopters experience an increase in bilateral trade compared to non-adopters. The economic magnitude of this effect is around 7% (similar to Micco et al. (2003)) and provides evidence consistent with the assumption that euro adoption increases economic integration.

In addition to bilateral trade, we also examine how the euro affects the similarity in firms' reported earnings. We adapt the methodology in Bekaert et al. (2012) and measure earnings comovement (*EARNCOMOVE*) at the industry-country-year-pair level as the absolute value of the difference between two industries' earnings (i.e., earnings before extraordinary items scaled by total assets) times -1. Specifically, earnings comovement between industry *i* and industry *j* in year *t* is defined as follows:

$$EARNCOMOVE_{it,jt} = \left|EARN_{it} - EARN_{jt}\right|\text{*-1.} \quad (5)$$

$EARN_{it}$ represents earnings scaled by total assets of industry *i* in year *t*; $EARN_{jt}$ captures earnings of industry *j* in year *t*. Using a similar approach, we compute the comovement in cash flow from operations (*CFOCOMOVE*).

The second specification presents these results. The coefficient on *EURO*POST99* is positive and significant in the *EARN_SIM* specification, indicating that after the euro, earnings become more similar among adopting countries relative to non-adopting ones. In terms of economic significance, given a pre-adoption mean *EARN_SIM* of -4.221, the value of 1.061 on *EURO*POST99* corresponds to an increase in earnings similarity of 25% (=1.061/4.221). The next three columns presents results for cash flow, working capital accruals, and depreciation, respectively. The coefficient on *EURO*POST99* is positive and significant in the *CFO_SIM* and *WCACCR_SIM* specifications, indicating that both cash flow and working capitals became more similar after euro adoption. In contrast, there is no evidence of a change in depreciation similarity, as seen by the insignificant coefficient on *EURO*POST99* in the last model.

Overall, the results in Table 3 are consistent with the euro having increased economic integration, which ultimately affected firms' reported earnings. Further, the effect on working capital accruals suggests that not only did cash flows become more similar, accrual measures also did, such as (changes in) inventory, accounting receivables, and payables.

	Bilateral trade		Convergence in fundamentals			
	BITRADE		*EARNCOMOVE*		*CFOCOMOVE*	
	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat
EURO	–	–	–	–	–	–
POST99	-0.132	-4.58	-3.819	-11.39	-2.063	-9.53
EURO*POST99	**0.073**	**2.84**	**2.156**	**5.01**	**1.422**	**5.50**
GDP	1.056	14.87				
MEAN_RET			0.023	7.57	0.005	2.97
ZRET_DIFF			-0.607	-0.66	-2.546	-3.82
RF_DIFF			0.221	2.32	-0.348	-5.23
EP_DIFF			-25.133	-10.30	-10.059	-6.69
BM_DIFF			0.538	2.66	0.076	0.53
GDP_DIFF			-1.258	-0.84	-0.202	-0.21
GDPGROW_DIFF	0.013	2.09	0.142	1.75	0.058	1.41
MKTCAP_DIFF	-0.099	-4.11	1.465	3.53	0.800	3.35
TURNOVER_DIFF	-0.009	-0.51	0.853	3.11	0.317	2.02
INFL_DIFF	-0.008	-2.48	-0.024	-0.90	-0.054	-2.98
Year effects	No		No		No	
Country-pair effects	Yes		No		No	
Ind-ctry-pair effects	No		Yes		Yes	
Adj. R^2	0.23		0.54		0.53	
Obs.	20,449		20,449		20,449	

References

Ball, R., 2006. IFRS: Pros and cons for investors. *Accounting and Business Research* International Accounting Policy Forum,5-27.

Ball, R., Kothari, S.P., Robin, A., 2000. The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting & Economics* 29, 1-51.

Ball, R., Robin, A., Wu, J. S., 2003. Incentives versus standards: Properties of accounting income in four East Asian countries. *Journal of Accounting & Economics* 36 (1-3), 235-70.

Barth, M., Landsman, W., Lang, M., Williams, C., 2012. Are IFRS-based and US GAAP-based accounting amounts comparable? *Journal of Accounting & Economics* 54 (1), 68-93.

Barth, M., Landsman, W., Young, D.X., Zhuang, Z., 2013. Relevance of differences between net income based on IFRS and domestic standards for European firms. Stanford University working paper.

Bekaert, G., Harvey, C., Lundblad, C. Siegel, S., 2012. The European Union, the Euro, and equity market integration. *Journal of Financial Economics, forthcoming*.

Bekaert, G, Harvey, C.R., Lundblad, C., 2005. Does financial liberalization spur growth? *Journal of Financial Economics* 77 (1), 3-55.

Bhattacharya, U., H. Daouk, , 2002. The world price of insider trading. *Journal of Finance* 57 (1), 75-108.

Bushman, R. M., Piotroski, J. D., 2006. Financial reporting incentives for conservative accounting: The influence of legal and political institutions. *Journal of Accounting & Economics* 42 (1-2), 107-48.

Christensen, H., Hail, L., Leuz C., 2013. Mandatory IFRS reporting and changes in enforcement. Booth School of Business, University of Chicago working paper.

Collins, D. W., Kothari, S.P., 1989. An analysis of the intertemporal and cross-sectional determinants of earnings response coefficients. *Journal of Accounting and Economics* 11, 143-181.

Daske, H., Hail, L., Leuz, C., Verdi, R., 2008. Mandatory IFRS reporting around the world: Early evidence on the economic consequences. *Journal of Accounting Research* 46 (5), 1085-142.

Daske, H., Hail, L., Leuz, C., Verdi, R., 2013. Adopting a label: Heterogeneity in the economic consequences around IAS/IFRS adoptions. *Journal of Accounting Research* 51 (3), 495-547.

DeFranco, G., Kothari, S.P., Verdi, R., 2011. The benefits of financial statement comparability. *Journal of Accounting Research* 49 (4),895-931.

Financial Accounting Standards Board (FASB), 1980. *Qualitative Characteristics of Accounting Information*. Statement of Financial Accounting Concepts No. 2. FASB, Norwalk, CT. Available at http://www.fasb.org/pdf/con2.pdf.

Frankel, J.A., 2008. The estimated effects of the Euro on trade: Why are they below historical effects of monetary unions among smaller countries? NBER Working Paper.

Frankel, J., and A. K. Rose, 1998, The Endogeneity of the Optimum Currency Area Criteria, *The Economic Journal*, Vol. 108, No. 449, pp. 1009-1025.

Glick, R., Rose, A., 2002. Does a currency union affect trade? The time series evidence. *European Economic Review* 46 (June), 1125–51.

Hail, L., Leuz C., 2006. International differences in the cost of equity capital: Do legal institutions and securities regulation matter? *Journal of Accounting Research* 44: 485-531.

Hail, L., Tahoun, A., Wang, C., 2013. Dividend payouts and information shocks, University of Pennsylvania working paper.

Jayaraman, S., 2012. The effect of enforcement on timely loss recognition: Evidence from insider trading laws. *Journal of Accounting & Economics* 53, 77-97.

Joos, P., Wysocki ,P., 2007. (Non)Convergence in international accrual accounting, Morgan Stanley working paper.

Kaufmann, D., A. Kraay, and M. Mastruzzi, 2007, Governance matters VI: Aggregate and individual governance indicators 1996–2006, Washington, DC: The World Bank

Leuz, C., Lins, K., Warnock, F.E., 2009. Do foreigners invest less in poorly governed firms? *Review of Financial Studies* 22 (8), 3245-3285.

Leuz, C., Nanda, D., Wysocki, P. D., 2003, Earnings management and investor protection: An international comparison, *Journal of Financial Economics* 69 (3), 505-27.

Micco, A., Stein, E., Ordoñez, G., 2003.The currency union effect on trade: Early evidence from EMU. *Economic Policy* 18 (37), 315-356.

Rajan, R., Zingales, L., 2003. Banks and markets: The changing character of European finance, in Gaspar, V., Hartrmann, P., Sleijpen O. (Eds.), The Transformation of the European Financial System. European Central Bank.

Rose, A. K., 2000. One money, one market: The effect of common currencies on trade. *Economic Policy* 15 (30), 7-45.

Yip, R., Young, D., 2012. Does mandatory IFRS adoption improve information comparability? *The Accounting Review* 87 (5), 1767-1789.

Table 1: List of euro adopters and non-adopters within the EU

Data on euro adopters and non-adopters are from Table 1 of Bekaert et al. (2012).

Countries	**Year of adoption**	***RULELAW***	***NI_DIFF***	**Δ*ENFORCE***
Adopters:				
Austria	1999	12	–	0
Belgium	1999	13	10.89	0
Finland	1999	15	18.60	1
France	1999	12	16.56	0
Germany	1999	11	8.44	1
Greece	2001	17	16.37	0
Ireland	1999	1	5.66	0
Italy	1999	12	17.88	0
Netherlands	1999	4	7.03	1
Portugal	1999	13	27.81	0
Spain	1999	16	12.88	0
Average		**12**	**14.21**	**0.3**
Non-adopters:				
Denmark	–	11	10.37	0
Poland	–	12	–	0
Sweden	–	10	9.88	0
United Kingdom	–	1	15.82	1
Average		**9**	**12.02**	**0.3**

Table 2: Sample composition

Panel A: Breakdown by country-pair (country *i* in rows and country *j* in columns)

	AUT	BEL	DNK	FIN	FRA	GER	GRC	IRL	ITL	NLD	POL	PRT	ESP	SWE	GBR	Total
AUT	9	56	53	52	89	84	41	37	50	67	23	33	32	74	102	**802**
BEL	37	63	83	94	150	141	72	60	90	114	36	51	54	126	172	**1,343**
DNK	28	76	40	73	124	113	59	46	73	93	28	43	42	99	144	**1,081**
FIN	40	100	84	73	153	145	75	71	93	115	40	53	64	137	172	**1,415**
FRA	61	157	133	158	202	243	117	100	142	202	63	85	90	212	305	**2,270**
GER	51	135	116	137	232	155	104	87	123	175	53	74	76	183	265	**1,966**
GRC	24	74	63	71	106	97	56	44	71	77	36	29	42	85	119	**994**
IRL	34	83	73	88	129	121	61	37	77	95	34	45	53	112	145	**1,187**
ITL	26	68	58	69	106	98	53	40	45	79	28	34	36	86	120	**946**
NLD	47	111	96	111	188	170	81	72	97	101	43	65	62	147	214	**1,605**
POL	21	51	47	50	74	69	48	33	54	52	15	19	31	59	80	**703**
PRT	25	53	49	54	91	85	35	36	44	74	17	18	30	75	109	**795**
ESP	33	82	66	86	122	117	58	60	76	90	29	43	32	113	138	**1,145**
SWE	47	120	102	123	200	188	87	78	108	153	43	69	69	121	231	**1,739**
GBR	66	166	140	170	296	266	122	107	148	226	63	94	96	232	266	**2,458**
Total	549	1,395	1,203	1,409	2,262	2,092	1,069	908	1,291	1,713	551	755	809	1,861	2,582	**20,449**

Panel B: Breakdown by euro and non-euro

The *EURO* indicator takes the value of 1 for cells shaded in dark grey and 0 for those shaded in light gray.

	$EURO_j = 0$	$EURO_j = 1$
$EURO_i = 0$	1,710	4,271
$EURO_i = 1$	4,487	9,981

Table 3: Descriptive statistics

EARNMAP represents accounting comparability as defined in De Franco et al. (2011). *CFOMAP* denotes cash flow comparability and is defined similar to *EARNMAP*. *EURO* takes the value of 1 when both countries in the industry-pair adopt the euro; 0 when one or none of the countries adopts the euro. *MEAN_RET* denotes the average return across the two industries in the industry pair. *ZRET_DIFF* captures the difference in the percentage of zero return days. *EP_DIFF* and *BM_DIFF* denote differences in the earnings-to-price book-to-market ratios. The country-level variables denote the differences in the risk-free rate (*RF_DIFF*), level of GDP (*GDP_DIFF*), growth in GDP (*GDPGROW_DIFF*), equity market cap scaled by GDP (*MKTCAP_DIFF*), turnover of listed firms (*TURNOVER_DIFF*), and annual inflation (*INFL_DIFF*).

	Obs.	**Mean**	**Median**	**S.D.**	**Min**	**Max**
EARNMAP	20,449	-9.985	-7.276	9.062	-42.439	-0.133
CFOMAP	20,449	-14.077	-10.928	12.312	-65.625	-0.201
EURO	20,449	0.488	0.000	0.500	0.000	1.000
Industry-country-pair controls:						
MEAN_RET	20,449	18.819	15.279	34.035	-44.555	118.615
ZRET_DIFF	20,449	0.149	0.126	0.110	0.002	0.455
EP_DIFF	20,449	0.061	0.043	0.061	0.001	0.361
BM_DIFF	20,449	0.525	0.369	0.506	0.006	2.468
Country-pair controls:						
RF_DIFF	20,449	0.538	0.169	1.086	0.000	11.388
GDP_DIFF	20,449	1.210	1.131	0.896	0.000	3.274
GDPGROW_DIFF	20,449	1.468	1.090	1.427	0.000	8.739
MKTCAP_DIFF	20,449	0.616	0.510	0.505	0.000	3.355
TURNOVER_DIFF	20,449	0.572	0.412	0.505	0.000	2.351
INFL_DIFF	20,449	1.576	1.182	2.231	0.000	39.541

Table 4: The effect of euro adoption on accounting comparability

The dependent variable is accounting comparability (*EARNMAP*). *EURO* takes the value of 1 when both countries in the industry-pair adopt the euro; 0 when one or none of the countries adopts the euro. *POST99* denotes the post-euro adoption period. $POST99_{-1}$ and $POST99_{1}$ denote the year preceding and the year following the year of adoption. Similarly, $POST99_{2}$ and $POST99_{3+}$ denote the second year and all subsequent years respectively relative to the year of adoption. *MEAN_RET* denotes the average return across the two industries in the industry pair. *ZRET_DIFF* captures the difference in the percentage of zero return days. *EP_DIFF* and *BM_DIFF* denote differences in the earnings-to-price and book-to-market ratios. The country-level variables denote the differences in the risk-free rate (*RF_DIFF*), level of GDP (*GDP_DIFF*), growth in GDP (*GDPGROW_DIFF*), equity market cap scaled by GDP (*MKTCAP_DIFF*), turnover of listed firms (*TURNOVER_DIFF*), and annual inflation (*INFL_DIFF*). The robust standard errors in all specifications are clustered by country pair.

	Model 1		Model 2		Model 3	
	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat
EURO	1.754	6.47	–	–	–	–
POST99	-4.681	-14.92	–	–	–	–
EURO*POST99	**1.017**	**2.41**	**0.966**	**2.50**	**–**	**–**
$EURO*POST99_{-1}$					**0.609**	**1.01**
$EURO*POST99_{1}$					**1.697**	**2.98**
$EURO*POST99_{2}$					**1.449**	**2.46**
$EURO*POST99_{3+}$					**1.353**	**2.41**
MEAN_RET	-0.036	-10.80	-0.032	-6.01	-0.031	-5.95
ZRET_DIFF	2.738	2.80	3.357	2.17	3.093	1.99
RF_DIFF	-0.305	-2.66	0.443	2.74	0.476	2.87
EP_DIFF	-43.123	-19.84	-33.517	-11.07	-33.465	-11.01
BM_DIFF	-3.973	-12.50	-3.077	-7.44	-3.071	-7.36
GDP_DIFF	-0.125	-0.82	3.937	1.60	3.975	1.61
GDPGROW_DIFF	-0.469	-5.19	0.031	0.21	0.041	0.28
MKTCAP_DIFF	0.341	1.25	0.782	1.76	0.639	1.41
TURNOVER_DIFF	-0.466	-1.76	-0.428	-1.47	-0.439	-1.52
INFL_DIFF	0.079	1.83	0.157	3.52	0.152	3.45
Year effects	No		Yes		Yes	
Ind-ctry-pair effects	No		Yes		Yes	
Adj. R^2	0.23		0.38		0.38	
Obs.	20,449		20,449		20,449	

Table 5: Cross-sectional variation tests

The dependent variable is accounting comparability (*EARNMAP*). The first (second) specification presents results for industry-pairs where both industries *i* and *j* are (are not) in countries with high foreign exchange volatility (*FXVOL*) in the pre-adoption period. Similarly, the third (fourth) specification presents results for the subsample with above (below) median changes in Foreign Portfolio Investments (*FPI*) inflows between the pre- and post-adoption periods. *EURO* is an indicator variable that takes the value of 1 when both countries in the industry pair adopt the euro; 0 when one or none of the countries adopts the euro. *POST99* is an indicator variable that denotes the post-euro adoption period. All other variables are as defined in Table 4. All regressions include the entire set of controls, robust standard errors clustered by country pair, industry-country-pair fixed effects, and year fixed effects.

	Foreign exchange volatility				Foreign Portfolio Investment (*FPI*) changes			
	High		Low		High		Low	
	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat
EURO*POST99	**3.774**	**3.06**	**0.666**	**1.72**	**3.106**	**4.04**	**-0.349**	**-0.32**
p.val of difference in *EURO*POST99*	0.014				0.011			
Control variables	Yes		Yes		Yes		Yes	
Year effects	Yes		Yes		Yes		Yes	
Ind-ctry-pair effects	Yes		Yes		Yes		Yes	
Adj. R^2	0.43		0.37		0.30		0.46	
Obs.	3,365		17,084		6,623		6,898	

Table 6: Falsification tests: *CFOMAP*

The dependent variable is cash flow comparability (*CFOMAP*). Models 1 and 2 present the full-sample results. Model 3 (Model 4) presents results for industry-pairs where both industries *i* and *j* are (are not) in countries with high foreign exchange volatility (*FXVOL*) in the pre-adoption period. Similarly, Model 5 (Model 6) presents results for the subsample with above (below) median changes in Foreign Portfolio Investments (*FPI*) inflows between the pre- and post-adoption periods. *EURO* is an indicator variable that takes the value of 1 when both countries in the industry pair adopt the euro; 0 when one or none of the countries adopts the euro. *POST99* denotes the post-euro adoption period. $POST99_{-1}$ and $POST99_{1}$ denote the year preceding and the year following the year of adoption. Similarly, $POST99_{2}$ and $POST99_{3+}$ denote the second year and all subsequent years respectively relative to the year of adoption. All other variables are as defined in Table 4. All regressions include the entire set of controls, robust standard errors clustered by country pair, industry-country-pair fixed effects, and year fixed effects.

	Full sample (with fixed effects)		Full sample (dynamic effects)		*FX* Volatility split				*FPI* changes			
					High		Low		High		Low	
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat
EURO*POST99	**2.724**	**4.33**	–	–	**2.358**	**1.24**	**2.724**	**4.01**	**0.612**	**0.66**	**2.548**	**0.67**
$EURO*POST99_{-1}$			**0.407**	**0.42**								
$EURO*POST99_{1}$			**0.975**	**1.09**								
$EURO*POST99_{2}$			**0.493**	**0.52**								
$EURO*POST99_{3+}$			**5.641**	**6.64**								
p.val of diff. in *EURO*POST99*					0.851				0.622			
Control variables	Yes		Yes		Yes		Yes		Yes		Yes	
Year effects	Yes		Yes		No		Yes		Yes		Yes	
Ind-ctry-pair effects	Yes		Yes		No		Yes		Yes		Yes	
Adj. R^2	0.35		0.35		0.28		0.36		0.25		0.40	
Obs.	20,499		20,499		3,365		17,084		6,623		6,898	

Table 7: The *interactive* effect of euro membership and IFRS adoption on accounting comparability

The dependent variable is accounting comparability (*EARNMAP*). *EURO* is an indicator variable that takes the value of 1 when both countries in the industry pair adopt the euro; 0 when one or none of the countries adopts the euro. *POST05* denotes the post-IFRS adoption period (i.e., years 2005 to 2007). *NI_DIFF* denotes the (absolute value) of the difference between the number of adjustments needed to restate domestic net income to IFRS-based net income for both countries in the pair. Similarly, *RULELAW* denotes the absolute value of the difference in the rule of law index of Kaufmann et al. (2007) for the two countries in the pair. Δ*ENF* is an indicator variable that takes the value of 1 when both countries in the pair undertake changes in enforcement as defined in Christensen et al. (2013). All other variables are as defined in Table 4. All regressions include the entire set of controls, robust standard errors clustered by country pair, industry-country-pair fixed effects, and year fixed effects.

	EARNMAP				*CFOMAP*			
	Model 1		Model 2		Model 3		Model 4	
	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat
EURO	1.375	2.71	–	–	2.599	4.64	–	–
POST05	**-0.298**	**-0.49**	**–**	**–**	**0.695**	**1.21**	**–**	**–**
EURO*POST05	**1.671**	**3.24**	**1.764**	**2.87**	**0.593**	**1.23**	**0.701**	**1.40**
*NI_DIFF*POST05*	0.048	1.67	0.001	0.02	-0.045	-1.33	-0.094	-2.42
*RULELAW*POST05*	2.053	2.74	3.465	2.55	2.284	2.54	-0.222	-0.23
Δ*ENF*POST*	1.318	2.53	1.628	2.35	1.534	2.79	0.323	0.45
Control variables	Yes		Yes		Yes		Yes	
Year effects	No		Yes		No		No	
Ind-ctry-pair effects	No		Yes		Yes		Yes	
Adj. R^2	0.24		0.34		0.28		0.50	
Obs.	19,591		19,591		19,591		19,591	