

LEGAL INSTITUTIONS AND TIMELINESS OF EARNINGS

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Abstract

This study examines systematic differences in relations between the timeliness of earnings as measured by the price-leading-earnings effects and country-specific legal institutional factors. We use a sample of firm-level observations during the period from 1989 to 1999 in 22 East Asian and Western European countries that exhibit different levels of legal institutional features, and find evidence of earnings lacking timeliness. We hypothesize that the informativeness of prices about future earnings increases with better legal institutions, namely disclosure quality, investor protection and legal enforcement. Our results are consistent with these predictions. Furthermore, multiple regression results show that each of the three country-specific legal institutional features is an important determinant of the timeliness of earnings and adds the incremental contribution above and beyond the others.

Keywords: Legal Institutions, Disclosure Quality, Investor Protection, Legal Enforcement, Timeliness of Earnings

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1. INTRODUCTION

A growing international accounting literature examines the value-relevance of accounting earnings. They investigate cross-country differences in the contemporaneous association between stock returns and accounting earnings, and find that value relevance of earnings varies substantially across countries (e.g., Alford, *et al.* 1993, Ali and Hwang 2000, Bhattacharya, *et al.* 2003, Ball, *et al.* 2000, Hung 2001, Ball, *et al.* 2003). The recognition that current period returns incorporate future period earnings information has attracted intense attention in recent years (e.g., Liu and Thomas 2000, Gelb and Zarowin 2002, Lundholm and Myers 2002, Ettredge, *et al.* 2005, Tucker and Zarowin 2006). However, the existing studies focus primarily on the U.S. listed firms to examine the price-leading-earnings relation.

Building on the extant literature, we first investigate the relation between current period stock returns and future period earnings across nine East Asian and thirteen Western European countries that exhibit different levels of institutional features. We measure the price informativeness through the association between current period returns and future period earnings after controlling for lagged and current period earnings. We then draw upon recent findings in corporate governance literature to identify the salient country-specific legal institutional features that are likely to influence how information about future performance is reflected in current returns. We identify three legal institutional

factors, namely financial disclosure, investor protection, and legal enforcement, and develop testable hypotheses that predict how each institutional factor affects the informativeness of prices about future period earnings information. Our specific research questions are whether the informativeness of current returns about future earnings increases in business environment with better financial disclosure, investor protection and legal enforcement. We explore these research questions using a sample of 30,804 firm-year observations in nine East Asian and thirteen Western European countries from 1989 to 1999.

We find results that are consistent with those of Collins, *et al.* (1994) that current returns are significantly positively correlated with future earnings for all of the countries studied, except for the Philippines, Indonesia and Thailand. We estimate the effects of the country-specific legal institutional factors on the lead-lag relation. The results from univariate regressions support all the hypotheses. We find that the informativeness of current returns about future earnings increases with better financial disclosure, investor protection, and legal enforcement. Furthermore, multiple regression results suggest that each of the country-specific legal institutional features is an important determinant of the price-leading-earnings relation and adds the incremental contribution above and beyond the others. We report that firm-specific control variables such as size, the sign of the current annual stock returns and loss, are significantly associated with the degree of price informativeness about future earnings.

This study contributes to the extant literature as follows. Prior studies find that current period returns reflect future period earnings (e.g., Tucker and Zarowin 2006). However, they focus on the U.S. listed firms to examine the price-leading-earnings relation. Evidence from this study on both the extent of and the potential determinants of this relation across countries facilitates an increased understanding of the information environment factors that underlie the price formation process. Furthermore, many prior international valuation studies rely on a contemporaneous relation between current period returns and current period earnings in assessing the informativeness and value relevance of earnings information. The evidence from this study, which indicates the extent to which current returns incorporate future period earnings differs across country-specific legal institutional features, suggests that contemporaneous return-earnings studies in an international setting should exercise caution when drawing inferences on the value relevance of accounting information.

This paper proceeds as follows. Section 2 develops hypotheses and section 3 describes our sample and data. Section 4 reports main empirical results. We summarize our findings in section 5.

2. HYPOTHESES DEVELOPMENT

Based on the observation that accounting recognition generally lags stock returns in measuring value creation, Warfield and Wild (1992) and Collins, *et al.* (1994) introduce future years' earnings into the regression of current annual returns on current annual earnings. They note that this addition increases the explanatory power of the regression three to six times more than a regression of returns on current earnings alone. They conclude that it is the accounting system's lack of timeliness, rather than random noise that gives rise to the low association between returns and contemporaneous earnings.

Collins, *et al.* (1994) empirically test whether the low contemporaneous price-earnings association is primarily due to earnings' lack of timeliness. They argue that earnings' lack of timeliness is partly a by-product of the conventional accrual accounting model. As accountants often trade timeliness for other accounting principles (such as objectivity and verifiability), expected future cash flows from new investments and research and development are only partially reflected in current earnings. However, these activities trigger almost immediate revisions in the market's expectation of future earnings and future cash flows, leading to immediate price changes. They hypothesize that current returns should correlate with changes in future earnings if such earnings lack timeliness, and report that current and future earnings adjusted for expectation errors explain variations in annual stock returns roughly 3-6 times as much as do current earnings alone. Below, we develop testable hypotheses on the relation between salient country-specific institutional features and the price-leading-earnings effects.

2.1. FINANCIAL DISCLOSURE

While Qi, *et al.* (2000) and Haw, *et al.* (2002) use Association for Investment Management and Research Corporate Information Committee (AIMR) Reports to develop proxies for the informativeness of prior disclosure and of the 10-K reports, Gelb and Zarowin (2002) examine the association between voluntary corporate disclosure and the informativeness of stock prices by measuring corporate disclosure with the AIMR-FAF annual corporate disclosure ratings. They regress current returns against (current and) future earnings changes, and find that greater disclosure is associated with stock prices that are more informative about future earnings (i.e., higher future ERC). The results provide empirical support for the widely held belief that a greater disclosure at the firm level provides information benefits to investors. Lundholm and Myers (2002) examine how a firm's disclosure activity affects the explanatory power of future earnings in the returns-earnings regression, and also study how such disclosure activity reveals this information to the market. They find a significant positive relation between a firm's disclosure activity, as measured by the AIMR ratings of corporate disclosures, and the amount of future earnings information reflected in the current annual return. They also report that changes in a firm's disclosure activity are positively related to changes in the amount of future earnings news reflected in current returns. Thus, increased disclosure activity at the company level "brings the future forward" into current stock returns. Ettredge, *et al.* (2005) examine the effect of U.S. firms' adoption of SFAS No. 131 segment disclosure rules on the stock market's ability to predict the firms' earnings, as captured by the relation between current returns and future earnings. Consistent with their argument that SFAS No. 131 increased both the quantity and quality of segment disclosure, they document that pre-131 multi-segment firms experience a significant increase in the price-leading-earning relation.

Our study adds to the literature by examining how the disclosure activity measured at the country-level affects the explanatory power of future earnings in the returns-earnings regression, leading to the following (alternative) hypothesis:

Hypothesis 1: Countries with greater financial disclosure have a stronger price-leading-earnings relation.

We use the CIFAR index, which measures the proportion of 90 financial disclosures included in a representative sample of firms' annual reports.⁴ This

⁴ The CIFAR index was created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items. These items fall into seven categories (general information, income statements, balance sheets, funds flow statement, accounting standards, stock data, and special items). A minimum of three companies in each country were studied. The companies represent a cross section of various

index is commonly used by researchers to capture the variety of quality in country-level financial reporting (La Porta, *et al.* 1998, Bushman, *et al.* 2004, Bushee 2004, Haw, *et al.* 2004, DeFond, *et al.* 2007).

2.2. INVESTOR PROTECTION

There is abundant direct and indirect evidence of the effects of investor protection. Strict and well-enforced minority rights facilitate both equity and credit market developments, access to external finance, efficient investments, increased dividends, high firm valuations, and the identification and replacement of dysfunctional executives. This suggests that there are substantial efficiency gains to be made from strong investor protection. Hung (2001) demonstrates that the negative impact of accrual accounting on value relevance of accounting performance measures is weaker in countries with common law legal system and stronger anti-director rights. Dyck and Zingales (2004) and Nenova (2003) provide direct evidence for the effectiveness of investor protection in reducing private control benefits. Leuz, *et al.* (2003) find that income management is reduced in economies with a strong statutory protection of minority rights. Haw, *et al.* (2004) further demonstrate that income management that is induced by the divergence of control rights from cash flow rights is less pronounced in countries in which legal institutions strongly protect minority shareholders rights. Legal institutions also affect investor assessments of the value relevance of reported income and accruals (Ball, *et al.* (2000), Ali and Hwang (2000)). However, Haw, *et al.* (2010), using a broad firm-level ownership data set for 22 economies outside the U.S., do not find that control-cash flow divergence, on average, has adverse effects on analysts' forecast properties across countries with varying legal institutions. Prior studies suggest that firms are less likely to make timely disclosure faithfully in countries where legal investor protection is weak and the expropriation of minority shareholders becomes easier. This leads to our next (alternative) hypothesis:

Hypothesis 2: Countries with strong investor protection have a stronger price-leading-earnings relation.

Follingue La Porta, *et al.* (1998) and Ball, *et al.* (2000), we measure the investor protection institution with the legal origin and anti-director rights measures. A common law legal system provides stronger protection to minority shareholders by lowering the standard of proof required in legal suits and widening the range of management decisions that are subject to judicial review (e.g., Johnson, *et al.* 2002, Dyck and Zingales 2004, Lang, *et al.* 2004). An anti-director rights index measures how strongly a legal system favors minority

shareholders against insiders in the corporate decision making process, including the voting process. Hung (2001) and Lang, *et al.* (2004) use both measures to proxy the level of investor protection in a country. Similarly, we combine the two measures to form a single proxy for investor protection, which is equal to one if a country's legal system is based upon common law and the anti-director rights score is more than three, whereby a sub-sample with an anti-director rights score that is higher than our country sample median of three is classified as strong protection, -1 if the legal system is code law-based and the anti-director rights score is less than three, and 0 otherwise.⁵

2.3. Legal Enforcement

Effective legal enforcement is equally important in protecting the rights of investors, because even the most protective laws are ineffective without stringent implementation and enforcement.⁶ An emerging literature (see La Porta, *et al.* 1998; Bhattacharya and Daouk 2002 and Ball, *et al.* 2003) suggests enforcement of shareholder protection laws and threat of litigation are just as important as the disclosure standards, if not more important. That is, if enforcement of shareholder rights and disclosure standards is weak, then the quality of disclosure tends to be poor, regardless of the disclosure standards. For example, Hope (2003) find that strong enforcement is associated with higher forecast accuracy, which is consistent with the argument that enforcement encourages managers to follow prescribed accounting rules. Bhattacharya and Daouk (2002) find that the enforcement of insider trading laws is a significant determinant of liquidity and cost of capital, over and beyond the existence of insider trading. They find that "the mere existence of insider trading regulations without their enforcement does not affect the cost of equity." They also find that credit ratings are lower for the countries that have lax enforcement of insider trading laws.

Ball, *et al.* (2003) study the influence of institutional factors on the properties of reported accounting numbers when enforcement of standards is weak. Four

⁵ Haw, *et al.* (2004) demonstrate a high correlation of 77% between the two proxies for investor protection.

⁶ Kothari (2000) suggests that the impact of weak enforcement on disclosure quality works in two ways. First, weak shareholder protection has a negative impact on the growth of capital markets and makes corporations with a shareholder governance model unattractive to investors. Both of these phenomena reduce the demand for timely public disclosure of financial information, regardless of the quality of disclosure standards. Lack of demand for public disclosure coupled with weak enforcement means that the quality of financial disclosure in such economies will be poor. Second, if accounting standards are not enforced vigorously and if private avenues of inducing compliance with disclosure standards through shareholder litigation are not easily available, then disclosure quality is likely to suffer.

industry groups; industrial companies represented 70 percent, and financial companies represented the remaining 30 percent. See Hope (2003) for an extensive discussion of these scores.

East Asian countries have common-law standard-setting: Hong Kong, Malaysia, Singapore, and Thailand, whose recent standards closely resemble International Accounting Standards. However, they find that “earnings reported in the four East Asian countries, taken as a whole, exhibit properties that are typical of code-law accounting.” In particular, accounting numbers in the four East Asian countries are not transparent (that is, timely in disclosing information or conservative in reporting bad news quickly) to the same extent as those for a typical corporation in a common-law country like the United Kingdom or the United States. Hence, in spite of high-quality, common-law accounting standards, the lack of users’ demand for timely public disclosure of accounting information appears to determine the properties of accounting disclosure in the four East Asian countries. Weak enforcement of accounting standards enables companies in these countries to deviate from the standards in their application. Shareholder litigation against corporations and auditors is infrequent. Diga and Saudagaran (2000) find there have been no judicial actions against auditors in Malaysia and Thailand, and Ball, *et al.* (2003) find that lawsuits against auditors are not common in Singapore and Hong. Our study adds to the literature by examining how the effectiveness of legal enforcement measured at the country-level affects the explanatory power of future earnings in the returns-earnings regression, leading to the following (alternative) hypothesis:

Hypothesis 1: Countries with better legal enforcement have a stronger price-leading-earnings relation.

We proxy legal enforcement by a measure of judicial system efficiency that assesses the efficiency and integrity of the legal environment, as produced by Business International Corp., as reported in La Porta, *et al.* (1998).

3. SAMPLE AND DATA

The sample consists of listed firms during the 1989-1999 period in twenty-two economies: nine in East Asia (Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand) and thirteen in Western Europe (Austria, Belgium, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom). The firms in the sample must have requisite data on financial variables that allow the construction of the earnings timeliness measure. Stock returns and financial data are extracted from the *Worldscope* database.

Our potential sample (32,866 firm-years) comprises all firms within the sample countries that have five consecutive years of earnings and return data available on *Worldscope* during the time period from 1989 to 1999. We then sequentially delete observations out of the sample period (231), observations from Southeast Asian economies after 1994 (as earnings data are required for the forthcoming three years) to remove the effect of the 1997 Asian financial crisis (1,272), observations with absolute earnings that is greater than the

market value of equity (280), observations with future earnings that is greater than 300 percent of beginning (176) and ending (86) market value, and eight observations with missing control variables.⁷ The final sample consists of 30,804. The UK and Japan account for about forty and twenty percent of the final sample, respectively. Our earnings data suggest that about fifteen percent of the sample observations have a negative income before extraordinary items.

Panel A of Table 1 presents descriptive statistics of returns, earnings, and firm size for our sample. The mean annual stock return (R_t) is 6.95 percent and statistically significant. The mean values of earnings divided by market values at year $t-1$ (X_{t-1}) and t (X_t) are 3.04 percent and 3.32 percent respectively, and are statistically significant. The mean (median) future earnings (X_{3t}) for the three years following the current year is 14.43 (10.10) percent and mean (median) future returns (R_{3t}) for the same period is 26.09 (2.70) percent. Both annual and future stock returns are right-skewed (means higher than medians), and considerably more volatile than earnings, which are comparable to prior studies (e.g., Ball *et al.* (2003)). The median total asset is US\$382.7 million and relatively large. There is a considerable variation in the size of our sample firms with total assets of \$113 million for the first quartile and \$1.46 billion for the third quartile. Thus, our sample covers small as well as large firms. The data on total assets (not reported) also indicate that the mean total assets of the sample in 1990 is US\$4.08 billion and increases to US\$5.27 billion. Indonesian (Italian) firms are smallest (largest) with an average total assets of US\$331 million (US\$8.31 billion).

Panel B of Table 1 shows both Pearson (shown below the diagonal) and Spearman rank (shown above the diagonal) correlations among earnings, returns, and size. The correlations between the current returns (R_t) and each of the three earnings variables (X_{t-1} , X_t , X_{3t}) are significantly positive. The future return (R_{3t}) is not significantly correlated with the current return but significantly correlated with future earnings (X_{3t}), which is consistent with Collins *et al.* [1994]. Therefore, future returns should not influence the regression results except through their role as a proxy for the measurement error in future earnings.

4. REGRESSION ANALYSIS

4.1. RELATION BETWEEN CURRENT RETURNS AND FUTURE EARNINGS

We measure the timeliness of earnings following the seminal work of Collins, *et al.* (1994) and Warfield and

⁷ This is in line with Lundholm and Myers (2002), who delete observations with absolute earnings or a change in earnings greater than the market value of equity, observations with future earnings greater than 300 percent of market value, and special items greater than 50 percent of market value. Our sample does not have any observation with special items greater than 50 percent of market value.

Wild (1992). To test our first hypothesis, we first assess whether current returns reflect future earnings information in the international setting with the following cross-sectional regression model:

$$R_{it} = a_0 + a_1 X_{it-1} + a_2 X_{it} + a_3 X3_{it} + a_4 R3_{it} + (\text{Fixed effects}) + u_{it} \quad (1)$$

where, for a firm i , current return (R_t) is the annual returns for the 12-month period during the fiscal year, lagged earnings (X_{t-1}) is net income before extraordinary items for year $t-1$, scaled by market value at the end of year $t-1$, current earnings (X_t) is net income before extraordinary items for year t , scaled by market value at the end of year $t-1$, future earnings ($X3_t$) is the sum of net income before extraordinary items for the three years following the current year (i.e., for years $t+1$, $t+2$ and $t+3$), scaled by market value at the end of year $t-1$, future return ($R3_t$) is the buy-and-hold returns for the three-year period following the current year, fixed effects are the dummy variables controlling for fixed effects of calendar years and economies, and u_{it} is the error term at year t . We use only three years of future earnings and returns because prior research has shown that amounts further out in time add little explanatory power (Collins, *et al.* 1994). Following Lundholm and Myers(2002), we include $R3_t$ to control for measurement error when the realized future earnings are used to proxy for expected future earnings. Consistent with prior literature, we expect the coefficient on X_{t-1} to be negative and the coefficient on X_t to be positive, reflecting the mean-reverting nature of earnings. The coefficient on $X3_t$ is expected to be positive. We also expect the coefficient on $R3_t$ to be negative, as is consistent with Lundholm and Myers (2002).

Table 2 presents the regression results for model (1). The fixed effects of calendar years and/or economies are included, where appropriate, as dummy intercepts in the regressions. For simplicity, they are not reported in the table. For model (1) with the pooled sample, the adjusted R^2 is 27.69%, which is higher than that for the typical model without future earnings ($X3_t$) and returns ($R3_t$) (e.g., Francis and Schipper 1999 and Lev and Zarowin 1999). The estimated coefficients of lagged earnings (X_{t-1}) and current earnings (X_t) remain statistically significant from zero in expected sign, with a smaller magnitude than the models without future earnings. The coefficient of future earnings ($X3_t$) is significantly positive. The annual regressions provide similar results.

We further perform the regressions economy by economy. All of the coefficients for lagged earnings are negative except for Belgium and Indonesia, and 16 are statistically significant. The coefficients of current earnings are all positive except for Indonesia, and they are significant at the conventional level except for Taiwan. The coefficients of future earnings are all positive except for the Philippines, and they are significant at the conventional level except for Belgium and Thailand. The coefficients for future returns are all negative except for Belgium and the Philippines, and 15 are statistically significant. Overall, the results in Table 2 indicate that current returns are significantly increasing

in future earnings and significantly decreasing in future returns. They are consistent with those of Collins, *et al.* [1994] and Lundholm and Myers [2002].

4.2. LEAD-LAG RELATION AND INSTITUTIONAL FACTORS

Table 3 presents the summary statistics of the institutional measures (Panel A) and their correlations with earnings and returns (Panel B). As shown in Panel A, the ratings for disclosure quality range from the lowest value of 36 for Portugal to the highest value of 83 for Sweden. Five economies (Hong Kong, Ireland, Malaysia, Singapore and the UK) have a investor protection score of 1 as they possess both a common law system and an anti-director rights score higher than 3. Even though Japan, Norway, and Spain have an anti-director rights score higher than 3, their legal scores equal 0 as they have civil law systems. Thailand has a investor protection score of 0 because its anti-director rights score is 2 even though it has a common law system. The rest of the thirteen countries have a investor protection score of -1. We measure size by the proxy used by Hand [1990], which is a log-linear transformation of market value, $[\log(MV_i) - \log(\text{Min MV})] / [\log(\text{Max MV}) - \log(\text{Min MV})]$, where Max MV and Min MV are, respectively, the maximum and minimum market value of equity of a country at the end of a year. Growth is defined as the percentage growth in a firm's assets from year $t-1$ to year t and capped at 150%.

Panel B of Table 3 presents Pearson correlations among earnings, returns, the legal institutional measures, and control variables including size, growth, sign of current annual return (a dummy variable which equals one if the annual stock return during the fiscal year is positive, and zero other), and earnings quality. We measure earnings quality using the country-level aggregate earnings management score of Leuz, *et al.* (2003) multiplied by -1. This score, based on 1990-1999 data, equals the average rank of two earnings smoothing measures and two earnings discretion measures. We multiply the score by -1 so that higher values indicate higher quality, following DeFond, *et al.* (2007). While disclosure quality and investor protection correlate positively with returns and each of the three earnings variables, legal enforcement correlates negatively with these variables. Returns and earnings measures significantly correlate with firm size, growth, the sign of current return and earnings quality, suggesting the need of controlling them in regression analyses.

We employ the ordinary least-squares method to regress current returns on earnings, institutions, the interactions between institutions and earnings, the control variables, and the interactions between controls and earnings:⁸

$$R_{it} = a_0 + a_1 X_{it-1} + a_2 X_{it} + a_3 X3_{it} + a_4 R3_{it}$$

⁸ We remove the control for the sign of current returns from the model and find similar results.

$$\begin{aligned}
& + \beta_0 INST + \beta_1 INST * X_{it-1} + \beta_2 INST * X_{it} + \beta_3 \\
& INST * X_{3it} + \beta_4 INST * R_{3it} + \gamma_0 SIZE + \gamma_1 SIZE * X_{it-1} + \\
& \gamma_2 SIZE * X_{it} + \gamma_3 SIZE * X_{3it} + \gamma_4 SIZE * R_{3it} + \gamma_5 \\
& GROW + \gamma_6 GROW * X_{it-1} + \gamma_7 GROW * X_{it} + \gamma_8 \\
& GROW * X_{3it} + \gamma_9 GROW * R_{3it} + \gamma_{10} SignR + \gamma_{11} \\
& SignR * X_{it-1} + \gamma_{12} SignR * X_{it} + \gamma_{13} SignR * X_{3it} + \gamma_{14} \\
& SignR * R_{3it} + \gamma_{15} EQ + \gamma_{16} EQ * X_{it-1} + \gamma_{17} EQ * X_{it} + \gamma_{18} \\
& EQ * X_{3it} + \gamma_{19} EQ * R_{3it} + \gamma_{20} LOSS + \gamma_{21} LOSS * X_{it-1} + \\
& \gamma_{22} LOSS * X_{it} + \gamma_{23} LOSS * X_{3it} + \gamma_{24} LOSS * R_{3it} + (Fixed \\
& effects) + u_{it} \tag{2}
\end{aligned}$$

where *INST* is the country-level financial disclosure (*Disclosure*), investor protection (*Protection*), and legal enforcement (*Enforcement*), fixed effects are the dummy variables controlling for fixed effects of calendar years and economies, fixed effects are the dummy variables controlling for fixed effects of calendar years and economies, and u_{it} is the error term at year t . Following Lundholm and Myers (2002), we control for size (*SIZE*), growth (*GROW*) and the sign of the current annual return (*SignR*) as they significantly correlate with returns and earnings. We also include country-level earnings quality (*EQ*) following Leuz et al. [2003] and DeFond et al. (2005), who argue that earnings in countries with less earnings management are of “higher quality.” Hayn (1995) shows that loss firms become increasingly prevalent and that investors rely less on earnings when valuing loss firms Lipe, et al. (1998) and Brown (2001) also document differential market responses to unexpected earnings for firms reporting profits vs. losses. Prior studies further find evidence that the information environment of firms which report losses differs from that of firms which report profits (Hwang, et al. 1996, Ertimur 2004). More related to this study, Lundholm and Myers (2002) find a negative effect of current losses on the price-leading-earnings relation when controlling for other determinants of the earnings response coefficient. We thus include *LOSS*, which equals to 1 if the income in current year is negative and 0 otherwise, in the model.

4.2.1. Lead-Lag Relation and Financial Disclosure

Table 4 presents the regression results for model (2), testing Hypothesis 1 that countries with greater financial disclosure have a stronger price-leading-earnings relation. The coefficient for the interaction of *Disclosure** X_3 , is 0.011 and significantly positive at the 1% level, which is consistent with our first hypothesis and also corroborates the findings of Gelb and Zarowin (2002) and Lundholm and Myers (2002), in that firms with relatively more information disclosures “bring the future forward,” so that current returns reflect more future earnings news. The sum of the coefficients on *Disclosure** X_t and *Disclosure** X_{t-1} is 0.001 and statisti-

cally insignificantly (not reported), suggesting that accounting earnings are not likely to be more relevant for shareholders in countries with more disclosure requirements. The results shed light on the findings of prior studies. While Lundholm and Myers (2002) find the effect of current earnings on current returns is not dependent on the level of disclosure, Gelb and Zarowin (2002) find a higher ERC for high disclosure (0.223) than that for low disclosure (0.052).⁹ We also find the coefficients for the interaction terms between X_3 , and size and sign of current return are all significantly positive. However, the coefficient on X_3 **EQ* is significantly negative. As expected, the coefficient for the interaction of *LOSS** X_3 , is negative and statistically significant at the 1% level. The adjusted- R^2 for the loss firms is 49.23%. Overall, the results are consistent with our first hypothesis that countries with greater financial disclosure have stronger price-leading-earnings relation.

4.2.2. Lead-Lag Relations and Investor protection

Table 5 presents the regression results for model (2), testing Hypothesis 2 that countries with stronger investor protection have a stronger price-leading-earnings relation. The coefficient on *Protection** X_3 , is 0.060 and statistically significant at the 1% level. Clearly, the level of investor protection plays an important role in determining the extent of the relation between future earnings and current returns. In addition, the sum of the coefficients on *Protection** X_{t-1} and *Protection** X_t is 0.03 and is significantly positive at 1% level, consistent with prior studies (e.g., Ali and Hwang 2000, Hung 2001, and DeFond, et al. 2007) in that accounting earnings are likely to be more relevant for shareholders in countries with stronger investor protection.

Similar to the results in Table 4, the coefficients for the interaction terms between X_3 , and size and sign of current return are also all significantly positive. However, the coefficients for the interactions between X_3 , and growth and earnings quality are not significantly different from zero. As expected, the coefficient for the interaction of *LOSS** X_3 , is negative and statistically significant at the 1% level. The adjusted- R^2 for the loss firms is 49.21%. Overall, the results are consistent with our second hypothesis that countries with stronger investor protection have a stronger price-leading-earnings relation.

⁹ As high disclosure tends to have good news, Basu (1997) finds that good news firms have more persistent earnings and higher ERCs than bad news firms. Alternatively, firms with more informative disclosures might have lower contemporaneous ERCs, because the information impounded in current earnings was impounded in the stock prices of previous periods. In fact, Lang and Lundholm (1993) find that the returns-earnings correlation decreases with the level of disclosure.

4.2.3. Lead-Lag Relations and Legal Enforcement

Table 6 presents the regression results for model (2), testing Hypothesis 3 that countries with more effective legal enforcement have a stronger price-leading-earnings relation. The coefficient on $Enforcement * X_{3t}$ is 0.0017 and statistically significant at 2% significance level. On the other hand, the sum of the coefficients on $Enforcement * X_{t-1}$ and $Enforcement * X_t$ is -0.0345 and significantly negative at 10% level. The results indicate that current (future) accounting earnings are likely to be less (more) relevant for shareholders in countries with stronger legal enforcement. In addition the coefficients for the interaction terms between X_{3t} and size and sign of current return are also significantly positive. However, the coefficients for the interactions between X_{3t} and growth and earnings quality are not significantly different from zero. As expected, the coefficient for the interaction of $LOSS * X_{3t}$ is negative and statistically significant at the 1% level. The adjusted- R^2 for the loss firms is 49.19%. Overall, the results are consistent with our third hypothesis that countries with stronger legal enforcement have a stronger price-leading-earnings relation.

4.2.4. Multiple Regressions

The univariate regressions suggest that price-leading-earnings relation varies with the extent of financial disclosures, investor protections, and legal enforcement. However, it is quite likely that weak enforcement coexists with poor shareholder and investor protection. Bhattacharya and Daouk (2002) find that, of the 87 countries proscribe insider trading at the end of 1998, all developed countries prohibit insider trading, whereas 80 percent of the developing countries have laws against insider trading. However, in only 38 countries did insider trading laws appear to be enforced. In many of the remaining countries, even though the law appears on the books, no prosecution has ever taken place. Furthermore, enforcement is far more common in developed countries: 78 percent, compared to only 23 percent of developing countries. Ball, et al, (2003) find that “earnings reported in the four East Asian countries, taken as a whole, exhibit properties that are typical of code-law accounting.” These four East Asian countries have a mix of code-law and common-law attributes when it comes to standard-setting and corporate governance. Standard-setting is similar to that in a common-law country in that the government is not directly involved in standard-setting, and tax codes do not significantly influence financial reporting. Haw, et al, (2004) find that legal tradition and efficiency of the judicial system subsume the effects of the other legal institutions in alleviating insider income management.

Table 7 presents the multiple regression results with all three legal institutional factors together in the model, showing the incremental contribution of each institutional factor above and beyond that of the others. The coefficients on $Disclosure * X_{3t}$, and $Protection * X_{3t}$ and $Enforcement * X_{3t}$ are all in expected signs and

statistically significant at 1% level. Overall, the thrust of our main results does not change when we put all three legal institutional factors together in one regression. Our findings imply that each of the three country-specific legal institutional features is an important determinant of the price-leading-earnings relation and adds the incremental contribution above and beyond the others.

5. CONCLUSION

The purpose of this study is to examine cross-country differences in the informativeness of current returns about future earnings and to identify the legal institutional factors that explain these differences. We appeal to the literature on investor protection institutions and identify salient country-specific legal institutional variables that we find to be associated with the informativeness of current returns about future earnings. Specifically, we find that the informativeness of current returns about future earnings increases with better financial disclosure, legal shareholder protection and legal enforcement measures. Furthermore, multiple regression results show that each of the three country-specific legal institutional features is an important determinant of the price informativeness about future earnings and adds the incremental contribution above and beyond the others. Our findings indicate that these legal institutional factors are incrementally significant after controlling for the effects of accounting conservatism.

This study contributes to the existing literature as follows. The recognition that current period return incorporates future period earnings information has attracted intense attention recently. However, the existing studies primarily focus on listed firms in the U.S. to examine the price-leading-earnings relation. This study's evidence on the extent and the potential determinants of this relation across countries facilitates an increased understanding of the factors in the information environment that underlie the price formation process. Furthermore, many prior international valuation studies rely on a contemporaneous relation between current period returns and current period earnings in assessing the informativeness and value relevance of earnings information. The evidence of this study, that the extent to which current returns incorporate future period earnings differs across country-specific legal institutional features, suggests that the contemporaneous return-earnings studies in an international setting should exercise caution when drawing inferences about the value relevance of accounting information.

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APPENDICES

TABLE 1. Summary Statistics and Correlations between Returns and Earnings

Panel A. Summary Statistics of Returns, Earnings and Firm Size

Variable	Mean	Std Dev	25%	Median	75%
R_t	0.0695	0.4843	-0.1915	-0.0042	0.2250
X_{t-1}	0.0304	0.1106	0.0141	0.0346	0.0674
X_t	0.0332	0.1115	0.0118	0.0341	0.0723
$X3_t$	0.1443	0.3796	0.0194	0.1010	0.2637
$R3_t$	0.2609	1.1681	-0.3129	0.0270	0.5156
Total Assets (US\$mil)	4,810	25,797	113	383	1,461

Panel B. Spearman rank (above the diagonal) and Pearson (below the diagonal) correlation between Return and, Earnings (p-values)

	R_t	X_{t-1}	X_t	$X3_t$	$R3_t$
R_t		0.191 (0.000)	0.393 (0.000)	0.365 (0.000)	0.034 (0.000)
X_{t-1}	0.051 (0.000)		0.666 (0.000)	0.447 (0.000)	0.273 (0.000)
X_t	0.268 (0.000)	0.504 (0.000)		0.604 (0.000)	0.293 (0.000)
$X3_t$	0.284 (0.000)	0.192 (0.000)	0.391 (0.000)		0.583 (0.000)
$R3_t$	0.001 (0.842)	0.051 (0.000)	0.081 (0.000)	0.391 (0.000)	

This table presents descriptive statistics and correlation matrix for 30,810 observations from 1990 to 1996. Current returns (R_t) for year t are the annual returns for the 12-month period during the fiscal year. Lagged earnings (X_{t-1}) are net income before extraordinary items for year t-1, and scaled by market value at the end of year t-1. Current earnings (X_t) are net income before extraordinary items for year t, and scaled by market value at the end of year t-1. Future earnings ($X3_t$) are the sum of net income before extraordinary items for the three years following the current year (i.e. for years t+1, t+2 and t+3), and scaled by market value at the end of year t-1. Future returns ($R3_t$) are the buy-and-hold returns for the three-year period following the current year.

TABLE 2. Regressions of Price-Leading-Earnings Relations

Expected Sign	Intercept ?	X_{t-1} -	X_t +	$X3_t$ +	$R3_t$ -	Adj R^2
Pooled Sample	-0.3461*** (-31.69)	-0.4127*** (-16.29)	1.2451*** (49.41)			0.2464
Pooled Sample	-0.3305*** (-30.85)	-0.4059*** (-16.36)	0.9549*** (36.45)	0.2549*** (34.14)	-0.0514*** (-22.52)	0.2769
By-Year Regressions						
1990	-0.2927*** (-11.82)	-0.2415*** (-2.81)	0.7088*** (8.79)	0.1743*** (7.95)	-0.0357*** (-6.30)	0.1984
1991	-0.1611*** (-20.58)	-0.0374 (-0.66)	0.9518*** (17.57)	0.2520*** (17.13)	-0.0339*** (-8.46)	0.2631
1992	-0.2992*** (-45.05)	-0.1397*** (-3.15)	0.9168*** (20.80)	0.2163*** (16.08)	-0.0620*** (-13.33)	0.3687
1993	-0.0160 (-1.1781)	-0.6293*** (-8.30)	1.0380*** (12.87)	0.3209*** (13.68)	-0.1044*** (-11.38)	0.3235
1994	0.1256*** (14.01)	-0.6684*** (-12.86)	1.0984*** (18.17)	0.2379*** (14.06)	-0.0357*** (-6.46)	0.1535
1995	-0.1490*** (-24.06)	-0.1617*** (-3.57)	0.7402*** (15.52)	0.1302*** (9.98)	-0.0078** (-2.20)	0.1881
1996	0.2205*** (24.59)	-0.3368*** (-4.40)	0.8672*** (9.96)	0.1328*** (4.91)	-0.0048 (-0.59)	0.0721
By-Country Regressions						
Austria	0.106 (1.151)	-0.035 (-0.096)	0.834** (2.439)	0.437*** (3.648)	-0.164*** (-3.629)	0.1492
Belgium	-0.204*** (-7.661)	0.166 (1.649)	0.436*** (4.447)	0.041 (1.494)	0.017* (1.740)	0.3673
Finland	-0.228** (-2.491)	-0.500*** (-2.995)	1.163*** (6.789)	0.352*** (6.579)	-0.041*** (-2.752)	0.5379
France	-0.185*** (-11.340)	-0.160*** (-3.605)	0.813*** (16.189)	0.185*** (10.764)	-0.041*** (-6.014)	0.2992
Germany	-0.005 (-0.202)	-0.214*** (-2.622)	0.632*** (7.580)	0.184*** (6.773)	-0.015*** (-2.807)	0.2764
Hong Kong	0.017 (0.151)	-0.259 (-0.697)	1.157*** (3.926)	0.178*** (2.706)	-0.054** (-2.417)	0.2336
Indonesia	-0.321** (-2.442)	3.507** (2.268)	-3.716*** (-2.911)	1.394*** (7.569)	-0.265*** (-4.125)	0.5080
Ireland	-0.230** (-2.368)	-0.364* (-1.731)	0.705*** (2.772)	0.179** (2.388)	-0.070** (-2.563)	0.2993
Italy	-0.173*** (-7.643)	-0.096 (-1.145)	0.558*** (6.592)	0.103*** (4.464)	-0.009 (-0.670)	0.3196
Japan	-0.238*** (-10.628)	-0.405*** (-8.828)	1.168*** (24.662)	0.263*** (19.706)	-0.050*** (-10.428)	0.2608
Korea	-0.245*** (-5.528)	-0.550*** (-2.932)	1.029*** (4.935)	0.070* (1.823)	-0.042 (-1.458)	0.3486
Malaysia	-0.005 (-0.023)	-4.140*** (-2.681)	3.247*** (3.368)	0.727*** (4.509)	-0.071*** (-3.740)	0.2478
Norway	-0.040 (-0.427)	-0.727*** (-4.023)	1.147*** (5.944)	0.152** (2.448)	-0.037*** (-2.639)	0.3805
Philippines	-0.421 (-0.619)	-7.404** (-2.035)	15.104*** (4.599)	-2.860*** (-5.050)	0.099 (0.879)	0.4668
Portugal	-0.375*** (-4.989)	-0.483* (-1.954)	1.046*** (4.442)	0.334*** (4.672)	-0.050 (-1.618)	0.3527
Singapore	-0.160* (-1.671)	-1.978** (-2.391)	3.597*** (5.579)	0.409*** (3.506)	-0.141*** (-3.579)	0.4700
Spain	-0.273*** (-7.156)	-0.039 (-0.319)	0.521*** (3.921)	0.220*** (6.366)	-0.051*** (-3.748)	0.3677
Sweden	-0.386*** (-5.320)	-0.474*** (-3.274)	1.095*** (7.705)	0.201*** (4.647)	-0.009 (-1.157)	0.4814
Switzerland	-0.196*** (-5.490)	-0.600*** (-4.922)	1.129*** (8.642)	0.063* (1.878)	-0.048*** (-3.332)	0.4030
Taiwan	-0.550***	-3.467***	0.537	1.885***	-0.263***	0.6344

	(-3.521)	(-3.806)	(0.515)	(5.307)	(-2.963)	
Thailand	-0.233	-3.210***	5.815***	0.011	-0.006	0.2656
	(-0.439)	(-2.639)	(5.702)	(0.080)	(-0.344)	
UK	-0.301***	-0.480***	0.593***	0.302***	-0.081***	0.3532
	(-13.362)	(-11.028)	(12.313)	(17.374)	(-13.125)	

Current returns (R_t) for year t are the annual returns for the 12-month period during the fiscal year. Lagged earnings (X_{t-1}) are net income before extraordinary items for year $t-1$, and scaled by market value at the end of year $t-1$. Current earnings (X_t) are net income before extraordinary items for year t , and scaled by market value at the end of year $t-1$. Future earnings ($X3_t$) are the sum of net income before extraordinary items for the three years following the current year (i.e. for years $t+1$, $t+2$ and $t+3$), and scaled by market value at the end of year $t-1$. Future returns ($R3_t$) are the buy-and-hold returns for the three-year period following the current year. The fixed effects of calendar years and/or economies are included, where appropriate, as dummy intercepts in the regressions. For simplicity, they are not reported in the table. ***, **, and * Statistically significant at the 1%, 5%, and 10% levels, respectively, two-tailed.

TABLE 3. Summary Statistics of Institutional Factors and Correlations among Earnings, Returns, Institutional Factors and Control Variables

Panel A. Summary Statistics of Country-Specific Institutional Factors

Variable	Mean	Std Dev	Minimum	Q1	Median	Q3	Maximum
Disclosure Quality	68.722	6.897	36	65	65	78	83
Investor protection	-0.020	0.755	-1	-1	0	0	1
Legal Enforcement	9.326	1.320	2.2	9.0	10.0	10.0	10
SIZE	0.443	0.189	0	0.306	0.427	0.564	1
Growth	0.086	0.234	-0.969	-0.019	0.043	0.131	1.5

Panel B. Pearson Correlation among Institutional Factors, Control variables, Earnings and Returns (p-values)

	R_t	X_{t-1}	X_t	$X3_t$	$R3_t$
Disclosure Quality	0.1479	0.0495	0.0869	0.1847	0.1923
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Investor protection	0.0884	0.0082	0.0245	0.0598	0.0408
	(<.0001)	(0.1518)	(<.0001)	(<.0001)	(<.0001)
Legal Enforcement	-0.0378	-0.0650	-0.0587	-0.0247	-0.0410
	(<.0001)	(0.1518)	(<.0001)	(<.0001)	(<.0001)
Growth	0.1870	0.1220	0.2406	0.1309	0.0148
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.0092)
Sign of Current Return	0.6092	0.0775	0.2255	0.2267	0.0149
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.0091)
Earnings Quality	0.1254	0.0541	0.0850	0.1925	0.2183
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)

Disclosure Quality are the ratings of disclosure standards based on the measurement of the inclusion or omission of 90 items in an annual report from La Porta et al. (1998). Investor protection combines the legal system's origin and anti-director rights to form a single proxy for shareholder protection, which is equal to one if a country's legal system is common law and the antidirector rights score is more than three, whereby a sub-sample with an anti-director rights score higher than three (sample country median) is classified as having strong protection, equal to -1 if the legal system is code law and the rights score is less than three, and otherwise equal to 0. Legal Enforcement is measured by the score of a measure of judicial system efficiency that assesses the efficiency and integrity of the legal environment, as produced by Business International Corp., reported in La Porta et al, (1998). SIZE is a log-linear transformation of market value, $[\log(MV_t) - \log(\text{Min MV})] / [\log(\text{Max MV}) - \log(\text{Min MV})]$, where Max MV and Min MV are, respectively, the maximum and minimum market value of equity of a country at the end of a year. Growth is defined as the percentage growth in a firm's assets from year $t-1$ to year t . The sign of current annual return is the sign of the annual stock return for the 12-month period during the fiscal year. Earnings Quality is the aggregate earnings management score from Leuz et al [2003] multiplied by -1, which equals the average rank of two earnings smoothing measures and two earnings discretion measures. See Table 2 for definitions of earnings and return variables.

TABLE 4. Lead-Lag Relation and Financial Disclosure

Variables	COEFFICIENT	t-STATISTIC.
Intercept	-0.622***	-3.17***
X_{t-1}	0.577	1.11
X_t	0.852*	1.66*
$X3_t$	-0.860***	-6.18***
$R3_t$	0.154***	3.52***
Disclosure	0.013	1.42
Disclosure * X_{t-1}	-0.009	-1.47
Disclosure * X_t	0.010*	1.65*
Disclosure * $X3_t$	0.011***	6.76***
Disclosure * $R3_t$	-0.002***	-3.67***
SIZE	0.113***	8.77***
SIZE * X_{t-1}	-0.224*	-1.87*
SIZE * X_t	-0.115*	-0.93
SIZE * $X3_t$	0.277***	7.95***
SIZE * $R3_t$	-0.024**	-2.44**
GROW	0.156***	15.64***
GROW * X_{t-1}	-0.235***	-3.53***
GROW * X_t	-0.038	-0.60
GROW * $X3_t$	0.008	0.48
GROW * $R3_t$	-0.031***	-3.83***
SIGNR	0.455***	94.00***
SIGNR * X_{t-1}	-0.523***	-12.14***
SIGNR * X_t	0.021	0.43
SIGNR * $X3_t$	0.091***	6.76***
SIGNR * $R3_t$	-0.021***	-4.82***
EQ	0.032	0.32
EQ * X_{t-1}	0.002	0.30
EQ * X_t	0.008	1.08
EQ * $X3_t$	-0.007***	-3.72***
EQ * $R3_t$	0.003***	4.89***
LOSS	0.025***	3.46***
LOSS * X_{t-1}	0.173***	3.97***
LOSS * X_t	-1.358***	-21.48***
LOSS * $X3_t$	-0.130***	-9.05***
LOSS * $R3_t$	0.000	0.01
ADJ-R ²	0.4923	

The bold letters are our hypothesized variables. Disclosure Quality (*Disclosure*) are the ratings of disclosure standards based on the measurement of the inclusion or omission of 90 items in the annual report from La Porta et al. (1998). SIZE is a log-linear transformation of market value, $[\log(MV_t) - \log(\text{Min MV})] / [\log(\text{Max MV}) - \log(\text{Min MV})]$, where Max MV and Min MV are, respectively, the maximum and minimum market value of equity of a country at the end of a year. Growth (*GROW*) is defined as the percentage growth in the firm's assets from year t-1 to year t. The sign of current annual return (*SIGNR*) is the sign of the annual stock return for the 12-month period during the fiscal year. Earnings Quality (*EQ*) is the aggregate earnings management score from Leuz et al (2003) multiplied by -1, which, based on 1990-1999 data, equals the average rank of two earnings smoothing measures and two earnings discretion measures. LOSS equals to 1 if the income in current year is negative and 0 otherwise, See Table 2 for definitions of earnings and return variables. The fixed effects of calendar years and/or economies are included, where appropriate, as dummy intercepts in the regressions. For simplicity, they are not reported in the table. ***, **, and * Statistically significant at the 1%, 5%, and 10% levels, respectively, two-tailed.

TABLE 5. Lead-Lag Relation and Investor Protection

Variables	COEFFICIENT	t-STATISTIC.
Intercept	-0.3573	-9.70***
X_{t-1}	-0.2077	-2.51**
X_t	1.6669	17.75***
$X3_t$	-0.0344	-1.41
$R3_t$	0.0168	2.35**
Protection	-0.0440	-3.32***
Protection * X_{t-1}	-0.0064	-0.21
Protection * X_t	0.0362	1.15
Protection * $X3_t$	0.0605	6.79***
Protection * $R3_t$	-0.0153	-5.96***
SIZE	0.1061	8.21***
SIZE * X_{t-1}	-0.2474	-1.99**
SIZE * X_t	-0.1461	-1.14
SIZE * $X3_t$	0.3458	9.75***
SIZE * $R3_t$	-0.0385	-3.87***
GROW	0.1538	15.50***
GROW * X_{t-1}	-0.2452	-3.67***
GROW * X_t	-0.0427	-0.68
GROW * $X3_t$	0.0054	0.33
GROW * $R3_t$	-0.0276	-3.36***
SIGNR	0.4555	93.59***
SIGNR * X_{t-1}	-0.5212	-12.05***
SIGNR * X_t	0.0093	0.19
SIGNR * $X3_t$	0.0984	7.29***
SIGNR * $R3_t$	-0.0201	-4.56***
EQ	0.0033	1.87*
EQ * X_{t-1}	-0.0098	-2.42**
EQ * X_t	0.0145	3.46***
EQ * $X3_t$	-0.0016	-1.36
EQ * $R3_t$	0.0019	5.73***
LOSS	0.0305	4.22***
LOSS * X_{t-1}	0.1722	3.94***
LOSS * X_t	-1.3679	-21.54***
LOSS * $X3_t$	-0.1285	-8.91***
LOSS * $R3_t$	-0.0072	-1.39
ADJ-R ²	0.4921	

The bold letters are our hypothesized variables. Investor protection (*Protection*) combines the legal origin and anti-director rights to form a single proxy for shareholder protection, which is equal to one if a country's legal system is common law and the antidirector rights score is more than three (sample country median), where subsample with an antidirector rights score higher than three is classified as strong protection one, equal to -1 if the legal system is code law and the rights score is less than three, and otherwise equal to 0. SIZE is a log-linear transformation of market value, $[\log(MV_t) - \log(\text{Min MV})] / [\log(\text{Max MV}) - \log(\text{Min MV})]$, where Max MV and Min MV are, respectively, the maximum and minimum market value of equity of a country at the end of a year. Growth (*GROW*) is defined as the percentage growth in the firm's assets from year t-1 to year t. The sign of current annual return (*SIGNR*) is the sign of the annual stock return for the 12-month period during the fiscal year. Earnings Quality (*EQ*) is the aggregate earnings management score from Leuz et al [2003] multiplied by -1, which, based on 1990-1999 data, equals the average rank of two earnings smoothing measures and two earnings discretion measures. LOSS equals to 1 if the income in current year is negative and 0 otherwise, ***, **, and * Statistically significant at the 1%, 5%, and 10% levels, respectively, two-tailed.

TABLE 6. Lead-Lag Relation and Legal Enforcement

Variables	COEFFICIENT	t-STATISTIC.
Intercept	-0.2211	-4.67***
X_{t-1}	0.3153	1.43
X_t	1.5342	6.52***
$X3_t$	-0.0824	-1.38
$R3_t$	0.0740	4.33***
Enforcement	-0.0276	-6.17***
Enforcement * X_{t-1}	-0.0508	-2.60**
Enforcement * X_t	0.0163	0.79
Enforcement * $X3_t$	0.0117	2.30*
Enforcement * $R3_t$	-0.0070	-4.82***
SIZE	0.1133	8.76***
SIZE * X_{t-1}	-0.2564	-2.10*
SIZE * X_t	-0.1557	-1.24
SIZE * $X3_t$	0.3077	8.77***
SIZE * $R3_t$	-0.0261	-2.72***
GROW	0.1554	15.67***
GROW * X_{t-1}	-0.2462	-3.69***
GROW * X_t	-0.0466	-0.74
GROW * $X3_t$	0.0221	1.36
GROW * $R3_t$	-0.0378	-4.63***
SIGNR	0.4557	93.63***
SIGNR * X_{t-1}	-0.5066	-11.71***
SIGNR * X_t	0.0040	0.08
SIGNR * $X3_t$	0.1045	7.75***
SIGNR * $R3_t$	-0.02458	-5.57***
EQ	-0.0035	-2.39**
EQ * X_{t-1}	-0.0050	-1.38
EQ * X_t	0.0165	4.31***
EQ * $X3_t$	0.0016	1.52
EQ * $R3_t$	0.0018	5.30***
LOSS	0.0272	3.76***
LOSS * X_{t-1}	0.1787	4.09***
LOSS * X_t	-1.3613	-21.56***
LOSS * $X3_t$	-0.1352	-9.37***
LOSS * $R3_t$	0.0008	0.16
ADJ-R ²		0.4919

The bold letters are our hypothesized variables. Legal Enforcement is measured by the score of a measure of judicial system efficiency that assesses the efficiency and integrity of the legal environment, as produced by Business International Corp., reported in La Porta et al, (1998). SIZE is a log-linear transformation of market value, $[\log(MV_t) - \log(\text{Min MV})] / [\log(\text{Max MV}) - \log(\text{Min MV})]$, where Max MV and Min MV are, respectively, the maximum and minimum market value of equity of a country at the end of a year. Growth (*GROW*) is defined as the percentage growth in the firm's assets from year $t-1$ to year t . The sign of current annual return (*SIGNR*) is the sign of the annual stock return during the fiscal year. Earnings Quality (*EQ*) is the aggregate earnings management score from Leuz et al [2003] multiplied by -1, which, based on 1990-1999 data, equals the average rank of two earnings smoothing measures and two earnings discretion measures. LOSS equals to 1 if the income in current year is negative and 0 otherwise, ***, **, and * Statistically significant at the 1%, 5%, and 10% levels, respectively, two-tailed.

TABLE 7. Lead-Lag Relation and Three Legal Institutional Factors Together

Variables	COEFFICIENT	t-STATISTIC.
Intercept	-0.5788	-3.51***
X_{t-1}	0.7792	1.50
X_t	0.6993	1.36
$X3_t$	-0.8210	-5.88***
$R3_t$	0.1679	3.82***
Disclosure	0.0011	0.51
Disclosure * X_{t-1}	-0.0081	-1.20
Disclosure * X_t	0.0200	3.00***
Disclosure * $X3_t$	0.0072	4.04***
Disclosure * $R3_t$	-0.0008	-1.54
Protection	0.0002	0.02
Protection * X_{t-1}	0.0096	0.30
Protection * X_t	0.0600	1.81*
Protection * $X3_t$	0.0584	6.40***
Protection * $R3_t$	-0.0147	-5.72***
Enforcement	0.0067	1.55
Enforcement * X_{t-1}	-0.0257	-1.09
Enforcement * X_t	-0.0720	-2.91***
Enforcement * $X3_t$	0.0189	3.11***
Enforcement * $R3_t$	-0.0077	-4.91***
SIZE	0.1118	8.66***
SIZE * X_{t-1}	-0.2813	-2.24**
SIZE * X_t	-0.1550	-1.20
SIZE * $X3_t$	0.3372	9.33***
SIZE * $R3_t$	-0.0472	-4.59***
GROW	0.1524	15.31***
GROW * X_{t-1}	-0.2397	-3.61***
GROW * X_t	-0.0468	-0.74
GROW * $X3_t$	-0.0044	-0.27
GROW * $R3_t$	-0.0266	-3.22***
SIGNR	0.4533	93.72***
SIGNR * X_{t-1}	-0.5226	-12.07***
SIGNR * X_t	0.0247	0.50
SIGNR * $X3_t$	0.0881	6.52***
SIGNR * $R3_t$	-0.0204	-4.58***
EQ	-0.0011	-0.45
EQ * X_t	0.0023	0.30
EQ * X_{t-1}	-0.0010	-0.14
EQ * $X3_t$	-0.0095	-5.03***
EQ * $R3_t$	0.0033	5.62***
LOSS	0.0259	3.59***
LOSS * X_{t-1}	0.1693	3.89***
LOSS * X_t	-1.3600	-21.56***
LOSS * $X3_t$	-0.1324	*9.14***
LOSS * $R3_t$	-0.0056	-1.09
ADJ-R ²	0.4942	

The bold letters are our hypothesized variables. Disclosure Quality (*Disclosure*) are the ratings of disclosure standards based on the measurement of the inclusion or omission of 90 items in the annual report from La Porta et al. (1998). Investor protection (*Protection*) combines the legal origin and anti-director rights to form a single proxy for shareholder protection, which is equal to one if a country's legal system is common law and the antirector rights score is more than three (sample country median), where subsample with a antirector rights score higher than three is classified as strong protection one, equal to -1 if the legal system is code law and the rights score is less than three, and otherwise equal to 0. Legal Enforcement is measured by the score of a measure of judicial system efficiency that assesses the efficiency and integrity of the legal environment, as produced by Business International Corp., reported in La Porta et al. (1998). SIZE is a log-linear transformation of market value, $[\log(MV_i) - \log(\text{Min MV})] / [\log(\text{Max MV}) - \log(\text{Min MV})]$, where Max MV and Min MV are, respectively, the maximum and minimum market value of equity of a country at the end of a year. Growth (*GROW*) is defined as the percentage growth in the firm's assets from year $t-1$ to year t . The sign of current annual return (*SIGNR*) is the sign of the annual stock return during the fiscal year. Earnings Quality (*EQ*) is the aggregate earnings management score from Leuz et al [2003] multiplied by -1, which, based on 1990-1999 data, equals the average rank of two earnings smoothing measures and two earnings discretion measures. LOSS equals to 1 if the income in current year is negative and 0 otherwise, See Table 2 for definitions of earnings and return variables. The fixed effects of calendar years and/or economies are included, where appropriate, as dummy intercepts in the regressions. For simplicity, they are not reported in the table. ***, **, and * Statistically significant at the 1%, 5%, and 10% levels, respectively, two-tailed.