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# The Information Content of Stock Prices, Reporting Incentives, and Accounting Standards: International Evidence

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**ABSTRACT**

*In this paper, we investigate the impact of accounting standards on the information content of stock prices using a sample of 44 countries from around the world. Following Morck, Yeung, and Yu (2000), we use stock market synchronicity as a proxy for the information content of stock prices. We find that the adoption of International Financial Reporting Standards or U.S. Generally Accepted Accounting Principles per se is not related to such information content, but that better accounting standards are helpful only in countries with proper reporting incentives. In particular, we find a significantly negative relationship between stock price synchronicity and accounting standards in countries with a common-law legal origin, better shareholder protection, and stricter legal enforcement. Our results also extend Jin and Myers (2006) by allowing corporate transparency to be endogenously determined, at least partially, by reporting standards and incentives. Our findings suggest that a well-functioning capital market requires both high-quality accounting standards and strong legal and enforcement mechanisms.*

***Keywords:*** *Information Content of Stock Prices; Accounting Standards; Reporting Incentives; IFRS; US GAAP*
***JEL Classifications:*** *G14, G15, G38, M41, N20*



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## *1. Introduction*

In this paper, we investigate the impact of accounting standards on the information content of stock prices, particularly the extent to which stock prices incorporate firm-specific information in an accurate and timely manner. We find that the adoption of high-quality accounting standards, such as International Financial Reporting Standards (IFRS) or U.S. Generally Accepted Accounting Principles (GAAP), *per se* is not related to the information content of stock prices. Such accounting standards are helpful only in countries that have proper reporting incentives and are characterized by better shareholder protection, more effective legal systems, and stricter enforcement. Prior studies have demonstrated the importance of reporting incentives in determining the quality of accounting numbers, the level of earnings management, market liquidity, and the cost of equity (e.g., Ball et al., 2000; Ball et al., 2003; Leuz et al., 2003; Burgstahler et al., 2006; and Daske et al., 2008). Our study, therefore, makes an important contribution to this growing body of literature by demonstrating that the adoption of high-quality accounting standards alone without genuine implementation mechanisms is unlikely to be effective in improving the informativeness of stock prices.

In a well-functioning market, stock prices ought to reflect not only economy-wide information but also, and more importantly, firm-specific information. French and Roll (1986) and Roll (1988) find that a significant proportion of stock return variation cannot be explained by market-wide information, thus suggesting the important role played by firm-specific information. The proportion of firm-specific return variation (idiosyncratic volatility) in total return variation therefore measures the level of firm-specific information

that is incorporated in stock prices. A growing body of empirical studies supports the use of firm-specific return variation as a measure of the information content of these prices. Morck et al. (2000) were the first to report that the degree of firm-specific return variation in emerging markets is low, concluding that it is the lack of proper property rights protection in these markets that explains the low level of information content in stock prices. Jin and Myers (2006) confirm their findings, but offer an alternative explanation for this low level of information content. They argue instead that it is due to information asymmetry between corporate insiders and outside investors. Wurgler (2000) reports that capital is more efficiently allocated in countries with more firm-specific information in their stock prices, based on the measure developed by Morck et al. (2000). Studies using U.S. firms also show that a high degree of firm-specific return variation is associated with the more efficient allocation of capital (Durnev et al., 2004; Chen et al., 2007) and with more information about future earnings impounded in the stock prices (Durnev et al., 2003).

The aforementioned theoretical and empirical studies suggest that the availability of accurate and timely firm-specific information via financial reporting is an important determinant of stock price informativeness. To the extent that the quality of such reporting is influenced by accounting standards (see, e.g., Barth et al., 2008; Bartov et al., 2005), the adoption of high-quality reporting standards, such as IFRS, is expected to increase this informativeness. However, as Ball (2001) and Watts and Zimmerman (1986) argue, the quality of accounting information is also dependent on the reporting incentives of managers and auditors. Indeed, there is a growing body of empirical literature that is consistent with the hypothesis that accounting quality is significantly influenced by reporting incentives, which

are often measured by a country's legal origin, level of investor protection, judicial system efficiency, and legal enforcement environment (see, e.g., Ball et al., 2000, 2003; Leuz et al., 2003; Burgstahler et al., 2006).

This paper extends the literature in several important ways. First, the study reported herein is one of the first to examine the impact of the adoption of high-quality accounting standards on the informativeness of stock prices, which, as previously discussed, has significant implications for resource allocation. We therefore aim to shed light on an important question: Do high-quality accounting standards improve the informational efficiency of capital markets, which, in turn, leads to more efficient resource allocation? As Grossman and Stiglitz (1980) argue, market participants spend resources to collect and process information until the marginal benefit of such spending is equal to its marginal cost. Intuitively, the costs involved in obtaining and processing information are inversely related to the availability and quality of information. According to this view, the improved firm-specific information that is due to the application of high-quality accounting standards should lead to an increase in firm-specific return variation, thus resulting in the higher-level information content of stock prices. However, under the market efficiency hypothesis, rational investors are able to decipher masked accounting information, thus rendering differences in accounting quality largely irrelevant.

Our study directly tests these competing hypotheses. Therefore, as a major departure from prior cross-country, market-based studies of accounting standards, we do not need to assume a similar degree of stock market efficiency across countries. A popular way to assess the impact of accounting standards in the extant literature is to focus on the value relevance

of IFRS/U.S. GAAP accounting numbers relative to local GAAP numbers in a cross-country setting (e.g., Burgstahler et al., 2006; Barth et al., 2008). However, the differences documented in these cross-country value relevance studies are partly due to the differences in how effectively each country's stock market incorporates accounting information. Indeed, the findings reported by Morck et al. (2000) and Jin and Myers (2006) illustrate that stock markets around the world are not equally effective in incorporating firm-specific information. This study is most directly related to those of Leuz and Verrecchia (2000) and Daske et al. (2007, 2008), who examine the stock market effects of accounting standards, as proxied by market liquidity, the cost of equity, and firm valuation.[1]

Furthermore, our analyses include explicit measures of accounting standards, reporting incentives, and their interaction terms to capture the interplay between the two. In the extant literature, in contrast, many cross-country studies that examine the impact of accounting standards, such as those of Ashbaugh and Pincus (2001) and Barth et al. (2008), do not explicitly control for potential differences in reporting incentives, whereas cross-country studies on these incentives, such as those of Ball et al. (2000, 2003), Leuz et al. (2003), and Burgstahler et al. (2006), fail to explicitly take into account the differences in accounting standards among their sample countries. As the adoption of IFRS is often accompanied by other institutional developments that could alter reporting incentives (Daske et al., 2008), it is not clear that the findings of these prior studies can be attributed to high-quality accounting standards or proper reporting incentives, or to both. By simultaneously including accounting

[1]However, these studies also implicitly rely on the premise that the markets in different countries are equally effective in processing firm-specific information in their comparisons of the differences in the cost of capital or firm valuation.

standards, reporting incentives, and their interactions, we hope to identify any incremental effect of accounting standards beyond that of reporting incentives, which allows us to more clearly ascertain the effect of each.

This paper also extends the analysis in Jin and Myers (2006), who document a negative relationship between the level of stock price informativeness and that of corporate transparency. As acknowledged by these authors (Jin and Myers, 2006, p. 262), their study takes a country's level of transparency, and thus the quality of financial reporting, as exogenous. However, Bushman et al. (2004) show that corporate transparency is related to reporting incentives, as measured by a country's level of investor protection and its political structure. To the extent that such transparency is affected by financial reporting standards and incentives, we allow it to be determined endogenously, at least partially, in our models. Our results show that, once these standards and incentives are considered, most of the transparency measures used in Jin and Myers (2006) lose their statistical power, which is consistent with the arguments made in Bushman et al. (2004). We thus provide supportive evidence for the view that corporate transparency may be a product of high-quality reporting standards and proper reporting incentives.[2]

Finally, our study uses a comprehensive sample of more than 200,000 firm-year observations in 44 countries between 1995 and 2004, which is a much larger sample size and longer sample time period than those adopted in prior studies. One key advantage of such a broad sample is that the results produced and conclusions drawn are likely to be more

[2]Of course, corporate transparency does not depend on financial reporting alone. Other types of disclosure, such as corporate announcements, analyst communications, and management forecasts, can also improve it. However, countries with higher-quality financial reporting are also likely to be those that have a better level of non-financial disclosure (Ball, 2001).

representative. Second, our sample allows us to capture differences across countries and over time within a country. This is important, given that countries around the world exhibit a wide range of institutional characteristics (La Porta et al., 1998) and that the IFRS adoption rate has increased over time (Deloitte Touche Tohmatsu, 2002, 2003, 2005). Similarly, our models are flexible enough to deal with improvements in the quality of IFRS or U.S. GAAP over the years.

Following Morck et al. (2000) and Jin and Myers (2006), we use the average $R^2$ from the market model regressions in a country-year to measure the information content of stock prices. We first measure the accounting standards followed in a country-year by the fraction of firms using IFRS or U.S. GAAP as their reporting standards using data obtained from Worldscope. Our second accounting standards measure is based on the usage of IFRS by listed firms around the world at the *country* level, using data obtained from the various issues of the IFRS *Plus Update Newsletter* published by Deloitte Touche Tohmatsu (2002, 2003, 2005). As an additional robustness check, we also modify the measure developed by Bae, Tan, and Welker (2008) to capture the differences between local GAAP and IFRS/U.S. GAAP. A low score on this measure indicates higher-quality accounting standards.

Our measures of reporting incentives are based on the various institutional variables developed in La Porta et al. (1998), which have been extensively used in accounting and finance research. Such recent studies as those of Ball et al. (2000, 2003), Hung (2001), Leuz et al. (2003), and Burgstahler et al. (2006), in particular, have identified the following set of institutional characteristics as important in explaining reporting incentives: a) the index of anti-director rights, which is a proxy for minority shareholders' protection against

expropriation by corporate insiders and majority shareholders; b) legal origin, as measured by a dichotomous variable indicating whether a country's laws originated from the common-law or code-law tradition; and c) the level of legal enforcement, measured by a country's judicial efficiency, rule of law, and government corruption. The findings of these prior studies suggest that these variables are important determinants of the actual implementation of accounting standards. As many of the variables are highly correlated, our base-case results and inferences are drawn using the first two measures (the anti-director rights index and legal origin). Qualitatively, we obtain the same results when we use factor analysis that encompasses all of the key institutional variables in La Porta et al. (1998).

Using a large panel sample of more than 200,000 firm-year observations from 44 countries over the 1995-2004 period,[3] we first find that the information content of stock prices is negatively associated with accounting standards, thus indicating that higher-quality accounting standards improve the functioning of stock markets. However, when we include measures of reporting incentives and their interaction term with accounting standards, we find that this negative relationship is significant only in countries with solid institutional development that promotes the genuine application of such high-quality standards. Our results are robust to the alternative measures of accounting standards and reporting incentives, as well as to alternative sample periods and alternative sample countries. Finally, extending Jin and Myers' (2006) findings that the information content of stock prices is positively related to corporate transparency, we perform analyses to show that once accounting

[3]The end year is chosen to be 2004, partly because the use of IFRS was made mandatory for listed firms in the European Union as of January 1, 2005. We repeat our analyses with EU countries removed from the sample and find that this makes no material impact on our conclusions.

standards and reporting incentives are considered, such transparency is no longer statistically significant. Our results therefore suggest that one important channel for improving corporate transparency is the institution of high-quality accounting standards and an effective legal enforcement environment.

The rest of this paper is organized as follows. Section 2 describes the data and methodology. Section 3 presents our empirical results, and Section 4 concludes.

## *2. Data & Methodology*

### *2.1 Stock Price Synchronicity*

We follow Morck et al. (2000) and Jin and Myers (2006) and run the following expanded market model, which includes industry returns for every firm to obtain the average $R^2$ for a country in each year.

$$r_{i,k,j,t} = \alpha_j + \beta_{1,j} r_{j,m,t} + \beta_{2,US}[r_{US,t} + e_{j,US,t}] + \beta_{3,j} r_{j,k,t} + \varepsilon_{i,k,j,t}, \qquad (1)$$

where $r_{i,k,j,t}$ is stock i's return in week t (stock return on every Wednesday) of industry k in country j, $r_{j,m,t}$ is the weekly domestic market index return in country j in week t, $r_{US,t}$ is the weekly U.S. market return in week t, and the expression $[r_{US,t} + e_{j,US,t}]$ translates U.S. stock market returns into local currency returns. Currency-adjusted U.S. market returns are included because most economies are at least partially open to foreign capital or foreign trade, and their firms are influenced by the U.S. equity market. For stock markets in the Far East,

including those in mainland China, Hong Kong, India, Indonesia, Japan, Malaysia, Pakistan, the Philippines, Singapore, South Korea, Sri Lanka, and Thailand, U.S. market returns are lagged by one day to account for time zone differences. When we run equation (1) for the U.S., we set $\beta_{2,US}$ to zero. This market model is expanded to include either market-capitalization weighted or equally weighted industry returns. Datastream's industry classifications are used to compute the industry returns.

The weekly stock return data begin with all of the companies in 48 countries covered by Datastream from January 4, 1995, to December 29, 2004. The returns are calculated every Wednesday. Following Morck et al. (2000), we retain a firm only if it has more than 30 weeks of valid data in a year, so as to yield a relatively sufficient number of observations to reliably assess the explanatory power of the market and industry returns on each stock. Weekly returns that exceed 25% in absolute value are also removed to avoid coding errors. Finally, a country with fewer than 10 firms in a particular year is dropped from the sample for that year.

The regression statistic for equation (1), $R^2_{i,j}$, measures the percent of the variation in the weekly returns of stock i in country j as explained by variations in country j's market returns, U.S. market returns, and industry returns. Following Morck et al. (2000), we define

$$R^2_j = \frac{\sum_i R^2_{ij} \times SST_{i,j}}{\sum_i SST_{i,j}} \qquad (2)$$

as country j's overall stock price synchronicity measure. In equation (2), $SST_{i,j}$ is the sum of the squared total variation for stock i in country j. A higher $R^2_j$ suggests that stock prices

in country j move in the same direction more frequently.

The stock price synchronicity measure, $R_j^2$, is unsuitable as the dependent variable in a regression model because it is bounded within the intervals [0, 1]. We therefore adopt a standard econometric remedy and apply logistic transformations to the variable, as follows.

$$\Psi_j = \ln\left(\frac{R_j^2}{1-R_j^2}\right).$$

$\Psi_j$ maps $R_j^2$ from the unit interval to a set of real numbers with a theoretical range from negative to positive infinity, which is more suitable for regression analysis. The foregoing transformation is applied to each of our two $R^2$ measures, one with value-weighted industry returns and the other with equally weighted industry returns added to the market model. For ease of exposition, we hereafter refer to the two $R^2$s and two $\Psi_j$s as $VWR^2$ and $EWR^2$ and $VW\Psi_j$ and $EW\Psi_j$, respectively.

### *2.2 Accounting Standards*

We first measure the accounting standards followed in a country based on the firm-level data in Worldscope. The data item "accounting standards followed" in this database identifies the type of standards used by each firm in each year. To ensure the reliability of the measure, countries with fewer than 10 firms in each year are removed. This Worldscope data item has the following original coding to indicate the accounting standards followed by a firm.

01 = Local Standards

02 = International Accounting Standards (IAS)

03 = U.S. Standards (U.S. GAAP)

04 = Commonwealth Countries Standards

05 = European Union Standards

06 = International Standards and Some EU Guidelines

07 = Specific Standards Set by the Group

08 = Local Standards with EU and IASB Guidelines

09 = Not Disclosed

10 = Local Standards with Some EU Guidelines

11 = Local Standards – Inconsistency Problems

12 = International Standards – Inconsistency Problems

13 = U.S. Standards – Inconsistency Problems

14 = Commonwealth Standards – Inconsistency Problems

15 = EEC Standards – Inconsistency Problems

16 = International Standards and Some EU Guidelines – Inconsistency Problems

17 = Local Standards with Some OECD Guidelines

18 = Local Standards with Some IASC Guidelines

19 = Local Standards with OECD and IASC Guidelines

20 = U.S. GAAP Reclassified from Local Standard

21 = Local Standards with Certain Reclassification for Foreign Companies

22 = Other

23 = International Financial Reporting Standards

Using the classification scheme in Daske et al. (2007), our first accounting standards variable, ASF, takes the value of one for full or partial adoption of IFRS or U.S. GAAP (categories 02, 03, 06, 08, 12, 13, 16, 18, 19, 20, and 23 as indicated above) and the value of zero for all other categories for each firm-year.[4] The firm-year values of the ASF variable are then averaged across all firms in a country for each year, which essentially measures the *proportion of firms* that adopt IFRS or U.S. GAAP as their reporting standards in that country-year. A key advantage of using the Worldscope database is that it allows us to construct a very large cross-country sample. In the end, when matched with available stock price synchronicity measures, we are able to determine the accounting standards followed by a panel of 208,939 firm-years from 44 countries around the world. When we average these accounting standards over all firms in a country in each year, we end up with 425 country-year observations for our first measure of accounting standards, which is labeled as ASF.

Although this database allows us to construct a very comprehensive sample, the ASF variable is subject to potential data coding errors and requires judgment in classifying the various accounting standards followed (see Daske et al. [2007] for a detailed discussion). We therefore construct another accounting standards measure that is based on the usage of IFRS by the listed firms in each country, as reported in various issues of the *IAS Plus Update Newsletter* published by Deloitte Touche Tohmatsu (2002, 2003, 2005). These newsletters provide information on the use of IFRS by listed firms at the *country* level. For each of the three years with available data, such usage by country i in year t ($IFRS_{i,t}$) is defined as

[4]IFRS and U.S. GAAP are often regarded as high-quality standards, with previous studies proposing that the two are of comparable quality (e.g., Harris and Muller, 1999; Leuz, 2003; Barth et al., 2006).

follows.

$IFRS_{i,t}$ = 0 if IFRS is not permitted in country i in year t;

= 1 if IFRS is permitted in country i in year t;

= 2 if IFRS is permitted and required for some domestic listed companies in country i in year t; and

= 3 if IFRS is permitted and required for all domestic listed companies in country i in year t.

We use the country average of this score over three years, labeled IFRS, as our second measure of accounting standards. We realize that there are also certain limitations to this variable. First, the IFRS score assigned in the foregoing manner represents a "wholesale" type of adoption at the country level, without recognizing the potential differences that may exist among individual firms in terms of their incentives to adopt IFRS. Second, the use of IFRS was made mandatory for firms in the European Union (EU) as of January 1, 2005, which affects a large sample of the countries in our study. We therefore repeat our analyses after removing EU countries. Finally, this variable is based on three recent years of data, and hence may not reflect IFRS usage throughout the entire sample period. Therefore, our results reached using the IFRS variable should also be interpreted with caution.

Finally, in our sensitivity tests, we employ another measure of accounting standards, which was developed by Bae, Tan, and Welker (2008) and measures how each country's local GAAP differ from IFRS on 21 key accounting items, based on a 2001 survey conducted by the International Forum of Accounting Development (IFAD, 2001). We modify their score by also including the differences between local GAAP and U.S. GAAP (see Panel B of Table 1 in Bae et al. [2008]). In particular, for each of the 21 accounting items, countries that do not

conform to either IFRS or U.S. GAAP receive a score of one; those that conform to either IFRS or U.S. GAAP receive a score of zero on that item. Higher scores therefore represent greater difference. For consistency with our two other measures of accounting standards, we follow Bae et al. (2008) by multiplying minus one (-1) with the natural logarithm of the score, which means that a higher value represents better accounting standards.

### *2.3 Reporting Incentives*

Watts and Zimmerman (1986) and Ball (2001) argue that, in addition to the accounting standards used, the quality of financial statements is critically dependent on the reporting incentives of managers and auditors. In other words, the actual implementation of high-quality accounting standards requires proper reporting incentives that are influenced by a host of other economic institutions. For example, demand for financial reporting and disclosure is, in general, greater in countries whose economic activities rely more on arm's-length contracts than on relationship-based contracts. Given the more significant role played by the former type of contracts in common-law countries, it is not surprising that financial reporting is more developed in such common-law countries as the U.S. and the U.K. (Ball, 2001). Indeed, consistent with the foregoing theoretical arguments, a growing body of literature has identified a few institutional variables that affect a country's reporting incentives. For example, Ball et al. (2000) show that reporting quality, as measured by the timely recognition of economic income (particularly losses), is higher in common-law countries than in code-law countries. Although the accounting standards in Hong Kong, Malaysia, Singapore, and Thailand are derived from those of common-law countries, Ball et al. (2003) find that accounting quality in these four countries is no different from that in

code-law countries, because, they argue, contracting in this region is primarily relationship- rather than arm's length-based. Hung (2001) finds that the use of accrual accounting (versus cash accounting) reduces the value relevance of financial statements only in countries with weaker shareholder protection, as measured by the anti-director rights index reported in La Porta et al. (1998). Similarly, in a sample of 31 countries, Leuz et al. (2003) provide evidence that earnings management is negatively related to shareholder protection and legal enforcement. Bushmen et al. (2004) find that corporate transparency varies with a country's legal origin and level of judicial efficiency. Daske et al. (2008) report that the capital market benefits of adopting IFRS, such as increased liquidity or the reduced cost of capital, occur only in countries with a stricter legal enforcement environment.

The pioneering work of La Porta et al. (1998) provides a rich set of institutional infrastructure development measures for a large sample of countries around the world. However, many of their institutional variables are highly correlated with one another and hence cannot be entered into a regression model simultaneously. Based on the findings of the previously discussed literature, we first present our base-case results using two proxies for reporting incentives: a country's legal origin (common versus civil law) and anti-director rights index. As a sensitivity test of our results, however, we perform factor analysis of all of the following institutional variables from La Porta et al. (1998): legal origin, the anti-director rights index, efficiency of the judicial system, assessment of the rule of law, and the government corruption index. The significant factors resulting from this analysis can be viewed as encompassing factors that capture the overall impact of institutional development, as reported in La Porta et al. (1998). We also discuss these results using the significant

factors identified from factor analysis.

As most of these institutional variables are taken from La Porta et al. (1998), who describe them in more detail, here we briefly define only the two variables we use for our base-case results.

*Shareholder Protection* – The anti-director rights index in La Porta et al. (1998), which ranges from zero to six, measures the ease with which shareholders exercise their voting rights and other legal rights such as suing directors and calling special shareholder meetings. This variable has been found to be important in explaining the value relevance of accounting information (Hung, 2001) and earnings management (Leuz et al., 2003; Burgstahler et al., 2006).

*Legal Origin* – A country's legal system is classified as common-law or civil-law by La Porta et al. (1998). Ball et al. (2000), Hung (2001), and Burgstahler et al. (2006) find this variable to be significantly related to the quality of accounting information.

### *2.4 Control Variables*

Morck et al. (2000) and Jin and Myers (2006) identify several variables that may affect a country's stock price synchronicity, and we thus include them in our regression models as control variables. These variables can be described as follows. 1) On average, countries with higher per capita GDP have lower $R^2$s, and thus our first control variable is the logarithm of per capita GDP. 2) By construction, the average $R^2$ in a country decreases with the number of stocks listed. Intuitively, in a market with few stocks, each individual stock is a more important part of the market index. Therefore, a higher $R^2$ may simply reflect the fact that the market has fewer listed stocks. To control for this effect, we include the logarithm of the

number of stocks listed in each country in our analysis. 3) Macroeconomic instability may be greater in low-income countries and result in more volatile market fundamentals that may overwhelm firm-specific factors, thus leading stock prices to move together. Such instability is measured by the variance in the per capita GDP growth rates of each country. 4) Country size may limit the economic diversity of the firms in the country, and small countries may have a more homogeneous population that shares a common value system. This lack of diversity, or common opinions and a common interpretation of information, may cause stock prices to move together. Country size is thus measured by the logarithm of a country's population. 5) Finally, listed firms in some countries may be concentrated in a few industries. Consequently, the fundamentals of these firms may be highly correlated and their stock price movements highly synchronous. We therefore construct an industry sales-based Herfindahl index that measures a country's industry concentration.

### *2.5 Regression framework*

We begin our analysis by first adding only an accounting standards variable, ASF or IFRS, to the set of control variables discussed in the previous section. This specification allows us to estimate the impact of accounting standards alone on stock price synchronicity. To examine the impact of both these standards and reporting incentives, we include in our regression models an accounting standards variable, an institutional variable, and an interaction term between the two. Correspondingly, these regression models take the following forms.

$$\Psi_{j,t} = \alpha_1 + \beta_1 X_{j,t} + \beta_2 LNUM_{j,t} + \beta_3 LPOP_{j,t} + \beta_4 VGDPG_{j,t} + \beta_5 LGDPPC_{j,t} + \beta_6 HERFINDAHL_{j,t} + \varepsilon_{j,t} \quad (3)$$

and

$$\Psi_{j,t} = \alpha_1 + \beta_1 X_{j,t} + \beta_2 X_{j,t} \times Y_{j,t} + \beta_3 Y_{j,t} + \beta_4 LNUM_{j,t} + \beta_5 LPOP_{j,t} + \beta_6 VGDPG_{j,t} + \beta_7 LGDPPC_{j,t} + \beta_8 HERFINDAHL_{j,t} + \varepsilon_{j,t}, \quad (4)$$

where

$\Psi_{j,t}$ = the logistic transformation of $R^2$;

$X_{j,t}$ = one of the two accounting standards measures, ASF or IFRS;

$Y_{j,t}$ = one of the reporting incentives measures, Legal Origin or Shareholder Protection;

$X_{j,t} \times Y_{j,t}$ = the interaction term of an accounting standards measure and a reporting incentives measure;

$LNUM_{j,t}$ = the logarithm of the number of listed firms in a country;

$LPOP_{j,t}$ = the logarithm of a county's total population;

$VGDPG_{j,t}$ =the variance in a country's GDP growth rates between 1995 and 2004;

$LGDPPC_{j,t}$ = the logarithm of a country's GDP per capita; and

$HERFINDAHL_{j,t}$ = the industry Herfindahl index for a country.

Our objective is to assess the significance of the coefficients for the accounting standards variable (X) and its interaction term with the reporting incentives variable (X*Y). A negative coefficient for the former indicates that better accounting standards reduce stock price synchronicity, and a negative coefficient for the latter suggests that proper reporting incentives, coupled with high-quality accounting standards, further reduce stock price synchronicity. Our base sample covers 44 countries for the 1995-2004 period, with 425 country-year observations, thus resulting in an unbalanced panel. Following Jin and Myers (2006), Gompers et al. (2003), and Core et al. (2006), we fit all of our regression models using the Fama-MacBeth (1973) method. To ensure that our inferences are unaffected by

potential serial correlation in the year-by-year regression coefficients, we follow Jin and Myers (2006) and use the Pontiff (1996) adjustment procedure in our computation of the standard errors of the Fama-MacBeth coefficients. This adjustment makes intuitive sense, as the presence of a country effect may cause the yearly coefficient estimates to be serially correlated. In addition, following Core et al. (2006), we also compute t-statistics based on the standard errors of the yearly coefficients after adjusting for serial correlation using the Newey and West (1987) procedure. The Newey-West (1987) adjusted t-statistics are essentially the same as those that are adjusted using the Pontiff procedure. For brevity, we therefore report only our findings and inferences based on the Pontiff-adjustment procedure. One logical alternative to the Fama-MacBeth method would be a panel setup with fixed-country effects. However, in our case, such fixed-country effects modeling would not work because the country-level institutional variables from La Porta et al. (1998) are time-invariant, and thus the country-specific dummies would be perfectly correlated with them.[5]

## *3. Empirical Results*

### *3.1. Base Sample*

Table 1 presents the summary statistics for our key variables: the two stock price synchronicity measures, $VWR^2$ and $EWR^2$, and the two accounting standards measures, ASF

[5]We also run our regressions using the Petersen (2009) clustering procedure and obtain similar results to those reached using the Fama-MacBeth method, although the statistical significance of most of our variables of interest is generally weaker than that reported here.

and IFRS. Consistent with the results of Morck et al. (2000) and Jin and Myers (2006), stock price synchronicity, as measured by $VWR^2$ or $EWR^2$, is generally higher in low-income countries than it is in high-income countries. The five highest $VWR^2$s are for the Russian Federation, Argentina, China, Turkey, and Malaysia, whereas the five lowest are for Canada, Australia, the United States, Belgium, and the United Kingdom. We obtain similar rankings if we use $EWR^2$s: the five highest $EWR^2$s are for China, Malaysia, the Russian Federation, Turkey, and Greece, and the five lowest are for Canada, the United States, Australia, the United Kingdom, and Ireland.

[Insert Table 1 about here]

In terms of accounting standards, as measured by ASF, about 41.04% of the 208,939 firm-years in our sample adopted IFRS or U.S. GAAP. However, when U.S. firms are excluded, IFRS/U.S. GAAP are adopted by only 6.17% of the 132,539 non-U.S. firm-years. Apart from the U.S., where all listed firms are required to adopt U.S. GAAP, the five countries with the highest ASF values are Luxembourg, Switzerland, the Russian Federation, Austria, and Israel. With regard to our second accounting standards measure, IFRS (which is average IFRS usage in 2002, 2003, and 2005), the use of these standards is not allowed in 17 countries (with a score of 0),[6] is permitted for domestically listed firms in 14 countries (with a score of 1), is required for some domestically listed firms in 11 countries (with a score less

[6]The use of IFRS was not allowed for U.S. domestic firms during the sample period. However, IFRS and U.S. GAAP are both classified as high-quality accounting standards in our study, and hence the U.S. is given a score of 3 for this purpose.

than 3, but greater than 1), and is somewhere between not allowed and permitted in two countries (with a score between 0 and 1).

Table 2 displays the Pearson correlation coefficients matrix for the key variables in our study. The expanded market model $R^2$s ($VWR^2$ and $EWR^2$) are each significantly negatively related to each of the two accounting standards measures (two at the 1% level, one at the 5% level, and one at the 10% level), thus suggesting that higher accounting standards are negatively associated with stock price synchronicity. Therefore, on the univariate basis, higher accounting standards are indeed associated with more informative stock prices. This finding is consistent with prior evidence on the benefits of adopting higher accounting standards, such as that presented by Ashbaugh and Pincus (2001), who find that analyst forecast errors are smaller among firms that use IFRS than among those that use domestic GAAP, and Barth et al. (2006), who find that, relative to firms that apply domestic GAAP, those that apply IFRS have less earnings management, a more timely recognition of losses, greater value relevance of accounting measures, and a lower cost of capital. However, as previously discussed, before making any inferences, we need to consider other factors, such as reporting incentives.

[Insert Table 2 about here]

Although our measures of accounting standards are derived from two totally independent sources, they have a correlation coefficient of 0.512, with a p-value of less than 0.0001. This relatively high, significant correlation may reduce concerns over the potential measurement

errors associated with each of these two measures. If we could obtain similar results using both, then our inferences and conclusions would be more robust.

Consistent with Morck et al. (2000) and Jin and Myers (2006), the correlation matrix in Table 2 also shows $R^2$s that are each significantly negatively associated with each of the institutional variables. In general, stock prices are more informative in countries with better institutional development, as measured by Legal Origin and Shareholder Protection, each of which is statistically significant, with a p-value of less than 0.0001. The $R^2$s are also significantly negatively correlated with GDP per capita, thus suggesting that there is greater stock price synchronicity in lower-income countries. Finally, and again consistent with Morck et al. (2000) and Jin and Myers (2006), the $R^2$s are significantly correlated with most of the control variables in the predicted fashion.

We begin our multivariate analysis of the panel of 44 countries between 1995 and 2004 by regressing the logistically transformed values of the annual country-average $R^2$s ($VW\Psi_j$ or $EW\Psi_j$) on one accounting standards measure at a time and the set of control variables, as specified in equation (3). The regression estimates and their t-statistics are reported in Table 3, with the first and last two columns displaying the results of these standards measured by ASF and IFRS, respectively. As can be seen, each of the accounting standards measures is significantly negatively related to the stock price synchronicity measure in each of the four regression models, thus suggesting that better accounting standards are associated with lower $R^2$s even with all of the control variables included in the models. In general, the models that use $VW\Psi_j$ as the dependent variable have higher adjusted $R^2$s, which indicates a better fit with the independent variables than is the case with $EW\Psi_j$.

[Insert Table 3 about here]

We next analyze whether the effect of the previously documented accounting standards differs when a country's reporting incentives are taken into account. As specified in equation (4), our models allow us to determine both the main and interaction effects of high-quality accounting standards and reporting incentives. In essence, we estimate separate slope coefficients for the effect of accounting standards in weak and strong institutional environments. More specifically, the coefficient of the accounting standards variable represents its effect in countries with poor reporting incentives, and the coefficient of the interaction term shows the incremental effect of moving from an environment with poor incentives to one with proper incentives. Therefore, the sum of the two coefficients ($\beta_1+\beta_2$) represents the effect of accounting standards in countries with proper reporting incentives.

[Insert Table 4 about here]

Table 4 presents a series of regressions used to test the incremental effect of reporting incentives using ASF as the proxy for accounting standards. The main effect of these standards is now statistically insignificant. This suggests that, once reporting incentives are considered, high-quality accounting standards are no longer significantly associated with a lower degree of stock price synchronicity. We find that the main effect of reporting incentives is always negative (significant at the 5% level) when it is proxied by Legal Origin, thus suggesting that a solid institutional infrastructure is generally associated with a lower degree

of stock market synchronicity. Our results are consistent with those of Morck et al. (2000) and Jin and Myers (2006). More importantly, however, our focus is on the interaction term in the regression models, which is significantly negative in all of our specifications. In addition, the magnitude of the coefficient on this term is much larger than that of the coefficient on ASF, which suggests that the effect of high-quality accounting standards is much greater in countries with stronger reporting incentives (those with a common law origin and a high anti-director rights index).

We also conduct a formal test for the significance of the sum of the coefficients of ASF and ASF*Incentives ($\beta_1+\beta_2$), which measures the magnitude of the coefficient on ASF in countries of common-law origin or those with an anti-director rights index that is higher than the sample median. As reported in the last row of Table 4, the sum of these coefficients is significantly negative at the 1% level for all of the model specifications. Taken together, our regression results suggest that high-quality accounting standards are effective in improving stock market efficiency only in countries with a solid institutional environment in which investors are well-protected. Our findings are consistent with those of Ball et al. (2000, 2003), Leuz et al. (2003), Burgstahler et al. (2006), and Daske et al. (2008) in that it is the reporting incentives, rather than the accounting standards, that improve accounting quality and hence the functioning of capital markets.

Next, we rerun the regression models in Table 4 by replacing ASF with IFRS, and the results are presented in Table 5. Consistent with the findings in Table 4, the main effect of accounting standards when measured by IFRS is also statistically insignificant, and the interaction term is significantly negative at the 1% level in all four of the specifications. We

also note that the magnitude of the coefficient on the interaction term is generally much larger than that of the coefficient on IFRS. Formal tests for the sum of the coefficients of the variables IFRS and IFRS*Incentives ($\beta_1+\beta_2$) indicate that it is significantly negative at the 1% level in all of the specifications. Overall, our results using the IFRS score are qualitatively the same as those using ASF, which suggests that the potential measurement problems associated with ASF in the Worldscope database are not significant enough to alter our conclusions.

[Insert Table 5 about here]

### *3.2. Alternative Sample Countries and Sample Periods*

In this section, we perform a number of additional tests to make sure that our findings are not sensitive to our choice of sample countries or sample period. First, we check whether they are sensitive to the inclusion of the EU countries when the IFRS score is used as the accounting standards measure. Because, as of January 2005, all listed firms in the EU are required to adopt IFRS when reporting their financial information, all EU countries score 3 in Deloitte Touche Tohmatsu (2005), which is the highest ranking. Therefore, excluding these countries from our sample would alleviate any measurement bias problem. In addition, we also rerun our regressions with the U.S. removed from the sample, given that U.S. GAAP and IFRS are treated the same in our base sample results. As previously noted, even though a number of studies, such as those of Harris and Muller (1999) and Barth et al. (2006), consider IFRS to be comparable to U.S. GAAP, others consider them to be different from

each other (e.g., FASB, 1999; Babalyan, 2001; Goncharov and Zimmermann, 2006).

Table 6 displays the regression results with EU countries and the U.S. removed.[7] Panel A of this table reports the results with IFRS used as the accounting standards measure after EU countries are removed. In general, both the magnitude and statistical significance of the coefficients for the interaction term (IFRS*Incentives) and the sum of the coefficients that capture the main and incremental effects ($\beta_1+\beta_2$) remain the same as those in the full sample. The regression results with ASF and IFRS used as the accounting standards measure with the U.S. removed from the sample are reported in Panels B and C, respectively. In general, both the signs and statistical significance of the coefficients on ASF, IFRS, the interaction terms, and the sum of the coefficients for the main and incremental effects remain the same. However, when comparing the results in Panel B with those in Table 4, one noticeable difference is that the interaction term of ASF*LEGAL ORIGIN loses significance, although the signs remain negative.

[Insert Table 6 about here]

As previously noted, our sample period was chosen to balance the tradeoff between data consistency and statistical power for our empirical tests. However, a longer sample period should increase statistical power, whereas a shorter, more recent period should enhance data quality. Therefore, we repeat our regression analyses using two alternative sample periods, one for the 15 years between 1990 and 2004 and the other for the five years between 2000

[7] In the interests of space, we report the coefficients and their t-statistics for the key variables only, although all of the regressions are fit with the inclusion of the same control variables as those in Tables 4 and 5.

and 2004. The regression coefficients and their t-statistics are reported in Table 7, with Panels A and B displaying the results using ASF and Panels C and D displaying those using IFRS. By and large, the results obtained for each of these two alternative time periods are similar to those obtained with the base sample period of 1995 to 2004. The interaction term between the accounting standards measure and the reporting incentives variable is significantly negative at conventional levels in all but two of the specifications. Consistent with earlier findings, our formal tests for the sum of the coefficients ($\beta_1+\beta_2$), which are reported in the last row of each panel, also reveal that high-quality accounting standards and stock price synchronicity are statistically negatively related at the 1% level in all of the regression specifications only for those countries that have a common-law legal origin or better investor protection.

[Insert Table 7 about here]

### *3.3. Factor Analysis of Reporting Incentives*

In addition to the two institutional variables used in the analysis thus far, legal origin and the anti-director rights index, other institutional characteristics such as the rule of law and the efficiency of a country's judicial system are also enforcement mechanisms that may affect the quality of accounting information and the development and functioning of capital markets in general (Leuz et al., 2003; Daske et al., 2008; La Porta et al., 1998). However, many of these institutional variables are highly correlated with one another and hence cannot be entered into a regression model simultaneously. We therefore perform factor analysis using maximum

likelihood estimation procedures with a set of variables that have been found to be important in previous studies: legal origin (common versus code law), the anti-director rights index, the efficiency of the judicial system, assessment of the rule of law, and the government corruption index. We keep a factor if it has an eigenvalue greater than 1, and our analysis reveals two significant factors. Following the methodology adopted in Bushman et al. (2004), we rotate these two factors using the varimax rotation technique.

[Insert Table 8 about here]

Table 8 displays the results of this factor analysis, with the first two columns showing the coefficients that are associated with the raw factor patterns and the last two the coefficients after rotation. The first factor after rotation is mainly related to government corruption, the rule of law, and judicial efficiency, and unrelated to the index of anti-director rights and legal origin. Therefore, this factor captures the extent of the rule of law and law-enforcement efficiency in a country, and we therefore label it *Legal Enforcement*, following the terminology used in Leuz et al. (2003) and Burgstahler et al. (2006). In contrast, the second factor depends much more heavily on legal origin and the anti-director rights index. It is thus labeled *Investor Protection* and is broader in scope than the anti-director rights index, which primarily measures the protection of minority shareholders against expropriation by majority shareholders and/or corporate insiders.

We rerun our regressions using the binary representations of these two factors, where *High Legal Enforcement* and *High Investor Protection* each take the value of one if a

country's level of *Legal Enforcement* and *Investor Protection* is higher than the respective sample median, and a value of zero otherwise. For brevity, Table 9 displays the regression coefficients and their t-statistics for the key variables only. Overall, the signs, magnitudes, and statistical significance of the coefficients on ASF and IFRS remain mostly the same as those in Tables 4 and 5. The interaction terms between ASF (or IFRS) with either of the two binary factors are significantly negative at the 1% level in all but two of the specifications. As expected, the use of these binary factors, which capture the effect of a broader set of institutional variables, improves the model fit, as indicated by the higher adjusted $R^2$ values relative to those in Tables 4 and 5.

[Insert Table 9 about here]

***3.4. Alternative Accounting Standards Measure***

Although we have conducted our analyses using two alternative measures of accounting standards to improve the robustness of our findings, neither of these measures explicitly recognizes the magnitude of the differences between a country's local GAAP and IFRS/U.S. GAAP. To help address this concern, we employ an accounting standards measure that explicitly captures that magnitude in terms of 21 key accounting items related to recognition, measurement, and disclosure rules, as obtained in a 2001 survey of accounting firm partners in more than 60 countries by the International Forum for Accounting Development (IFAD,

2001).[8] Based on these survey results, Bae, Tan, and Welker (2008) construct a measure of local GAAP differences relative to IFRS. We modify their measure by including U.S. GAAP as an additional high-quality accounting standard. We use Table 1 in Bae, Tan, and Welker (2008) to construct our modified measure in the following way. For each of the 21 key accounting items, the countries that do not conform to IFRS or U.S. GAAP receive a score of one, and all other countries receive a score of zero. The magnitude of the difference between a country's local GAAP and IFRS/U.S. GAAP is simply the sum of the scores for that country across all 21 items. This sum therefore has a theoretical range of zero to 21, with a higher score indicating greater difference. To conform with our other two accounting standards measures, we transform the summed score by multiplying minus one (-1) with the logarithm of (summed score + 1), which is denoted as GAAPQuality.

Table 10 displays the regression results with GAAPQuality used as an alternative measure of accounting standards. Consistent with our previous findings, high-quality accounting standards are effective in enhancing the information content of stock prices only in countries with proper reporting incentives, as measured by legal origin and level of shareholder protection. As can be seen from Table 10, GAAPQuality loses its significance in three of the four regressions when its interaction term with a reporting incentives variable is included. Instead, it is the interaction term that remains significantly negative in these three models.

[Insert Table 10 about here]

[8]This survey was carried out in 2001, and there was no other such survey during our sample period. We therefore use this measure only as a sensitivity test.

### *3.5. Transparency, Accounting Standards, and Reporting Incentives*

As previously discussed, Jin and Myers (2006) find that the information content of stock prices is positively related to several measures of corporate transparency. However, such transparency itself is perhaps determined by a country's accounting standards, institutional development, and hence reporting incentives. Indeed, as Bushman et al. (2004) illustrate, corporate transparency depends on a country's legal/judicial regime and political structure. More specifically, their multivariate regression analyses indicate that such transparency is greater in countries that are characterized by a common-law legal origin, an efficient judicial system, a lower risk of state expropriation of a firm's wealth, and a lower degree of state ownership of enterprises. Similarly, Ball (2001) argues that transparency depends not only on good accounting standards, but also, and more importantly, on an effective, independent legal system that detects and punishes accounting fraud, manipulation, and failure to comply with accounting standards.

In brief, the five transparency measures used by Jin and Myers (2006) include the level and effectiveness of financial disclosure, based on the Global Competitiveness Reports for 1999 and 2000 (DISCLOSURE); the number of auditors relative to each country's stock market-capitalization in 1996 (AUDITOR); the average number of accounting items disclosed (out of a maximum of 90) in 1990 annual reports (STANDARDS); the Global Opacity Index for 2000, based on PricewaterhouseCoopers' (2001) survey of CFOs, bankers,

and equity analysts (OPACITY); and the diversity of analyst forecasts (DIVERSITY).[9]

To the extent that these transparency measures are influenced by a country's financial reporting standards and incentives, one way to deal with the potential endogeneity problem associated with them is to first regress each on accounting standards, reporting incentives, and their interaction term to obtain a residual term that represents transparency beyond that predicted by the measures. We then replace each of the original transparency measures in Jin and Myers (2006) with the corresponding residual transparency term. If our conjecture is correct, then this residual term should be insignificant in explaining the information content of stock prices.

Tables 11 and 12 report the empirical results obtained when the accounting standards are measured using ASF and IFRS, respectively. To save space, we report only those results for which the information content is measured by $VW\Psi_j$, as those measured by $EW\Psi_j$ are qualitatively the same. To ensure the comparability of our results with those of Jin and Myers (2006), we use the same set of explanatory variables, except we replace the original transparency measure with the residual transparency term.[10] Consistent with our conjecture, most of the residual transparency measures are no longer statistically significant, thus suggesting that transparency beyond that predicted by reporting standards and incentives does not help much in explaining the information content of stock prices. This residual term remains significantly negative in only two of the 10 regressions when accounting standards are measured by ASF (see Table 11), and in none of them when they are measured by IFRS

[9]Please see Jin and Myers (2006) for a detailed discussion of the five measures. We construct only DIVERSITY on our own and adopt the other four measures directly from Jin and Myers (2006).
[10]See Table 5 in Jin and Myers (2006, p. 284) for more details.

(see Table 12). We view our results as an extension of Jin and Myers (2006), in that one channel by which corporate transparency can be improved is the institution of a set of high-quality financial reporting standards and effective enforcement mechanisms.

[Insert Tables 11 and 12 about here]

## *4. Conclusions*

In this paper, we investigate the impact of accounting standards and reporting incentives on the information content of stock prices using a sample of 44 countries worldwide over the 10-year period from 1995 to 2004. Following Morck, Yeung, and Yu (2000), we use stock market synchronicity as a proxy for the informativeness of stock prices. Accounting standards are explicitly measured by two alternative proxies. The first is based on the classification of firm-level accounting standards retrieved from Worldscope data and then averaged across all firms in a country in a year to obtain the fraction of firms that adopt IFRS/U.S. GAAP in their financial statements. The second measure is the level of IFRS usage by listed firms at the country level, as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005). Following prior studies, such as those of Ball et al. (2000, 2003), Hung (2001), Leuz et al. (2003), and Burgstahler et al. (2006), we measure reporting incentives by a country's legal origin, level of investor protection, and level-enforcement effectiveness.

We find that the adoption of IFRS or U.S. GAPP is negatively correlated with stock price

synchronicity at the univariate level. However, this negative relationship disappears in a multivariate setting when we include such measures of reporting incentives as the level of investor protection or legal origin, which suggests that the adoption of IFRS/U.S. GAAP *per se* is not effective in improving stock market informativeness. Further analysis reveals that high-quality accounting standards are helpful only in countries with proper reporting incentives. More specifically, we find a significantly negative relationship between stock price synchronicity and accounting standards in common-law countries, countries with better shareholder protection, and those with stricter legal enforcement environments, but an insignificantly negative such relationship in all other countries.

We conduct various sensitivity tests to ensure the robustness of our findings. First, because IFRS were adopted by all listed firms in the EU as of January 2005, as reported by Daske et al. (2008), many of these countries instituted other institutional changes that may have introduced bias when using the IFRS score as an accounting standards measure. We therefore repeat our analyses after removing all EU countries from the sample, but the results remain qualitatively the same. Similarly, to account for potential differences in the quality of IFRS and U.S. GAAP, we remove the US from our sample and repeat the analyses, again yielding no significant changes in the results. We also address concerns over the choice of our 1995-2004 base sample period. In general, data coverage and data quality both improve over time, which may result in inconsistency among our variables. Furthermore, the adoption of IFRS/U.S. GAAP has gained popularity only in recent years, although a longer sample period enhances the power of statistical tests. We address these concerns by using two alternative sample periods: 1990-2004 and 2000-2004. However, out results remain

qualitatively the same regardless of the sample period. Finally, we employ another accounting standards measure that developed by Bae et al. (2008), which takes into account the *degree* of the differences between local GAAP and IFRS/U.S. Again, our findings remain qualitatively the same.

Next, we attempt to extend Jin and Myers (2006) by allowing corporate transparency to be endogenously determined, at least partially, by a country's reporting standards and incentives. Our results show that once these are considered, corporate transparency beyond that predicted by these variables (residual transparency) is no longer significantly related to the information content of stock prices in most of our model specifications. These findings are consistent with those of Ball (2001) and Bushman et al. (2004), who find that transparency is the outcome of high-quality reporting standards coupled with proper reporting incentives.

Our findings are most closely related to those of Daske et al. (2007, 2008), who find that the economic consequences of IFRS adoption are a lower cost of capital, improved market liquidity, and a higher equity valuation, but only if the firm has the incentive to be transparent and is located in a county with a strong legal-enforcement environment. Our study is also related to the literature on the capital market consequences of improved disclosure, such as the studies of Welker (1995) and Leuz and Verrecchia (2000), who document a negative relationship between disclosure quality and bid-ask spreads, and that of Botosan and Plumlee (2002), who find a negative relationship between disclosure quality and the cost of capital. Our findings therefore contribute further evidence to this growing body of literature by demonstrating that the information content of stock prices also depends on the quality of

financial reporting. Although it may be popular to adopt high-quality accounting standards, such as IFRS or U.S. GAAP, to boost accounting quality, countries that are serious about making their capital markets more efficient may have to consider developing other types of institutional infrastructure, such as improved investor protection and a strengthened legal-enforcement environment. Only then will high-quality accounting standards be implemented in spirit.

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**TABLE 1 Sample Characteristics for Stock Price Synchronicity and Accounting Standards**

This table presents the summary statistics for the 44 sample countries from 1995 to 2004. **$VWR^2$** and **$EWR^2$** represent the average $R^2$ from the expanded market model that includes value-weighted or equally weighted industry returns, respectively. **ASF** is the proportion of firms adopting IFRS/U.S. GAAP in each country-year, based on the data item "accounting standards followed" in Worldscope. **IFRS** is the average level of IFRS usage by listed firms in each country as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005); a score of 3, 2, 1, or 0 indicates that the use of IFRS is required for all firms, required for some firms, permitted, or not allowed, respectively. **Years** is the number of years in which there are at least 10 firms with valid data in each country. **N** is the number of firm-year observations in each country. **μ, Med**, and **σ** stand for the mean, median, and standard deviation, respectively.

| Country | $VWR^2$ | | | | | $EWR^2$ | | | ASF | | | | | IFRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Years | N | μ | Med | σ | μ | Med | σ | Years | N | μ | Med | σ | |
| **Argentina** | 10 | 208 | 0.486 | 0.469 | 0.077 | 0.455 | 0.455 | 0.082 | 10 | 474 | 0.008 | 0.000 | 0.012 | 0 |
| **Australia** | 10 | 8499 | 0.118 | 0.116 | 0.016 | 0.139 | 0.135 | 0.021 | 10 | 6803 | 0.012 | 0.012 | 0.003 | 1 |
| **Austria** | 10 | 328 | 0.236 | 0.191 | 0.102 | 0.257 | 0.226 | 0.091 | 10 | 696 | 0.356 | 0.366 | 0.304 | 2.33 |
| **Belgium** | 10 | 650 | 0.194 | 0.168 | 0.060 | 0.256 | 0.243 | 0.039 | 10 | 820 | 0.138 | 0.131 | 0.062 | 1.67 |
| **Brazil** | 10 | 1671 | 0.267 | 0.269 | 0.037 | 0.252 | 0.249 | 0.044 | 10 | 1831 | 0.001 | 0.000 | 0.003 | 0 |
| **Canada** | 10 | 22259 | 0.099 | 0.101 | 0.007 | 0.101 | 0.101 | 0.011 | 10 | 8637 | 0.029 | 0.029 | 0.017 | 0 |
| **Chile** | 10 | 626 | 0.300 | 0.288 | 0.061 | 0.283 | 0.275 | 0.051 | 10 | 950 | 0.001 | 0.000 | 0.003 | 0 |
| **China** | 10 | 8417 | 0.475 | 0.461 | 0.094 | 0.504 | 0.496 | 0.092 | 10 | 7710 | 0.162 | 0.106 | 0.115 | 2 |
| **Colombia** | 9 | 137 | 0.345 | 0.328 | 0.047 | 0.350 | 0.351 | 0.078 | 10 | 216 | 0.000 | 0.000 | 0.000 | 0 |
| **Denmark** | 10 | 1043 | 0.227 | 0.213 | 0.038 | 0.284 | 0.290 | 0.027 | 10 | 1282 | 0.073 | 0.072 | 0.031 | 1.67 |
| **Finland** | 10 | 460 | 0.364 | 0.382 | 0.053 | 0.418 | 0.420 | 0.046 | 10 | 1094 | 0.029 | 0.031 | 0.026 | 1.67 |
| **France** | 10 | 2329 | 0.327 | 0.331 | 0.065 | 0.291 | 0.306 | 0.053 | 10 | 5396 | 0.094 | 0.100 | 0.020 | 1 |
| **Germany** | 10 | 2794 | 0.244 | 0.259 | 0.055 | 0.240 | 0.248 | 0.047 | 10 | 5616 | 0.296 | 0.327 | 0.213 | 1.67 |
| **Greece** | 10 | 1828 | 0.425 | 0.425 | 0.112 | 0.467 | 0.452 | 0.110 | 10 | 1364 | 0.025 | 0.022 | 0.019 | 1 |
| **Hong Kong** | 10 | 5976 | 0.235 | 0.215 | 0.060 | 0.264 | 0.249 | 0.066 | 10 | 5026 | 0.036 | 0.041 | 0.010 | 1 |

**TABLE 1 Sample Characteristics for Stock Price Synchronicity and Accounting Standards (Continued)**

| Country | VWR[2] | | | | | EWR[2] | | | ASF | | | | | IFRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Years | N | μ | Med | σ | μ | Med | σ | Years | N | μ | Med | σ | |
| **India** | 10 | 5544 | 0.254 | 0.260 | 0.056 | 0.279 | 0.275 | 0.045 | 10 | 3384 | 0.005 | 0.006 | 0.005 | 0 |
| **Indonesia** | 10 | 1790 | 0.265 | 0.255 | 0.049 | 0.280 | 0.276 | 0.040 | 10 | 1878 | 0.000 | 0.000 | 0.001 | 0 |
| **Ireland** | 7 | 112 | 0.251 | 0.254 | 0.070 | 0.235 | 0.218 | 0.050 | 10 | 588 | 0.035 | 0.040 | 0.033 | 1 |
| **Israel** | 10 | 2290 | 0.281 | 0.283 | 0.053 | 0.288 | 0.283 | 0.056 | 10 | 575 | 0.307 | 0.367 | 0.215 | 0 |
| **Italy** | 10 | 1166 | 0.365 | 0.360 | 0.088 | 0.402 | 0.386 | 0.077 | 10 | 1846 | 0.021 | 0.014 | 0.017 | 1 |
| **Japan** | 10 | 28818 | 0.239 | 0.240 | 0.035 | 0.288 | 0.293 | 0.031 | 10 | 29962 | 0.013 | 0.012 | 0.005 | 0 |
| **Korea** | 10 | 8840 | 0.323 | 0.328 | 0.077 | 0.368 | 0.372 | 0.085 | 10 | 4549 | 0.001 | 0.000 | 0.002 | 0 |
| **Luxembourg** | 6 | 108 | 0.360 | 0.360 | 0.050 | 0.448 | 0.431 | 0.056 | 8 | 152 | 0.541 | 0.517 | 0.100 | 1.67 |
| **Malaysia** | 10 | 5884 | 0.426 | 0.456 | 0.111 | 0.482 | 0.514 | 0.109 | 10 | 5420 | 0.002 | 0.003 | 0.002 | 0 |
| **Mexico** | 10 | 338 | 0.378 | 0.361 | 0.075 | 0.426 | 0.416 | 0.091 | 10 | 973 | 0.012 | 0.012 | 0.006 | 0 |
| **The Netherlands** | 10 | 763 | 0.336 | 0.336 | 0.065 | 0.382 | 0.367 | 0.056 | 10 | 1746 | 0.179 | 0.207 | 0.066 | 1.67 |
| **New Zealand** | 9 | 270 | 0.245 | 0.263 | 0.048 | 0.298 | 0.296 | 0.066 | 10 | 655 | 0.037 | 0.042 | 0.019 | 0.67 |
| **Norway** | 10 | 599 | 0.288 | 0.322 | 0.084 | 0.311 | 0.331 | 0.071 | 10 | 1224 | 0.057 | 0.056 | 0.011 | 1 |
| **Pakistan** | 10 | 1867 | 0.283 | 0.261 | 0.086 | 0.289 | 0.245 | 0.096 | 10 | 815 | 0.029 | 0.038 | 0.026 | 0 |
| **Peru** | 10 | 256 | 0.284 | 0.281 | 0.066 | 0.281 | 0.264 | 0.061 | 10 | 336 | 0.025 | 0.023 | 0.023 | 1.67 |

**TABLE 1 Sample Characteristics for Stock Price Synchronicity and Accounting Standards (Continued)**

| Country | VWR$^2$ | | | | | EWR$^2$ | | | ASF | | | | | IFRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Years | N | μ | Med | σ | μ | Med | σ | Years | N | μ | Med | σ | |
| **The Philippines** | 10 | 878 | 0.265 | 0.260 | 0.052 | 0.246 | 0.237 | 0.042 | 10 | 1215 | 0.003 | 0.000 | 0.005 | 0 |
| **Poland** | 8 | 773 | 0.319 | 0.302 | 0.109 | 0.349 | 0.321 | 0.102 | 10 | 606 | 0.070 | 0.079 | 0.030 | 1 |
| **Portugal** | 10 | 193 | 0.369 | 0.362 | 0.075 | 0.407 | 0.403 | 0.063 | 10 | 537 | 0.016 | 0.000 | 0.033 | 1 |
| **The Russian Federation** | 6 | 137 | 0.549 | 0.529 | 0.063 | 0.478 | 0.432 | 0.110 | 8 | 248 | 0.380 | 0.372 | 0.206 | 1.67 |
| **Singapore** | 10 | 2530 | 0.356 | 0.352 | 0.092 | 0.411 | 0.422 | 0.101 | 10 | 3254 | 0.031 | 0.026 | 0.022 | 0 |
| **South Africa** | 10 | 1791 | 0.245 | 0.239 | 0.045 | 0.254 | 0.244 | 0.043 | 10 | 1830 | 0.030 | 0.017 | 0.032 | 1.33 |
| **Spain** | 10 | 523 | 0.377 | 0.379 | 0.060 | 0.412 | 0.413 | 0.037 | 10 | 1116 | 0.008 | 0.009 | 0.008 | 1 |
| **Sri Lanka** | 10 | 733 | 0.421 | 0.403 | 0.049 | 0.420 | 0.416 | 0.050 | 7 | 91 | 0.000 | 0.000 | 0.000 | 0.33 |
| **Sweden** | 10 | 1473 | 0.305 | 0.311 | 0.070 | 0.344 | 0.334 | 0.078 | 10 | 2182 | 0.035 | 0.035 | 0.021 | 1 |
| **Switzerland** | 10 | 1450 | 0.278 | 0.269 | 0.053 | 0.331 | 0.328 | 0.035 | 10 | 1687 | 0.540 | 0.530 | 0.060 | 1 |
| **Thailand** | 10 | 2618 | 0.326 | 0.335 | 0.052 | 0.354 | 0.362 | 0.063 | 10 | 2770 | 0.001 | 0.000 | 0.002 | 0 |
| **Turkey** | 10 | 1675 | 0.440 | 0.442 | 0.066 | 0.473 | 0.479 | 0.065 | 10 | 1055 | 0.083 | 0.040 | 0.128 | 1 |
| **The U.K.** | 10 | 12752 | 0.199 | 0.191 | 0.039 | 0.220 | 0.215 | 0.039 | 10 | 13930 | 0.006 | 0.005 | 0.005 | 1 |
| **The U.S.** | 10 | 60256 | 0.122 | 0.118 | 0.019 | 0.114 | 0.110 | 0.018 | 10 | 76400 | 1.000 | 1.000 | 0.000 | 3 |
| **Total** | 10 | 203652 | 0.212 | 0.217 | 0.020 | 0.229 | 0.228 | 0.021 | 10 | 208939 | 0.410 | 0.413 | 0.053 | |

**TABLE 2 Correlation Coefficients Matrix**

This table presents the correlation matrix for the key variables used in our analyses. **$VWR^2$** and **$EWR^2$** represent the $R^2$ from the expanded market model that includes value-weighted or equally weighted industry returns, respectively. **ASF** is the proportion of firms adopting IFRS/U.S. GAAP in each country-year, based on the data item "accounting standards followed" in Worldscope. **IFRS** is the average level of IFRS usage by listed firms in each country as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005); a score of 3, 2, 1, or 0 indicates that the use of IFRS is required for all firms, required for some firms, permitted, or not allowed, respectively. **Legal Origin** is equal to 1 if the country is of common law origin and 0 otherwise. **Shareholder Protection** is equal to 1 if the country's anti-director rights index is above the sample median and 0 otherwise. **Log(number of stocks)** is the logarithm of the number of listed firms. **Log(country size)** is the logarithm of the country's population. **Variance (GDP growth)** is the variance of the country's annual GDP growth rate. **Log(GDP per capita)** is the logarithm of per capita GDP. **Herfindahl Index** is calculated based on industry sales. p-values are reported in parentheses.

| | | (a.) | (b.) | (c.) | (d.) | (e.) | (f.) | (g.) | (h.) | (i.) | (j.) | (k.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **(a.)** | **$VWR^2$** | 1 | | | | | | | | | | |
| **(b.)** | **$EWR^2$** | 0.940<br>(<.0001) | 1 | | | | | | | | | |
| **(c.)** | **ASF** | -0.136<br>(0.004) | -0.185<br>(<.0001) | 1 | | | | | | | | |
| **(d.)** | **IFRS** | -0.104<br>(0.032) | -0.093<br>(0.056) | 0.512<br>(<.0001) | 1 | | | | | | | |
| **(e.)** | **Legal Origin** | -0.335<br>(<.0001) | -0.320<br>(<.0001) | 0.066<br>(0.145) | -0.205<br>(<.0001) | 1 | | | | | | |
| **(f.)** | **Shareholder Protection** | -0.297<br>(<.0001) | -0.334<br>(<.0001) | -0.226<br>(<.0001) | -0.273<br>(<.0001) | 0.613<br>(<.0001) | 1 | | | | | |
| **(g.)** | **Log (country size)** | 0.022<br>(0.652) | -0.066<br>(0.168) | -0.043<br>(0.348) | -0.131<br>(0.006) | -0.109<br>(0.014) | 0.041<br>(0.366) | 1 | | | | |
| **(h.)** | **Log (number of stocks)** | -0.393<br>(<.0001) | -0.374<br>(<.0001) | 0.102<br>(0.027) | -0.024<br>(0.617) | 0.285<br>(<.0001) | 0.374<br>(<.0001) | 0.438<br>(<.0001) | 1 | | | |
| **(i.)** | **Log (GDP per capita)** | -0.281<br>(<.0001) | -0.203<br>(<.0001) | 0.210<br>(<.0001) | 0.373<br>(<.0001) | -0.103<br>(0.020) | 0.003<br>(0.951) | -0.527<br>(<.0001) | 0.138<br>(0.003) | 1 | | |
| **(j.)** | **Variance (GDP growth)** | 0.243<br>(<.0001) | 0.246<br>(<.0001) | -0.066<br>(0.141) | -0.027<br>(0.570) | -0.171<br>(<.0001) | -0.191<br>(<.0001) | -0.044<br>(0.312) | -0.085<br>(0.063) | -0.069<br>(0.115) | 1 | |
| **(k.)** | **Herfindahl Index** | 0.344<br>(<.0001) | 0.256<br>(<.0001) | 0.304<br>(<.0001) | 0.163<br>(0.001) | 0.044<br>(0.314) | -0.268<br>(<.0001) | -0.217<br>(<.0001) | -0.553<br>(<.0001) | -0.237<br>(<.0001) | 0.065<br>(0.135) | 1 |

**TABLE 3 Determinants of the Information Content of Stock Prices – Accounting Standards**

This table provides the regression results for assessing the effect of accounting standards. $VW\Psi_j$ ($EW\Psi_j$) is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted (equally weighted) industry returns for a country-year. **ASF** is the proportion of firms adopting IFRS/U.S. GAAP in each country-year, based on the data item "accounting standards followed" in Worldscope. **IFRS** is the average level of IFRS usage by listed firms in each country as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005); a score of 3, 2, 1, or 0 indicates that the use of IFRS is required for all firms, required for some firms, permitted, or not allowed, respectively. **Log(number of stocks)** is the logarithm of the number of listed firms. **Log(country size)** is the logarithm of the country's population. **Variance (GDP growth)** is the variance of annual GDP growth rates. **Log(GDP per capita)** is the logarithm of per capita GDP. **Herfindahl Index** is calculated based on industry sales. Coefficients are estimated by the Fama-MacBeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| Logistic($R^2$) | $VW\Psi_j$ | $EW\Psi_j$ | $VW\Psi_j$ | $EW\Psi_j$ |
|---|---|---|---|---|
| Intercept | -1.66* | -1.128 | -1.382** | -0.410 |
| | (-2.07) | (-1.73) | (-3.10) | (-1.38) |
| ASF | -0.220*** | -0.386*** | | |
| | (-8.14) | (-11.54) | | |
| IFRS | | | -0.062*** | -0.052** |
| | | | (-4.10) | (-2.97) |
| Log(number of stocks) | -0.199*** | -0.168*** | -0.221*** | -0.191*** |
| | (-8.80) | (-4.48) | (-6.53) | (-3.84) |
| Log(country size) | 0.098*** | 0.061** | 0.089*** | 0.038*** |
| | (4.09) | (2.85) | (7.83) | (3.39) |
| Variance (GDP growth) | 24.104** | 24.422** | 24.934*** | 25.207** |
| | (3.01) | (2.73) | (3.39) | (3.03) |
| Log(GDP per capita) | -0.002 | 0.003 | 0.006 | -0.011 |
| | (-0.07) | (0.10) | (0.35) | (-0.71) |
| Herfindahl Index | 1.462** | 1.561* | 1.363** | 1.129 |
| | (2.75) | (1.90) | (2.50) | (1.47) |
| Average adjusted $R^2$ | 0.310 | 0.261 | 0.329 | 0.255 |
| Sample size | 421 | 421 | 425 | 425 |

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**TABLE 4 Determinants of the Information Content of Stock Prices – Incremental Effect of Accounting Standards as Measured by ASF**

This table provides the regression results for assessing the incremental effect of accounting standards as measured by ASF. $VW\Psi_j$ ($EW\Psi_j$) is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted (equally weighted) industry returns for a country in each year. **ASF** is the proportion of firms adopting IFRS/U.S. GAAP in each country-year, based on the data item "accounting standards followed" in Worldscope. **Incentives** is measured either by Legal Origin or Investor Protection, where **Legal Origin** is equal to 1 if the country is of common law origin and 0 otherwise, and **Shareholder Protection** is equal to 1 if the country's anti-director rights index is above the sample median and 0 otherwise. **Log(number of stocks)** is the logarithm of the number of listed firms. **Log(country size)** is the logarithm of the country's population. **Variance (GDP growth)** is the variance of annual GDP growth rates. **Log(GDP per capita)** is the logarithm of per capita GDP. **Herfindahl Index** is calculated based on industry sales. Coefficients are estimated by the Fama-MacBeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| Logistic($R^2$) | $VW\Psi_j$ | | $EW\Psi_j$ | |
|---|---|---|---|---|
| | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection |
| Intercept | -0.558 | -1.682* | 0.058 | -1.134* |
| | (-1.39) | (-2.09) | (0.15) | (-1.87) |
| ASF | -0.026 | -0.029 | -0.136 | -0.211 |
| | (-0.34) | (-0.40) | (-1.52) | (-1.75) |
| ASF*Incentives | -0.347* | -0.593*** | -0.469** | -0.629*** |
| | (-2.04) | (-6.67) | (-3.18) | (-5.66) |
| Incentives | -0.187** | -0.079 | -0.195** | -0.111 |
| | (-2.58) | (-1.25) | (-2.37) | (-1.20) |
| Log (number of stocks) | -0.123*** | -0.155*** | -0.086 | -0.118* |
| | (-4.29) | (-4.39) | (-1.64) | (-2.06) |
| Log (country size) | 0.045*** | 0.091*** | 0.003 | 0.051** |
| | (3.59) | (4.25) | (0.16) | (2.79) |
| Variance (GDP growth) | 20.665** | 22.803** | 20.700** | 22.361** |
| | (3.06) | (3.07) | (2.85) | (3.13) |
| Log (GDP per capita) | -0.061*** | -0.010 | -0.060*** | 0.005 |
| | (-3.50) | (-0.26) | (-3.88) | (-0.18) |
| Herfindahl Index | 1.347** | 1.476** | 1.360 | 1.603 |
| | (2.52) | (2.66) | (1.74) | (1.72) |
| Average adjusted $R^2$ | 0.317 | 0.309 | 0.272 | 0.271 |
| Sample size | 421 | 421 | 421 | 421 |
| $H_0$:$\beta_1+\beta_2=0$ | -0.373*** | -0.622*** | -0.604*** | -0.840*** |
| | (-3.81) | (-19.44) | (-10.39) | (-29.73) |

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**TABLE 5 Determinants of the Information Content of Stock Prices – Incremental Effect of Accounting Standards as Measured by IFRS**

This table provides the regression results for assessing the incremental effect of accounting standards as measured by IFRS. $VW\Psi_j$ ($EW\Psi_j$) is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted (equally weighted) industry returns for a country-year. **IFRS** is the average level of IFRS usage by listed firms in each country as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005); a score of 3, 2, 1, or 0 indicates that the use of IFRS is required for all firms, required for some firms, permitted, or not allowed, respectively. **Incentives** is measured either by Legal Origin or Investor Protection, where **Legal Origin** is equal to 1 if the country is of common law origin and 0 otherwise, and **Shareholder Protection** is equal to 1 if the country's anti-director rights index is above the sample median and 0 otherwise. **Log(number of stocks)** is the logarithm of the number of listed firms. **Log(country size)** is the logarithm of the country's population. **Variance (GDP growth)** is the variance of annual GDP growth rates. **Log(GDP per capita)** is the logarithm of per capita GDP. **Herfindahl Index** is calculated based on industry sales. Coefficients are estimated by the Fama-MacBeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| Logistic($R^2$) | $VW\Psi_j$ | | $EW\Psi_j$ | |
|---|---|---|---|---|
| | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection |
| Intercept | -0.933*** | -1.429*** | 0.091 | -0.470* |
| | (-4.16) | (-3.71) | (0.49) | (-1.89) |
| IFRS | -0.016 | -0.019 | 0.003 | -0.004 |
| | (-1.17) | (-1.76) | (0.16) | (-0.37) |
| IFRS*Incentives | -0.136*** | -0.110*** | -0.164*** | -0.123*** |
| | (-10.86) | (-5.68) | (-25.06) | (-8.20) |
| Incentives | 0.001 | 0.045 | 0.009 | 0.060 |
| | (0.01) | (0.49) | (0.15) | (0.69) |
| Log (number of stocks) | -0.165*** | -0.197*** | -0.127** | -0.169** |
| | (-4.20) | (-4.84) | (-2.27) | (-2.90) |
| Log (country size) | 0.063*** | 0.085*** | 0.009 | 0.035** |
| | (7.10) | (8.52) | (0.53) | (2.59) |
| Variance (GDP growth) | 20.827** | 21.846** | 20.324** | 21.768** |
| | (3.13) | (3.08) | (2.90) | (3.07) |
| Log (GDP per capita) | -0.028 | 0.001 | -0.049** | -0.015 |
| | (-1.62) | (0.06) | (-2.73) | (-0.96) |
| Herfindahl Index | 1.264** | 1.413** | 1.002 | 1.126 |
| | (2.50) | (3.22) | (1.50) | (1.64) |
| Average adjusted $R^2$ | 0.352 | 0.337 | 0.293 | 0.266 |
| Sample size | 425 | 425 | 425 | 425 |
| $H_0$:$\beta_1+\beta_2=0$ | -0.152*** | -0.129*** | -0.161*** | -0.127*** |
| | (-8.63) | (-6.28) | (-10.73) | (-6.51) |

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## TABLE 6 Determinants of the Information Content of Stock Prices – Incremental Effect of Accounting Standards, with EU Countries or the U.S. Removed

This table provides the regression results with EU countries or the U.S. removed to assess the incremental effect of accounting standards. $VW\Psi_j$ ($EW\Psi_j$) is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted (equally weighted) industry returns for each country-year. **ASF** is the proportion of firms adopting IFRS/U.S. GAAP in each country-year, based on the data item "accounting standards followed" in Worldscope. **IFRS** is the average level of IFRS usage by listed firms in each country as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005); a score of 3, 2, 1, or 0 indicates that the use of IFRS is required for all firms, required for some firms, permitted, or not allowed, respectively. **Incentives** is measured either by Legal Origin or Investor Protection, where **Legal Origin** is equal to 1 if the country is of common law origin and 0 otherwise, and **Shareholder Protection** is equal to 1 if the country's anti-director rights index is above the sample median and 0 otherwise. **Log(number of stocks)** is the logarithm of the number of listed firms. **Log(country size)** is the logarithm of the country's population. **Variance (GDP growth)** is the variance of annual GDP growth rates. **Log(GDP per capita)** is the logarithm of per capita GDP. **Herfindahl Index** is calculated based on industry sales. Coefficients are estimated by the Fama-MacBeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| Logistic ($R^2$) | $VW\Psi_j$ | | $EW\Psi_j$ | |
|---|---|---|---|---|
| | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection |
| **Panel A: EU countries excluded, with IFRS as the proxy for accounting standards** | | | | |
| IFRS | -0.015 | 0.063* | -0.003 | 0.050 |
| | (-0.60) | (2.23) | (-0.11) | (1.66) |
| IFRS*Incentives | -0.135*** | -0.236*** | -0.172*** | -0.228*** |
| | (-11.84) | (-12.76) | (-8.04) | (-7.91) |
| Incentives | -0.087 | 0.030 | -0.030 | 0.044 |
| | (-1.18) | (0.30) | (-0.41) | (0.44) |
| Average adjusted $R^2$ | 0.324 | 0.346 | 0.172 | 0.185 |
| $H_0$:$\beta_1+\beta_2=0$ | -0.150*** | -0.174*** | -0.175*** | -0.178*** |
| | (-7.30) | (-9.15) | (-11.62) | (-11.37) |
| **Panel B: The U.S. excluded, with ASF as the proxy for accounting standards** | | | | |
| ASF | -0.030 | -0.042 | -0.140 | -0.225* |
| | (-0.38) | (-0.57) | (-1.54) | (-1.91) |
| ASF*Incentives | -0.305 | -5.106** | -0.637 | -4.946*** |
| | (-0.32) | (-3.09) | (-0.73) | (-4.56) |
| Incentives | -0.205** | 0.010 | -0.205* | -0.023 |
| | (-2.59) | (0.11) | (-2.23) | (-0.32) |
| Average adjusted $R^2$ | 0.254 | 0.249 | 0.175 | 0.181 |
| $H_0$:$\beta_1+\beta_2=0$ | -0.335 | -5.148** | -0.777 | -5.171*** |
| | (-0.36) | (-3.17) | (-0.92) | (-4.69) |
| **Panel C: The U.S. excluded, with IFRS as the proxy for accounting standards** | | | | |
| IFRS | -0.015 | -0.018 | 0.005 | -0.003 |
| | (-1.09) | (-1.72) | (0.28) | (-0.28) |
| IFRS*Incentives | -0.124*** | -0.094*** | -0.143*** | -0.097*** |
| | (-10.80) | (-4.53) | (-23.61) | (-5.42) |
| Incentives | 0.004 | 0.031 | 0.015 | 0.036 |
| | (0.07) | (0.33) | (0.25) | (0.39) |
| Average adjusted $R^2$ | 0.283 | 0.271 | 0.201 | 0.181 |
| $H_0$:$\beta_1+\beta_2=0$ | -0.139*** | -0.113*** | -0.138*** | -0.100*** |
| | (-8.31) | (-5.07) | (-9.26) | (-4.52) |

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**TABLE 7 Determinants of the Information Content of Stock Prices –Incremental Effect of Accounting Standards for Alternative Sample Periods**

This table provides the regression results for assessing the incremental effect of accounting standards for alternative sample periods. $VW\Psi_j$ ($EW\Psi_j$) is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted (equally weighted) industry returns for each country-year. **ASF** is the proportion of firms adopting IFRS/U.S. GAAP in each country-year, based on the data item "accounting standards followed" in Worldscope. **IFRS** is the average level of IFRS usage by listed firms in each country as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005); a score of 3, 2, 1, or 0 indicates that the use of IFRS is required for all firms, required for some firms, permitted, or not allowed, respectively. **Incentives** is measured either by Legal Origin or Investor Protection, where **Legal Origin** is equal to 1 if the country is of common law origin and 0 otherwise, and **Shareholder Protection** is equal to 1 if the country's anti-director rights index is above the sample median and 0 otherwise. **Log(number of stocks)** is the logarithm of the number of listed firms. **Log(country size)** is the logarithm of the country's population. **Variance (GDP growth)** is the variance of annual GDP growth rates. **Log(GDP per capita)** is the logarithm of per capita GDP. **Herfindahl Index** is calculated based on industry sales. Coefficients are estimated by the Fama-MacBeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| Logistic($R^2$) | $VW\Psi_j$ | | $EW\Psi_j$ | |
|---|---|---|---|---|
| | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection |
| **Panel A: Sample period from 1990 to 2004, with ASF as the proxy for accounting standards** | | | | |
| ASF | 0.043 | 0.028 | -0.125 | -0.186** |
| | (0.57) | (0.44) | (-1.79) | (-2.33) |
| ASF*Incentives | -0.494** | -0.685*** | -0.530*** | -0.638*** |
| | (-2.47) | (-5.45) | (-3.62) | (-5.81) |
| Incentives | -0.187*** | -0.056 | -0.146** | -0.083 |
| | (-4.18) | (-1.20) | (-2.28) | (-1.25) |
| Average adjusted $R^2$ | 0.268 | 0.258 | 0.210 | 0.209 |
| H0:β1+β2=0 | -0.451** | -0.657*** | -0.655*** | -0.823*** |
| | (-3.22) | (-7.63) | (-6.77) | (-13.31) |
| **Panel B: Sample period from 2000 to 2004, with ASF as the proxy for accounting standards** | | | | |
| ASF | -0.082 | -0.084 | -0.192 | -0.339 |
| | (-0.51) | (-0.50) | (-0.91) | (-1.64) |
| ASF*Incentives | -0.115 | -0.523** | -0.294 | -0.533** |
| | (-0.56) | (-2.95) | (-1.24) | (-2.39) |
| Incentives | -0.259** | -0.121 | -0.273** | -0.221*** |
| | (-2.81) | (-1.60) | (-2.84) | (-3.37) |
| Average adjusted $R^2$ | 0.375 | 0.365 | 0.334 | 0.340 |
| H0:β1+β2=0 | -0.197*** | -0.607*** | -0.486*** | -0.872*** |
| | (-4.89) | (-13.32) | (-12.33) | (-16.70) |

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively

**TABLE 7 Determinants of the Information Content of Stock Prices –Incremental Effect of Accounting Standards for Alternative Sample Periods (Continued)**

| Logistic($R^2$) | $VW\Psi_j$ | | $EW\Psi_j$ | |
|---|---|---|---|---|
| | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection |
| **Panel C: Sample period from 1990 to 2004, with IFRS as the proxy for accounting standards** | | | | |
| IFRS | -0.066 | -0.072 | -0.045 | -0.055 |
| | (-1.26) | (-1.63) | (-1.09) | (-1.50) |
| IFRS*Incentives | -0.126*** | -0.098*** | -0.150*** | -0.102*** |
| | (-6.99) | (-5.10) | (-8.25) | (-6.51) |
| Incentives | 0.056 | 0.099 | 0.098 | 0.097 |
| | (0.99) | (1.19) | (1.45) | (1.42) |
| Average adjusted $R^2$ | 0.319 | 0.307 | 0.238 | 0.215 |
| H0:β1+β2=0 | -0.193*** | -0.170*** | -0.196*** | -0.157*** |
| | (-5.98) | (-4.71) | (-7.32) | (-5.76) |
| **Panel D: Sample period from 2000 to 2004, with IFRS as the proxy for accounting standards** | | | | |
| IFRS | -0.001 | -0.017 | 0.030* | 0.007 |
| | (-0.04) | (-0.84) | (2.25) | (0.41) |
| IFRS*Incentives | -0.124*** | -0.074*** | -0.165*** | -0.095*** |
| | (-5.10) | (-4.72) | (-22.87) | (-5.43) |
| Incentives | -0.052 | -0.046 | -0.040 | -0.066 |
| | (-0.54) | (-0.85) | (-0.47) | (-1.25) |
| Average adjusted $R^2$ | 0.401 | 0.373 | 0.343 | 0.302 |
| H0:β1+β2=0 | -0.125*** | -0.091*** | -0.135*** | -0.088*** |
| | (-6.26) | (-8.59) | (-10.47) | (-15.47) |

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively

**TABLE 8 Factor Analysis of Reporting Incentives**

This table provides the factor analysis loadings of the five institutional variables from La Porta et al. (1998): **Legal Origin** takes a value of 1 if the country is of common-law origin and a value of 0 otherwise; the **Anti-director Rights Index** ranges from zero to six; **Rule of Law** ranges from zero to ten; **Judicial Efficiency** ranges from zero to ten; and the **Government Corruption Index** ranges from zero to ten.

| | Factor Pattern | | Factor Pattern: Varimax Rotation | |
|---|---|---|---|---|
| | Factor 1 | Factor 2 | Factor 1 (*Legal Enforcement*) | Factor 2 (*Investor Protection*) |
| Legal Origin | 0.1706 | 0.6977 | 0.0279 | 0.7177 |
| Anti-director Rights | 0.2082 | 0.6542 | 0.0734 | 0.6826 |
| Rule of Law | 0.8267 | -0.2998 | 0.8699 | -0.1287 |
| Judicial Efficiency | 0.8433 | 0.0816 | 0.8100 | 0.2483 |
| Government Corruption | 0.9391 | -0.0812 | 0.9364 | 0.1080 |
| Eigenvalue | 2.3490 | 1.0178 | | |

**TABLE 9 Determinants of the Information Content of Stock Prices – Incremental Effect of Accounting Standards Using Alternative Measures of Reporting Incentives**

This table provides the regression results for assessing the incremental effect of accounting standards using the two significant reporting incentives factors from the factor analysis in Table 8. $VW\Psi_j$ ($EW\Psi_j$) is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted (equally weighted) industry returns for each country-year. **ASF** is the proportion of firms adopting IFRS/U.S. GAAP in each country-year, based on the data item "accounting standards followed" in Worldscope. **IFRS** is the average level of IFRS usage by listed firms in each country as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005); a score of 3, 2, 1, or 0 indicates that the use of IFRS is required for all firms, required for some firms, permitted, or not allowed, respectively. **Incentives** is measured either by a high degree of legal enforcement or a high degree of investor protection, where **High Legal Enforcement** is equal to 1 if the country's level of legal enforcement is above the sample median and 0 otherwise, and **High Investor Protection** is equal to 1 if the country's level of investor protection is above the sample median and 0 otherwise. **Log(number of stocks)** is the logarithm of the number of listed firms. **Log(country size)** is the logarithm of the country's population. **Variance (GDP growth)** is the variance of annual GDP growth rates. **Log(GDP per capita)** is the logarithm of per capita GDP. **Herfindahl Index** is calculated based on industry sales. Coefficients are estimated by the Fama-MacBeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| Logistic($R^2$) | $VW\Psi_j$ | | $EW\Psi_j$ | |
|---|---|---|---|---|
| | High Legal Enforcement | High Investor Protection | High Legal Enforcement | High Investor Protection |
| **Panel A: ASF as the accounting standards proxy** | | | | |
| ASF | 0.041 | -0.169* | -0.005 | -0.327*** |
| | (0.42) | (-2.11) | (-0.05) | (-3.95) |
| ASF*Incentives | -0.373*** | -0.155 | -0.549*** | -0.184 |
| | (-4.99) | (-0.86) | (-7.12) | (-1.14) |
| Incentives | -0.238*** | -0.186*** | -0.201*** | -0.233** |
| | (-5.34) | (-3.28) | (-4.31) | (-2.63) |
| Average adjusted $R^2$ | 0.310 | 0.320 | 0.275 | 0.297 |
| H0:β1+β2=0 | -0.332*** | -0.323** | -0.554*** | -0.511*** |
| | (-5.11) | (-2.88) | (-9.69) | (-5.60) |
| **Panel B: IFRS as the accounting standards proxy** | | | | |
| IFRS | -0.022 | -0.037** | -0.008 | -0.026* |
| | (-1.07) | (-3.14) | (-0.50) | (-1.89) |
| IFRS*Incentives | -0.103*** | -0.108*** | -0.121*** | -0.121*** |
| | (-8.14) | (-6.04) | (-9.52) | (-7.89) |
| Incentives | 0.038 | -0.047 | 0.084 | -0.066 |
| | (0.43) | (-0.83) | (1.00) | (-1.12) |
| Average adjusted $R^2$ | 0.353 | 0.394 | 0.293 | 0.345 |
| H0:β1+β2=0 | -0.125*** | -0.146*** | -0.130*** | -0.147*** |
| | (-6.96) | (-8.03) | (-6.61) | (-10.25) |

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**TABLE 10 Determinants of the Information Content of Stock Prices – Incremental Effect of Accounting Standards Using GAAPQuality**

This table provides the regression results for assessing the incremental effect of accounting standards using GAAPQuality, which measures the degree of difference between local GAAP and IFRS or U.S. GAAP with regard to 21 accounting items based on a survey by the IFAD (2001). $VW\Psi_j$ ($EW\Psi_j$) is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted (equally weighted) industry returns for a country in each year. **GAAPQuality** is the minus of the natural logarithm on (1+ average difference between local GAAP and IAS/U.S. GAAP), taken from Bae et al. (2008). **Incentives** is measured either by Legal Origin or Investor Protection, where **Legal Origin** is equal to 1 if the country is of common law origin and 0 otherwise, and **Shareholder Protection** is equal to 1 if the country's anti-director rights index is above the sample median and 0 otherwise. **Log(number of stocks)** is the logarithm of the number of listed firms. **Log(country size)** is the logarithm of the country's population. **Variance (GDP growth)** is the variance of annual GDP growth rates. **Log(GDP per capita)** is the logarithm of per capita GDP. **Herfindahl Index** is calculated based on industry sales. Coefficients are estimated by the Fama-Macbeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| Logistic($R^2$) | $VW\Psi_j$ | | $EW\Psi_j$ | |
|---|---|---|---|---|
| | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection |
| Intercept | -1.211* | -1.368 | -0.294 | -0.273 |
| | (-1.89) | (-1.68) | (-0.60) | (-0.51) |
| GAAPQuality | -0.126* | -0.021 | -0.073 | 0.008 |
| | (-2.07) | (-0.38) | (-0.96) | (0.10) |
| GAAPQuality*Incentives | -0.081 | -0.270*** | -0.232*** | -0.348*** |
| | (-1.00) | (-5.88) | (-4.34) | (-6.33) |
| Incentives | -0.250* | -0.590*** | -0.540*** | -0.762*** |
| | (-1.94) | (-4.75) | (-6.42) | (-6.76) |
| Log (number of stocks) | -0.160*** | -0.158*** | -0.122** | -0.116* |
| | (-5.88) | (-5.05) | (-2.52) | (-2.14) |
| Log (country size) | 0.067*** | 0.076*** | 0.017 | 0.018 |
| | (3.69) | (4.09) | (1.07) | (0.10) |
| Variance (GDP growth) | 18.588** | 21.485*** | 19.653** | 21.729*** |
| | (3.24) | (3.35) | (3.11) | (3.61) |
| Log (GDP per capita) | -0.035** | -0.015 | -0.040*** | -0.031* |
| | (-2.48) | (-0.55) | (-3.57) | (2.05) |
| Herfindahl Index | 0.812 | 0.988* | 0.748 | 0.892 |
| | (1.51) | (1.83) | (1.21) | (1.28) |
| Average adjusted $R^2$ | 0.323 | 0.330 | 0.273 | 0.285 |
| Sample size | 406 | 406 | 406 | 406 |

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## TABLE 11 Determinants of the Information Content of Stock Prices – Transparency, ASF, and Reporting Incentives

This table reports the regression results for assessing the impact of corporate transparency on stock price synchronicity, with accounting standards and reporting incentives simultaneously considered. The dependent variable, $VW\Psi_j$, is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted industry returns for a country in each year.

**ASF** is the proportion of firms adopting IFRS/U.S. GAAP in each country-year, based on the data item "accounting standards followed" in Worldscope. **Residual Transparency** is the corresponding residual term from the regression for each of the five transparency measures in Jin and Myers (2006) on accounting standards (ASF), reporting incentives, and their interaction term. **DISCLOSURE** is the level and effectiveness of financial disclosure based on the Global Competitiveness Reports for 1999 and 2000, **AUDITOR** is the number of auditors relative to each country's stock market-capitalization in 1996 from Bhattacharya et al. (2003), **STANDARDS** is the average number of accounting items disclosed based on 1990 annual reports, **OPACITY** is the Global Opacity Index in PricewaterhouseCoopers (2001), and **DIVERSITY** is the dispersion of analyst forecasts. **Good Government Index** is based on La Porta et al. (1998). **Log(GDP per capita)** is the logarithm of per capita GDP. **Local Market Volatility** is the variance of local market returns. **Kurtosis** is the average kurtosis of local market returns. The control variables included but not reported are **Log(country size)**, **Variance(GDP growth),** and the industry **Herfindahl Index**. Coefficients are estimated by the Fama-Macbeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| | DISCLOSURE | | AUDITOR | | STANDARDS | | OPACITY | | DIVERSITY | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection |
| Intercept | -1.197*** | -1.187*** | -1.201*** | -1.122*** | -0.997*** | -1.096*** | -1.444*** | -1.559*** | -1.250*** | -1.281*** |
| | (-4.48) | (-4.55) | (-5.57) | (-5.60) | (-3.81) | (-4.06) | (-6.52) | (-8.64) | (-4.88) | (-5.24) |
| Residual Transparency | -0.001 | -0.004* | 0.000 | 0.000 | 0.006 | 0.004 | -0.003 | -0.005*** | 0.000 | 0.000 |
| | (-0.81) | (-2.26) | (-0.16) | (0.69) | (1.18) | (1.00) | (-1.19) | (-3.62) | (1.72) | (0.78) |
| Good Government Index | -0.043** | -0.040** | -0.042** | -0.042** | -0.056*** | -0.056*** | -0.050** | -0.044** | -0.047** | -0.045** |
| | (-3.19) | (-3.15) | (-2.55) | (-2.58) | (-5.05) | (-6.36) | (-3.12) | (-2.87) | (-2.95) | (-2.95) |
| Log (GDP per capita) | 0.098 | 0.088 | 0.089 | 0.083 | 0.111* | 0.122** | 0.145** | 0.143** | 0.110 | 0.109 |
| | (1.58) | (1.49) | (1.29) | (1.20) | (1.94) | (2.37) | (2.48) | (2.44) | (1.65) | (1.70) |
| Local Market Volatility | 0.019*** | 0.020*** | 0.021*** | 0.021*** | 0.019*** | 0.018*** | 0.018*** | 0.018*** | 0.020*** | 0.020*** |
| | (4.01) | (4.23) | (3.78) | (3.66) | (4.70) | (4.92) | (3.77) | (3.81) | (3.86) | (3.74) |
| Kurtosis | 0.001 | 0.001 | -0.002 | -0.002 | 0.009 | 0.010 | 0.007 | 0.006 | 0.001 | 0.000 |
| | (0.03) | (0.04) | (-0.08) | (-0.12) | (0.50) | (0.59) | (0.30) | (0.28) | (0.06) | (0.02) |
| Average adjusted $R^2$ | 0.158 | 0.169 | 0.154 | 0.160 | 0.187 | 0.187 | 0.169 | 0.172 | 0.171 | 0.171 |
| Sample size | 392 | 392 | 338 | 338 | 365 | 365 | 356 | 356 | 381 | 381 |

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## TABLE 12 Determinants of the Information Content of Stock Prices – Transparency, IFRS, and Reporting Incentives

This table reports the regression results for assessing the impact of corporate transparency on stock price synchronicity, with accounting standards and reporting incentives simultaneously considered. The dependent variable, $VW\Psi_j$, is the logistic transformation of the $R^2$ from the expanded market model that includes value-weighted industry returns for a country in each year.

**IFRS** is the average level of IFRS usage by listed firms in each country as reported in Deloitte Touche Tohmatsu (2002, 2003, 2005); a score of 3, 2, 1, or 0 indicates that the use of IFRS is required for all firms, required for some firms, permitted, or not allowed, respectively. **Residual Transparency** is the corresponding residual term from the regression for each of the five transparency measures in Jin and Myers (2006) on accounting standards (ASF), reporting incentives, and their interaction term. **DISCLOSURE** is the level and effectiveness of financial disclosure based on the Global Competitiveness Reports for 1999 and 2000, **AUDITOR** is the number of auditors relative to each country's stock market-capitalization in 1996 from Bhattacharya et al. (2003), **STANDARDS** is the average number of accounting items disclosed based on 1990 annual reports, **OPACITY** is the Global Opacity Index in PricewaterhouseCoopers (2001), and **DIVERSITY** is the dispersion of analyst forecasts. The **Good Government Index** is based on La Porta et al. (1998). **Log(GDP per capita)** is the logarithm of per capita GDP. **Local Market Volatility** is the variance of local market returns. **Kurtosis** is the average kurtosis of local market returns. The control variables included but not reported are **Log(country size)**, **Variance(GDP growth)**, and the industry **Herfindahl Index**. Coefficients are estimated by the Fama-Macbeth (1973) method, with the Pontiff (1996) adjusted t-statistics reported under each coefficient. All numbers are rounded.

| | DISCLOSURE | | AUDITOR | | STANDARDS | | OPACITY | | DIVERSITY | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection | Legal Origin | Shareholder Protection |
| Intercept | -1.109*** | -1.107*** | -1.107*** | -1.027*** | -0.906*** | -1.031*** | -1.156*** | -1.362*** | -1.186*** | -1.211*** |
| | (-4.02) | (-4.21) | (-5.38) | (-4.79) | (3.26) | (-3.57) | (-4.39) | (-4.94) | (-4.71) | (-4.84) |
| Residual Transparency | -0.001 | -0.003 | 0.000 | 0.000 | 0.007 | 0.004 | 0.001 | -0.003 | 0.000 | 0.000 |
| | (-0.67) | (-1.78) | (0.97) | (1.61) | (1.34) | (0.88) | (0.57) | (-1.08) | (1.76) | (0.78) |
| Good Government Index | -0.040** | -0.038** | -0.041** | -0.040** | -0.052*** | -0.052*** | -0.056*** | -0.050*** | -0.045** | -0.043** |
| | (-2.94) | (-2.96) | (-2.50) | (-2.43) | (-4.20) | (-5.08) | (-4.18) | (-4.30) | (-2.77) | (-2.78) |
| Log (GDP per capita) | 0.083 | 0.075 | 0.078 | 0.068 | 0.089 | 0.105* | 0.129* | 0.137* | 0.100 | 0.097 |
| | (1.30) | (1.27) | (1.15) | (0.97) | (1.45) | (1.83) | (2.01) | (2.23) | (1.48) | (1.50) |
| Local market volatility | 0.019*** | 0.020*** | 0.021*** | 0.020*** | 0.019*** | 0.018*** | 0.018*** | 0.018*** | 0.020*** | 0.020*** |
| | (3.90) | (4.13) | (3.81) | (3.66) | (4.55) | (4.64) | (3.74) | (3.85) | (3.85) | (3.78) |
| Kurtosis | -0.001 | -0.001 | 0.001 | 0.000 | 0.008 | 0.010 | 0.007 | 0.007 | 0.001 | 0.000 |
| | (-0.05) | (-0.06) | (0.03) | (0.01) | (0.47) | (0.56) | (0.34) | (0.31) | (0.06) | (0.78) |
| Average adjusted $R^2$ | 0.166 | 0.174 | 0.148 | 0.154 | 0.186 | 0.188 | 0.163 | 0.168 | 0.168 | 0.169 |
| Sample size | 387 | 387 | 330 | 330 | 357 | 357 | 348 | 348 | 373 | 373 |

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.