

Economic consequences of the first-time IFRS introduction in Europe *

Consecuencias económicas de la adopción por primera vez de las NIIF en Europa

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ABSTRACT Advocates of mandatory IFRS adoption claim that IFRS increases financial statement comparability and enhances the quality of financial disclosure, which in turn leads to more liquid markets. Using first-time disclosure (IFRS restatements), this study tests empirically this assertion by examining whether IFRS adoption by representative European countries results in more liquid markets. We propose that IFRS introduction can directly affect market liquidity by improving comparability. Our findings suggest that, at the industry level, larger restatements in net income increase uncertainty among investors, and by extension stock illiquidity. For industries with fewer restating peers, lack of information comparability additionally suppresses investment activities with larger liquidity costs.

KEYWORDS Comparability; Financial information; IFRS first adoption; Quality, Market liquidity.

RESUMEN Los partidarios de la obligatoriedad de las NIIF argumentan que su implantación aumenta la comparabilidad de la información de los estados financieros y realza la calidad de la información contable, lo que conduce a mercados más líquidos. Este estudio comprueba dicha afirmación, utilizando las reexpresiones de la información que proceden de la primera aplicación de las NIIF, al objeto de examinar si dio lugar a mercados más líquidos en los países europeos más representativos. Proponemos que la introducción de las NIIF puede afectar directamente a la liquidez de los mercados al mejorar la comparabilidad. Nuestras conclusiones sugieren que, dentro de los sectores de actividad, las reexpresiones de mayor importe en el resultado neto introducen mayor incertidumbre, contribuyendo así a que los mercados sean más ilíquidos. Adicionalmente, en los sectores con menos empresas que reexpresan, la falta de comparabilidad en la información suprime las actividades de inversión con mayores costes de liquidez.

PALABRAS CLAVE Calidad informativa, Comparabilidad; Información financiera; Primera adopción de las NIIF; Liquidez del mercado.

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1. INTRODUCTION

Since 2005, more than 7,000 listed firms from the European Union have been required to comply with the International Financial Reporting Standards (IFRS). Advocates of mandatory IFRS adoption claim that IFRS increases financial statement comparability and enhances the quality of financial disclosure, which in turn leads to more liquid markets. The notion is that improved information disclosure reduces transaction costs, since investors come not to expect informed trading and thereby the costs associated with information asymmetry are lowered. The purpose of this study is to test this assertion by examining whether IFRS results in more liquid markets. Using first-time disclosure (i.e., IFRS restatements), we compare the effect of IFRS adoption on market liquidity in representative European capital markets and draw conclusions on the marginal effect of accounting disclosure on capital market development. More specifically, we consider how market liquidity responds to new information contained in local-IFRS accounting reconciliations. We hypothesize that reported differences of net income and equity affect market liquidity. The quality of information is high if users are able to identify similarities in and differences between two sets of economic phenomena (FASB, 2008; IASB, 2008). A uniform standard—such as IFRS—is proposed to eliminate informational externalities arising from lack of comparability and therefore to improve information quality. We argue that the introduction of IFRS positively influences investment activities and stock liquidity by reducing the costs that different and incomparable accounting techniques—especially ambiguously disclosed—impose on users of financial information (Ball, 2006). We test empirically the assertion that first-time disclosure in the form of accounting restatements directly affects market liquidity by providing new information to investors about the relative performance of adopting firms, thus improving comparability of accounting information. We measure the magnitude of accounting restatements relative to industry peers and relate it to capital market adjustments.

Results suggest that accounting differences have a direct effect on market liquidity costs. Our findings confirm that large deviations from the industry average in accounting restatements of net income suppress stock liquidity, most likely due to the greater uncertainty about the IFRS implementation. This result is robust to the use of different proxies of market liquidity. In contrast to net income, reconciliations in shareholder's equity do not seem to relate unambiguously to market liquidity. Depending on the liquidity measure, we estimate a marginal effect of different signs and magnitude. Therefore, we cannot draw conclusions on the restatement effect of shareholder's equity on capital markets.

We report also findings on information comparability using the number of restating industry peers at different levels of aggregation, namely at the country level and at the sample level. We propose that investor uncertainty, and by extension, market liquidity is determined by the number of restating peers. Findings confirm the proposition that high levels of information uncertainty adversely affect market liquidity, and that this uncertainty is partially related to the number of restating peers. We find that liquidity costs are larger for firms with fewer comparable peers, and that the peer effect is significant in both statistical and economical terms.

At the country level, we complement previous findings by directly relating market liquidity and accounting restatements. After controlling for stock characteristics and

respective restatements in net income and shareholder's equity, we observe that French and German firms are significantly more liquid after IFRS introduction. In contrast, results suggest that the market response to first-time IFRS disclosure by UK firms is negative. Our findings are consistent with other studies which confirm that: 1. IFRS reporting contains price sensitive information and market reaction after the early release of restated accounts from UK accounting to IFRS is significant (Christensen *et al.*, 2009), and 2. Countries with the largest ex ante distances to IFRS show the least significant adjustments (Osma and Pope, 2011). We recognize that our estimates are reliable only for market adjustments motivated by first-time disclosure under IFRS (i.e., accounting reconciliations), and encourage empirical research on the long-term effect of IFRS implementation.

Our study has the following contribution to the capital market research in accounting. First, we contribute to the extensive literature on IFRS effect by proposing and implementing an empirical test which directly relates market liquidity costs to the adoption of IFRS. Second, we build on prior literature that examines the importance of accounting comparability on capital markets. We propose and find empirical support that large deviations from industry peers affect market liquidity costs.

The remainder of the paper is structured as follows: in Section 2 we develop the hypotheses building on two bodies of research - (1) market reaction to accounting reconciliations; and (2) determinants of market liquidity. Subsequently, we present our research design and discuss the sample selection in Section 3. In section 4, we present our empirical findings and elaborate on their implications. Finally, in Section 5 we conclude and other directions for future research.

2. PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

Two streams of literature are particularly relevant to our study. The first stream examines changes in accounting standards (GAAP) and predicts the market reaction to first-time IFRS disclosure, including accounting reconciliations from local GAAP to IFRS. The second stream focuses on the determinants of market liquidity and proposes that information asymmetry problems are a prime determinant of capital allocation decisions.

2.1. MARKET REACTION TO ACCOUNTING RECONCILIATIONS

Extensive research in recent decades has discussed market reactions to information gains from financial reporting under alternative accounting standards. Before 2008, non-U.S. firms were required to file their financial results prepared under home-country standards with accompanying reconciliations to U.S. GAAP (20-F). This requirement was based on investor concerns that in contrast to the U.S., non-U.S. firms often operate in stakeholder-driven corporate environments, where management incentives to report low-quality earnings are stronger. Therefore, more extensive disclosure, along with the associated cost of complying with SEC rules, protects investors and prevents the listing of firms that are not able to satisfy stricter U.S. reporting requirements (Biddle and Saudagaran, 1989). Recent attempts to estimate the market value of accounting information are carried out in studies on mandatory changes in GAAP. Both management and market perspectives are examined. Shroff (2010) proposes that, due to their limited

attention, managers may fail to recognize some of the deficiencies of using GAAP for internal decisions. Changes in GAAP that require managers to collect and process additional information in order to implement the new standards can inform managers about the future cash flow consequences of their decisions. Similarly, with their limited attention and, perhaps, understanding of accounting standards, investors might be reluctant to make cross-border investments given the high costs of acquiring and processing information about foreign firms. DeFond, Hu, Hung and Li (2011) find that mandatory IFRS adoption results in a greater increase in foreign investment in countries with strong implementation credibility that experience relatively large increases in uniformity. Using a sample of twenty one countries, Barth, Landsman, and Lang (2008) find that the financial reporting quality of firms applying IFRS is generally higher than that of firms applying non-U.S. domestic standards.

The mandatory introduction of IFRS in the EU has motivated numerous studies on market reaction to reporting practices, including information quality, in different institutional environments. Several studies collect information on accounting differences in their effort to directly estimate the economic effects of this mandatory change in GAAP. For a set of large UK firms mandated to adopt IFRS in 2005, Horton and Serafeim (2010) examines the market reaction to the release of the IFRS reconciliation and the value relevance of the reconciled amounts. Their findings support the notion that there is a significant, positive relationship between the stock return and the magnitude of the difference in net income based on IFRS and UK GAAP. Aharony, Barniv, and Falk (2010) compares the value relevance of three accounting amounts—goodwill, asset revaluations, and research and development expenses—for firms in fourteen European countries in the year prior to and the year of IFRS adoption. Their findings support the value relevance for firms in countries whose domestic accounting standards were more comparable to IFRS, and the increase in value relevance of the three accounting amounts attributable to IFRS adoption that is greater for firms in countries whose domestic accounting standards were less comparable to IFRS. Osma and Pope (2011) use accounting differences to construct their measure of strategic balance sheet management based on opening balance sheet line items reported under both IFRS and local GAAP for the transition year. Their analysis confirms prior results that IFRS transition leads to significant changes in summary accounting measures. Their study also concludes that some of the countries with the largest ex ante distances to IFRS show the least significant adjustments. Barth, *et al.* (2011) also report on the value relevance of differences in net income based on IFRS and domestic standards using cross-sectional stock prices and annual stock return regressions. In contrast to Aharony, *et al.* (2010), their analysis is based on disclosed reconciliation amounts for each sample firm at a single point in time, and therefore, more precisely estimates the effect of the application of IFRS on the incremental value relevance of the net income differences.

2.2. CAPITAL MARKET COSTS AROUND THE ADOPTION OF IFRS

There are at least two reasons why mandatory IFRS adoption would be expected to reduce liquidity costs: 1. Greater financial disclosure and transparency, and 2. Enhanced information comparability. First, the switch from domestic standards to IFRS represents a substantial increase in a firm's commitment to timely and high-quality accounting disclosure. Greater information asymmetry among market participants translates into higher transaction costs and lower liquidity for trading shares, thus raising the

required rate of returns and lowering current stock prices (Diamond and Verrecchia, 1991). Hence, it is reasonable to assume that the improved information disclosure under IFRS reduces information asymmetry, thereby lowering transaction costs. A number of empirical studies examine the economic consequences of this increased disclosure before 2005, i.e., after a voluntary switch to high-quality accounting standards (e.g., IFRS or US GAAP). Empirical findings are consistent with the expectation that IFRS introduction lowers market liquidity costs: Public firms switching to IAS or US GAAP experience lower bid-ask spreads and higher stock turnover ratios (Leuz and Verrecchia, 2000), and it is more than likely that the increased disclosure of early IFRS adopters (Daske and Gebhardt, 2006) plays a role. Second, prior research argues not only that disclosure, but also a single set of uniform accounting standards, is likely to improve comparability of financial reporting records across countries. Convergence benefits, such as lowering the costs of comparing a firm's financial position and performance across countries, are expected. In the presence of such benefits, European capital markets would become more globally competitive, consequently increasing liquidity for European firms (e.g., Armstrong, Barth, Jagolinzer, and Riedl, 2010). Empirical research suggests that the voluntary adoption of IFRS is followed by a positive price response in the stock exchange (e.g., Armstrong et al., Barth et al., Daske, Hail, Leuz, and Verdi, 2008), and this price response could be due, at least in part, to the process of convergence and greater information comparability across countries.

Empirical studies on the capital-market effect of the mandatory adoption of IFRS are not conclusive. Daske, *et al.* (2008) examine the economic consequences of mandatory IFRS adoption in twenty-six countries and find that market liquidity improves around the time of mandatory IFRS adoption, with capital market benefits concentrated in countries with strong legal enforcement and managerial incentives for transparent disclosure. Garcia, Torres and Veira (2008) focus on accounting conservatism around the introduction of IFRS and confirm that conservatism is more pronounced for common-law-based developed economies. Capkun, Cazavan, Jeanjean and Lawrence (2008) examine restated financial statements of EU firms and discuss the value relevance of reported earnings under IFRS, in the presence of earnings management during the transition period. Christensen, Lee and Walker (2009) document significant, non-uniform IFRS application across European countries, with a positive effect on capital markets in investor-friendly environments, such as in the UK. Byard, Li and Yu (2011) find that mandatory adoption of IFRS in EU countries resulted, in an improvement in analysts' forecast accuracy, and that this effect is more pronounced for firms in countries with better law enforcement. Beuselinck, Joos and Khurana (2008) examine price synchronicity and documents increased synchronicity in the post-IFRS adoption period when analyst activity is higher. Additionally, they find that synchronicity returns to pre-IFRS adoption levels during the post-IFRS adoption period for firms with higher institutional ownership, which is consistent with a continuing private information advantage enjoyed by institutional investors under the IFRS regime.

2.3. HYPOTHESES DEVELOPMENT

The use of accounting methods that differ in content and quality might impose a significant cost on those who rely on accounting information. Often referred to as information asymmetry costs, these costs arise from a lack of comparability and an uncertainty around the quality of financial disclosure. Economic theory proposes that

high information asymmetry costs translate into high cost of capital, illiquid markets and suppressed investment activities. Proponents of IFRS find grounds for a mandated introduction in the stated objectives of IASB: «develop..., high quality, understandable and enforceable global accounting standards..., that require high quality, transparent and comparable information..., to help participants in the world's capital markets and other users» (IASB constitution, revised March 2010). Their argument is that the EU endorsement of IFRS will foster capital market developments. The IASB has been tireless in promoting IFRS at a political level, and its efforts have paid off handsomely in terms ranging from endorsement to mandatory adoption (Ball, 2006). Whether political action translates into actual implementation is another matter and extensive research attempts to quantify the economic effect of mandated IFRS.

Comparability should improve financial reporting quality by allowing financial statement users to identify similarities in, and differences between, two or more sets of economic phenomena (FASB, 2008; IASB, 2008). DeFond, et al. (2011) directly relate comparability with foreign investment and find that investors and other stakeholders are indeed able to compare «like with like» (GAAP Convergence, 2002). In this line of research, we argue that mandatory IFRS adoption permits investors to revise their evaluation of the relative position of different stocks in the market portfolio. If the deviation from industry peers is high, we propose that uncertainty around the truthful disclosure of financial performance and first applications of international standards increase. We suggest that this uncertainty is reflected in market liquidity measure⁽¹⁾, and hypothesize that a large deviation from industry peers generates uncertainty around the use of judgment in the application of IFRS. Our expectation is that there is a negative relationship between absolute deviations in restatement differences and market liquidity. Furthermore, we propose that the number of comparable peers with reported accounting differences for the same fiscal period in their respective industry is inversely related to market liquidity measures. DeFond, *et al.* argue that benefits from mandatory IFRS are indispensably related to the number of reporting peers⁽²⁾. We build on the same argument and observe the effect of information comparability on different market liquidity measures.

3. SAMPLE SELECTION AND RESEARCH DESIGN

3.1. SAMPLE SELECTION

Previous studies examine the capital-market response to the mandatory IFRS adoption either with a global sample of first-time adopters (Daske *et al.*, 2008) or with a focus on a particular country (e.g., Horton and Serafeim, 2010; Christensen *et al.*, 2009). This study attempts to estimate the effect of the mandatory adoption of IFRS on market liquidity costs with the expectation that this effect is heterogeneous across adopting countries.

(1) In finance theory, deviation from a group benchmark is used as a measure of risk/uncertainty. In accounting research, deviation/variance in analyst forecast is employed as a proxy of uncertainty among analysts.

(2) DeFond *et al.* (2011) provide an example to illustrate the intuition behind the improved comparability at the industry level. Prior to mandatory IFRS adoption there were two firms in the Finnish petroleum industry that use Finnish GAAP. Thus, the uniform use of Finnish GAAP results in only two peers in the petroleum industry using Finnish accounting standards. After mandatory IFRS adoption, the uniform use of IFRS resulted in those firms joining 80 peers in the petroleum industry that use comparable accounting standards. DeFond *et al.* construct a measure of comparability which we also capture in our study with the number of peers with reported accounting differences.

It is because of this assumed heterogeneity that the study takes on a cross-country focus. The four selected countries are commonly assumed to represent the four different legal origin groups: France (Continental-French group), Germany (Continental-German group), Sweden (Continental-Swedish group) and the United Kingdom (Common Law-British group). The most common approach in empirical accounting research is to group countries into only two legal origin groups: Code-law (Continental) and Common-law group.

We impose the following criteria to yield our final sample: non-financial firms with accounting reconciliations and market data available in Thomson Datastream as of April 2011, with more than three comparable peers and valid industry classification. The final sample is comprised of 966 non-financial firms from the four countries: France (381), Germany (238), Sweden (54) and the United Kingdom (293). Early voluntary adopters are excluded, because they have provided accounting restatements before the mandatory introduction in 2005. The accounting standards followed are as reported by Thomson Datastream. Accounts are restated not only when a firm changes its accounting policy or the accounting standards followed, but also after merger and acquisition and as a correction of accounting irregularities, for instance. Only accounting restatements that follow the adoption of IFRS are included. If a restating firm in 2005 reports under domestic GAAP, according to the database, it is excluded from the sample (due to the ambiguous disclosure). Additionally, if an early adopter restates its accounting information for 2004, it is also excluded from the study (due to the lack of information about the nature of those restatements). Appendix A presents the step-wise procedure which we followed to construct our sample.

3.2. RESEARCH DESIGN

We hypothesize that IFRS adoption permits investors to compare industry peers, thus reducing uncertainty around relative market valuations. Since we expect to find information gains from peer comparisons, we use industry-adjusted variables. Our dependent variable is an industry-adjusted liquidity measure, where the adjusted variable is computed by subtracting the firm-specific liquidity measure from the corresponding industry average. Following previous literature, we employ a set of liquidity measures: bid-ask spread, illiquidity and zero returns. Empirically, we estimate the following model:

$$Liquidity_t = \beta_0 + \beta_1 NoPeer_t + \beta_2 |\Delta NI_t| + \beta_3 |\Delta EQ_t| + b Control_t + Country + Industry + \xi_t \quad (1)$$

where *Liquidity* is one of the three (industry-adjusted) liquidity measures (bid-ask spread, illiquidity and zero returns), *NoPeers* – the number of restating firms in a particular industry, $|\Delta NI_t|$ the absolute restatement in net income ($\Delta NI_t^{IFRS} - \Delta NI_t^{GAAP}$) deflated by total assets, $|\Delta NI_t|$ – the absolute restatement in shareholder equity ($\Delta EQ_t^{IFRS} - \Delta EQ_t^{GAAP}$) deflated by total assets, *Control* – a set of known determinants of market liquidity as control variables (market value, share turnover and return volatility). Binary variables for the resident country are included to capture cross-country variance in market liquidity.

If there are information gains from peer comparison, we expect to find a positive association between market liquidity and the number of restating peers ($\beta_1 < 0$).

Moreover, if the accounting restatements provide new information about the relative position within a particular industry, we propose that the absolute deviation of restated variables from the industry average increases market uncertainty, thus suppressing stock liquidity ($\beta_2 < 0$ and $\beta_3 < 0$). Following Barth, *et al.* (2011), we focus on restated net income and equity book value. In our robustness checks, we (1) compute the industry peers both at the country and sample level, (2) deflate accounting variables by total assets under both IFRS and GAAP, (3) use unsigned instead of absolute differences, and (4) incorporate restatements in other variables (total assets, intangibles, fixed assets). Those checks produce similar to the tabulated results.

The empirical analysis explores three measures of market liquidity costs: the proportion of zero return days, the Amihud (2002) illiquidity (or price impact) metric, and the bid-ask spread. Following Daske, *et al.* (2008) the measurement of these dependent variables is as follows: «zero return days» is the proportion of zero daily returns out of all trading days in a given year. The zero returns metric commonly serves as a proxy for illiquidity. Its advantage is that it relies exclusively on price data, which is frequently available for EU firms. «Illiquidity» is a measure suggested by Amihud (2002). This variable captures the price impact of trade, i.e., the ability of an investor to trade in stock without affecting the price. It is the median daily price impact over the year computed as the weakly absolute price change in percent divided by trading volume. Higher values indicate more illiquid stocks. «Bid-ask spread» is a proxy for information asymmetry that is commonly used in the accounting literature. The variable is computed as the difference between the closing bid and ask prices for each day divided by the mid-point. Financial information is obtained in Thomson Datastream as of April 2011. In accordance with Barth, *et al.* (2011), the measurement period for all three variables starts in month four and runs for one year relative to the fiscal-year end. Sensitivity tests vary the start month of the measurement period and its length, but the empirical results are quantitatively similar and are not statistically significant. In several specifications, we compare pre- with post-adoption period. We split the sample relative to the adoption year: pre-adoption refers to the year proceeding the first-time disclosure, while post-adoption – to the year after the mandatory introduction of IFRS. All variables are winsorized at the 5% level to reduce the impact of extreme observations on empirical findings.

Prior empirical studies on the capital-market response to the adoption of international standards face a number of empirical challenges. First, IFRS reporting is mandated for all publicly traded firms in a particular country and, thus, it is hard to find an appropriate benchmark against which to evaluate and attribute the market response to the IFRS introduction. Second, the first-time application of IFRS may create a short-lived adoption effect; for instance, with the break in the historical financial information, some financial analysts may find it difficult to perform their future profitability analysis, whereas sophisticated and well-informed investors may be in a better position to understand and unravel the one-time effect of IFRS adoption. Moreover, IFRS 1 provides firms with certain recognition and disclosure exemptions when they apply IFRS for the first time, which may create short-term differences across firms. Therefore, there could be a time period over which information asymmetries among investors increase, even though IFRS reporting itself is more informative (Daske *et al.*, 2008). Third, the mandatory adoption of IFRS is a step in the process of international harmonization. This mandatory adoption follows the voluntary application of IAS/IFRS in some countries (e.g., in Germany) where management was allowed to use the international standards before the mandatory switch in 2005. The application of international standards by

voluntary adopters creates the possibility that investors more than likely only partially anticipate the effect of IFRS reporting requirements on the financial accounts that were previously reported on under the domestic accounting regime. How IFRS reporting affects market liquidity costs could be difficult to identify, in particular in estimation settings where the actual impact of the international standards is not observable. In cases where a benchmark group does not exist, we may attribute the change in market liquidity to the IFRS accounts, while observed changes could be the result of other regulatory changes or management choices that happen simultaneously with the adoption of international standards. Daske *et al.* (2008) conduct a thorough study of the capital-market effect of IFRS introduction, with a benchmark sample of non-adopting countries and a global worldwide sample. The authors recognize the difficulty of benchmarking the consequences of a regulatory change that simultaneously affects all firms in an economy; and report that the magnitude and statistical significance of the documented effects vary substantially depending on the benchmark sample, the length of their sample period, and whether the sample includes firms from IFRS-adopting countries that have not yet switched to IFRS as a benchmark.

Most studies on IFRS adoption elaborate their estimation models under the assumption that the actual effect of this accounting change is difficult to quantify. As a result, the selection of comparable peers (i.e., similar but non-adopting firms) and the choice of estimation period (i.e., the event format) largely determine empirical results. We attempt to measure the IFRS effect from a different perspective. Our underlying assumption is that if we can observe the actual effect of mandatory IFRS implementation in the form of accounting restatements, we can directly relate market liquidity to IFRS adoption. Because our tests for market liquidity effects are based on disclosed reconciliations for each sample firm at a single point in time, our inferences are less influenced by the research design limitations mentioned above, thereby permitting us to more directly assess the effect of IFRS application on market liquidity measures. Similarly to Barth, *et al.* (2011) and Osma and Pope (2011), we observe accounting restatements for 2004 and obtain our estimates using the cross-sectional regression method. Since we have unique observations for each firm in the sample, we cannot include fixed effects.

Our focus is on the first-time, annual disclosure based on IFRS. Although firms are required to disclose the adjustment in their first financial statements prepared in accordance with IFRS, including interim financial statements, some firms disclose the adjustment in press releases before such financial statements are issued. We measure both market liquidity and market value variables four months after fiscal year-end, corresponding to the final year domestic standards were applied, which for our sample firms is 2004. An implicit assumption is that investors are familiar with the adjustment four months after the beginning of the IFRS adoption year.

4. RESULTS

4.1. DESCRIPTIVE STATISTICS

Table 1 exhibits descriptive statistics. We tabulate both average and t-statistics for significant differences in means around IFRS adoption. Tabulated statistics support the notion that the introduction of IFRS would have a positive effect on adopting countries. Descriptive statistics of market liquidity measures, panel A of table 1, suggest that the

there is a positive association between market liquidity and IFRS adoption in 2005 for three countries: France, Germany and Sweden. The bid-ask spread decreases with 1.2% for French firms and with 0.9% for German and Swedish firms. This difference is both economically and statistically significant (with the exception of Sweden). In order to provide robust findings, we compare three liquidity measures which are proposed to capture different aspects of stock liquidity (i.e., price information in the case of bid-ask spread, and information on trading volume in the the case of illiquidity). All three liquidity variables confirm that stocks from those countries are significantly more liquid after IFRS introduction.

TABLE 1
DESCRIPTIVE STATISTICS

Panel A: Dependent variable

	France		Germany		Sweden		UK	
	Before	After	Before	After	Before	After	Before	After
Bid-ask spread	0.037	0.025	0.036	0.027	0.032	0.023	0.039	0.038
(t-test)	(2.98 ^{***})		(3.45 ^{***})		(1.37)		(0.03)	
Illiquidity	9.84	8.29	11.42	10.16	3.95	2.75	0.09	0.13
(t-test)	(2.39 ^{***})		(1.59)		(1.71 [*])		(1.93 [*])	
Zero returns	0.288	0.259	0.362	0.271	0.496	0.457	0.495	0.453
(t-test)	(1.56)		(3.63 ^{***})		(0.58)		(3.25 ^{***})	
N	381		238		54		293	

Panel B: Independent variables (Mean)

	France	Germany	Sweden	UK
<i>Accounting variables</i>				
ΔNI	0.918%	0.112%	0.373%	0.603%
ΔEQ	2.188%	5.634%	0.354%	-0.717%
No. Peers	11	9	9	11
<i>Market variables</i>				
$\ln MV$	4.723	4.045	6.196	5.516
$RVol$	0.287	0.206	0.284	0.452
$\ln Turn$	0.234	-0.691	1.495	6.101

Notes : Table 1 presents descriptive statistics for the dependent variables (panel A) and independent variables (panel B). Definitions (dependent variables): Bid-ask spread – the difference between the closing bid and ask prices for each day divided by the mid-point; Illiquidity – the median daily price impact over the year computed as the weakly absolute price change in percent divided by trading volume (higher values indicate more illiquid stocks); Zero return days – the proportion of zero daily returns out of all trading days in a given year. Definitions (independent variables): ΔNI – the restatement in net income ($NI^{IFRS} - NI^{GAAP}$) deflated by total assets; ΔEQ – the restatement in shareholder equity ($EQ^{IFRS} - EQ^{GAAP}$) deflated by total assets; No.Peers – the number of restating firms in a particular industry (2-digit SIC code); Market value (MV) – the stock price times the number of shares outstanding; Share turnover (Turn) – the annual euro trading volume deviated by the market value of outstanding equity; Return variability (RVol) – the annual standard deviation of monthly stock returns. Mean differences (t-test) are statistically significant at the 0.1% (***), 1% (**), 5% (*) and 10% level (°).

Descriptive statistics suggest a positive response on capital markets to the adoption of IFRS in three out of four countries. Our findings, however, propose that users of financial information do not necessarily perceive IFRS disclosure by UK firms similarly. There are three caveats to be noted in relation to the unambiguous IFRS effect in the UK. First, descriptive statistics suggest that market liquidity is affected by IFRS adoption. We carry out regression analysis, where other factors explaining changes in market liquidity are also incorporated, and only then provide robust findings on the IFRS effect in the case of UK. Second, the sample of UK firms comprises non-financial firms with available reconciliations and market data in Thomson Datastream⁽³⁾. For this sub-set of UK firms, our findings suggest that market reaction to IFRS adoption might have not been positive. Since the three liquidity measures do not coincide, at this stage we abstain from bold conclusions about the liquidity changes around IFRS adoption for UK firms. Although UK firms have lower bid-ask spreads and less zero-return days after the introduction, illiquidity suggests that traded volume is not responding similarly to the introduction of IFRS. Third, the main contribution of this study is the establishment of a direct relation between actual accounting restatements and market data. Unfortunately, the use of first-time disclosure, which permits us to establish this direct relationship, has the following limitation: we can draw conclusions about the market response to accounting reconciliations at the time of adoption, and do not observe possible market reversals, motivated by IFRS disclosure, in the subsequent years. It is more than likely that users of financial information are confused with the first-time disclosure but later become familiar and even find it more relevant for investment decisions. Since firms are not required to reconcile their results on a regular basis (i.e., in contrast to cross-listed stocks in the US), we observe only the first-time accounting restatements and cannot unambiguously relate the long-term liquidity costs with accounting information reported under IFRS.

Panel B of table 1 tabulates the percentage change in both net income and shareholder's equity by country. The magnitude of accounting restatements is similar to other studies which draw observations from the same data source. Our findings support the expectation that firms from Continental Europe follow accounting standards which deviate more from IFRS, and, therefore, their restatements are larger in comparison to UK firms. On average, out of the four countries, French firms have the largest restatements of net income (about 1%). French firms, however, have lower restatements in shareholder's equity, especially in comparison to German firms. Our results suggest that IFRS introduction requires accounting restatements of shareholder's equity as large as 3% of total assets, in the case of Germany. The leading position of German firms in this sort might be explained with the peculiarity of this sub-sample. Germany has the largest sample of voluntary adopters in Europe. Since some of the largest firms have already switched to IFRS before 2005, our sample is biased towards firms of a relatively smaller size relative to the population of German firms. Descriptive statistics on market capitalization (Panel B; market variables) confirm this bias. Later in the regression analysis, we incorporate other variables in the estimation model, thus distinguishing the IFRS effect on market liquidity at country level from firm characteristics, including size.

(3) We have a sub-sample of about 300 non-financial firms from the UK. Barth, *et al.* (2011) relate accounting reconciliations with stock price/market return data and report results for about 380 UK firms. Osma and Pope (2011) tabulate descriptive statistics for a larger sub-set of UK firm, both financial and non-financial. Similarly to our study, however, their regression analysis with market data employs a reduced panel of firms. Although the closing price to compute market returns is available for a large number of stocks in Thomson Datastream, lack of information on bid and ask prices or trading volume reduces our final sample.

Along with other independent variables, panel B reports figures on the number of peers restating their accounting in accordance with international standards. We hypothesize that the number of peers with accounting restatements is positively associated to market liquidity. We assume that users of accounting information compare firms within standard industry groups (*sic.*), which contain comparable peers. To provide robust findings on the comparability hypothesis, we group first peers at the country level (tabulated) and later – at the sample level. On average, French and UK firms have a larger number of comparable peers at the country level, in comparison to German and Swedish firms. We explain this finding with the larger sub-sample of firms from those countries. Later in the analysis, we permit investors to compare firms across border and consider comparable peers at the sample level. Table 2 tabulates correlations across variables, along with the respective statistics for significance. Liquidity measures are highly correlated, supporting the expectation that those constructs capture different aspects of stock liquidity. We propose that the absolute difference in accounting restatements of both net income and shareholder's equity increases market uncertainty about the fundamentals of adopting firms. Consistent with this proposition, we find a significant, positive correlation between absolute restatements and liquidity measures.

TABLE 2
CORRELATION MATRIX

	<i>Adj.Spread</i>	<i>Adj.Illiq</i>	<i>Adj.Zero.</i>	<i>No.Peers</i>	$ \Delta N I $	$ \Delta EQ $	<i>lnMV</i>	<i>lnRV ol</i>	<i>lnT urn</i>
<i>Adj.Spread</i>	1.0000								
<i>Adj.Illiq.</i>	0.777 [*] (0.000)	1.000							
<i>Adj. Zero.</i>	0.704 [*] (0.000)	0.573 [*] (0.000)	1.000						
<i>No. Peers</i>	0.000 (1.000)	0.000 (1.000)	0.000 (1.000)	1.000					
$ \Delta N I $	0.067 [*] (0.038)	0.066 [*] (0.039)	0.048 (0.122)	0.088 [*] (0.001)	1.000				
$ \Delta EQ $	0.073 [*] (0.025)	0.055 [*] (0.084)	0.069 [*] (0.029)	-0.023 (0.373)	0.192 [*] (0.000)	1.0000			
<i>lnMV</i>	-0.581 [*] (0.000)	-0.526 [*] (0.000)	-0.406 [*] (0.000)	-0.152 [*] (0.000)	-0.136 [*] (0.000)	-0.104 [*] (0.001)	1.000		
<i>lnRV ol</i>	-0.300 [*] (0.000)	-0.038 (0.218)	-0.253 [*] (0.000)	-0.090 [*] (0.000)	-0.045 [*] (0.090)	-0.031 (0.232)	0.498 [*] (0.000)	1.000	
<i>lnT urn</i>	-0.192 [*] (0.000)	-0.222 [*] (0.000)	-0.167 [*] (0.000)	-0.011 (0.538)	0.069 [*] (0.009)	0.010 (0.704)	-0.159 [*] (0.000)	0.269 [*] (0.000)	1.000

Notes : Table 2 presents the correlation matrix (p-value in brackets). Correlations are statistically significant at the 0.1% (***), 1% (**), 5% (*) and 10% level (°). Adjusted liquidity measures are computed by subtracting the firm-specific liquidity measures from the corresponding industry average.

Additionally, all three liquidity measures are negatively and significantly correlated with prime determinants of market liquidity, namely market capitalization, return volatility and share turnover. Consistent with the expectation that relatively small firms with high return volatility are more risky investments, we find that there is a significant negative correlation between the magnitude of accounting restatements and size/volatility. It is

interesting that share turnover is negatively and significantly correlated with restatements in net income. If some trades are motivated by uncertainty around firm performance, we can explain this negative correlation. Although correlations between restated accounts and other independent variables are statistically significant, it is not larger than 0.5 and, therefore, multicollinearity is not a concern in our regression analysis.

4.2. REGRESSION ANALYSIS

4.2.1. Main results

In this section, we present the main empirical results on the IFRS effect of restating firms. In table 3, we partially replicate the baseline regression reported by Daske *et al.* (2008). We first estimate the market adjustment in liquidity measures for the full sample (Panel A). Then we partition the sample in three groups based on the absolute restatement differences in net income and common equity. In 2005, we rank firms based on their restatement differences and assign to the high (low) $\Delta NI / EQ$ group those firms in the top (bottom) three deciles of the absolute restatement distribution (Panel B). Since we extrapolate the group assignment to years before the adoption of IFRS, we can estimate the marginal effect of international standards on market liquidity in panel format. Later, we focus on the information role of restatement magnitude on market liquidity (see, tables 4 and 5). We tabulate ordinary least squares (OLS) coefficient estimates and, in parentheses, t-statistics based on 2-dimension (firm and year) clustered standard errors (see, Peterson, 2009; Gow, Ormazabal and Taylor, 2010).

TABLE 3
 IFRS EFFECT: EX POST DIVERSION IN LIQUIDITY MEASURES

Panel A: IFRS effect: OLS estimates with fixed effects

<i>Liquidity measures</i>			
	Bid-ask spread	Illiquidity	Zero returns
<i>IFRS effect</i>	-0.105*** (0.000)	-0.044* (0.097)	-0.138*** (0.000)
<i>Controls:</i>			
<i>lnMV</i>	-0.313*** (0.000)	-0.658*** (0.000)	-0.083** (0.007)
<i>lnRVol</i>	0.058 (0.192)	0.671*** (0.000)	-0.464*** (0.000)
<i>lnTurn</i>	-0.251*** (0.000)	-0.615*** (0.000)	-0.070*** (0.001)
<i>Firm fixed effects</i>	Yes	Yes	Yes
<i>2-dimension clustered St.err.</i>	Yes	Yes	Yes
<i>Adj.R²</i>	0.933	0.979	0.862
<i>N</i>	2,822	2,966	3,007

(Continue in next page)

TABLE 3 (CONT.)
IFRS EFFECT: EX POST DIVERSION IN LIQUIDITY MEASURES

Panel B : IFRS effect across deciles based on restatement differences in net income and common equity

Liquidity measures			
	Bid-ask spread (1)	Illiquidity (2)	Zero returns (3)
<i>Low ΔNI</i>	-0.071 [*] (0.015)	-0.079 [*] (0.064)	-0.110 ^{***} (0.002)
<i>High ΔNI</i>	-0.017 (0.565)	0.064 (0.186)	-0.119 ^{***} (0.000)
<i>Low ΔEQ</i>	-0.108 ^{***} (0.000)	-0.012 (0.779)	-0.049 (0.168)
<i>Low ΔEQ</i>	-0.054 [*] (0.060)	-0.046 (0.325)	-0.036 (0.256)
<i>Initial controls</i>	Yes	Yes	Yes
<i>Firm fixed effects</i>	Yes	Yes	Yes
<i>2-dimension clustered St.err.</i>	Yes	Yes	Yes
<i>Adj. R²</i>	0.932	0.980	0.858
<i>N</i>	2,706	2,847	2,888

Notes : Table 3 presents panel data analysis on the relation between market liquidity and IFRS disclosure. Panel A tabulates results with dummy for the pre- and post-adoption period; Panel B exhibits empirical findings on the IFRS effect for groups based on ex post restatement differences in net income and common equity. Other variables are as defined in Table 1. Regression coefficients are statistically significant at the 0.1% (***), 1% (**), 5% (*) and 10% level (°).

Table 3 contains the panel data analysis. In panel A, we explain average market liquidity of all restating firms, independent of restatement differences, around the IFRS introduction. Empirical results suggest that, after controlling for market value, return volatility and share turnover, the adoption of international standards is likely associated with improved liquidity. Findings are somewhat sensitive to the choice of liquidity measure. The 2-dimension cluster of standard errors, along with our focus on restating firms, can explain the difference across studies.

In panel B (table 3) we investigate further the information effect of restatement differences by partitioning the full sample into low/high groups. Our main claim is that large absolute differences in net income and shareholder's equity - two key variables of interests for investors - increase uncertainty about firm prospects, thus suppressing trading and stock liquidity. Therefore, the market response should be a function of restatement differences. We observe one restatement per firm and assign firms based on ex post restatements to groups. As we interact the group assignment with the IFRS event, we interpret the regression coefficient as marginal IFRS effect across groups. Column (1) to (3) present estimation results from two independent sorts.

Empirical findings give partial support to our claim. We find that market liquidity decreases after IFRS introduction for firms with low reconciliation differences in net

income. The change in market liquidity costs is not significant for firms with high restatements in net income (with the exception of zero returns). The results are more ambiguous for the sorting schemes based on restatements in shareholders' equity. At this stage, our analysis suggest that market reaction to accounting restatements, as reflected in liquidity costs, might be significantly different across restatement groups. The decrease in bid-ask spreads is larger in the group of low restatements in common equity. However, the empirical results are not consistent across liquidity measures.

Although the sorting schemes permit us to examine variation across groups based on ex-post disclosure in panel settings, they disregard significant information which restatement magnitudes might contain. In Table 4, we focus on the introductory year and explain market liquidity with restatement differences in net income and common equity. In this part of analysis, we establish a direct relation between the size of reconciliation differences and liquidity costs.

TABLE 4
DIRECT IFRS EFFECT ON MARKET LIQUIDITY

Panel A: IFRS effect: Baseline regression

<i>Liquidity measures</i>			
	<i>Bid-ask spread</i>	<i>Illiquidity</i>	<i>Zero returns</i>
$ \Delta NI $	1.219** (0.010)	3.462* (0.016)	1.470* (0.051)
$ \Delta EQ $	0.160 (0.468)	-0.853* (0.016)	0.916** (0.002)
<i>Controls:</i>			
<i>lnMV</i>	-0.428*** (0.000)	-1.034*** (0.000)	-0.217*** (0.000)
<i>lnRVol</i>	-0.131*** (0.000)	1.038*** (0.000)	-0.187*** (0.000)
<i>lnTurn</i>	-0.331*** (0.000)	-0.896*** (0.000)	-0.310*** (0.000)
<i>UK</i>	1.435*** (0.000)	-0.366* (0.016)	1.697*** (0.000)
<i>France</i>	-1.050*** (0.000)	-0.452*** (0.000)	-1.237*** (0.000)
<i>Germany</i>	-1.206*** (0.000)	-0.540*** (0.000)	-1.782*** (0.000)
<i>Sweden</i>	-1.049*** (0.000)	7.325*** (0.000)	0.151 (0.627)
<i>Adj. R²</i>	0.827	0.948	0.619
<i>N</i>	905	954	966

(Continue in next page)

TABLE 4 (CONT.)
DIRECT IFRS EFFECT ON MARKET LIQUIDITY

Panel B : Comparability and reporting peers

<i>Liquidity measures</i>						
	<i>Bid-ask spread</i>	<i>Illiquidity</i>	<i>Zero returns</i>	<i>Bid-ask spread</i>	<i>Illiquidity</i>	<i>Zero returns</i>
<i>No. peers</i>	-0.006*** (0.000)	-0.010*** (0.000)	-0.003** (0.008)	-0.012*** (0.000)	-0.023*** (0.000)	-0.006** (0.009)
$ \Delta NI $	1.410* (0.058)	3.293** (0.004)	1.321* (0.092)	1.366* (0.069)	3.231** (0.004)	1.307 (0.094)
$ \Delta EQ $	0.296 (0.289)	-0.505 (0.304)	0.232 (0.451)	0.296 (0.299)	-0.503 (0.321)	0.232 (0.449)
<i>Controls:</i>						
<i>lnMV</i>	-0.291*** (0.000)	-0.684*** (0.000)	-0.161*** (0.000)	-0.289*** (0.000)	-0.682*** (0.000)	-0.161*** (0.000)
<i>lnRVol</i>	-0.139*** (0.000)	0.725*** (0.000)	-0.168*** (0.000)	-0.136*** (0.000)	0.732*** (0.000)	-0.166*** (0.000)
<i>lnTurn</i>	-0.244*** (0.000)	-0.620*** (0.000)	-0.213*** (0.000)	-0.243*** (0.000)	-0.620*** (0.000)	-0.213*** (0.000)
<i>Country fixed effects</i>						
<i>Adj. R²</i>	0.550	0.584	0.362	0.547	0.582	0.361
<i>N</i>	905	954	966	905	954	966

Notes: Table 4 tabulate empirical findings obtained with our baseline regression (Equation (1)). Accounting and market variables are as defined in Table 1. Regression coefficients are statistically significant at the 0.1% (***), 1% (**), 5% (*) and 10% level (°).

Empirical results confirm previous findings that reconciliation differences are significantly associated with liquidity costs. We contrast regression coefficients obtained with alternative liquidity measures to draw conclusions on the test sensitivity. Our findings are that firms with larger restatements in net income face high market liquidity costs. In economic terms, a difference in restated net income of about 1.22% is estimated to increase the bid-ask spread with 1%. In contrast, reconciliations in shareholder's equity do not seem to relate unambiguously to market liquidity, as the estimates are sensitive to the choice of liquidity measures.

The regression model includes two sets of control variables: market variables and country fixed effects. If market variables are highly correlated to restatement variables, our results might be driven by multicollinearity. The correlation matrix, however, rejects this possibility. The correlation between market variables and accounting restatements is low, which is a condition for accurate regression estimates. In line with established diagnostic tools, we inspect the regression coefficients for economic intuition; regression problems can be often detected if non-intuitive relations between variables are established. We estimate a negative relationship between market variables and stock liquidity, consistent with previous findings in finance research. Firms of larger size, with less volatile returns and with high share turnover are expected to have lower bid-ask spread, lower illiquidity and few days with zero returns. Therefore, we propose that our models are well-specified.

The country dummy variables capture the cross-country variation in stock liquidity. In contrast to descriptive statistics, regression coefficients of those variables disentangle country effect on market liquidity from other factors which might be correlated with a firm's country of origin. Our results support previously reported findings: French and German firms are significantly more liquid after the introduction of IFRS, and this improvement is not explained by stock characteristics and industry variance. Although the country effect for the UK is significant across model specifications at the 5% level, its sign is not stable. Two out of three specifications estimate the country effect for UK as negative. At this stage, we can suggest that it is more than likely IFRS adoption by UK firms was not that positively accepted by users of financial information as it was in the case of France and Germany. We discuss the robustness of this finding later in the study, where other determinants are also included. Findings for Swedish firms are even more ambiguous. The coefficient sign of this dummy variable is not significant across estimation procedures, and moreover, the sign changes across specifications. Therefore, we abstain from conclusions on the direction of change in market liquidity following IFRS introduction for this country group.

Panel B of table 4 presents the robustness test. We augment the model by including the number of restating industry peers. We report findings on information comparability using comparable peers at different levels of aggregation, at the country level and at the sample level. If comparability is a factor, we propose that investor uncertainty, and by extension market liquidity, should be significantly affected by the possible benchmark group of restating peers. Since users of financial information compare accounting restatements across peers, we predict that information asymmetry is lower for larger groups of restating peers. We model a linear relation between restating firms and market liquidity but recognize that the relation might be non-linear (i.e., diminishing returns on information acquisition for larger groups of restating peers).

Empirical results are largely consistent with the argument of improved comparability. First, our results on the information effect of N restatement are robust and still significant. We interpret these results in relation to the information asymmetry problems, which increase for firms with large restatements under IFRS of key performance indices (i.e., net income). Second, we find empirical support of the peer effect. The number of restating peers improves users' understanding about the management discretion over IFRS application. The peer effect is statistically significant across specifications. Third, the information effect of restated equity is no longer significant across models after the inclusion of the peer group. We propose that the information contained in equity restatements might be more difficult to interpret (e.g., fair-value disclosure), and, therefore, the number of peers is critical to extract the information content of those restatements.

At the country level, results are largely equivalent across models (panel A *vs.* panel B; not tabulated). Other things equal, French and German firms are significantly more liquid after IFRS introduction. Empirical results for the UK and Sweden are even more supportive of previously reported effects. We provide the following interpretation. Although UK GAAP is generally considered close to IFRS already, there are a number of significant differences which may influence the market response to IFRS introduction. Among those differences are capitalization of development costs (i.e., a choice under SSAP 13), and reclassification of an operating lease as a financial lease, along with more extensive disclosure on the substance of transaction under IAS 17, in comparison to SSAP 21. Additionally, UK accounting, as a common-law regime, is generally considered

very close to IFRS already and hence it is likely that the transition is a pure translation of accounting numbers with no impact on expected cash flows. Beside these expectations, empirical studies confirm that IFRS reporting contains price sensitive information, which also explains the significant market reaction after the early release of restated accounts from UK accounting to IFRS (Christensen *et al.*, 2009). Descriptive statistics, along with our regression estimates, additionally suggest that uncertainty on capital markets around the introduction of IFRS by UK firms could have been high.

We reconcile our results with previous studies on the economic consequences of the mandated adoption of international standards. We find empirical research on the topic not conclusive for the following reasons and admit that this study also faces the same limitations. First, the retrospective application of IFRS includes mandatory adjustment and exemptions (voluntary adjustments). Empirical findings suggest French firms use exemptions to minimize the difference in equity reported under French accounting and IFRS (Cazavan and Jeanjean, 2007), thus improving their leverage. It could be that information asymmetry increases because of the managerial discretion over the application of optional exemptions. For instance, an exemption that IAS 19 permits direct recognition in equity of all cumulative actuarial gains and losses (instead of the corridor approach) may have a significant effect on reported equity. To reach a conclusion on the marginal effect of a specific IFRS adjustment on market liquidity costs, it is necessary to distinguish accounting adjustments that are required from those that are optional. The notes to the financial statements contain details on accounting choices, but, unfortunately, this information is not available in public databases, such as Thomson Datastream. Second, IFRS application could produce no material difference, for instance, in reported equity but this could still affect investor perception of corporate transparency, financial reporting quality and, by extension, affect market liquidity costs. For example, recognition of stock options in the income statement does not affect shareholder's equity, as the decrease in equity reserve is off-set with an increase in capital surplus. Nevertheless, even when accounting differences are off-set within a particular account, they could still affect capital market uncertainty. Valuable information about the quality of corporate governance and managerial compensation policy could be disclosed, for instance, with the stock option information discussed above. To test this assertion with empirical data, disclosures that are not available in any public database, but only in the annual reports of firms adopting IFRS, are once again required.

4.2.2. *Robustness tests: Low Delta vs. High Delta firms*

Table 5 presents our results across groups based on rankings of and. As before, we rank firms based on their restatement differences and assign to the high (low) group those firms in the top (bottom) three deciles of the absolute restatement distribution. We estimate the information effect of IFRS restatements across groups and test for the significance in the coefficient estimates (t-test).

Empirical results are partially supportive of previous results. As predicted, we find that firms with high reconciliation differences in net income have higher liquidity costs. The results are not sensitive to the choice of liquidity measures. Market liquidity of firms with lower NI restatements is not affected by the size of reported differences in net income under alternative accounting regimes (with the exception of zero returns). Interestingly, we find that liquidity costs of low firms respond positively to equity restatements. Similarly to panel results, we find that bid-ask spreads lower if restatements in net income and

equity are marginal. If we sort firms based on equity restatements (Panel B), results are supportive of the negative effect of restatement differences on market liquidity costs; however, it is difficult to distinguish systematic trends across sorted firms. We interpret those results in conjunction with previous test and propose that restatements in net income are a significant factor in the formation of market liquidity costs. Restatements in equity have a marginal, if any, effect on liquidity measures, according to our results.

TABLE 5
RESTATEMENT EFFECT BY DECILES.

Panel A: Deciles of absolute restatements in net income

<i>Liquidity measures</i>						
	<i>Bid-ask spread</i>		<i>Illiquidity</i>		<i>Zero returns</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Low ΔNI</i>	<i>High ΔNI</i>	<i>Low ΔN</i>	<i>High ΔNI</i>	<i>Low ΔNI</i>	<i>High ΔN</i>
$ \Delta NI $	28.392 (0.159)	1.140 [*] (0.026)	11.203 (0.659)	3.442 [*] (0.057)	46.209 [†] (0.043)	2.064 [*] (0.017)
$ \Delta EQ $	-0.864 [*] (0.030)	0.231 (0.377)	-0.596 (0.471)	-0.924 [*] (0.054)	1.312 [*] (0.054)	1.152 ^{**} (0.005)
Test [†] <i>Low ΔNI = High ΔNI</i> [†]						
$t - test_{\Delta NI}$	-1.79		-0.28		-2.38 ^{**}	
<i>p-value</i>	(2.86)		(0.42)		(0.018)	
$t - test_{\Delta EQ}$	0.074 ^{***}		0.779		0.20	
<i>p-value</i>	(0.004)		(0.672)		(0.845)	
<i>Initial controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Adj. R²</i>	0.795	0.833	0.957	0.939	0.579	0.613

Panel B : Deciles of absolute restatements in common equity

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Low ΔEQ</i>	<i>High ΔEQ</i>	<i>Low ΔEQ</i>	<i>High ΔEQ</i>	<i>Low ΔEQ</i>	<i>High ΔEQ</i>
$ \Delta NI $	1.441 [*] (0.050)	1.081 [*] (0.035)	1.203 (0.485)	4.735 ^{**} (0.005)	0.625 ^{**} (0.007)	0.115 (0.767)
$ \Delta EQ $	9.276 (0.256)	0.186 (0.466)	-4.900 (0.676)	-1.024 [*] (0.013)	2.366 (0.331)	0.274 [*] (0.063)
Test [†] <i>Low ΔEQ = High ΔEQ</i> [†]						
$t - test \Delta NI $	-0.20		1.67 ^{**}		-0.54	
<i>p-value</i>	(0.68)		(0.02)		(1.42)	
$t - test \Delta EQ $	0.839		0.095		0.586	
<i>p-value</i>	(0.497)		(0.985)		(0.155)	
<i>Initial controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Adj.R2</i>	0.802	0.842	0.953	0.945	0.509	0.523

Notes : Table 5 tabulates empirical results about the restatement effect by decile groups. The sorting is based on the absolute difference in net income (panel A) and common equity (panel B). Intimal controls (market value, return volatility, share turnover, number of peers, country fixed effects) are not tabulated. Accounting and market variables are as defined in table 1. Regression coefficients/t-test are statistically significant at the 0.1% (***), 1% (**), 5% (*) and 10% level (†).

5. CONCLUSIONS

Economic theory proposes that high information asymmetry costs translate into high cost of capital, and by extension, underdeveloped capital markets with suppressed investment activities. The mandatory introduction of IFRS was partially motivated with the disclosure of more comparable financial information and the resolution of investor uncertainty around the quality of financial disclosure. Using first-time disclosure (i.e., IFRS restatements), we test empirically the proposition that IFRS adoption increases market liquidity for a sample of representative European countries. We collect information from accounting reconciliations and draw conclusions on the marginal effect of accounting disclosure under IFRS on capital market development. More specifically, we propose that there is a direct relation between market liquidity and accounting disclosure under IFRS, which (improved) comparability can explain. Our findings confirm that capital markets respond to some extent positively to IFRS adoption. We propose that, at the industry level, liquidity measures would be adversely affected by the magnitude of accounting restatements in net income and shareholder's equity (relative to industry peers) and by the group size of restating peers. Our results support this proposition: we observe that firm stocks are more liquid in the presence of a larger number of restating peers and for smaller restatements in net income relative to the industry benchmark. Therefore, we propose that mandated IFRS disclosure improves comparability, which directly affect market liquidity.

This study has a number of limitations. First, we limit the interpretation of empirical findings to the observed short-term market response. It is more than likely that users of financial information are confused with the first-time disclosure but later become familiar and even find it more relevant for investment decisions. Since firms are not required to reconcile their results after the introductory year, we cannot empirically estimate possible market adjustments justified with accounting disclosure. Second, we relate accounting restatements to market liquidity under the assumption that the main effect of IFRS adoption is contained in the reported reconciliations. It is possible that IFRS application require adjustments that are off-set within a specific account. At the aggregate level, however, we cannot estimate their marginal effect of individual restatements, resumed in restated net income and shareholder's equity, on value-relevance or information comparability.

The contribution of this study is two-fold. First, we observe the actual effect of mandated IFRS implementation in the form of accounting restatements and directly relate market liquidity to IFRS adoption. We complement other studies which use first-time restatements but focus on value-relevance of accounting restatements (Barth, et al., 2011) or strategic managerial adjustments in the transitory year (Osma and Pope, 2011). Second, we estimate the effect of accounting comparability after IFRS introduction by measuring the deviation of accounting restatements from the industry average and the number of comparable peers. Thus, we contribute to the literature on the dispersion of accounting practices and the role of information comparability on capital markets.

REFERENCES

- AHARONY, J.; BARNIV, R., and FALK, H. 2010. The impact of mandatory IFRS adoption on equity valuation of accounting numbers for security investors in the EU. *European Accounting Review* 19: 535-578.
- AMIHUD, Y. 2002. Illiquidity and stock returns. *Journal of Financial Markets* 5: 31-56.
- ARMSTRONG, C.; BARTH, M.; JAGOLINZER A., and RIEDL, E. 2010. Market reaction to the adoption of IFRS in Europe. *Accounting Review* 85: 31-61.
- BALL, R. 2006. IFRS: Pros and cons for investors. *Accounting and Business Research, International Accounting Policy Forum*: 527.
- BARTH, M.; LANDSMAN, W., and LANG, M. 2008. International accounting standards and accounting quality. *Journal of Accounting Research* 46: 467-498.
- BARTH, M.; LANDSMAN, W.; YOUNG D., and ZHUANG, Z. 2011. *Relevance of differences between net income based on IFRS and domestic standards for European firms*. Working paper, Stanford University.
- BEUSELINCK, C.; JOOS, P., and KHURANA, I. 2008. *Mandatory IFRS reporting and stock price informativeness*. Working paper, Tilburg University.
- BIDDLE, G., and SAUDAGARAN S. 1989. The effects of financial disclosure levels on firms' choices among alternative foreign stock exchange listings. *Journal of International Financial Management and Accounting* 1: 55-87.
- BYARD, D.; LI, Y., and YU, Y. 2011. The effect of mandated IFRS adoption on analyst' forecast errors. *Journal of Accounting Research* 49: 69-96.
- CAPKUN, V.; ANNE CAZAVAN, J.; JEANJEAN, T., and LAWRENCE, A. 2008. *Earnings management and value relevance during the mandatory transition from local GAAPs to IFRS in Europe*. Working paper, Paris: HEC.
- CHRISTENSEN, H. B.; LEE, E., and WALKER, M. 2009. Do IFRS/UK-GAAP reconciliations convey new information? The effect of debt contracting. *Journal of Accounting Research* 47: 1,167-1,199.
- COVRIG, V.; DEFOND, M., and HUNG, M. 2007. Home bias, foreign mutual fund holdings, and the voluntary adoption of International accounting standards. *Journal of Accounting Research* 45: 4,170.
- DASKE, H., and GEBHARDT, G. 2006. International financial reporting standards and experts perceptions of disclosure quality. *Abacus* 42: 461-498.
- DASKE, H.; HAIL, L.; LEUZ, C., and VERDI, R. 2008. Mandatory IFRS reporting around the World: Early evidence on the economic consequences. *Journal of Accounting Research* 46: 1,085-1,142.
- DEFOND, M.; HU, X.; HUNG, M., and LI, S. 2011. The impact of mandatory IFRS adoption on foreign mutual fund ownership: The role of comparability. *Journal of Accounting and Economics* 51: 240-258.
- DIAMOND D., and VERRECCHIA, R. 1991. Disclosure, liquidity, and the cost of capital. *Journal of Finance* 46: 1,325-1,359.
- FINANCIAL ACCOUNTING STANDARDS BOARD. 2008. Exposure draft of conceptual framework for financial reporting. *Financial Accounting Standards Board*.
- GARCÍA LARA, J.; TORRES, J., and VEIRA, P. 2008. Conservatism of earnings reported under International Accounting Standards: A comparative study. *Revista Española de Financiación y Contabilidad* 138: 197-210.
- GOW, I.; ORMAZABAL, G., and TAYLOR, D. 2010. Correcting for cross-sectional and time-series dependence in accounting research. *Accounting Review* 85: 483-512.
- HORTON, J., and SERAFEIM, G. 2010. Market reaction to and valuation of IFRS reconciliation adjustments: First evidence from the UK. *Review of Accounting Studies* 15: 725-751.

INTERNATIONAL ACCOUNTING STANDARDS BOARD. 2008. Exposure draft of an improved conceptual framework for financial reporting. International Accounting Standards Board.

LEE, E.; WALKER, M., and CHRISTENSEN, H. 2008. Mandating IFRS: Its impact on the cost of equity capital in Europe. *ACCA research report*: 105.

LEUZ, C., and VERRECCHIA, R. E. 2000. The economic consequences of increased disclosure. *Journal of Accounting Research* 38: 91-124.

OSMA, B., and POPE, P. 2011. *Strategic balance sheet adjustments under first-time IFRS adoption and the consequences for earnings quality*. Working paper, Lancaster University.

PETERSON, M. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22: 435-480.

SHROFF, N. 2011. *Managerial investment and changes in GAAP: An internal consequence of external reporting*. Working paper, Ross School of Business.

APPENDIX A

SAMPLE SELECTION

<i>Sample</i>	<i>France</i>	<i>Germany</i>	<i>Sweden</i>	<i>UK</i>	<i>Total</i>
<i>Non-missing accounting information on total assets, net income and common equity</i>	866	583	360	1,891	3,700
<i>Missing market information</i>	(122)	(124)	(16)	(531)	(793)
<i>Missing information on accounting standards followed</i>	(58)	(24)	(102)	(267)	(451)
<i>Late adopters (AIM)</i>	(0)	(0)	(0)	(101)	(101)
<i>Early adopters and US listings</i>	(35)	(152)	(25)	(96)	(308)
<i>Local standards reported, missing accounting restatements or missing</i>	(270)	(45)	(163)	(603)	(1,081)
Final sample	381	238	54	293	966

