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The Impact of Economic Freedom on Financial Analysts' Earnings Forecast: Evidence from the Asia-Pacific Region

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1. Introduction

Financial analysts are a prominent group of information intermediaries that fulfill an important monitoring function in a financial market. Using a variety of research, analytical and forecasting techniques, analysts provide information covering future earnings forecasts, fundamental research, and ultimately investment recommendations. Analysts' earnings forecasts (AEFs) are widely used by traders, mutual fund managers, portfolio managers and investors for decision-making (Frankel and Lee, 1998; Ishigami and Takeda, 2018). Prior studies that have documented the importance of AEFs often use proxies based on information quality (e.g., Chen et al., 2015), audit quality (e.g., Behn et al., 2008; Wu and Wilson, 2016), governance effectiveness (e.g., Gul et al., 2013; Verriest, 2014), investor beliefs (Abarbanell et al., 1995), non-financial disclosure (e.g., Dhaliwal et al., 2012), and/or disparities of opinions (e.g., García-Meca and Sánchez-Ballesta, 2006; Chan et al., 2007).

Although previous studies argue that AEFs are informative and valuable to both firms and investors, the literature has also observed behavioral biases of analysts (Lang and Lundholm, 1996; Francis and Soffer, 1997; Lopez and Rees, 2002; Gleason and Lee, 2003; Asquith et al., 2005; Frankel et al., 2006; Call et al., 2009; Lehavy et al., 2011; and Cen et al., 2013). For example, studying the anchoring bias associated with forecast earnings per share (EPS) for forecast errors, earnings surprises, stock returns and stock splits, Cen et al. (2013) find that analysts make optimistic (pessimistic) forecasts when a firm's forecast EPS is lower (higher) than the industry median.

Brauer and Wiersema (2018) highlight that the influence of regulatory bodies has been ignored and call for more research to address how regulatory changes influence financial analyst interactions with management, analyst coverage, and the accuracy and bias of their stock recommendations. As financial analysts operate as actors within a social network (Brauer and Wiersema, 2018) that is influenced by intersecting of social, economic and political environments, we believe there is a logical connection between economic freedom (EcF) and the accuracy of AEFs. We argue that the accuracy of AEFs is plausibly associated with analysts' capability of obtaining and interpreting information. Analysts' capability is largely restrained by social, economic and political environments of an economy where analysists are situated and information is obtained. EcF as a key indicator of interactions of these environments expects to affect the capability of analysts to acquire the quality and quantity of information. It is generally recognized that information is costly and asymmetrically distributed throughout the market and corporations in countries/economies with less EcF have low levels of corporate transparency (Fan and Wong, 2002). In a less transparent or a highly uncertain market, a firm may choose to reveal very little useful information and consequently the analysts will hold a limited amount of valuable information, which ultimately influences the quality of AEFs.

Extending the literature about the influence of regulations, such as compliance with International Financial Reporting Standards (IFRSs), on AEF accuracy/bias, our study demonstrates the relevance of EcF. We argue that an increase of EcF would lead to more transparent financial environments and analysts in an economy with a higher level of EcF expect to produce more accurate earnings forecasts. Furthermore, analysts routinely collect and process an enormous amount of information from corporate managers and subsequently convey the information to investors.

There should be less noise on a market with a higher level of EcF as lower information searching cost for investors from such a market reduces information asymmetry. By contrast, firms' earnings are more easily manipulated by corporate managers in an economy with a lower level of EcF. As a result, AEFs become less accurate than those in economies with a higher level of EcF. Because managers in economies with less EcF have more incentives to beat the market, we can argue that analysts in those economies tend to issue more optimistic earnings forecasts than analysts in economies with more EcF. Investors in economies with less EcF must spend more time/cost to search for firm-specific information. It further increases the information asymmetric problem.

Our study aims at producing empirical evidence to enhance our understanding of the impact of EcF on AEFs and the diffusion of a firm's earnings information. To the best of our knowledge, this study is the first of its kind to examine the connection between EcF and AEFs in an international setting. The data is based on EcF scores consisting of five broad areas defined by the Fraser Institute and used in the Economic Freedom of the World (EFW) index: government, protection, money, trade, and regulation. Our sample covers 12 economies, including Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Singapore, Taiwan, and Thailand.

2. Literature review

Several previous studies have found evidence that AEFs tend to be optimistic comparing to realized earnings (e.g., Galanti and Vaubourg, 2017). Due to economic incentives, analysts may intentionally introduce an optimistic bias in forecasts with a view to gaining access to top executives (Francis and Philbrick, 1993; Das et al., 1998; Lim, 2001; Ke and Yu, 2006), winning investment banking clients (Chan et al., 2007), and generating trading commissions (Jackson, 2005; Cowen et al., 2006). Also, empirical evidence has emerged of the impact of analyst characteristics and personal traits on analysts' inputs and incentives (e.g., Brown et al., 2015; Jiang et al., 2016). A few studies have examined the relationship between AEF accuracy/bias and government regulations relating to disclosures and reporting (e.g., Hodgdon et al., 2008; Galanti and Vaubourg, 2017).

A considerable amount of research has attempted to find out what influences the optimistic bias of AEFs and most of them are based on a single-country data. The literature provides a few explanations related to firm size, corporate ownership, analyst experience and reputation, complexity of forecasting task, compliance with IFRSs, equity incentive plans, and time-period of forecast. However, the empirical evidence is inconclusive.

A few studies have taken an interest in assessing AEFs around the world and revealed significant differences in their respective accuracy levels (e.g., Luo et al., 2019; Haw et al., 2015; Hope, 2003). While the literature has suggested that the accuracy of AEFs could be related to the accounting, legal and institutional environments in effect, few studies have attempted to identify broader aspects of cultural and institutional factors in analysts' decisions. Luo et al. (2019) argue that analysts as boundedly rational actors are guided by routines, which are based on 'shared values and norms' that vary cross-country. Studying the determinants of accuracy of AEFs in the Asia-Pacific region, Black and Carnes (2006) examine whether macroeconomic factors can explain part of the difference in forecast errors. Their findings confirm the argument that those nations that are more open to foreign trade and investment would have more accurate AEFs. In this study, we take a broader approach by examining country/economy-specific characteristics when identifying factors that influence AEF bias. We test whether EcF in an economy affects the accuracy/bias of AEFs.

3. Data and method

3.1 Sample selection

Our sample consists of 7,014 firms from 12 Asia-Pacific economies. The sample data comes from two sources. The primary data comes from the Institutional Brokerage Estimate System (I/B/E/S) International Summary database. Book to market equity value and other financial

data are from DataStream database. The 18-year period runs from Q1 2000 to Q2 2018, covering some major events including the global financial crisis of 2007/2008.

3.2 Empirical model

Our empirical analyses are based on the weighted-least-square regression in which independent variable is EcF and the dependent variable is AEF accuracy. To mitigate the omitted-variables problem, we include a set of explanatory variables, such as size, book-to-market ratio, analyst coverage, analyst dispersion, optimism bias dummy and GDP growth. Because economic data are at the country/economy level and the forecast accuracy are at the firm level, we also perform multilevel regression analysis based on Hox (2002) as a robustness test.

$$Accuracy_{i,t+1} = \alpha_i + EF_{i,t} + Size_{i,t} + BM_{i,t} + NAF_{i,t} + Dispersion_{i,t} + BiasDummy_{i,t} + GDPGrowth_{i,t} + \mu_{i,t}$$

Accuracy is measured as 1 minus forecast error. Forecast error is measured as the absolute value of difference between a firm's forecasted and actual earnings, divided by the actual earnings at a forecast date. *Bias* is measured as the signed forecast error and it is defined as the difference between a firm's forecasted and actual earnings, divided by the actual earnings at a forecast date. *Bias dummy* is the optimism bias indicator variable with 1 if optimism or 0 otherwise. *Size (ln(MV))* is measured as the natural logarithm of the market value (MV) of the equity for the sample firms in local currency. *Book-to-market (BM)* is obtained from the DataStream. *NAF* is the analyst coverage measured by the number of analysts who provide earnings estimates. *Dispersion (DISP)* is measured as the standard deviation of EPS forecasts divided by the absolute value of the mean EPS forecast.

By and large, EcF can be defined and measured in different ways as shown in the literature (e.g., Hall and Lawson, 2014). We use the EcF data from the EFW reported by the Fraser Institute (Gwartney et al., 2017). Table 2 reports the average ratings of EcF for the 12 economies. The ratings are averaged to derive the summary rating for each economy and are ranged from 1 (lowest) to 10 (highest).

<Please insert Table 1 About Here>

Previous studies also pointed out the importance of legal environment influence on the financial market development and analysts' forecasts. Table 2 reports mean difference between the common law and civil law economies for the forecast accuracy and bias for the sample period.

<div align="center"><Please insert Table 2 About Here></div>

4. Empirical results

4.1 The weighted-least-square (WLS) regression

We first apply WLS regression to the panel data and find that overall EcF is positively and significantly (coefficient = 0.1912, p-value <0.01) associated with AEF accuracy as shown in Table 3. However, since our sample is dominated by China and Japan, the second column report the results that exclude these two countries. Model 2 in Table 3 confirm the results from Model 1 as the coefficient of overall EcF is 0.1644 (p-value <0.01). Models 3 to 5 look at the specific EcF index. Model 3 in Table 3 finds government, protection, and regulation freedom are positively and significantly related to AEF accuracy, while trade freedom is negatively and significantly related to accuracy. Models 4 and 5 separate samples in accordance with their legal systems. The results reported in Model 5 is similar to Model 3 when we use the whole sample. Model 4 in Table 3 finds, under the common law sample, trade freedom is positively related to AEF accuracy, but regulation freedom is negatively related to AEF accuracy.

<div align="center"><Please insert Table 3 About Here></div>

4.2 Multilevel regression on accuracy

Table 4 reports the results from multilevel regression analysis with a specification of AEF accuracy for each firm in each economy as the dependent variable. First, the results of Models 1 and 2 confirm the findings shown in Table 3. Both models find the overall EcF is significantly and positively related to accuracy when we use the whole sample, as well as the sample that excludes China and Japan. Model 3 in Table 4 also

confirms the findings of Model 3 in Table 3 that protection and regulation freedom are positively and significantly related to AEF accuracy, while trade freedom is negatively and significantly related to AEF accuracy. When we separately examine the common law (Model 4) and civil law (Model 5) samples, the results also confirm the findings shown in Table 3.

<Please insert Table 4 About Here>

5. Conclusions

Our study investigates the impact of EcF on AEF accuracy and bias. The EcF index measures the degree to which policies and institutions of economies are supportive of EcF in five major aspects: Government, Protection, Money, Trade, and Regulation. With the sample of 7,014 firms from 12 economies in the Asia-Pacific region over the 18-year period from Q1 2000 to Q2 2018, our study presents the following findings. Firstly, it finds an optimistic bias in AEFs in these 12 economies. The optimistic bias is stronger from analysts in economies with less EcF than in more freedom ones. Secondly, analysts are making more accurate earnings forecasts for firms in economies with more EcF, in particular for large firms, value firms, stocks with high analyst coverage, and low dispersion in AEFs. Firm with these characteristics are generally face less information asymmetry problems. These findings may suggest that an increase of EcF would lead to more transparent financial statements, which further increase the accuracy of AEFs. Thirdly, the study finds the optimism bias reduces the earnings forecast accuracy.

Our contribution to the literature is as follows. First, this is the first study of its kind to explore the impact of EcF on AEF accuracy and bias. Our study covers five aspects of EcF, significantly extending the prior limited literature that merely considers the regulatory aspect. Second, we study the determinants of accuracy/bias of AEFs in 12 economies in the Asia-Pacific region with the use of an 18-year dataset that cover the great economic crisis period. Previous studies of this topic were predominantly based on a single country data and/or a short period of time. By and large, our findings suggest that equity analysts do provide useful earnings forecasts information to market participants, particularly in economies with more EcF.

References:

Abarbanell, J.S., Lanen, W.N., & Verrecchia, R. E. (1995). Analysts' forecasts as proxies for investor beliefs in empirical research, Journal of Accounting and Economics, 20(1), 31-60.

Asquith, P., Mikhail, M. B., & Au, A. (2005). Information content of equity analyst reports. Journal of Financial Economics, 75, 245-282.

Behn, B.K., Choi, J.H., & Kang, T. (2008). Audit quality and properties of analyst earnings forecasts. The Accounting Review 83(2), 327-349.

Black, E. L., & Carnes, T. A. (2006). Analysts' forecasts in Asian-Pacific markets: The relationship among macroeconomic factors, accounting systems, bias and accuracy. Journal of International Financial Management & Accounting, 17, 208–227.

Brauer, M., & Wiersema, M. (2018). Analyzing analyst research: A review of past coverage and recommendations for future research. Journal of Management, 44(1), 218–248.

Brown, L.D., Call, A.C., Clement, M.B., & Sharp, N. Y. (2015). Inside the "black box" of sell-side financial analysts. Journal of Accounting Research 53(1), 1-47.

Call, A. C., Chen, S., & Tong, Y. H. (2009). Are analysts' earnings forecasts more accurate when accompanied by cash flow forecasts? Review of Accounting Studies 14(2-3), 358-391.

Cen, L., Hilary, G., & Wei, K. C. J. (2013). The role of anchoring bias in the equity market: evidence from analysts' earnings forecasts and stock returns. Journal of Financial and Quantitative Analysis, 48(01), 47-76.

Chan, L. K. C., Karceski, J., & Lakonishok, J. (2007). Analysts' conflicts of interest and biases in earnings forecasts. Journal of Financial and Quantitative Analysis, 42, 893-913.

Chen, L.H., Krishnan, J. & Sami, H. (2015). Goodwill impairment charges and analyst forecast properties. Accounting Horizons 29(1), 141-169.

Cowen, A. P., Groysberg, B., & Healy, P. (2006). Which types of analyst firms are more optimistic? Journal of Accounting & Economics, 41, 119-146.

Das, S., Levine, C. B., & Sivaramakrishnan, K. (1998). Earnings predictability and bias in analysts' earnings forecasts. The Accounting Review, 73, 277–294.

Dhaliwal, D.S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. The Accounting Review 87(3), 723-759.

Fan, J. P. H., & Wong, T. J. (2002). Corporate ownership structure and the informativeness of accounting earnings in East Asia. Journal of Accounting and Economics, 33, 401–426.

Frankel, R., & Lee, C. M. C. (1998). Accounting valuation, market expectation, and cross-sectional stock returns. Journal of Accounting & Economics, 25(3), 283–319.

Frankel, R., Kothari, S. P., & Weber, J. (2006). Determinants of the informativeness of analyst research. Journal of Accounting and Economics, 41, 29-54.

Francis, J., & Philbrick, D. (1993). Analysts' decisions as products of a multi-task environment. Journal of Accounting Research, 31, 216-230.

Francis, J., & Soffer, L. (1997). The relative informativeness of analysts' stock recommendations and earnings forecast revisions. Journal of Accounting Research, 35, 193-212.

Galanti, S., & Vaubourg, A. G. (2017). Optimism bias in financial analysts' earnings forecasts: Do commissions sharing agreements reduce conflicts of interest? Economic Modelling 67, 325–337.

García-Meca, E., & Sánchez-Ballesta, J. P. (2006). Influences on financial analyst forecast errors: a meta-analysis. International Business Review, 15(1), 29-52,

Gleason, C. A., & Lee, M. C. (2003). Analyst forecast revisions and market price formation. The Accounting Review, 78, 193-225.

Gul, F.A., Hutchinson, M., & Lai, K.M.Y. (2013). Gender-diverse boards and properties of analyst earnings forecasts. Accounting Horizons 27(3), 511-538.

Gwartney, J., Hall, J. C., & Lawson, R. (2017). Economic freedom of the world: 2017 annual report. Vancouver, BC: Fraser Institute.

Hall, J., & Lawson, R. (2014). Economic freedom of the world: An accounting of literature. Contemporary Economic Policy, 32, 1–19.

Haw, I-M., Hu, B., & Lee, J.J. (2015). Product market competition and analyst forecasting activity: International evidence. Journal of Banking & Finance, 56 (1), 48–60

Hodgdon, C., Tondkar, R. H., Harless, D. W., & Adhikari, A. (2008). Compliance with IFRS disclosure requirements and individual analysts' forecast errors. Journal of International Accounting, Auditing and Taxation, 17, 1-13.

Hope, O. K. (2003). Accounting policy disclosure and analysts' forecasts. Contemporary Accounting Research, 20 (2), 295–321.

Hox, J. J. (2002). Multilevel Analysis: Techniques and Applications. Mahwah, NJ: Lawrence Erlbaum Associates.

Ishigami, H., & Takeda, F. (2018). Market reactions to stock rating and target price changes in analyst reports: Evidence from Japan. Journal of International Financial Markets, Institutions and Money, 52(1), 134-151.

Jackson, A. (2005). Trade generation, reputation and sell-side analysts. Journal of Finance, 60, 673-717.

Jiang, D., Kumar, A., & Law, K.K.F. (2016). Political contributions and analyst behavior. Review of Accounting Studies, 21(1), 37-88.

Ke, B., & Yu, Y. (2006). The effect of issuing biased earnings forecasts on analysts' access to management and survival. Journal of Accounting Research, 44, 965–999.

Lang, M. H., & Lundholm, R. J. (1996). Corporate disclosure policy and analyst behavior. Accounting Review, 71, 467-492.

Lehavy, R., Li, F., & Merkley, K. (2011). The effect of annual report readability on analyst following and the properties of their earnings forecasts. The Accounting Review, 86(3), 1087-1115.

Lim, T. (2001). Rationality and analysts' forecast bias. The Journal of Finance, 56, 369–385.

Lopez, T. J., & Rees, L. (2002). The effect of beating and missing analysts' forecasts on the information content of unexpected earnings. Journal of Accounting, Auditing and Finance 17, 155-184.

Luo, X. R., Jeong, Y-C., & Chung, C-N. (2019). In the eye of the beholder: global analysts' coverage of family firms in an emerging market. Journal of Management 45(5), 1830–1857.

Verriest, A. J. M. (2014). Auditor governance, institutions and analyst forecast properties: international evidence. Journal of International Accounting Research 13(1), 1-32.

Wu, Y., & Wilson, M. (2016). Audit quality and analyst forecast accuracy: The impact of forecast horizon and other modeling choices. AUDITING: A Journal of Practice & Theory 35(2), 167-185.

Table 1: Descriptive statistics and correlation coefficients of variables

Panel A: Mean values of variables

Economies	Number of	Ln(MV)	BM	NAF	DISP	Accuracy	Biased	Economic Freedom Ratings					
								Overall	Government	Protection	Money	Trade	Regulation

	Firms												
All	7014	10.2226	0.7110	7.722	0.0722	0.6345	0.1582	6.07	6.76	9.07	7.32	7.65	7.37
Australia	345	6.7214	0.6304	7.635	0.0085	0.6783	0.1128	6.59	7.99	9.36	7.60	8.46	8.00
China	1647	9.1223	0.3961	5.493	0.0064	0.5708	0.2957	5.08	5.63	8.28	6.63	6.33	6.39
Hong Kong	503	9.1130	0.8192	9.948	0.0153	0.6391	0.1240	8.55	8.08	9.51	9.23	9.41	8.95
India	581	10.6417	0.5827	11.632	0.0137	0.6259	0.2315	7.82	5.10	8.10	5.56	6.46	6.61
Indonesia	122	16.0255	0.6615	9.331	0.0186	0.6401	0.1432	7.70	4.52	9.36	6.99	6.34	6.98
Japan	1663	11.7773	0.8512	6.992	0.0062	0.6436	0.1285	4.71	7.60	9.63	7.43	8.07	7.49
Malaysia	280	7.3152	0.7870	8.247	0.0127	0.6685	0.0881	6.93	5.76	7.01	7.51	8.65	7.17
New Zealand	48	6.4591	0.5831	5.104	0.0057	0.7061	0.1349	6.46	8.74	9.51	8.57	9.11	8.48
Singapore	192	6.8895	0.7682	8.191	0.0128	0.6668	0.0671	7.78	8.29	9.84	9.25	8.82	8.80
South Korea	743	13.3754	1.2267	9.848	0.0359	0.6410	0.0931	6.90	6.45	9.66	7.55	7.21	7.55
Taiwan	689	10.0244	0.6360	7.109	0.0125	0.6656	0.0943	6.90	6.78	9.63	7.52	7.66	7.70
Thailand	201	9.6048	0.6284	8.483	0.0454	0.6473	0.0715	6.63	4.77	8.45	6.78	7.07	6.74

Panel B: Correlation matrix

	Ln(MV)	BM	NAF	DISP	Accuracy	Biased	Economic Freedom Ratings					
							Overall	Government	Protection	Money	Trade	Regulation
Ln(MV)	1	-0.03**	0.42**	-0.01	0.02**	0.03**	-0.11	-0.21**	-0.06**	0.33**	-0.15**	-0.17**
BM		1	-0.18**	0.02**	0.09**	-0.32**	0.25	-0.04**	0.26**	0.27**	0.23**	0.27**
NAF			1	-0.01*	0.03**	0.03**	0.08	0.17**	-0.01	0.01**	0.02**	0.06**
DISP				1	-0.05**	-0.07**	0.01	0.01	-0.01	0.01	0.01	-0.01
Accuracy					1	-0.34**	0.09	0.04**	0.07**	0.06**	0.06**	0.09**
Biased						1	-0.13**	-0.05**	-0.11**	-0.11**	-0.11**	-0.14**
Overall							1	0.41**	0.83**	0.67**	0.91**	0.91**
Government								1	-0.13**	-0.13**	0.23**	0.21**
Protection									1	0.77**	0.78**	0.85**
Money										1	0.58**	0.50**
Trade											1	0.86**
Regulation												1

Notes: ** and * indicate that the coefficients are statistically significant at 0.01 and 0.05 levels, respectively.

Table 2: Mean accuracy and bias for different legal systems

Panel A: Mean accuracy for the Common and Civil Law economies

Legal system	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Common	0.6382	0.6663	0.6664	0.6338	0.6132	0.6206	0.6285	0.6302	0.6241	0.6571	0.6571	0.6502	0.6675	0.6964	0.7025	0.6909	0.6832	0.6895	0.6870
Civil	0.6243	0.6279	0.6534	0.6046	0.6339	0.6187	0.6423	0.6286	0.6348	0.6338	0.6205	0.5961	0.6283	0.6305	0.6466	0.6640	0.6601	0.6510	0.6792
Mean difference	0.0138	0.0385 **	0.0130 **	0.0292 **	-0.0207 *	0.0019	-0.0138 *	-0.0016 **	-0.0107 **	0.0233 **	0.0367 **	0.0541 **	0.0392 **	0.0659 **	0.0560 **	0.0270 **	0.0231 **	0.0385 **	0.0078 **
	(0.22)	(3.27)	(3.13)	(4.98)	(-1.97)	(0.35)	(-2.50)	(-3.99)	(-7.45)	(6.67)	(7.83)	(6.82)	(5.31)	(8.05)	(10.36)	(7.22)	(4.26)	(5.63)	(5.38)

Panel B Mean bias for the Common and Civil Law economies

Legal system	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Common	0.1644	0.1515	0.0686	0.1546	0.2335	0.2259	0.2029	0.2208	0.2328	-0.0114	0.0299	0.1776	0.1028	0.0646	0.1000	0.1094	0.1145	0.1247	0.1369
Civil	0.0409	0.1312	0.0438	0.1435	0.1613	0.1555	0.1137	0.1305	0.1646	-0.0476	0.0870	0.2540	0.1711	0.1645	0.1767	0.1590	0.1317	0.1605	0.1924
Mean difference	0.1235	0.0203	0.0248 **	0.0111 **	0.0722	0.0705 **	0.0892 **	0.0903 **	0.0682 **	0.0362 **	-0.0571 *	-0.0764 **	-0.0683 **	-0.0999 **	-0.0768 **	-0.0496 **	-0.0172 **	-0.0359 **	-0.0555 **
	(4.75)	(0.66)	(4.94)	(3.22)	(-0.74)	(3.41)	(3.21)	(5.60)	(11.89)	(8.76)	(-2.08)	(-8.58)	(-10.34)	(-9.77)	(-12.45)	(-12.15)	(-6.41)	(-5.32)	(-6.75)

Note: Common Law economies include: Australia, Hong Kong, India, Malaysia, New Zealand, and Singapore; Civil Law economies include: China, Indonesia, Japan, South Korea, Taiwan, and Thailand. t-statistics are shown in parentheses. ** and * indicate that the coefficients are statistically significant at 0.01 and 0.05 levels, respectively.

Table 3: Weighted least squares regression results on accuracy

| | All | | Exclude Japan and China | | All | | Common Law | | Civil Law | |
| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
Variables	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
ln(MV)	0.0015**	0.0003	-0.0008	0.0005	0.0074**	0.0005	0.0088**	0.0012	0.0096**	0.0009
BM	0.0118**	0.0011	0.0005	0.0014	0.0137**	0.0011	0.0054**	0.0017	0.0228**	0.0015
NAF	0.0149**	0.0012	0.0236**	0.0017	0.0054**	0.0014	0.0175**	0.0025	-0.0032	0.0020
DISP	-0.0053**	0.0002	-0.0076**	0.0004	-0.0052**	0.0002	-0.0435**	0.0016	-0.0044**	0.0002
EF_OVERALL	0.0191**	0.0013	0.0164**	0.0031						
EF1					0.0107**	0.0010	-0.0223	0.0199	0.0650**	0.0058
EF2					0.0365**	0.0039	0.0785	0.0508	0.0625**	0.0091
EF3					-0.0030	0.0038	-0.0783	0.0502	0.0112	0.0119
EF4					-0.0206**	0.0024	0.0361**	0.0060	-0.2657**	0.0313
EF5					0.0181**	0.0038	-0.0731*	0.0344	0.0811*	0.0045
GDP growth	-0.0005	0.0002	-0.00134**	0.0004	0.0003	0.0003	-0.00003	0.0005	0.0005	0.0004
Bias dummy	-0.0597**	0.0016	-0.0636**	0.0022	-0.0604**	0.0016	-0.0775**	0.0028	-0.0553**	0.0019
Intercept	-6.8770**	0.2886	-7.0152**	0.4229	-6.9627**	0.3073	-5.900**	0.5931	-6.2696**	0.3968
YEARDUM	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
COUNRYDUM	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of obs	110749		55288		110749		34762		75987	
Adj R-squared	0.0313		0.0320		0.0342		0.0613		0.0333	

Notes: ** and * indicate that the coefficients are statistically significant at 0.01 and 0.05 levels, respectively.

Table 4: Multilevel regression results on accuracy

	All		Exclude Japan and China		All		Comm[e]
	Model 1		Model 2		Model 3		Mo[c]
Variables	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.
ln(MV)	0.0075**	0.0007392	0.0044**	0.0009	0.0077**	0.0007	0.0097**
BM	0.0026*	0.0011	-0.0015	0.0011	0.0026*	0.0011	-0.0017
NAF	-0.0022	0.0016	0.0132**	0.0019	-0.0025	0.0016	0.0057*
DISP	-0.0053**	0.0002	-0.0077**	0.0005	-0.0053	0.0002	-0.0429**
EF_OVERALL	0.0422*	0.0189	0.0216*	0.0104			
EF1					0.0074	0.0061	-0.0236
EF2					0.0296*	0.0151	0.0642
EF3					0.0203	0.0185	-0.0648
EF4					-0.0391*	0.0145	0.0319**
EF5					0.0453*	0.0196	-0.0621*
GDP growth	0.0004	0.0003	-0.0011*	0.0005	0.0004	0.0003	-0.0018**
Bias dummy	-0.0764**	0.0016	-0.0687**	0.0022	-0.0764**	0.0016	-0.0824**
Intercept	-6.3708**	0.3424	-5.9287**	0.4429	-6.4572**	0.3669	1.1979**
Random-effects Parameters							
Country: var(_cons)	0.0008918	0.0003771	0.0006548	0.0003134	0.0003032	0.0001284	9.69e-19
var(Residual)	0.0631136	0.000268	0.0600179	0.0003605	0.0631134	0.000268	0.0581568
Log likelihood	-4190.3246		-706.24663		-4183.8554		117.46817

Notes: ** and * indicate that the coefficients are statistically significant at 0.01 and 0.05 levels, respectively.