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Jing Wang

Wei Li

Arno Forst

The University of Texas Rio Grande Valley

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**Product market competition, stock price informativeness, and IFRS adoption:
Evidence from Europe**

Jing Wang
Accounting and Finance Department
College of Business and Public Administration
California State University-Bakersfield

Wei Li*
Department of Accounting
College of Business Administration
Kent State University
P.O. Box 5190
Kent, OH 44242-0001
Email: wli2@kent.edu
Phone: 330-672-1125
Fax: 330-672-2548

Arno Forst
School of Accountancy
Robert C Vackar College of Business and Entrepreneurship
University of Texas Rio Grande Valley

* Corresponding author

Product market competition, stock price informativeness, and IFRS adoption: Evidence from Europe

Abstract

This study examines whether and how policy changes that aim to improve market efficiency, specifically the mandatory adoption of International Financial Reporting Standards (IFRS), influence the relation between product market competition and stock price informativeness. Using a sample of European firms, we find a negative association between product market competition and stock price informativeness as evidenced by larger (smaller) stock price changes surrounding earnings announcements for firms facing more (less) product market competition. These findings are consistent with prior studies examining the U.S. capital market. We further find that IFRS adoption alleviates the negative association. This positive effect is more pronounced among firms domiciled in countries with stronger legal enforcement and among smaller firms. Our results provide insights into the interrelation between *product* and *capital* markets in the European setting. More importantly, our results highlight the importance of policy changes, which aim to improve market efficiency, in influencing the relation between the two markets and document the benefit of IFRS adoption in mitigating the negative competition-informativeness relation.

Keywords product market competition, stock price informativeness, IFRS adoption, international accounting

JEL Classification M41, N24, G15

1 Introduction

This study examines whether and how policy changes, which aim to improve market efficiency, influence the relation between product market competition and stock price informativeness. Research in finance and accounting (Peress 2010; Kubick et al. 2015) finds a negative relationship between product market competition and stock price informativeness in the United States (U.S.), as evidenced by larger (smaller) stock price changes surrounding earnings announcements for firms facing more (less) product market competition. There are at least two reasons for this negative association. Firstly, according to the economic models developed in Peress (2010), the profitability of firms that operate in more competitive product markets is less certain, which will lead investors to decrease their trading volume. Fewer trades, in turn, hinder the full and timely incorporation of firms' private and public information into stock prices. As a result, the earnings announcements of firms that face more product market competition provide relatively more new information to the capital market and hence cause stronger earnings responses (larger changes in stock prices), which indicate less stock price informativeness. Second, from the perspective of management disclosures, Botosan and Stanford (2005), Li (2010), Cheng et al. (2013), Dhaliwal et al. (2014) and Haw et al. (2015) find that management strategically adjusts the quantity and quality of disclosures to the capital market in response to the extent and nature of the firm's product market competition. For example, management of firms in *more* competitive industries are more likely to timely recognize losses, while firms in *less* competitive industries are more likely to hide profit information. Such differences in disclosure quantity and quality will influence the revelation and incorporation of information into stock prices for firms in more versus less competitive industries, and consequently influence their stock price informativeness.

Since stock prices represent the capital allocation, these two lines of arguments, taken together, suggest that the extent of competition in product markets can negatively affect the efficiency of capital markets.¹ As a result, researchers have called for the implementation of policies aimed at improving market efficiency (Rajan and Zingales 2003; Peress 2010). To our knowledge, there is no empirical evidence on whether and how the implementation of such a policy may help improve the informativeness of stock prices for firms operating in competitive product markets. Motivated by the call for, and the lack of, empirical evidence, our study examines this research question.

The mandatory adoption of International Financial Reporting Standards (IFRS) by listed companies in Europe, which is a centerpiece of the capital market reforms in the European Union (EU) with the aim to reduce information asymmetry and improve market efficiency, provides a natural experiment to examine the effects of a specific policy change on the relation between

¹ Economic and finance literature also finds that because of the increased uncertainty in their profitability, U. S. firms in more competitive product markets earn higher risk-adjusted returns, have higher stock return volatility and lower firm value (e.g., Allen and Gale 2000; Gaspar and Massa 2006; Hou and Robinson 2006; Irvine and Pontiff 2009; Giroud and Mueller 2011; Sharma 2011). Since these trends have been found following the deregulation of product markets, researchers conclude that the deregulation of product markets negatively influences capital markets (Gaspar and Massa 2006; Irvine and Pontiff 2009; Peress 2010).

product market competition and stock price informativeness.² First, to our knowledge, no prior studies have specifically examined the relationship between product market competition and stock price informativeness in Europe. This presents a significant gap in the literature because product market competition in Europe has significantly increased in recent years due to the relaxation of regulations and the reduction of barriers to entry as a consequence of increasing European integration (Conway et al. 2005). As shown in Figure 1, the mean product market competition in Europe has increased considerably over the years 1999 to 2013. However, evidence on the impact of product market competition on capital markets in Europe is limited (Ammann et al. 2013).

[Insert Figure 1 about here]

While prior research has found a negative association between product market competition and stock price informativeness in the U.S. (Peress 2010; Kubick et al. 2015), it is an empirical question whether this finding can be generalized to Europe. On the one hand, there are significant differences in the regulatory and legal environments between Europe and the U.S. with respect to product and capital markets alike (Lantto and Sahlstrom 2009; Haw et al. 2015). For instance, while the European and U.S. *product* markets are strongly interrelated (Gjersem 2004), the European market is relatively smaller and much more closed. European firms are subject to more stringent regulations which tend to stifle innovation across industries (ESCB 2015).³ Also, compared to that of the U.S., European *capital* markets display considerable variations in their characteristics, including availability and effectiveness of investor protection, regulations and accounting disclosure practices (Barniv et al. 2005; Bae et al. 2008). On the other hand, globalization with real-time access to financial statements, market data and media information leads to more similarities in the information environments and higher stock market co-movements between U.S. and Europe in recent periods (Bekaert et al. 2009; Barniv et al. 2010; Savva et al. 2014). Nevertheless, we expect that the two underlying reasons for the U. S. evidence, that is, the extent of uncertainty in profitability and trading volume as well as the asymmetric disclosure quantity and quality of management in more versus less competitive product markets, do also exist for European firms to some extent. As a result, we likewise expect a negative relationship between product market competition and stock price informativeness in Europe.

The mandatory adoption of IFRS and the related reforms to enact a single, uniform EU capital market represent significant policy changes, and have thus triggered extensive studies across countries (see reviews of Brüggemann et al. 2013; De George et al. 2016). However, to our knowledge, no prior studies have examined whether and how IFRS adoption may influence the interrelation between product markets and capital markets. While the empirical evidence on the overall benefits of IFRS is still inconclusive (Brüggemann et al. 2013; De George et al. 2016), we expect the mandatory adoption of IFRS to mitigate the negative association between product market competition and stock price informativeness through multiple potential channels.

Firstly, to the extent that the negative association between product market competition and stock price informativeness results from the uncertainty in profitability and smaller trading volume, mandatory adoption of IFRS is expected to reduce the negative association because prior studies

² In 1999, the European Commission presented its Financial Services Action Plan (FSAP) which set out a five-year plan to create a single European capital market by the end of 2005. The FSAP identified forty-two measures designed to harmonize the member states' rules on securities, banking, insurance, mortgages, pensions and all other forms of financial transactions. By the end of 2005, almost all of these measures had been adopted, including as one center piece of the FSAP, the implementation of Regulation (EC) 1606/2002 on the application of international accounting standards (IAS Regulation) which required all EU companies listed on a regulated market to prepare consolidated accounts in accordance with International Financial Reporting Standards (IAS/IFRS).

³ See the report at <https://www.ecb.europa.eu/mopo/eaec/html/index.en.html>.

find that IFRS increases trading volume, predictability of earnings (in terms of analyst forecast accuracy for earnings), market liquidity and intra-industry information transfer (Daske et al. 2008; Kim and Li 2010; Tan et al. 2011; Bissessur and Hodgson 2012; Cotter et al. 2012; Landsman et al. 2012; Truong 2012; Horton et al. 2013). This stream of research suggests that mandatory IFRS adoption may speed up the incorporation of public information into the stock prices for all firms, with a bigger benefit arguably accruing to firms operating in more competitive industries because such firms initially display higher uncertainty of profitability and lower trading activity (Peress 2010). The latter expectation is consistent with the finding in prior studies that the benefits of regulation changes to reduce information asymmetry are stronger for firms that have less liquid stocks (Eleswarapu et al. 2004).

Secondly, to the extent that the negative competition-informativeness association is owed to management's asymmetric disclosure incentives and opportunities, IFRS adoption is expected to mitigate the negative association because it increases firms' disclosure requirements and restricts measurement method choices relative to domestic GAAP (Paananen 2008; Paananen and Lin 2009; Beuselinck et al. 2010; Chen et al. 2010; Cotter et al. 2012; Ahmed et al. 2013; Lai et al. 2013). While IFRS adoption influences management's abilities and/or incentives to disclose information for all firms, we again expect these adoption effects to be more pronounced for firms operating in more competitive industries because the increased competitive environment likely provides incentives for such firms to take more advantage of available reporting discretion compared to firms operating in less competitive industries. Taken together, the above two lines of arguments suggest that the difference in the stock price informativeness between firms in more and less competitive product markets would diminish after the mandatory adoption of IFRS.

Furthermore, we expect that the benefits of IFRS adoption on the negative association between product market competition and stock price informativeness are influenced by country- and firm-level factors. We choose to investigate the effect of a country-level factor, legal enforcement, because (1) prior studies (Daske et al. 2008; Byard et al. 2011; Landsman et al. 2012; Christensen et al. 2013; Kim et al. 2014) find that the intended benefits of mandatory IFRS depend on the strength of legal enforcement in the adopting countries; and (2) Haw et al. (2015) find that the effect of product market competition on information disclosures (e.g., accounting conservatism) differs in countries with strong or weak legal institutions. We also choose to investigate the impact of a firm-level factor, firm size, because Peress (2010) demonstrates that the sensitivity of stock price informativeness to product market competition varies with firm size.

In the main empirical analysis, we follow Peress (2010) and Kubick et al. (2015) to measure stock price informativeness by the stock price reaction to a firm's earnings announcement (i.e., the higher the stock price reaction to a firm's earnings announcement, the lower informativeness of the firm's stock price). We also follow these two studies to measure product market competition as the firm's industry-adjusted price-cost margin (i.e., the higher the firm's ability to price its products above marginal costs, the lower its market competition). Our sample encompasses firms from twenty-five of the twenty-eight member countries of the EU in the 1999 to 2013 period.⁴ We begin our sample in 1999 because the EU set out the five-year Financial Services Action Plan (FSAP) in 1999 to create a single European capital market by the end of 2005.

Replicating the analysis of Peress (2010), we first find that product market competition is negatively related to stock price informativeness in Europe as it is in U.S. Consistent with

⁴ Our sample does not include firms from Croatia, which joined the EU only in 2013, and Romania and Malta for which no valid observations have been available from our data sources. A breakdown of observations by country is included in Panel A of Table 1.

expectations, we also find that the negative relationship between product market competition and stock price informativeness weakened following the mandatory adoption of IFRS in 2005: After IFRS adoption, the difference in stock price informativeness for firms facing high versus low competition is lessened. Furthermore, this positive effect is more pronounced for firms domiciled in countries with stronger legal enforcement. Finally, this positive effect is stronger for smaller firms, consistent with the expectation that benefits from a reduction of information asymmetry are more relevant when information asymmetry is expected to be relatively larger.

Robustness checks support our results and provide us with additional evidence. First, our results are not affected when alternatively using an ordinal measure of firms' price-cost margin or the Herfindahl-Hirschman Index to quantify product market competition. Our results also hold when we alternatively use Fama-French three factor abnormal returns to measure stock price informativeness. Second, we find that the positive effect of mandatory IFRS adoption on the competition-informativeness association is both short-term and long term, and persists beyond one year after the mandatory adoption of IFRS. The positive effect is also equally discernible in subsamples of firms from market-oriented and non-market-oriented countries.

This study contributes to the literature in several significant ways. First, this study extends the findings on the competition-informativeness relationship found in the U.S. to an international setting, i.e. the European market. By doing so we add robustness and provide external validity to prior findings which had been exclusively limited to the U.S. market (Peress 2010; Kubick et al. 2015). Our results, which imply that deregulation of product markets in Europe, which has resulted in increased product market competition, has had a negative effect on capital market efficiency to some extent, provide important insights into the interrelation between *product* and *capital* markets around the world. In line with this contribution, our study also adds to recent studies that document the effects of product market competition on numerous firm-level attributes, including cooperate innovation, outsourcing choices, earnings management, asymmetric cost behaviors, stock-based compensation policies, bond yields, and analyst coverage (Mitra et al. 2013; Huang and Lin 2014; Teixeira 2014; Li and Zheng 2017; Zhang 2018; Lee 2020; Tian et al. 2020).

Second, this study answers a call from prior research (Rajan and Zingales 2003; Peress 2010) by showing that policy changes that aim to improve the efficiency of capital markets, such as the mandatory adoption of IFRS and the related capital market reforms in EU, can help alleviate the negative effect of product market competition on stock price informativeness. This evidence provides implications for policymaking to suggest that policies can be designed to enhance product market competition and to facilitate the efficient allocation of capital in equity markets.

Third, this study contributes to the literature on IFRS by providing empirical evidence regarding its impact on the association between *product* markets and *capital* markets. We also explore possible differences in these observed positive effects of IFRS adoption, conditional on the differences in legal regimes among countries or variations in firm characteristics (i.e., firm size). Overall, our findings add to prior studies on the positive capital market effects of IFRS (Daske et al. 2008; Kim and Li 2010; Agostino et al. 2011; Landsman et al. 2012; Alhaj-Yaseen et al. 2018) by noting an additional benefit of IFRS adoption that has remained unexplored: the ability of IFRS to mitigate the negative competition-informativeness relation.

The remainder of this paper is organized as the following. In section 2, we review the literature, discuss the background, and develop our hypotheses. Section 3 describes the methodology, presents our models and defines the variables. Section 4 discusses our data sources and sample selection. Section 5 presents and discusses the empirical results. In section 6 we provide results of several additional analyses and robustness checks. The concluding section 7

provides a summary of our findings and highlights limitations and possibilities for future extensions.

2 Literature review and hypothesis development

Economic and finance literature has established that product market competition increases uncertainty about a firm's profitability (Allen and Gale 2000; Gaspar and Massa 2006). Based on this finding, Peress (2010) develops a theoretical model predicting that product market competition interacts with information asymmetry in equity markets and, as a consequence, worsens stock price informativeness. Specifically, since the profits of firms with more competition are riskier, investors decrease their trading volume. Fewer trades, in turn, decrease the accuracy of public information and hinder the incorporation of firms' private information into prices. Less informative stock prices further discourage investors to trade, and also increase the dispersion of financial analysts' forecasts. Consequently, investors disagree more but trade less, making stock prices even less informative. Consistent with this conjecture, Peress (2010) and Kubick et al. (2015) provide empirical evidence that in the U.S., product market competition is negatively associated with stock price informativeness.

Accounting literature has established that the intensity of product market competition affects managers' incentives and/or opportunities to disclose information, which in turn impacts the extent of information asymmetry in capital markets. Specifically, Botosan and Stanford (2005), Li (2010), Cheng et al. (2013) and Dhaliwal et al. (2014) find that management strategically chooses disclosure quantity and quality in response to the degree and nature of product market competition faced by the firms. For example, management of firms in more competitive industries display increased conservatism through timely loss recognition to discourage rivals, while management of firms in less competitive industries are more likely to hide profit information to protect their competitive position. Such differences in disclosure quality and quantity exacerbate information asymmetry in the capital market and can lead to differential stock price informativeness between firms operating in more versus less competitive industries.

We expect that the above two theoretical arguments also exist for European firms to some extent, and thus there is a negative association between product market competition and stock price informativeness in Europe. This leads to our H1:

H1: There is a negative association between product market competition and stock price informativeness in Europe.

The negative association between product market competition and stock price informativeness suggests that the deregulation of product markets, which enhances product market competition, may reduce the information content of stock prices, which in turn hurts the efficiency of capital allocation in capital markets (Peress 2010). Thus, researchers suggest the implementation of policies that aim to improve market efficiency (Rajan and Zingales 2003; Peress 2010). In this study, our focus on the Europe setting provides an opportunity to examine the issue because mandatory adoption of IFRS is an example of policies that aim to reduce information asymmetry and improve capital market efficiency.

We expect that mandatory adoption of IFRS alleviates the negative association between product market competition and stock price informativeness for at least two reasons. First, IFRS adoption may mitigate the negative association that results from the uncertainty of profitability

and smaller trading volume. In one stream of research, Ashbaugh and Pincus (2001) document that the predictability of earnings, measured by analyst forecast accuracy, is higher for firms voluntarily adopting IFRS. Tan et al. (2011), Bissessur and Hodgson (2012) and Cotter et al. (2012) find that analyst forecast accuracy, as a measure of the quality of firms' information environment, increases significantly for mandatory IFRS adopters. Horton et al. (2013) further show that analyst forecast accuracy increases because mandatory IFRS adoption increases both information quality and accounting comparability.

In another stream of research, Leuz and Verrecchia (2000) document increased trading volume for firms voluntarily adopting IFRS. Daske et al. (2008) provide evidence that market liquidity increases for firms that report under mandatory IFRS for the first time. Kim and Li (2010) find an increase in intra-industry information transfer following mandatory adoption of IFRS. Landsman et al. (2012) and Truong (2012) provide evidence that firms experience a greater increase in abnormal trading volume around earnings announcements after mandatory adoption of IFRS. Moreover, prior studies (e.g., Eleswarapu et al. 2004) find that the benefits of regulation changes to reduce information asymmetry (e.g., regulation Fair Disclosures in the U.S.) are larger for firms with less liquid stocks. Based on the above findings, we predict that greater earnings predictability, more accurate analyst forecasts, higher trading volume, higher market liquidity and better information transfer in the post-IFRS adoption period will help reduce information uncertainty and asymmetry for all firms, with a bigger benefit accruing to firms operating in more competitive product markets because these firms experienced more uncertainty in profitability and smaller trading volume in the pre-IFRS period.

Second, IFRS adoption may mitigate the negative association that results from management's asymmetric disclosure incentives and opportunities. Several studies find that accounting has become less conservative, i.e., the timely recognition of losses decreased, following mandatory adoption of IFRS (Paananen 2008; Paananen and Lin 2009; Chen et al. 2010; Ahmed et al. 2013; Lai et al. 2013). This suggests that mandatory adoption of IFRS may reduce the incentives and opportunities of firms operating in more competitive industries to asymmetrically disclose their loss information. Also, relative to domestic GAAP, IFRS are generally considered to require more comprehensive disclosures and restrict management's choice of measurement methods (Ashbaugh and Pincus 2001; Beuselinck et al. 2010; Li 2010; Cotter et al. 2012), which may limit the incentives and opportunities of firms operating in less competitive industries to hide their profit information. Based on these findings, we predict that mandatory IFRS adoption may lead to a smaller difference in the revelation and incorporation of information into stock prices for firms in more versus less competitive industries. Taken together, the above two lines of discussion lead us to our H2:

H2: Mandatory IFRS adoption will reduce the negative association between product market competition and stock price informativeness.

Prior studies also establish that the intended benefits of mandatory IFRS adoption depend on the strength of legal enforcement in the adopting countries (Daske et al. 2008; Byard et al. 2011; Landsman et al. 2012; Christensen et al. 2013). Specifically, Daske et al. (2008) find that the capital-market effects around mandatory IFRS adoption occur only in countries with strict enforcement regimes. Byard et al. (2011) find that analysts' absolute forecast errors and forecast dispersion decrease only for mandatory IFRS adopters domiciled in countries with strong enforcement regimes. Landsman et al. (2012) provide evidence that the information content of

annual earnings announcements increases in IFRS countries where there is sufficient legal/regulatory enforcement. Studying the relation between mandatory IFRS reporting and enforcement changes, Christensen et al. (2013) suggest that the liquidity effects around IFRS introduction are limited to EU countries that concurrently made substantive changes in reporting enforcement. Since the literature largely documents a central role of legal institutions in ensuring the intended effects of changes in accounting standards, we expect that firms in competitive product markets experience a greater reduction in information asymmetry when these firms are domiciled in countries with stronger legal enforcement compared to firms from countries with weaker legal enforcement. Hence, we surmise in H3:

H3: The positive effect of mandatory IFRS adoption on the relation between product market competition and stock price informativeness is greater for firms domiciled in countries with stronger than weaker legal/regulatory enforcement.

Prior literature has established the effect of firm size on stock price informativeness. Compared to larger firms, smaller firms are industry followers, younger firms/new entrants, with higher stock volatility and are not well collateralized (Gertler and Gilchrist 1994). In addition, smaller firms are less diversified and provide less voluntary information to the market. They may have fewer customers, suppliers, and shareholders and their disclosure costs are relatively higher compared to those of larger firms. As a result, Peress (2010) demonstrates that information asymmetry is more pervasive among smaller firms and stock price informativeness is more sensitive to market competition among these firms. Similarly, Loureiro and Taboada (2012) find that the adoption of IFRS increases the stock price informativeness more significantly for smaller firms than larger firms. We therefore expect that the impact of IFRS adoption on the competition-informativeness relation is more pronounced for smaller firms than for larger firms in our H4:

H4: The positive effect of mandatory IFRS adoption on the relation between product market competition and stock price informativeness is greater for smaller firms than for larger firms.

3 Methodology

We follow Peress (2010) and Kubick et al. (2015) to measure stock price informativeness in terms of the magnitude of the stock price reaction to a firm's earnings announcement, which is defined as the average absolute five-day cumulative abnormal return surrounding the annual earnings announcement date (*CAR*).⁵ The stock price informativeness is the inverse of the stock price reaction. Higher (lower) stock price informativeness indicates a smaller (larger) market reaction to the firm's earnings announcement.

⁵ Specifically, we measure the average absolute abnormal return over a 5-day window centered on the annual earnings announcement date (obtained from IBES). Abnormal returns are defined relative to the market return. We take the average absolute value of returns across all days of the event window to measure the magnitude of the stock price reaction to the announcement. To test the robustness of our results, we alternatively use the Fama-French three factor returns. Abnormal returns are measured as the residuals from the Fama-French three-factor model. We then sum the absolute value of abnormal returns over an event window ranging from $t = -2$ to $t = +2$. The Pearson correlation between our primary return specification and the alternative Fama-French three factor abnormal return is positive and highly significant ($r = 0.2615, p < 0.01$). Our results are robust to using this alternative dependent variable specification.

We measure product market competition in terms of a firm's excess price-cost margin, which reflects the firm's ability to price goods above marginal cost (*PCM*) (Peress 2010; Dhaliwal et al. 2014; Kubick et al. 2015). A small price-cost margin indicates relatively weak market power of the firm and thus strong product market competition. We compute a firm's excess price-cost margin as the firm's operating profit margin (operating income after depreciation) subtracting its industry average price-cost margin.⁶

We first implement the following model (1), adapted from Peress (2010), to examine H1 regarding the relation between product market competition (*PCM*) and stock price informativeness (*CAR*) in Europe. In accordance with our first hypothesis, we expect a negative coefficient on *PCM*.

$$CAR = \beta_0 + \beta_1 PCM_{it} + \sum \beta_{j-k} X_{it} + \varepsilon_{it} \quad (1)$$

We then add an indicator variable *POST* for the period following the adoption of IFRS and its interaction with *PCM* to form model (2) to test H2.

$$CAR = \beta_0 + \beta_1 PCM_{it} + \beta_2 POST_{it} + \beta_3 PCM \times POST_{it} + \sum \beta_{j-k} X_{it} + \varepsilon_{it} \quad (2)$$

POST equals one (zero) for the years after (before) mandatory adoption of IFRS in the EU in 2005. In accordance with our second hypothesis, we expect a positive coefficient on the interaction term *PCM* \times *POST* in model (2), indicating that the mandatory adoption of IFRS mitigates the negative effect of product market competition on stock price informativeness. To account for the effects of multicollinearity potentially introduced by the inclusion of the interaction term in the model, we mean-center *PCM* (Aiken and West 1991, 35).⁷

To test our third hypothesis concerning the effect of countries' legal/regulatory enforcement, we add a variable *LAW* and its interactions with *PCM* and *POST*, respectively and jointly, to model (2) to form model (3).

$$CAR = \beta_0 + \beta_1 PCM_{it} + \beta_2 POST_{it} + \beta_3 LAW_{it} + \beta_4 PCM \times POST_{it} + \beta_5 POST \times LAW_{it} + \beta_6 PCM \times LAW_{it} + \beta_7 PCM \times POST \times LAW_{it} + \sum \beta_{j-k} X_{it} + \varepsilon_{it} \quad (3)$$

LAW is the rule of law ranked score obtained from the World Bank's Worldwide Governance Indicators (WGI) project (Kaufmann et al. 2013). Higher scores represent countries with higher quality legal enforcement. The World Bank rule of law score has been used as a measure for the quality of countries' legal regimes in relevant studies, such as Daske et al. (2008), Armstrong et al. (2010), Byard et al. (2011), Landsman et al. (2012), and Banker et al. (2014). In model (3), we expect a positive and significant coefficient on the interaction term *PCM* \times *POST* \times *LAW*, indicating that IFRS adoption will have a greater positive effect on the competition-

⁶ The industry price-cost margin is the value-weighted average price-cost margin across firms in the industry where the weights are based on market share (sales over total industry sales) and industries are defined using two digit SIC classifications. The industry price-cost margin is subtracted to control for structural differences across industries unrelated to the degree of competition.

⁷ Models containing interaction terms are affected by structural multicollinearity because some predictors are the product of two (or more) other predictors. Aiken and West (1991) demonstrate that in regression containing interaction terms, the covariance between the main effects and their interaction term depends in part upon the means of the individual predictors. Mean-centering attenuates structural multicollinearity by changing the means, and thus the covariance of the predictors, which reduces the correlation between the individual predictors and their interaction term.

informativeness relation for firms operating in countries with stronger legal enforcement. *PCM* and *LAW* are mean-centered to reduce the possible effects of multi-collinearity.

Finally, to test H4 concerning the effect of firm size, we add the interactions of *SIZE* with *PCM* and *POST*, respectively and jointly, to model (2) to form model (4).

$$CAR = \beta_0 + \beta_1 PCM_{it} + \beta_2 POST_{it} + \beta_3 SIZE_{it} + \beta_4 PCM \times POST_{it} + \beta_5 POST \times SIZE_{it} + \beta_6 PCM \times SIZE_{it} + \beta_7 PCM \times POST \times SIZE_{it} + \sum \beta_{j-k} X_{it} + \varepsilon_{it} \quad (4)$$

SIZE is measured as the log of a firm's total assets. We expect a negative coefficient on the interaction term *PCM* \times *POST* \times *SIZE* in model (4), indicating that IFRS adoption will have a greater positive effect on the competition-informativeness relation for smaller firms. *PCM* and *SIZE* are again mean-centered to reduce the possible effects of multi-collinearity.

In all of the above models, X_{it} represents a vector of control variables based on Peress (2010). Illiquidity (*LQT*) represents the ratio of a stock's absolute return to its dollar trading volume in a day, averaged over all days in a year. Return on assets (*ROA*) is defined as pre-tax income over lagged total assets. Leverage (*LEV*) is computed as total long-term debt divided by total assets. Market-to-book (*M_to_B*) is the ratio of the market value to the book value of equity. Turnover (*TRN*) is defined as the log of the ratio of the number of shares traded during a year to the number of shares outstanding. Appendix A provides the definition of all the variables.

Finally, we also include industry, based on Fama-French (1997) industry classifications, and country fixed effects in all models.⁸ Consistent with prior studies (Peress 2010; Kubick et al. 2015), all independent variables are concurrent with the dependent variable, *CAR*.

4 Data and sample

We retrieve accounting related information as well as stock price and return data from Compustat. We obtain firms' annual earnings announcement dates from the I/B/E/S international file. Rule of law (*LAW*) is obtained from the World Bank's Worldwide Governance Indicators (WGI) project (Kaufmann et al. 2013).

Publicly listed firms in the European stock markets have been required to switch to IFRS for financial reporting purposes in fiscal year beginning on or after January 1, 2005. Our sample includes all publicly-traded firms domiciled in member countries of the European Union for which data are available from our data sources in the period 1999 to 2013.⁹

We eliminate firms operating in regulated industries with SIC codes 49 and 62 from the sample. To minimize the effect of outliers on the regressions, we winsorize all variables at the one percent level. The sample of interest are mandatory IFRS adopters, which are firms that prepared their financial statements based on local accounting standards before 2005 and switched to IFRS in 2005. To avoid any potential confounding effect, we require sample firms to have non-missing

⁸ For parsimony, all models include only country fixed effects. As an alternative, we also include additional specific country-level economic characteristics in our models. Specifically, we include the country GDP (based on purchasing-power-parity per capita GDP) and a measure of the relevance of the equity market for a given country's economy, the ratio of stock market capitalization to GDP. Results are unchanged.

⁹ In alternative analyses, we restrict our data to 2003 to 2007. This more restricted alternative sample keeps the length of the post-IFRS window the same as that of the pre-IFRS window and allows for better attribution of the results to the event year, rather than to developments occurring later during the sample period. Since the results with our full sample and restricted sample are comparable, we report the results for the full sample in our main result section and those for the restricted sample in the section 6 of Robustness Tests.

data for at least one year in both the pre-IFRS adoption and post-IFRS adoption periods. Following Aharony et al. (2010), we exclude early IFRS adopters, partial adopters, firms continuing to report under other GAAP after 2005, and firms with unclassified/lacking classification of the accounting standards employed based on the firms' financial reporting standards reported in Compustat. Table 1, Panel A, presents the sample composition by country. Our sample includes 19,633 firm-year observations from twenty-five member countries of the EU.

[Insert Table 1 about here]

5 Empirical results

5.1 Descriptive statistics

Panel B of Table 1 reports the descriptive statistics for the whole sample. The dependent variable *CAR* slightly left skewed with a mean (median) of 0.0219 (0.0178) and a minimum (maximum) of 0.0031 (0.1057). *PCM* ranges from -7.5211 to 0.5055, with a mean of -0.0317. The *LAW* rank score ranges from 50.7 to 100, compared to the range of 0 to 100 for all countries in Kaufmann et al. (2013). Higher ranks indicate more reliable legal systems. The *SIZE* of our sample firms, measured as the natural log of total assets, ranges from 1.5929 to 9.4679 with a mean of 5.4869. Panels C and D report descriptive statistics for all variables before and after IFRS adoption, respectively. Pooled t-tests indicate that the means of most variables, except *TRN*, are significantly different in the pre- and post IFRS periods.¹⁰

5.2 Competition-informativeness association and IFRS adoption

Pearson correlations, untabulated, indicate a significant negative association between product market competition and stock price informativeness in Europe. Table 2, Column (1), presents the pooled regression estimation results of model (1) for the relationship between product market competition and stock price informativeness. Column (2) reports panel regression results for model (2). Columns (3) and (4) also report regression results for model (2), but t-statistics are based on cluster-robust (Huber-White or Rogers) standard errors, clustering on a firm level (Column 3) or, alternatively, on White's heteroscedasticity-consistent (robust) standard errors (Column 4). Reported results in all columns include country and industry fixed effects.

[Insert Table 2 about here]

In all regressions, Column (1) to Column (4), the coefficient on *PCM* is negative and statistically significant. These results indicate that the intensity of competition in firms' product markets negatively influences the informativeness of their stock price in the capital markets in Europe. These results provide support for H1 and confirm those in prior work that has examined this relationship in the U.S. (Peress 2010; Kubrick et al. 2015).

Across all estimations of model (2), reported in Columns (2) - (4), the coefficient on the interaction of *PCM* \times *POST* is positive and strongly significant. These results provide support for H2, indicating that mandatory IFRS adoption significantly mitigates the negative association between product market competition and stock price informativeness. For ease of exposition, we also follow the methodology in Li (2010) and conduct a 2 by 2 analysis and compare firms with

¹⁰ We also examine the descriptive statistics for all variables by country to ensure no particular trend or pattern is present that may affect our analyses. Descriptive statistics by country are not tabulated for parsimony but available from the authors upon request.

higher vs. lower competition in the pre-IFRS vs. post IFRS periods for the full sample. Specifically, we split *PCM* based on its mean value and compare *CAR* between firms facing higher competition (i.e., *PCM* below the mean) and firms facing lower competition (i.e., *PCM* above the mean) in the pre-IFRS and post-IFRS periods. The untabulated results show that the difference in the mean *CAR* for these two groups of firms is significantly lower in the post-IFRS period (0.022) than that in the pre-IFRS period (0.036) ($p < 0.05$), suggesting that IFRS adoption reduces the difference in stock price informativeness between firms in more vs. less competitive industries. The results are consistent when we split *PCM* based on its median. Overall, these results provide further evidence to support H2 that the negative relation between product market competition and stock price informativeness has decreased in the post-IFRS period.

In all models in Table 2, results for our control variables indicate that firms' size, return-on-asset (*ROA*), leverage (*LEV*), stock turnover (*TRN*) and illiquidity (*LQT*) are significantly associated with stock price informativeness ($p < 0.01$). These results are consistent with those from prior studies using samples of firms listed in the U.S. stock market (Peress 2010; Jung et al. 2012) and demonstrate that an identical set of firm fundamental control variables are also relevant in the European markets.

Overall, the results in Table 2 provide support for H1 and H2 that a negative competition-informativeness association exists in the European markets, and that mandatory adoption of IFRS mitigates the negative association.

5.3 Effects of country- and firm-level factors

In this subsection, we investigate whether the effect of mandatory IFRS adoption on the competition-informativeness association differs depending on the strength of a given country's legal enforcement or firm size.

Table 3, Columns (1) and (2), present regression results for our model (3) which examines the effect of mandatory adoption of IFRS on the competition-informativeness association in countries with different strength of legal enforcement, measured by the rule of law scores obtained from the World Bank's Worldwide Governance Indicators (WGI) project (Kaufmann et al. 2013).¹¹ We find a positive and significant three-way interaction term $PCM \times POST \times LAW$ in both regressions. The result is consistent with H3 and provides an indication that the effect of IFRS adoption on the association between product market competition and stock price informativeness is not constant across different legal regimes. The positive effect is more pronounced for firms domiciled in countries that have a relatively higher than lower strength of legal enforcement. This finding is consistent with several studies that have established that strong legal enforcement is necessary to achieve positive effects from IFRS adoption (Christensen et al. 2013; Haw et al. 2015).

[Insert Table 3 about here]

Next, we investigate whether the positive effect of mandatory IFRS adoption on the relationship between product market competition and stock price informativeness varies with firm size. Reported in Table 3, Columns (3) and (4), we find that the three-way interaction $PCM \times POST \times SIZE$ is negative and statistically significant in both regressions. The results suggest that consistent with our H4, the effect of IFRS adoption on the association of product market

¹¹ For brevity, relative to Table 2, Table 3 only reports results using plain panel regressions and a more conservative estimation approach based on cluster-robust (Huber-White or Rogers) standard errors, clustering on a firm level. Results when using White's heteroscedasticity-consistent (robust) standard errors are consistent with reported results.

competition and stock price informativeness does vary with firm size. Our results corroborate those of Peress (2010) which demonstrates stock price informativeness is more sensitive to market competition among smaller firms. Smaller firms generally have a less rich information environment than larger firms. Accordingly, any (further) reduction in the quality or quantity of information available to capital markets due to the extent of product market competition is amplified among smaller firms. Our findings suggest that the positive mitigating effect of IFRS adoption is particularly pronounced in this subset of firms, which are characterized by low stock price informativeness.

6 Robustness tests and additional analyses

We perform several additional analyses to assess the robustness of our inferences. First, we repeat our analyses using an ordinal measure of product market competition, ranking firms 1 through 5 based on the *PCM* quintiles. This alternate specification serves to alleviate concerns about the influence of outliers and a possible nonlinear relation between the dependent variable and the product market competition.¹² We also measure product market competition alternatively by the Herfindahl-Hirschman Index (*HHI*) based on 2-digit SIC industry classifications. Specifically, $HHI_{jt} = \sum_{f=1}^{n_j} S_{fjt}^2$, where S_{fjt}^2 is the squared market share of firm f in industry j in year t . Columns (1) and (2) of Table 4 present the results using the ordinal measure of *PCM* and *HHI*, respectively. For both alternate specifications of *PCM*, the coefficient on the interaction term *PCM* \times *POST* is consistent with our primary results and statistically significant at $p < 0.01$.¹³

[Insert Table 4 about here]

Second, we vary the short and long windows around the IFRS adoption date (Hail et al. 2014). Specifically, we repeat our analyses on the sample period of 2003-2007, including (1) 2004 as the pre-IFRS period and 2006 as the post-IFRS period, and (2) 2003-2004 as the pre-IFRS period and 2006-2007 as the post-IFRS period. The alternative samples allow us (1) to keep the length of the post-IFRS window the same as that of the pre-IFRS window; (2) to capture the short-term effects of mandatory IFRS adoption on the association between product market competition and stock price informativeness (Banker et al. 2014), and (3) to avoid the possible effects of the global financial crisis in 2008 (Agostino et al. 2011). To illustrate, we reported the results for 2003-2007 in Column 3 of Table 4. As indicated by our primary results, which are based on the data to 2013, the positive effect appears to be persistent and not limited to a short-term adoption effect only, however.

Third, we conduct two additional tests to assure that our results are not driven by any specific dominant country or groups of countries. We repeat all analyses with a sample where we randomly select a constant twenty observations from each country-year. This equal-country-weighted sample contains a total of 3,220 observations. All results (untabulated) remain unaffected. We also split our sample into market-oriented and non-market-oriented countries based on the classifications used by Demirgüç-Kunt and Levine (1999), and Nobes and Parker (2008). Columns (4) and (5) of Table 4 show a negative and significant coefficient on *PCM* and a positive and

¹² For example, Kothari (2001) shows that the relationship between announcement-day abnormal returns and earnings surprise is nonlinear.

¹³ For brevity, relative to Table 2, Table 4 only reports results using a more conservative estimation approach based on cluster-robust (Huber-White or Rogers) standard errors, clustering on a firm level. Results when employing plain panel regressions or White's heteroscedasticity-consistent (robust) standard errors are consistent with reported results.

significant coefficient on the interaction term of $PCM \times POST$ in the regressions of both sub-sets of countries. These results indicate that our results are not particular to market or non-market-oriented countries, but equally pronounced in both types of countries.

Finally, as documented in Figure 1, the intensity of product market competition in the EU increased significantly over our sample period. While we control for the level of PCM in all models, we conduct a further test and identify the industry sectors that experienced the largest absolute changes in product market competition over the sample period: Agriculture, Mining, and Services industries. We re-estimate model (2) using only observations from the two or three industries that displayed the largest changes. Results when using a sub-sample of industries that experienced the most significant changes in PCM during the sample period are quantitatively and qualitatively consistent with the results for all industries. This additional test provides further assurance that our results are not driven by the observed changes in product market competition over the sample period.

7 Conclusion

This study examines whether and how policy changes that aim to improve market efficiency, specifically the mandatory adoption of IFRS by publicly traded firms, influence the association between product market competition and the informativeness of stock prices. Focusing on a sample of firms from Europe in the 1999-2013 period, our empirical results indicate that a negative association between product market competition and stock price informativeness exists in the European markets. Moreover, we find that mandatory adoption of IFRS alleviates this negative association such that it reduces the difference in stock price informativeness for firms in high vs. low competitive industries. This positive effect is more pronounced for firms domiciled in countries that feature stronger legal enforcement. In addition, we find that IFRS adoption reduces the negative association of product market competition and stock prices informativeness relatively more for smaller than for larger firms.

These results contribute to the literature by (1) providing European evidence on the relation between product markets and capital markets and (2) highlighting the important role of policies, which aim to improve market efficiency, in reducing the negative impact of product market competition on stock price informativeness. Our study also contributes to the literature on the benefits of IFRS adoption in capital markets by linking the examination to a more specific setting at a firm-level, that is, individual firms' product market competition.

Nevertheless, we acknowledge several limitations in our study that may lead to future research. While we utilize different event windows around the IFRS adoption date, we cannot fully rule out the possibility that other concurrent regulatory changes in the EU, or global events, may exercise a confounding effect that may make it difficult to isolate the specific IFRS effect; a concern we share with the majority of IFRS adoption studies. An extension of our study into non-European countries, for example, to the emerging economies as examined in prior studies (Elbannan 2011; Edeigba et al. 2019) may help isolate the effects of concurrent regulatory changes in the EU. Moreover, as is the case with the vast majority of empirical accounting studies, our data are limited to publicly traded firms. However, total product market competition includes competition by both public and private firms. While we use three alternate specifications to measure product market competition, all of our measures are based only on the competition by publicly traded rival firms and therefore, systematically underreport the actual competition due to the lack of the data for private firms' product market competition. We share this limitation with

any studies focusing on public firms to examine the effect of product market competition on accounting and financial outcomes.¹⁴ Future research may be able to improve upon this inherent limitation in the measure of product market competition through obtaining private firm data.

Future research may also examine the moderating effects of other country- and firm-level factors that possibly influence the benefits of IFRS adoption on the negative association of product market competition and stock price informativeness. Also, there may be alternative reasons for the negative association between product market competition and stock price informativeness, in addition to the two theoretical reasons developed in the existing literature (e.g., Li, 2010; Peress 2010; Cheng et al. 2013; Dhaliwal et al. 2014; Kubick et al. 2015). Thus, future research may explore alternative reasons for the association and, correspondingly, investigate the effects of alternative regulatory changes that help to lessen the negative association between product market competition and stock price informativeness.

¹⁴ While we cannot include the contributions of private firms in our measurement of firm-specific product market competition due to data limitations, our focus on European firms ensures that international competition within the European common market is accounted for. Our measurement of product market competition hence is relatively more complete compared to studies focusing on product market competition in the U.S. markets, which leave out both international and private competition (Peress 2010). In addition, while we are unable to include private firms in our sample, the observed ability of firms included in our sample to price their product above costs does reflect all existing competition, even though the firm's privately-held competitors are not included in our sample.

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Appendix A

Definition of Variables

CAR: is measured as the average absolute abnormal return surrounding an earnings announcement. Abnormal returns are measured as the returns minus the market return. We estimate the abnormal return over an event window ranging from $t = -2$ to $t = +2$. Then, we take the average of the absolute value of abnormal returns on each day of the event window.

PCM: is measured in terms of the excess price-cost margin (PCM). The excess price-cost margin is the difference between a firm's price-cost margin and that of its industry. A firm's price-cost margin is defined as its operating profits divided by sales. The industry price-cost margin is the value-weighted average price-cost margin across firms in the industry, where the weights are based on market share (sales over total industry sales).

POST: indicator variable that equals 0 for the Pre-IFRS period (1999-2004) and 1 for the Post-IFRS period (2005-2013).

SIZE: Size is measured as the log value of total assets.

LQT: Illiquidity equals the ratio of a stock's absolute return to its dollar trading volume in a day, averaged over all days in a year.

ROA: Return on assets is defined as pre-tax book income over lagged total assets.

LEV: Leverage is computed as total long-term debt divided by total assets.

MB: Market-to-book is the ratio of the market value of equity (year-end stock price times the number of shares outstanding) to its book value. Book equity is constructed as stockholder's equity.

TRN: Turnover of a stock is defined as the log of the ratio of the number of shares traded during a year to the number of shares outstanding.

LAW: Rule of law scores are obtained from The Worldwide Governance Indicators (WGI) project (Kaufmann et al., 2013). Higher scores represent countries with higher quality legal enforcement.

Table 1 Sample Composition and Descriptive Statistics

<i>Panel A. Sample composition by IFRS adoption countries</i>						
Country	N	Country	N	Country	N	
Austria	184	Germany	1,509	Netherlands	865	
Belgium	675	Greece	746	Poland	489	
Bulgaria	3	Hungary	63	Portugal	235	
Cyprus	24	Ireland	155	Slovakia	5	
Czech Republic	23	Italy	1,158	Slovenia	19	
Denmark	505	Latvia	9	Spain	729	
Estonia	50	Lithuania	21	Sweden	1,297	
Finland	787	Luxembourg	29	United Kingdom	6,798	
France	3,255					

<i>Panel B. Descriptive statistics of variables in analysis</i>						
Variable	N	Mean	Median	Std. Dev.	Min.	Max.
<i>CAR</i>	19,633	0.0219	0.0178	0.0154	0.0031	0.1057
<i>PCM</i>	19,633	-0.0317	-0.0041	0.3894	-7.5211	0.5055
<i>LAW</i>	19,633	89.9700	92.8900	9.1000	50.7000	100.0000
<i>SIZE</i>	19,633	5.4869	5.4444	1.5506	1.5929	9.4679
<i>ROA</i>	19,633	0.0619	0.0608	0.1381	-0.7019	0.8518
<i>LEV</i>	19,633	0.5410	0.5571	0.1845	0.0814	1.1253
<i>MB</i>	19,633	2.3695	1.6715	2.4106	-3.6437	21.0605
<i>TRN</i>	19,633	-1.0197	-0.9459	0.9729	-4.0529	1.2342
<i>LQT</i>	19,633	0.0000	0.0000	0.0000	0.0000	0.0002

Table 1 Sample Composition and Descriptive Statistics (continued)

<i>Panel C. Descriptive statistics of variables in analysis before mandatory IFRS adoption</i>							Pre vs. Post IFRS Pooled t- test
Variable	N	Mean	Median	Std. Dev.	Min.	Max.	
<i>CAR</i>	8430	0.0212	0.0167	0.0156	0.0031	0.1057	-5.85 ***
<i>PCM</i>	8430	-0.0444	-0.0087	0.3731	-7.5211	0.4995	-3.95 ***
<i>LAW</i>	8430	90.8965	94.2584	7.7147	62.6794	100.0000	12.39 ***
<i>SIZE</i>	8430	5.3598	5.3436	1.5253	1.6028	9.4535	-9.99 ***
<i>ROA</i>	8430	0.0566	0.0587	0.1412	-0.6974	0.8363	-4.60 ***
<i>LEV</i>	8430	0.5473	0.5646	0.1843	0.0818	1.1181	4.18 ***
<i>MB</i>	8430	2.5568	1.7465	2.6528	-3.6437	21.0605	9.47 ***
<i>TRN</i>	8430	-1.0209	-0.9203	0.9672	-4.0516	1.2296	-0.16 ***
<i>LQT</i>	8430	0.0000	0.0000	0.0000	0.0000	0.0002	-8.97 ***

<i>Panel D. Descriptive statistics of variables in analysis after mandatory IFRS adoption</i>						
Variable	N	Mean	Median	Std. Dev.	Min.	Max.
<i>CAR</i>	11203	0.0225	0.0186	0.0152	0.0031	0.1053
<i>PCM</i>	11203	-0.0222	0.0011	0.4010	-7.4282	0.5055
<i>LAW</i>	11203	89.2771	92.7885	9.9606	50.7042	100.0000
<i>SIZE</i>	11203	5.5826	5.5238	1.5626	1.5929	9.4679
<i>ROA</i>	11203	0.0658	0.0621	0.1356	-0.7019	0.8518
<i>LEV</i>	11203	0.5362	0.5512	0.1846	0.0814	1.1253
<i>MB</i>	11203	2.2285	1.6178	2.2005	-3.5138	20.9247
<i>TRN</i>	11203	-1.0187	-0.9648	0.9773	-4.0529	1.2342
<i>LQT</i>	11203	0.0000	0.0000	0.0000	0.0000	0.0002

All variables are defined in Appendix A.

Table 2 Regression results for models (1) and (2)

	<u>Dependent Variable: CAR</u>											
	Column (1)			Column (2)			Column (3)			Column (4)		
	Model (1)			Model (2) Panel regression			Model (2) Clustered standard errors			Model (2) Robust standard errors		
	Coefficient	t value		Coefficient	t value		Coefficient	t value		Coefficient	t value	
PCM	-0.0015	-4.9	***	-0.0034	-7.49	***	-0.0034	-4.20	**	-0.0034	-4.53	***
POST				0.0016	7.27	***	0.0016	6.67	**	0.0016	7.63	***
PCM * POST				0.0031	5.53	***	0.0031	3.42	**	0.0031	3.49	***
SIZE	-0.0011	-13.01	***	-0.0012	-13.68	***	-0.0012	-11.85	**	-0.0012	-13.29	***
ROA	-0.0130	-14.77	***	-0.0130	-14.83	***	-0.0130	-10.96	**	-0.0130	-11.59	***
LEV	0.0044	6.56	***	0.0046	6.94	***	0.0046	5.85	**	0.0046	6.34	***
M_to_B	-0.0001	-1.71	*	-0.0001	-1.29		-0.0001	-1.02		-0.0001	-1.10	
TRN	0.0017	13.86	***	0.0017	13.56	***	0.0017	12.84	**	0.0017	13.51	***
LQT	82.8000	10.52	***	77.6300	9.84	***	77.6300	7.23	**	77.8630	7.51	***
Constant	0.0303	54.37	***	0.0295	52.18	***	0.0295	43.66	**	0.0294	47.77	***
Country effects	Yes			Yes			Yes			Yes		
Industry effects	Yes			Yes			Yes			Yes		
N	19,633			19,633			19,633			19,633		
Adj. R ²	0.0983			0.1019			0.1053			0.1019		

Table 2 presents results of regressions of stock price informativeness on product market competition and an IFRS adoption indicator (and controls). The sample period is from 1999-2013, with 1999-2004 as the pre-IFRS period and 2005-2013 as the post-IFRS period. All variables are defined in Appendix A. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level (two-tailed), respectively.

Table 3 Regression results for models (3) and (4)

<u>Dependent Variable: CAR</u>													
Model (3) LAW effect							Model (4) SIZE effect						
Column (1)			Column (2)				Column (3)				Column (4)		
Panel regression			Clustered standard errors				Panel regression				Clustered standard errors		
Coefficient		t Value	Coefficient		t Value	Coefficient		t Value	Coefficient		t Value		
POST	0.0017	7.43 ***	0.0017	6.99 ***	POST	0.0017	7.63 ***	0.0017	7.60 ***				
PCM	-0.0032	-7.07 ***	-0.0032	-4.25 ***	PCM	-0.0026	-4.29 ***	-0.0026	-3.37 ***				
LAW	0.0001	1.69 *	0.0001	1.87 *									
POST*LAW	-0.0001	-3.49 ***	-0.0001	-4.11 ***	POST*SIZE	0.0008	5.63 ***	0.0008	5.33 ***				
PCM*LAW	-0.0001	-2.39 **	-0.0001	-2.18 **	PCM*SIZE	0.0003	1.05	0.0003	0.80				
POST*PCM	0.0028	4.96 ***	0.0028	3.26 ***	POST*PCM	0.0014	1.73 *	0.0013	1.24				
POST*PCM*LAW	0.0002	1.97 **	0.0002	1.68 *	POST*PCM*SIZE	-0.0010	-2.38 **	-0.0010	-1.70 *				
SIZE	-0.0012	-13.62 ***	-0.0012	-11.82 ***	SIZE	-0.0016	-	-0.0016	-				
							13.62		12.92				
ROA	-0.0129	-14.70 ***	-0.0129	-10.97 ***	ROA	-0.0130	-	-0.0130	-				
							14.69		11.64				
LEV	0.0046	6.92 ***	0.0046	5.84 ***	LEV	0.0046	6.80 ***	0.0046	6.20 ***				
M_to_B	-0.0001	-1.25	-0.0001	-0.98	M_to_B	-0.0001	-1.31	-0.0001	-1.11				
TRN	0.0017	13.56 ***	0.0017	12.85 ***	TRN	0.0017	13.32 ***	0.0017	13.28 ***				
LQT	78.1102	9.91 ***	78.1102	7.28 ***	LQT	80.2016	10.16 ***	80.2016	7.71 ***				
Constant	0.0209	2.39 **	0.0209	5.12 ***	Constant	0.0228	47.07 ***	0.0228	43.32 ***				
Country effects	yes		yes		Country effects	yes		yes					
Industry effects	yes		yes		Industry effects	yes		yes					
N	19,633		19,633		N	19,633		19,633					
Adj. R ²	0.1028		0.1065		Adj. R ²	0.1037		0.1073					

Table 3 presents results of regressions of stock price informativeness on product market competition and an IFRS adoption indicator (and controls), incorporating the moderating effects of rule of law (model 3) and firm size (model 4). The sample period is from 1999-2013, with 1999-2004 as the pre-IFRS period and 2005-2013 as the post-IFRS period. All variables are defined in Appendix A. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level (two-tailed) respectively.

Table 4 Robustness tests

Dependent Variable: <i>CAR</i>															
	(1) Ranked PCM			(2) HHI			(3) Years 2003-2007			(4) Market oriented countries			(5) Non-market oriented countries		
	Coefficient	t value		Coefficient	t value		Coefficient	t value		Coefficient	t value		Coefficient	t value	
PCM	-0.0008	-6.06	***	-0.0114	-1.89	*	-0.0020	-2.57	**	-0.0028	-3.22	***	-0.0036	-2.59	**
POST	-0.0005	-0.78		0.0012	4.10	***	0.0044	12.50	***	0.0028	7.39	***	0.0006	1.92	*
PCM * POST	0.0007	3.95	***	0.0426	3.16	***	0.0023	2.29	**	0.0025	2.52	**	0.0038	2.50	***
SIZE	-0.0012	-11.46	***	-0.0012	-12.23	***	-0.0015	-8.97	***	-0.0018	-10.66	***	-0.0007	-5.53	***
ROA	-0.0129	-11.32	***	-0.0147	-13.57	***	-0.0104	-5.79	***	-0.0135	-8.59	***	-0.0132	-6.95	***
LEV	0.0034	4.12	***	0.0042	5.20	***	0.0043	3.33	***	0.0064	5.34	***	0.0033	2.92	***
M_to_B	0.0000	-0.37		0.0000	-0.82		-0.0001	-1.39		-0.0003	-3.02	***	0.0002	2.21	**
TRN	0.0017	13.14	***	0.0017	13.02	***	0.0019	8.54	***	0.0021	9.91	***	0.0017	10.37	***
LQT	77.0242	7.16	***	76.8000	7.16	***	98.3045	4.33	***	63.1000	3.91	***	100.2508	6.24	***
Constant	0.0324	38.65	***	0.0302	44.19	***	0.02620	25.48	***	0.0316	31.42	***	0.0202	16.07	***
Country effects	Yes			Yes			Yes			Yes			yes		
Industry effects	Yes			Yes			Yes			Yes			yes		
N	19633			19633			5866			9465			9457		
Adj. R ²	0.1052			0.1035			0.1317			0.0906			0.1054		

Table 4 presents robustness checks of regressions of stock price informativeness on product market competition and an IFRS adoption indicator (and controls). T-statistics are based on cluster-robust (Huber-White or Rogers) standard errors, clustering on a firm level. All variables are defined in Appendix A. *, **, and *** stands for the significant levels at 10%, 5%, and 1% (two-tailed), with clustered standard errors, respectively.

Figure 1 Product Market Competition over years 1999 - 2013

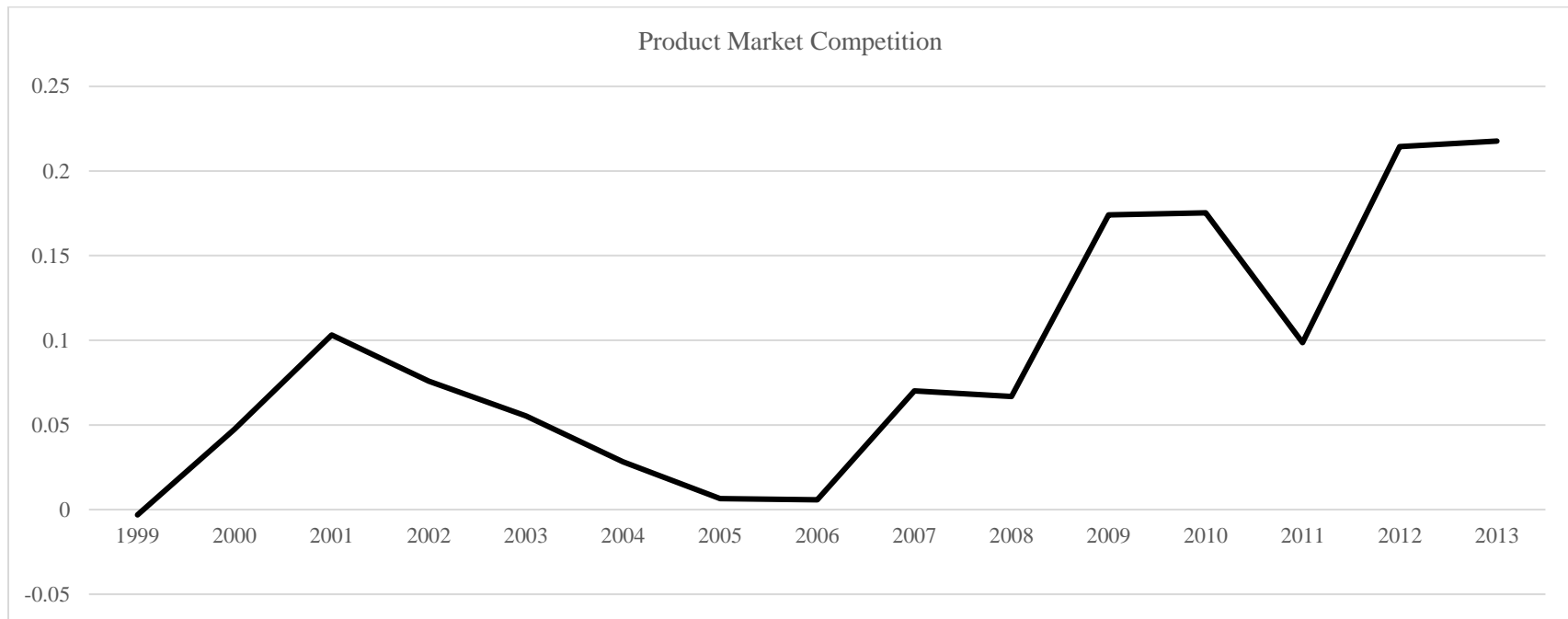


Figure 1 shows European firms' mean product market competition over the years 1999 to 2013. Following Peress (2010) we proxy for a firm's market power using its excess price-cost margin defined as the firm's operating profit margin minus its industry average price-cost margin. A larger (smaller) excess price-cost margin indicates weaker (higher) market competition. We then create an intensity of product market competition measure by multiplying the excess price-cost margin (PCM) by negative one.