Accounting disclosures and stock price efficiency: Evidence from mandatory IFRS adoption

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Abstract: We investigate whether adopting a uniform set of accounting standards impacts stock price efficiency. Using mandatory adoption of International Financial Reporting Standards (IFRS) as an exogenous shock to the accounting information disclosure environment and employing a difference-in-difference research design, we find that the extent to which stock prices deviate from their fundamental values decrease significantly following the adoption of IFRS. In cross-sectional tests, we observe that the impact of IFRS adoption on stock price efficiency is more pronounced in countries with lower accounting quality prior to IFRS adoption and in those with substantial differences between their country-specific Generally Accepted Accounting Principles (GAAP) and IFRS. Overall, our study contributes to the debate on the market efficiency consequences of accounting disclosure within the context of stock markets as a Keynesian beauty contest, where public information is argued to play a commonality role, biasing stock prices away from a consensus fundamental value. Our findings support the view that accounting disclosure enhances stock price efficiency, and that transparency should not be compromised on the grounds of the Keynesian beauty effect.

JEL Codes: G14; G41; D53

Keywords: IFRS adoption; accounting standards; stock price efficiency; Keynesian beauty contest

1. Introduction

The Keynesian beauty contest, an influential metaphor originally proposed by Keynes (1936), suggests that people make decisions based not on their own direct preferences or judgments but on what they believe the average opinion will be.[2] Applying this to stock markets, Keynes observed that the actions of many rational but short-horizon investors are governed by their expectations about what other investors believe, rather than by their own independent analyses and genuine expectations about a firm's fundamental value. This early behavioral finance theory, recently formalized by Allen et al. (2006) and Gao (2008) in the context of accounting disclosures, helps to explain how investors' perceptions of share value can cause irrational stock price fluctuations in supposedly rational markets. In this study, we evaluate the market efficiency consequences of disseminating public information in a stock market characterized by Keynesian beauty contests. Specifically, we provide empirical evidence on whether the mandatory adoption of International Financial Reporting Standards (IFRS) affects stock price efficiency, measured as a stock's price deviation from its fundamental value.

Stock price efficiency is crucial for capital markets as it influences the real economy (Morck et al., 1990), provides signals for economic resource allocation (Wurgler, 2000), and supports firm investments (Baker et al., 2003), particularly when relying on equity financing.[3]

[2] Keynes used the example of a newspaper beauty contest popular at the time, where readers were asked to choose the six most beautiful faces from 100 photographs of women. The winner was not the one who chose the faces they personally found most beautiful, but the one who chose faces closest to the average preference of all participants.

[3] In addition to this financing channel there are other ways in which stock markets can have real economic effects. For example, sufficient stock liquidity in secondary trading supports greater primary financing before a firm goes public (Levine, 1991) and stock prices' aggregate information is relevant to manager investment decisions (Chen et al., 2007).

Financial markets worldwide are becoming more integrated as capital controls are gradually removed and initiatives to foster market integration, such as opening domestic markets to foreign investors, lifting foreign exchange controls, and encouraging international trade and investment through free trade agreements, increase. This financial integration has been shown to reduce firms' cost of capital (Henry, 2000a), boost corporate investment (Henry, 2000b), and stimulate economic growth (Guiso et al., 2004), all of which enhance market efficiency.

A key facilitator of market integration is the global harmonization of accounting standards (Dhaliwal et al., 2019). Harmonized accounting standards promote market integration by enhancing the comparability and transparency of financial information (De George et al., 2016) and improving market liquidity and foreign ownership (Dhaliwal et al., 2019; Gao et al., 2019). However, the evidence on whether adopting IFRS enhances overall stock price efficiency is mixed. Empirical studies indicate that IFRS adoption can either improve or deteriorate the quality of financial reporting (Hail et al., 2010; De George et al., 2016; Gao et al., 2019). Strong theoretical arguments suggest that adopting common standards might lower reporting precision due to the one-size-fits-all issue and by distorting stakeholders' incentives by setting monopolistic standards (Jamal and Sunder, 2014; Sunder, 2002; 2016). Given the economic benefits of financial market integration and the mixed evidence on IFRS's impact on reporting quality, it is important to examine the effect of IFRS adoption on stock price efficiency.

Our inquiry begins by characterizing stock prices in the capital markets as reflecting not only investors' beliefs about corporate fundamentals (i.e. first-order or fundamental beliefs) but also investors' beliefs about the beliefs of other investors about firm fundamentals (i.e., higher-order beliefs). Such markets are referred to as being akin to Keynesian beauty contests in which

stock prices reflect higher-order beliefs (Keynes, 1936).[4] Recent theoretical work on the application of Keynesian beauty contests to the stock market helps us evaluate whether information disclosure and the quality thereof affects stock price efficiency.

On the one hand, having formally conceptualized the Keynesian beauty contest, Allen et al. (2006) propose that investors with short investment horizons are particularly concerned with the beliefs of other investors. A short investment horizon means some investors will sell a stock before its fundamental value is known, making its payoff dependent on how much other investors are willing to pay rather than on their own expectations of the firm's fundamental value (Gao, 2008). In Keynesian beauty contests, Allen et al. (2006) argue, investors tend to overweight public information and underweight private information due to public information's dual role. Public information serves both as a source of information about a stock's fundamental value (information role) and as a common reference point for all investors (coordination or commonality role). This dual nature makes noise in public information particularly problematic. Gao (2008) succinctly describes this issue:

> *"Public information plays an information role because it conveys information about the unknown fundamental value (hereafter, the information role); meanwhile, public information plays a commonality role because it is common to the information sets of all investors (hereafter, the commonality role). Although the noise terms in both the public and private signals enter the individual demands of investors, the independent noise terms in the private signals cancel out when the individual demands are aggregated. But the noise in the public signal remains in the aggregate demand because the individual demands share the same noise term. As a result, the public signal influences the price above and beyond its information value. This additional commonality role of public information biases stock prices away from the consensus fundamental value toward public information."* (Gao 2008, p. 786).

[4] Banerjee et al. (2009) note that the Keynesian Beauty Contest is an apt description of stock markets, whereas stock market phenomena such as momentum and price drift can only arise in settings in which prices reflect higher-order beliefs.

Given the potential effect of noise in public information, a key implication of this argument is that more public information can cause stock prices to stray from their fundamental values, especially if stock markets represent Keynesian beauty contests. Allen et al. (2006) leave numerous questions unanswered, including: How does the quality of public information influence market efficiency? How is the intensity of the dual role of public information linked to its quality? Could the Keynesian beauty contest effect justify withholding certain noisy public information?

On the other hand, Gao (2008) expands on Allen et al. (2006) and demonstrates that a bias in favor of public information always drives stock prices closer to their fundamental value due to an endogenous relationship between public information's coordination and information roles. Specifically, he notes public information's coordination role depends on how informative it is; in other words, when public information is not useful for valuing a firm's stock, investors rely less on it. In extreme cases, Gao (2008) points out that useless public information is neither used nor over-used. Recent empirical studies investigating the impact of information quantity on stock price efficiency confirm this conjecture (Chung et al. 2016; 2019). The implication is that higher quality accounting standards, which increase disclosures and improve reporting precision, enhance market efficiency, even though stock prices reflect higher-order beliefs.

To the best of our knowledge, ours is the first study to empirically evaluate this predicted relationship in a cross-country setting by investigating how the mandatory adoption of IFRS impacts stock price efficiency, defined as how closely a firm's stock price aligns with its fundamental value. Using a difference-in-difference research design, we focus on the mandatory adoption of IFRS as it introduces an external shock to a firm's information environment (De George et al., 2016; Bonetti et al., 2017). Mandatory adoption of IFRS as covered in this study largely occurred in 2005 and involved a number of countries around the world. Previous research

suggests that international accounting standards such as IFRS generally offer higher quality accounting standards compared to domestic standards, including greater firm disclosures and less managerial reporting discretion (Barth et al., 2007; Landsman et al., 2012; De George et al., 2016), as well as an improved information environment from the perspective of financial analysts (Ashbaugh and Pincus, 2001; Byard et al., 2011; Tan et al., 2011).

Our cross-country analysis is based on 58,959 firm-year observations spanning 42 countries over the period from 2003 to 2007. Among these countries, 23 adopted IFRS in 2005 as mandated, while the remaining 19 retained their existing accounting standards. To assess stock price efficiency, we adopt the framework outlined in Boehmer and Kelley (2009), where efficient stock prices are expected to follow a random walk. This implies that stock returns should exhibit zero first-order autocorrelations and equal return variance per unit of time. We compute first-order autocorrelations for daily and weekly returns, and ratios of short-window return variances to long-window return variances scaled by time units. These measures provide insights into the degree to which return autocorrelations approach zero and variance ratios approach one, thus indicating stock price efficiency.

Our study makes several significant contributions to the existing literature. Firstly, we demonstrate that mandatory adoption of IFRS enhances stock price efficiency, a result that remains robust after controlling for various country-specific and firm-specific factors. In cross-sectional analyses we also assess the quality of domestic accounting standards before the adoption of IFRS and find the impact of mandatory adoption on stock price efficiency is more pronounced in countries whose domestic standards typically result in lower earnings quality, and where there is a substantial disparity between local GAAP and IFRS. These findings contribute to the expanding body of research on IFRS, which has examined its influence on financial reporting quality (Barth

et al., 2007), stock liquidity (Daske et al., 2008), cost of capital (Li, 2010), information environment (Byard et al., 2011; Landman et al., 2012), analyst coverage (Tan et al., 2011), foreign investment (DeFond et al., 2011), market integration (Dhaliwal et al., 2019), and investment efficiency (Chen et al., 2013), all of which presume efficient stock markets. Our findings reinforce the argument that adopting IFRS significantly improves the transparency of financial reporting, provides value relevant information, and increased the accuracy with which financial statements reflect underlying economic realities, thereby aligning stock prices more closely with their fundamental values.

Second, our findings contribute to the literature exploring the impact of public information on stock price efficiency. Previous studies suggest that an opaque information environment can lead to inefficient stock prices, and stock returns that tend to move in tandem with industry and market returns rather than reflecting firm-specific information (Jin and Myers, 2006; Hutton et al., 2010). This occurs because investors rely on broad market and industry data when specific firm information is lacking. The theoretical works of Allen et al. (2006) and Gao (2008) suggest that both the availability and quality of public information can impact stock price efficiency in different ways. Our findings align with Gao's theoretical prediction that an increase in the quantity of relevant information enhances stock price efficiency and that, as predicted by Keynes (1936), market perceptions of share value do not necessarily lead to irrational stock price fluctuations when more public information is available.

The remainder of this study is organized as follows. Section 2 describes the related literature and develops our hypothesis. Section 3 describes the data estimation, data sample, and the empirical model. Section 4 reports and discusses the results and section 5 concludes.

2. Related literature and hypothesis

The role of accounting in capital markets has been subjected to considerable scrutiny. Classic early studies, such as Ball and Brown (1968) and Beaver (1968), investigate the relationship between accounting numbers and stock returns to determine whether accounting information prepared according to GAAP is useful to investors. These studies assume capital markets are efficient, and that competition among rational investors ensures new information is quickly reflected in stock prices (Fama, 1965). Ball and Brown (1968) and Beaver (1968) argue that if markets are semi-strong efficient, the behavior of securities prices can serve as a practical test of the usefulness of accounting information. While significant, the aforementioned studies do not evaluate the role of accounting information in the price formation process. Instead, they assume stock prices naturally integrate both accounting and non-accounting information. However, recent studies show the quality and quantity of accounting information impact stock return properties. For example, Hutton et al. (2009) document that lower-quality accounting increases the likelihood of stock price crashes, while Chung et al. (2019, 2016) show the quantity of written disclosures (both numerical and textual) improves the efficiency of information discovery among Canadian and U.S. firms.

Our study investigates how a uniform set of accounting standards influences stock price efficiency. To explore this, we relax the assumption that capital markets are semi-strong efficient and acknowledge that stock prices can deviate from their fundamental values.[5] We empirically evaluate two competing perspectives.

[5] A rich literature to date documents a range of violations of capital market efficiency. Three prominent examples include post-earnings announcement drift (Bernard and Thomas, 1989), the accrual anomaly (Sloan, 1996), and the momentum effect (Jegadeesh and Titman, 1993).

From the first perspective, we examine stock markets through the lens of Keynes' 'beauty contest' analogy. As described by Keynes (1936, p. 156), stock investment decisions are portrayed as follows:

> *"… professional investment may be likened to those newspaper competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. It is not a case of choosing those which, to the best of one's judgement, are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice the fourth, fifth and higher degrees."*

Keynes (1936) argues that investors not only develop beliefs about firm fundamentals but also anticipate the beliefs of other investors regarding those fundamentals, demonstrating their higher-order beliefs.

Allen et al. (2006) develop a formal model to explore the impact of higher-order beliefs on asset prices. They argue that investors with short horizons are sensitive to short-term price fluctuations because their future payoffs depend on other investors' expectations regarding firm share prices. Therefore, Allen et al. (2006) posit that current stock prices reflect not only fundamental values but also the higher-order beliefs of other market participants. More importantly, the authors contend that stock prices often overweight publicly available information as it both provides information and coordinates investors' actions (i.e., playing both information and coordination roles). Furthermore, the authors highlight that while both private and public information may contain noise, the idiosyncratic noise in private information tends to be diluted when aggregated across investors. In contrast, noise in public information signals persists and contributes significantly to forecasting aggregate demand. Consequently, Allen et al. (2006)

suggest that public signal noise tends to push stock prices away from their fundamental values, and this deviation is expected to increase with the volume of publicly available information.

Gao (2008) expands upon Allen et al. (2006) by offering an alternative prediction. He models the quality of public information and the endogenous relationship between public information's dual roles. Specifically, he emphasizes that as public information becomes noisier its commonality diminishes (i.e., investors do not rely on it heavily). Therefore, Gao (2008) argues that higher-quality public information, particularly when it is less noisy, can enhance welfare by alleviating investor uncertainty regarding a firm's fundamental value. This improvement can lead to greater stock price efficiency, even in situations where stock prices already incorporate higher-order beliefs.

To test these explanations, we focus on mandatory adoption of IFRS, arguably the largest reporting regime change in accounting history thus far, to examine whether it reduces the extent to which stock prices deviate from their fundamental values. Whether IFRS adoption increases the quality of publicly available accounting information is itself an empirical issue. Comprehensive reviews by De George et al. (2016) and Leuz and Wysocki (2016) indicate that studies of mandatory IFRS adoption offer, at best, mixed evidence regarding its impact on accounting report quality.[6] This ambiguity partly stems from challenges in measuring disclosure and reporting

[6] For instance, some studies indicate that reporting quality—measured by earnings management, timely loss recognition, and value relevance—improves when firms voluntarily adopt IFRS compared to those using non-U.S. local GAAPs (Barth et al., 2008; Chalmers et al., 2011). Conversely, other research suggests that IFRS adoption can increase earnings management, potentially due to the flexibility of IFRS, which is necessary to accommodate a wide array of heterogeneous reporting practices of various countries (Christensen et al., 2015; Capkun et al., 2016). De George et al. (2016) provide further evidence of the ambiguous nature of the precision of common standards.

outcomes, such as information quality. According to the Conceptual Framework for Financial Reporting issued by the International Accounting Standards Board (IASB, 2018), accounting quality is based on the premise that financial reporting aims to provide information that is relevant and faithfully represents a company's actual financial condition. The framework further outlines four qualitative characteristics—comparability, verifiability, timeliness, and understandability—that should enhance the usefulness of information deemed to be relevant and faithfully represented, and hence its quality.

While the evidence on its impact on reporting quality is mixed, research shows IFRS typically imposes a more comprehensive set of disclosure requirements than domestic accounting standards (Daske et al., 2008). For example, prior studies document that adopting IFRS improves a firm's information environment as evidenced by increased analyst coverage and improved accuracy in analysts' forecasts (Ashbaugh and Pincus, 2001; Byard et al., 2011; Tan et al., 2011), which results in lower bid-ask spreads, transaction costs, and cost of capital (Callahan et al., 1997, Heflin et al., 2005; Li, 2010). The literature on IFRS adoption further provides strong evidence that it leads to an increase in equity ownership by foreign investors (Yu and Wahid, 2014), more cross-border mergers and acquisitions (Francis et al., 2016), and higher levels of foreign direct investment (Gordon et al., 2012), and facilitates firms' cross-listing activities (Chen et al., 2015), reduces information frictions in financial markets, and promotes overall market integration (Dhaliwal et al., 2019).

Lastly, Gao (2019) reconciles some of the results on IFRS adoption by showing that adopting common accounting standards can generate both a precision effect and a network effect. Gao argues that when firms adopt common standards, investors can use their knowledge of these standards to analyze more financial reports. However, the impact of adopting common accounting

standards on the switching firm's value and liquidity remains unclear. As IFRS adoption can lead to higher firm value and liquidity, even if it reduces the switcher's reporting quality, it creates a clearly positive externality for early adopters, enhancing both firm value and liquidity.

Overall, provided that IFRS adoption increases the usefulness of financial information or improves the flow and precision of publicly available accounting information, Gao (2008) anticipates an improvement in stock price efficiency. Higher quality accounting information, however defined, not only reduces investor uncertainty about a stock's fundamental value, but it also endogenously improves accounting information's coordination role. We assess this prediction empirically by investigating the following hypothesis (stated in the alternative form):

H1: Mandatory IFRS adoption improves stock price efficiency.

We recognize the effects of IFRS adoption are not uniform across countries. Where domestic accounting standards closely resemble IFRS, mandatory adoption is expected to have minimal impact on stock price efficiency. Therefore, we also examine heterogeneity in the relationship between IFRS adoption and stock price efficiency through cross-sectional tests.

3. Data, sample and research design

3.1 Data and sample

Our sample selection process begins with all firms listed in the Compustat Global and Compustat North America databases for which data on accounting variables is available, specifically the classification of accounting standards (denoted by data item '*astd*'). We identify 23 countries that initiated mandatory adoption of IFRS in 2005 as our sample of adopting countries.[7] Within these

[7] We restrict the adoption year to 2005 so that we can use the same pre-period (years 2003 to 2004) and post-period (years 2006 to 2007) for all sample firms. We removed Singapore from our sample due to its early mandatory IFRS

23 countries we define companies that did not adopt IFRS until year 2005 as mandatory adopters. Consistent with previous research (DeFond et al., 2011; Dhaliwal et al., 2019), we define mandatory adopters as firms whose astd was 'DS' before 2005 and changed to 'DI' in and after 2005.[8] To form our control sample, we merge the remaining 17 countries covered in Compustat Global with firms from the U.S. and Canada covered in Compustat North America, for a total of 19 countries that did not mandate IFRS adoption during our study period. Firms located in non-adopting countries are classified as non-adopters if their astd remains 'DS' or 'US' (for U.S. firms) throughout our study period.

We obtain daily stock prices from the Compustat Daily Security File to construct measures of stock price efficiency. Our final dataset comprises 8,411 firm-year observations (from 2,224 unique firms) of mandatory adopters from 23 countries that mandated IFRS adoption, and 39,039 firm-year observations (from 10,308 unique firms) from 19 countries that did not adopt IFRS. Table 1 presents the distribution of our test sample of mandatory adopters and the control sample of non-adopters from countries that did not mandate IFRS adoption. Consistent with prior studies (e.g., Byard et al., 2011; Tan et al., 2011; Dhaliwal et al., 2019), mandatory adopters are predominantly from countries in the European Union (EU), with significant concentrations in the United Kingdom (2,204 firm-year observations) and France (1,314 firm-year observations). The

adoption, in 2003. Year 2005 is excluded from our analyses to avoid the potential for confounding effects in the transition year. The post-adoption period ends in 2007 to avoid any potential effects of the financial crisis in 2008.

[8] The abbreviation 'DS' denotes 'Domestic Standards', while 'DI' signifies domestic standards that align with or fully adhere to IFRS. Additionally, we verify the accounting standards classification using the 'IFRS' data item from the DataStream database. Where discrepancies arise between the two databases, we omit the observation from our analysis.

non-adopter sample exhibits substantial variation across countries, with the U.S. (16,891 firm-year observations) comprising approximately one-third of the sample, while Peru has the lowest number of firm-year observations (19).

[Insert Table 1 abut here]

3.2 Measures of stock pricing efficiency

Following Boehmer and Kelley (2009), our assessment of stock price efficiency hinges on deviations from a random walk model. Specifically, we gauge this efficiency through return autocorrelations: in a true random walk scenario, autocorrelations would ideally be zero across all time periods. Any non-zero autocorrelation (positive or negative) represents a deviation from a random walk. We define our first measure of stock price efficiency (*ARDR*) as the absolute values of autocorrelations in daily stock returns multiplied by –1. However, using daily stock returns presents a challenge as not all stocks trade daily and non-synchronous trading can inflate autocorrelation estimates. To address this, we introduce a second measure (*ARWR*), which measures autocorrelations based on weekly stock returns. Compared to ARDR, ARWR is less susceptible to the effects of non-synchronous trading.[9]

The random walk model suggests that stock return variance is additive over time, implying that the ratio of long-term return variance to short-term return variance should be 1. Previous studies, such as those by Barnea (1974) and Lo and MacKinlay (1988), use variance ratios to test the random walk hypothesis. Following Boehmer and Kelley (2009), we use the deviation of variance ratios from 1 as an alternative indicator of stock price inefficiency. Specifically, we

[9] We measure weekly returns from Wednesday to the following Tuesday to avoid the well-documented weekend effect in stock returns (French, 1980).

calculate |1 – VR(1, 5)|, where VR(1, 5) represents the ratio of 1-day return variance to the 5-day average return variance. Our third and fourth measures of stock price efficiency (*RV5D* and *RV5W*) are estimated as (–1) × |1 – VR(1, 5)|, with variances computed from daily and weekly returns, respectively.

The four measures of stock price efficiency are related but each may contain measurement errors. Combining these measures, we construct a single measure of stock price efficiency (*Efficiency*) using principal component analysis (PCA). PCA is widely used in accounting research and is the dominant approach to forming a single measure from metrics with different dimensions (for a detailed discussion, see Allee et al., 2022). To align our measurement of price efficiency with trading activity, we use observations over the 12-month period from the previous to the current fiscal year-end to construct return autocorrelations and variance ratios for each year. We eliminate extreme values in price efficiency measures by truncating the data at the 1% and 99% percentiles of the distribution.

3.3 Regression models

To test whether mandatory IFRS adoption improves stock price efficiency, we take a difference-in-differences approach by estimating the following equation:

$$EFF_{i,t} = \beta_0 + \beta_1 Mand_{i,t} + \beta_2 Post_{i,t} + \beta_3 Mand_{i,t} \times Post_{i,t} + Control_{i,t-1} + \varepsilon_{i,t} \qquad (1)$$

where the dependent variable (*EFF*) is one of the five measures of stock price efficiency (ARDR, ARWR, RV5D, RV5W, and Efficiency) for firm *i* in year *t*. *MAND* is an indicator variable that equals one for firms in countries that mandated IFRS adoption in 2005, and zero for firms in the control group of non-IFRS countries. *POST* is an indicator variable that equals one for observations in the post-mandatory IFRS adoption years (2006 and 2007), and zero for observations in the pre-

adoption period (2003 and 2004). Our variable of interest is the interaction term, *POST* x *MAND*, which captures changes in stock price efficiency due to mandatory IFRS adoption, compared to changes in pricing efficiency in the control group of non-IFRS adopters over the same period. A positive value for β_3 in Equation (1) would indicate that mandatory IFRS adoption improves stock price efficiency.

We control for factors identified in the literature as determinants of stock price efficiency (i.e., Daske et al., 2008; Boehmer and Kelley, 2009; Byard et al., 2011). Specifically, we control for a firm's liquidity and information environment with variables that capture size (*MCAP*), share turnover (*TURN*), loss performance (*LOSS*), return volatility (*VOLAT*), liquidity (*LIQUID*), and analyst coverage (*ANALYST*). Additionally, we account for whether a firm is listed as an American Depositary Receipt (*ADR*) and if it is a constituent of the MSCI country index (*INDEX*). At the country level, we include four variables: Gross Domestic Product (*GDP*), GDP growth (*GDPGR*), the ratio of equity market size to GDP (*SIZE/GDP*), and the sum of a country's imports and exports deflated by GDP (*TRADE/GDP*), which serve as proxies for the size of the national economy and the development of its stock market. All variable definitions are provided in the Appendix. The control variables are measured over year *t*–1 *(TURN, VOLAT, LIQUID)*, or as of the end of year *t*–1 (*SIZE, ANALYST*) to minimize potential endogeneity concerns. To account for systematic variation in price delays across industries we include industry fixed effects in all regressions, with industries defined based on the one-digit Standard Industrial Classification code. We estimate Equation (1) using OLS regressions and cluster standard errors at the firm level.

3.4 Descriptive statistics

Table 2 presents descriptive statistics for the stock price efficiency measures and control variables for the full sample, as well as separate analyses for mandatory IFRS adopters and non-IFRS adopters. While the measures of stock price efficiency differ between mandatory and non-IFRS adopters, these values represent average levels of pricing efficiency for each group over the entire sample period (the differential change in stock price efficiency between the two groups, from the pre- to post-IFRS period, is reported in Table 3). Table 2 also reveals significant differences in firm characteristics between these groups. On average, mandatory adopters are smaller, have lower stock turnover and lower return volatility, are less liquid, and are followed by more analysts compared to non-adopters. These results align with findings in previous studies (e.g., Daske et al., 2008; Byard et al., 2011). At the country level, countries that mandated IFRS adoption tend to be slightly smaller in terms of GDP and have less developed stock markets than non-adopting countries. These differences highlight the importance of a multivariate analysis to control for these variables that could confound our findings.

[Insert Table 2 about here]

4. Results

4.1 Univariate tests

We begin our analysis with a simple univariate test of the mean stock price efficiency measures before and after 2005 for both the test group (mandatory adopters) and the control group (non-adopters). The results in Table 3 indicate that the four individual measures of pricing efficiency differ significantly between the two groups. For example, when measured by ARDR, mandatory adopters show a significant increase in stock price efficiency of 0.016 after 2005, but non-adopters show an increase, of 0.003 that is also significant, suggesting average pricing efficiency for both

types of firms improved over time. When measured by ARWR, there is a small significant increase in pricing efficiency for mandatory adopters while non-adopters experience a significant decline. Using our combined measure, Efficiency, we find a significant increase in pricing efficiency for mandatory adopters (0.095, *t*-statistic = 4.63) and a significant decrease for non-adopters (–0.034, *t*-statistic = –3.26). To assess the impact of mandatory IFRS adoption on stock price efficiency, we compare the changes in pricing efficiency between mandatory adopters and non-adopters as shown in Table 3. The bolded numbers in the bottom right corner highlight this comparison. Across all measures of pricing efficiency, mandatory adopters exhibit a significantly larger increase (or a smaller decrease) compared to non-adopters.

[Insert Table 3 about here]

The results in Table 3 support our hypothesis that compared to non-adopters, the stock prices of mandatory adopters are less likely to be overvalued or undervalued following the adoption of IFRS in 2005. The improvement in stock price efficiency observed for non-adopters may be attributed to institutional differences between the two groups. To account for these and other variables, we conduct a multivariate analysis.

4.2 Main regression results

To evaluate potential multicollinearity among the variables, we present Pearson and Spearman correlations in Table 4. Bold values in Table 4 indicate significance at the 1% level, and as the largest correlation coefficient is 0.481, this suggests multicollinearity is not a concern. The Pearson and Spearman correlations also show that Efficiency is significantly associated with all of its determinants.

[Insert Table 4 about here]

Table 5 displays the results of the multivariate tests. The dependent variable is one of the pricing efficiency measures. For each measure we report results from two specifications: the baseline model without control variables (odd-numbered columns) and the full model with control variables (even-numbered columns). The interaction term, *POST* x *MAND*, which represents the difference in the change in stock price efficiency from the pre- to post-adoption period for mandatory adopters versus non-adopters, is positive and statistically significant across all pricing efficiency measures once we control for its determinants. For the combined measure of stock price efficiency in column 10, the *POST* x *MAND* coefficient is 0.099, which is significant at the 1% level. The signs of all control variables are consistent with their predictions.[10] Overall, the results in Table 5 indicate that mandatory adopters experience a significantly larger increase in stock price efficiency compared to non-adopters. This finding is consistent across all measures of pricing efficiency and holds after controlling for firm-level and country-level characteristics.

[Insert Table 5 about here]

4.3 Cross-sectional tests

Prior studies document that the impact of mandatory IFRS adoption on capital market outcomes varies across countries (e.g., Daske et al., 2008; Landsman et al., 2012; Li, 2010; Tan et al., 2011; Dhaliwal et al., 2019). Theoretically, the effect should be more pronounced in countries where IFRS represents a significant improvement over domestic accounting standards. We examine two contexts where IFRS adoption is likely to significantly enhance financial reporting, and one context based on a country's legal enforcement.

[10] As a sensitivity, we also include country fixed effects and find that our results are robust to controlling for other potential omitted country-level variables not captured by our control variables.

First, we consider the difference between local GAAP and IFRS, expecting a more substantial improvement in stock price efficiency where the gap is larger. For example, in countries such as the U.K., where domestic accounting standards closely resemble IFRS, the impact of mandatory adoption should be less significant, all else being equal. Second, we assess accounting quality under local GAAP before IFRS adoption. Poor accounting quality can reflect lenient standards that allow managers to manipulate numbers to suit various reporting objectives, or standards that do not mandate detailed disclosure. If IFRS improves financial reporting by limiting managerial discretion and requiring stricter disclosure, we expect to find a stronger impact on stock price efficiency in countries where the shift from local GAAP to IFRS leads to a significant improvement in financial reporting quality. Finally, we investigate the influence of legal enforcement on this relationship, anticipating that IFRS will have a stronger impact on stock price efficiency in countries with weaker legal enforcement. This expectation aligns with prior research suggesting that firms are more likely to genuinely adopt IFRS, rather than merely adopting the label, in countries with robust legal systems and enforcement (e.g., DeFond et al., 2011; Daske et al., 2013; Dhaliwal et al., 2019).

We use two methods to measure the difference between local GAAP and IFRS. First, following Bae et al. (2008), we count the differences in accounting treatment between IFRS and local GAAP for 21 items. Firms in countries with differences above the median number are classified as '*Large*', while those with fewer differences are classified as '*Small*'. Second, we use local accounting quality prior to IFRS adoption, measured by the earnings management score from Leuz et al. (2003), as an inverse indicator of accounting quality. We categorize sample firms into '*Low*' and '*High*' groups based on whether the country's negative earnings management score is below or above the median, assuming that the 'Low' group has more room for improvement and

is more affected by IFRS adoption. Lastly, we use the accounting enforcement index from Brown et al. (2014) to measure how strongly a country enforces IFRS and divide the sample of mandatory adopters into countries with below-median legal enforcement (*Weak*) and those with above-median legal enforcement (*Strong*).

In our empirical tests, we estimate the regression of pricing efficiency on POST, a dummy variable indicating observations in the post-IFRS period, along with control variables. The coefficient of POST is intended to capture the magnitude of the effect of IFRS adoption on stock price efficiency. We perform separate regressions for the two groups of countries in each case (i.e., Large and Small, Low and High, Weak and Strong) and compare the POST coefficients across these groups. If the effect of mandatory IFRS adoption on price efficiency depends on the quality of local GAAP and varies with the difference between local GAAP and IFRS, we expect a larger increase in stock price efficiency in countries where IFRS is expected to significantly improve accounting quality.

Table 5 presents the results of this analysis. In Models (1) and (2), we find that POST has a positive and statistically significant coefficient for the group of countries with a large number of differences between their local GAAP standards and IFRS, indicating a significant improvement in price efficiency in these countries. In contrast, the coefficient of POST is negative in countries with a small number of these difference. An F-test shows the difference in the POST coefficients between the two groups of countries is statistically significant at the 1% level. This result aligns with our expectation that the effect of mandatory IFRS adoption on price efficiency is stronger in countries where local GAAP differs considerably from IFRS. In Models (3) and (4), we show that the coefficient on POST is significantly positive and significantly higher for countries with low accounting quality prior to IFRS adoption than for countries with high accounting quality pre-

IFRS adoption. This confirms our expectation that price efficiency improves most in countries where accounting quality was relatively low prior to 2005. Finally, Models (5) and (6) reveal that improvements in stock price efficiency is significant only in countries with comparatively weak legal enforcement, indicated by a significantly positive coefficient on POST for the 'Weak' subset of countries but an insignificant coefficient on POST for the 'Strong' subset.

Overall, the results in Table 5 support our hypothesis, indicating that the effect of mandatory IFRS adoption on stock price efficiency is more pronounced in countries where IFRS represents a significant improvement over local GAAP. This further supports the IASB's aim to "develop, in the public interest, a single set of high-quality, understandable, and enforceable global accounting standards that require high-quality, transparent, and comparable information in financial statements and other financial reporting to help participants in the world's capital markets and other users make economic decisions."[11]

[Insert Table 5 about here]

4.3 Robustness checks

Next, we examine whether the main findings reported in Table 4 are sensitive to two sample choices. First, as shown in Table 1, the sample of non-adopters is dominated by U.S. firms, and U.S. GAAP is arguably of high quality and similar to IFRS. Consequently, the comparison between mandatory adopters and U.S. firms might differ from the comparison between mandatory adopters and other non-U.S. non-adopters. Second, we consider whether the results are influenced by changes in the sample composition over the study period. To address these concerns, we rerun Equation (1) separately for the following groups: firms where the control group of non-adopters

[11] https://www.iasplus.com/en-gb/standards/other/preface

includes only U.S. firms (column 1), firms where the control group of non-adopters excludes U.S. firms (column 2), and firms that are present in the sample in both pre- and post-2005 periods (column 3). Table 5 presents the results of these tests on alternative sample choices.

[Insert Table 6 here]

The results in Table 6 indicate that when compared solely of U.S. firms, the positive and significant coefficient on POST x MAND suggests that mandatory adopters experience a greater improvement in pricing efficiency. The main effect of POST is negative and significant, implying that U.S. firms are worse in terms of pricing efficiency relative to EU countries and other mandatory IFRS adopters.[12] In the second model, after excluding U.S. firms from the non-adopter control sample, we continue to observe a positive and significant coefficient on POST x MAND, indicating a larger increase in stock price efficiency for mandatory adopters than for non-adopters outside of the U.S. The final model presents regression results for a constant sample of firms across the entire study period. Despite reducing our sample size from 47,450 to 43,385 firm-year observations due to this additional filter, our main finding remains robust, as evidenced by the positive and significant POST x MAND coefficient. Overall, the results in Table 6 demonstrate that our conclusion that the greater improvement in stock price efficiency for mandatory adopters compared to non-adopters is not affected by using U.S. or non-U.S. non-adopters as the benchmark and remains robust even with the additional requirement of a constant sample across pre- and post-periods.

[12] Although this argument aligns with several studies (e.g., DeFond et al., 2011; Dhaliwal et al., 2019), we acknowledge that due to limited data coverage in other countries compared to the U.S., median and small firms in the U.S. are more likely to be included in the sample. This could bias the comparison between mandatory adopters and U.S. firms in favor of the former.

5. Conclusion

A growing number of studies characterize stock markets as Keynesian beauty contests, where stock prices reflect not only investor beliefs about firm fundamentals but also their beliefs about the beliefs of other investors regarding firm fundamentals. Simply stated, this view holds that stock prices reflect higher-order investor beliefs. A key implication is that stock prices will overweight public information due to its dual role in providing information and facilitating coordination among investors (Allen et al., 2006). This overweighting of public information can be problematic, as it may push stock prices away from their fundamental values. Does this mean that restricting the flow of public information could improve stock price efficiency? According to this characterization of the stock market, the answer is no. An alternative perspective by Gao (2008) suggests that high-quality public information not only reduces uncertainty about a firm's value but also enhances the coordination role of public information, thereby improving stock price efficiency.

In this study, we empirically assess these perspectives by focusing on the mandatory adoption of IFRS. Compared to domestic accounting standards, IFRS arguably requires greater disclosures and constrains managerial reporting discretion by eliminating the use of alternative accounting treatments. Using a difference-in-differences framework, we compare changes in the stock price efficiency of mandatory IFRS adopters to those of non-IFRS adopters. We find that relative to non-adopters, mandatory IFRS adopter firms experience a significant improvement in stock price efficiency. This result is robust across multiple measures of stock price efficiency. We also find considerable heterogeneity in the relationship between mandatory IFRS adoption and stock price efficiency. Notably, we find the improvement in price efficiency is greater in countries

with a larger gap between IFRS and local GAAP, in countries with lower accounting quality prior to 2005, and in countries with weak legal enforcement. Taken together, this evidence suggests the impact of mandatory IFRS adoption on stock price efficiency is more pronounced when it involves a significant improvement in accounting standards.

Overall, our findings refute the notion that increasing the flow of public information reduces stock price efficiency. Instead, our evidence aligns more with the argument that improved disclosure of more precise information enhances stock price efficiency, as modeled by Gao (2008). Our study contributes to the growing literature on the effects of accounting standards, particularly in relation to mandatory IFRS adoption, and indicates that IFRS significantly improves the transparency of financial reporting, provides value-relevant information, and increases the accuracy with which financial statements reflect underlying economic realities, thereby aligning stock prices more closely with their fundamental values.

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APPENDIX
Variable definitions

Variables	Definition
ARDR	Absolute value of first-order autocorrelation of daily returns, multiplied by (–1).
ARWR	Absolute value of first-order autocorrelation of weekly returns, multiplied by (–1).
RV5D	Absolute value of (1 – ratio of 1-day return variance to 5-day return variance/5), multiplied by (–1).
RV5W	Absolute value of (1 – ratio of 1-week return variance to 5-week return variance/5), multiplied by (–1).
Efficiency	Stock price efficiency combined via principal component analysis (i.e., a combined variable that can explain the most variance of the four individual pricing efficiency measures: ARDR ARWR RV5D and RV5W, following Allee et al., 2022).
MAND	An indicator variable that equals one for mandatory adopters (i.e., firms located in adopting countries that mandated IFRS in 2005), and zero otherwise.
POST	An indicator variable that equals one for years 2006 and 2007 (i.e., after the IFRS adoption in 2005), and zero otherwise.
MCAP	Log of market capitalization at the end of year t–1.
TURN	Share turnover, defined as the average weekly trading volume divided by the total number of shares outstanding in year t–1.
LOSS	An indicator variable that equals one if the firm's earnings before interest and taxes (i.e., EBIT) is negative, and zero otherwise.
VOLAT	Volatility, defined as the standard deviation of weekly stock returns in year t–1.
LIQUID	Liquidity, defined as the daily ratio of absolute stock return to its dollar volume, following Amihud (2002).
ANALYST	Log of the number of analysts following a firm at the end of year t–1.
ADR	An indicator variable that equals one if a firm has an American depositary receipt (ADR), and 0 otherwise.
INDEX	An indicator variable that equals one if a firm is a member of MSCI country index, and 0 otherwise.
GDP	Log of Gross Domestic Product in year t–1.
SIZE/GDP	Ratio of equity market size to GDP.
GDPGR	The annual growth rate (in percentage) of a country's Gross Domestic Product.
TRADE/GDP	The sum of a country's imports and exports, deflated by Gross Domestic Product.

TABLE 1
Sample distribution by countries

IFRS Mandatory Adopters			Non-IFRS Adopters		
Country	Firm-years	Unique firms	Country	Firm-years	Unique firms
Australia	169	44	Argentina	125	33
Austria	19	8	Brazil	310	84
Belgium	199	53	Canada	517	150
Denmark	258	75	Chile	36	9
Finland	341	90	China	1,088	277
France	1,314	345	India	417	123
Germany	354	113	Indonesia	1,511	385
Greece	276	69	Israel	102	26
Hong Kong	23	6	Japan	11,469	3,055
Ireland	97	26	Malaysia	2,126	589
Italy	718	183	Mexico	123	33
Netherlands	358	94	New Zealand	185	48
Norway	300	82	Pakistan	205	54
Portugal	91	26	Peru	19	6
South Africa	525	144	South Korea	3,162	834
Spain	309	79	Thailand	719	203
Sweden	736	190	Turkey	34	17
Switzerland	120	32	United States	16,891	4,382
U.K.	2,204	565			
Total	8,411	2,224	Total	39,039	10,308

Notes: This table reports sample distribution by country. Mandatory adopters are companies that used local accounting standards before 2005 and start mandatory adoption of IFRS in 2005. Non-adopters are companies that followed local accounting standards from 2003 to 2007 in countries that did not mandate IFRS adoption by 2007.

TABLE 2
Descriptive statistics

	Full Sample			Mandatory Adopters			Non-adopters		
Variable	Mean	Median	St. dev.	Mean	Median	St. dev.	Mean	Median	St. dev.
ARDR	–0.104	–0.080	0.087	–0.108	–0.089	0.086	–0.103	–0.079	0.087
ARWR	–0.128	–0.108	0.097	–0.123	–0.102	0.093	–0.130	–0.109	0.097
RV5D	–0.289	–0.171	0.346	–0.276	–0.178	0.314	–0.292	–0.169	0.353
RV5W	–0.433	–0.297	0.431	–0.379	–0.259	0.388	–0.445	–0.307	0.439
Efficiency	–0.019	0.263	1.021	0.033	0.265	0.945	–0.031	0.262	1.037
MCAP	21.020	21.069	3.119	19.617	19.467	2.073	21.322	21.607	3.223
TURN	0.024	0.011	0.039	0.013	0.008	0.015	0.027	0.012	0.042
LOSS	0.218	0.000	0.413	0.159	0.000	0.366	0.231	0.000	0.421
VOLAT	0.062	0.053	0.036	0.046	0.042	0.020	0.066	0.056	0.038
LIQUID	0.028	0.001	0.130	0.045	0.001	0.163	0.025	0.001	0.121
ANALYST	0.760	0.000	0.954	0.999	0.693	0.998	0.709	0.000	0.936
ADR	0.013	0.000	0.114	0.039	0.000	0.193	0.008	0.000	0.087
INDEX	0.488	0.000	0.500	0.526	1.000	0.499	0.479	0.000	0.500
GDP	28.730	29.104	1.446	27.592	28.214	0.989	28.975	29.158	1.411
SIZE/GDP	1.123	1.222	0.392	1.130	1.073	0.551	1.122	1.287	0.349
GDPGR	3.393	2.674	2.132	2.920	2.955	1.294	3.494	2.674	2.259
TRADE/GDP	0.499	0.310	0.424	0.700	0.577	0.300	0.455	0.288	0.434

Notes: This table reports descriptive statistics for sample firms (n = 47,450). Mandatory adopters are companies that used local accounting standards before 2005 and switched to IFRS in 2005 due to the country's mandatory adoption (n = 8,411). Non-adopters are companies that followed local accounting standards from 2003 to 2007 in countries that did not adopt IFRS (n = 39,039). All continuous variables are winsorized at the 1% and 99% levels to mitigate the effect of outliers. All variables are defined in the Appendix.

TABLE 3
Univariate tests

Mandatory adopters	Pre-IFRS period (n = 4,090)	Post-IFRS period (n = 4,321)	Post - Pre	t-value
ARDR	–0.117	–0.100	0.016	8.79***
ARWR	–0.124	–0.122	0.003	1.45***
RV5D	–0.291	–0.262	0.030	4.31***
RV5W	–0.368	–0.389	–0.020	–2.40**
Efficiency	–0.016	0.080	0.095	–4.63***

Non-adopters	Pre-IFRS period (n = 19,226)	Post-IFRS period (n = 19,813)	Post - Pre	
ARDR	–0.104	–0.101	0.003	3.32***
ARWR	–0.128	–0.131	–0.003	–2.94**
RV5D	–0.295	–0.289	0.006	1.54
RV5W	–0.415	–0.475	–0.060	–13.60***
Efficiency	–0.014	–0.048	–0.034	–3.26***

Mandatory adopters vs. non-adopters	Pre-IFRS period		Post-IFRS period		Post - Pre	
ARDR	–0.012	–8.25***	0.001	0.73	**0.014**	**6.46*** **
ARWR	0.004	2.23**	0.009	6.00***	**0.006**	**2.52** **
RV5D	0.004	0.68	0.028	5.26***	**0.024**	**2.89** **
RV5W	0.046	7.00***	0.086	12.50***	**0.040**	**3.86*** **
Efficiency	–0.002	–0.13	0.127	7.94***	**0.130**	**5.28*** **

Notes: This table reports the mean value of each price efficiency measure for mandatory adopters and non-adopters in the pre-IFRS and post-IFRS period. All variables are defined in the Appendix. The comparisons between groups and across time periods are based on t-tests with corresponding t-values. ***, **, * indicate significance at the 1%, 5%, and 10% level, respectively, based on two-tailed p-values.

TABLE 4
Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Efficiency (1)	1.000												
MCAP (2)	**0.257**	1.000											
TURN (3)	**0.135**	**0.132**	1.000										
LOSS (4)	**–0.141**	**–0.381**	**0.097**	1.000									
VOLAT (5)	**–0.154**	**–0.446**	**0.197**	**0.503**	1.000								
LIQUID (6)	**–0.127**	**–0.141**	**–0.087**	**0.055**	**0.134**	1.000							
ANALYST (7)	**0.241**	**0.274**	**0.083**	**-0.210**	**–0.248**	**–0.128**	1.000						
ADR (8)	**0.045**	**0.044**	–0.008	**-0.010**	**–0.027**	**–0.022**	**0.130**	1.000					
INDEX (9)	**0.287**	**0.375**	**0.085**	**-0.210**	**–0.236**	**–0.149**	**0.481**	**0.095**	1.000				
GDP (10)	**0.022**	**–0.153**	**0.047**	**0.127**	**0.221**	–0.001	**0.119**	**–0.017**	**0.053**	1.000			
SIZE/GDP (11)	**–0.023**	**–0.368**	–0.003	**0.104**	**0.094**	**–0.087**	**0.098**	0.006	–0.007	**0.280**	1.000		
GDPGR (12)	**0.060**	**0.045**	**0.041**	**-0.038**	**–0.020**	**–0.044**	**–0.144**	**–0.022**	0.008	**–0.452**	–0.004	1.000	
TRADE/GDP (13)	**–0.065**	**–0.075**	**–0.017**	**-0.047**	**–0.161**	**–0.033**	**–0.080**	**0.014**	**–0.075**	**–0.761**	**0.106**	**0.421**	1.000

Notes: This table displays correlation coefficients. Pearson (Spearman) correlation values are above (below) the diagonal; bold values denote significance at 1%. All variables are defined in the Appendix.

TABLE 4
Multivariate tests

Variables	ARDR		ARDW		RV5D		RV5W		Efficiency	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Constant	–0.131***	–0.407***	–0.138***	–0.283***	–0.469***	–1.620***	–0.506***	–1.082***	–0.420***	–3.738***
	(–22.18)	(–15.99)	(–27.15)	(–11.14)	(–15.49)	(–15.23)	(–19.09)	(–9.72)	(–5.39)	(–12.19)
MAND	–0.012***	0.008***	0.004**	0.015***	0.000	0.100***	0.046***	0.101***	–0.007	0.268***
	(–7.63)	(4.03)	(2.19)	(7.44)	(0.05)	(12.92)	(6.83)	(11.67)	(–0.36)	(11.81)
POST	0.003***	–0.006***	–0.001*	–0.005***	0.019***	–0.037***	–0.037***	–0.078***	0.004	–0.137***
	(4.44)	(–6.06)	(–1.65)	(–4.72)	(6.73)	(–9.86)	(–9.87)	(–16.26)	(0.47)	(–12.66)
POST × MAND	**0.018*** **	**0.013*** **	**0.007*** **	**0.004***	**0.030*** **	**0.015*** **	**0.028*** **	**0.021*** **	**0.152*** **	**0.099*** **
	(9.45)	**(6.46)**	**(3.39)**	**(1.72)**	**(4.22)**	**(2.07)**	**(3.05)**	**(2.22)**	**(7.13)**	**(4.44)**
MCAP		0.005***		0.002***		0.024***		0.008***		0.061***
		(23.68)		(8.59)		(26.72)		(7.34)		(23.14)
TURN		0.287***		0.036***		1.149***		0.215***		2.767***
		(28.03)		(2.86)		(28.53)		(3.74)		(22.44)
LOSS		–0.005***		0.000		–0.023***		–0.018***		–0.059***
		(–4.00)		(0.24)		(–4.45)		(–2.97)		(–4.01)
VOLAT		–0.106***		0.067***		–0.635***		–0.408***		–1.266***
		(–5.43)		(3.55)		(–7.25)		(–4.40)		(–5.29)
LIQUID		–0.035***		–0.015***		–0.169***		–0.103***		–0.460***
		(–8.49)		(–3.69)		(–8.36)		(–5.28)		(–8.56)
ANALYST		0.007***		0.004***		0.025***		0.023***		0.086***
		(15.29)		(6.85)		(14.70)		(9.95)		(15.91)
ADR		–0.001		0.009**		0.006		0.028*		0.052
		(–0.20)		(2.50)		(0.54)		(1.78)		(1.41)
INDEX		0.020***		0.011***		0.084***		0.072***		0.267***
		(20.36)		(10.18)		(21.66)		(15.15)		(22.70)
GDP		0.006***		0.003***		0.020***		0.011***		0.063***
		(7.49)		(3.59)		(6.49)		(3.43)		(6.91)

SIZE/GDP		0.002*		0.006***		0.029***		0.028***		0.082***
		(1.67)		(3.56)		(4.50)		(3.81)		(4.29)
GDPGR		0.003***		0.003***		0.021***		0.024***		0.064***
		(14.43)		(10.71)		(28.69)		(24.04)		(26.96)
TRADE/GDP		–0.003		–0.004*		–0.038***		–0.058***		–0.110***
		(–1.35)		(–1.86)		(–4.13)		(–5.91)		(–4.12)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	47,450	47,450	47,450	47,450	47,450	47,450	47,450	47,450	47,450	47,450
Adjusted R^2	0.010	0.146	0.002	0.020	0.011	0.180	0.006	0.052	0.009	0.156

Notes: This table reports the regression results for each price efficiency measure and a combination of the four measures by using principal factor analysis. All variables are defined in the Appendix. T-stats based on robust firm-cluster adjusted standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively, based on two-tailed p-values.

TABLE 5
Cross-country analysis

	GAAP Difference		Earnings Quality		Legal Enforcement	
	Large	Small	Low	High	Weak	Strong
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Constant	–1.365	–4.024***	0.717	–4.368***	0.491	–2.753***
	(–1.57)	(–5.21)	(0.64)	(–6.14)	(0.35)	(–3.66)
POST (β)	0.122***	–0.071**	0.171***	–0.008	0.305***	–0.029
	(3.07)	(–2.00)	(3.24)	(–0.26)	(3.84)	(–0.97)
Difference in POST	**0.193**		**0.179**		**0.334**	
(Chi-squared)	**(12.06)*** **		**(9.25)*** **		**(16.01)*** **	
Controls	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
N	4,735	3,676	2,109	6,302	1,919	6,492
Adjusted R^2	0.168	0.093	0.206	0.122	0.176	0.134

Notes: The dependent variable is Efficiency. Columns (1) and (2) partition the sample of mandatory adopter countries into countries with above-median difference between local GAAP and IFRS (*Large*) and countries with below-median local GAAP difference from IFRS (*Small*), respectively. Columns (3) and (4) partition the sample of mandatory adopters into countries with below-median earnings quality (*Low*) and countries with above-median earnings quality (*High*), respectively. Country's earnings quality is measured as the negative of earnings management scores from Leuz et al. (2003). Columns (5) and (6) partition the sample of mandatory adopters into countries with below-median legal enforcement (*Weak*) and countries with above-median legal enforcement (*Strong*), respectively. Country's legal enforcement is measured by the accounting enforcement index compiled by Brown et al. (2014), which captures a country's strength in enforcement of IFRS in local markets. T-stats based on robust firm-cluster adjusted standard errors are reported in parentheses. The magnitude of difference in the POST coefficient between two groups are based on F-test (with Chi-squared in parentheses). Controls include the same set of control variables as in Table 4. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

TABLE 6
Robustness tests: Alternative sample choices

	U.S. sample	Non-U.S. sample	Constant sample
Variables	(1)	(2)	(3)
Constant	–4.921***	–1.756***	–2.885***
	(–9.65)	(–6.37)	(–10.76)
MAND	0.205***	0.183***	0.169***
	(5.04)	(7.70)	(7.96)
POST	–0.195***	–0.048***	–0.095***
	(–11.16)	(–3.35)	(–8.85)
POST × MAND	**0.145*** **	**0.100*** **	**0.115*** **
	(5.33)	**(4.24)**	**(5.31)**
Controls	YES	YES	YES
Industry FE	YES	YES	YES
N	25,302	32,130	43,385
Adjusted R^2	0.213	0.119	0.118

Notes: The dependent variable is Efficiency. All variables are defined in the Appendix. The first two columns report the results when the controlling sample is U.S. firms only and non-U.S. non-adopters, respectively. The last column reports the regression results when we require same set of firms appear in both pre- and post-IFRS periods. Controls include the same set of control variables as in Table 4. T-stats based on robust firm-cluster adjusted standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively, based on two-tailed p-values.