THE ACCOUNTING REVIEW
Vol. 83, No. 3
2008
pp. 593–628

International GAAP Differences: The Impact on Foreign Analysts

Kee-Hong Bae
Queen's University

Hongping Tan
University of Northern British Columbia

Michael Welker
Queen's University

ABSTRACT: This paper investigates the relation between differences in accounting standards across countries and foreign analyst following and forecast accuracy. We develop two measures of differences in generally accepted accounting principles (GAAP) for 1,176 country-pairs. We then examine the impact of these measures of accounting differences on foreign analysts. In so doing, we utilize a unique database that identifies the location of financial analysts around the world, creating a sample that covers 6,888 foreign analysts making a total of 43,968 forecasts for 6,169 firms from 49 countries during 1998–2004. We find that the extent to which GAAP differs between two countries is negatively related to both foreign analyst following and forecast accuracy. Our results suggest that GAAP differences are associated with economic costs for financial analysts.

I. INTRODUCTION

This paper investigates the relation between differences in accounting standards across countries and foreign analyst following and forecast accuracy. Despite years of discussion about the potential costs and benefits of accounting harmonization, there exists little if any evidence about the existence or magnitude of such costs or benefits. We hypothesize that differences in accounting standards impose costs on foreign financial

We thank the editor, two anonymous referees, Sudipta Basu, Patricia O'Brien, Alan Richardson, Dan Thornton, Sergei Sarkissian, Utpal Bhattacharya, Gus DeFranco, Bill Scott, and seminar participants at the Queen's School of Business, the Schulich School of Business at York University, the Rotman School of Business at the University of Toronto, the University of Northern British Columbia, the Northern Finance Association 2007 Conference, the Financial Management Association 2007 Conference, and the Canadian Academic Accounting Association 2007 Conference for their helpful comments. We appreciate the excellent research assistance of Shiheng Wang. Professor Bae thanks the Bank of Montreal and Professor Welker thanks KPMG for generous research support. In addition, research support from the Social Science and Humanities Research Council of Canada (grant # 410-03-1046) is gratefully acknowledged. We are grateful to Thomson Financial for access to their Institutional Brokers Estimate System (I/B/E/S), provided as part of a broad academic program to encourage earnings expectations research.

Editor's note: This paper was accepted by Dan Dhaliwal.

Submitted December 2006
Accepted October 2007

analysts, costs that dissuade analysts from following firms from countries with accounting standards different from the standards in their home countries. We develop two measures of differences in accounting standards for 1,176 country-pairs based on an international survey of generally accepted accounting principles (GAAP) in 2001. We find a strong negative relation between GAAP differences and foreign analyst following. This negative relation remains in tests that control for a wide range of country-pair characteristics such as cultural, economic, geographic, legal, and industrial proximity.

Additionally, for those analysts who do choose to follow foreign firms, we hypothesize that differences in accounting standards are negatively related to earnings forecast accuracy. While we find a negative relation between GAAP differences and forecast accuracy, this relation is weaker than the relation between GAAP differences and foreign analyst following. Our evidence that accounting differences impact financial analysts who specialize in collecting, analyzing, and disseminating financial information suggests that there are potential economic costs associated with variation in accounting rules across countries.

Our paper differs from the prior literature in several important ways. First, we do not argue that any one set of accounting rules is better than others and we do not attempt to assess the quality of any given set of accounting rules. Rather, we propose that analysts tend to avoid following firms from countries using accounting rules that are significantly different from the accounting rules used in their home country and issue less accurate forecasts for such companies when they choose to follow them. Second, we make use of a unique dataset that identifies the location of financial analysts around the world. We examine the effects of accounting differences on financial analysts because analysts are among the most important, sophisticated, and visible users of financial statements, and because analysts explicitly forecast accounting numbers produced by GAAP. We focus on analyst location because the location of analysts who follow a particular firm is of practical interest in assessing worldwide investment interest in the firm's equity shares. In addition, analyst location is expected to correlate with analyst educational background and therefore familiarity with domicile country GAAP and lack of familiarity with GAAP in other countries without incurring additional costs to acquire such familiarity.[1] Third, unlike studies that focus on a limited number of countries, our sample covers firms from 49 countries. This sample not only contributes to the power of our tests, but also enhances the generalizability of our results.

Our main results—that the extent to which accounting standards differ across countries is negatively related to foreign analyst following—still hold even after we control for various analyst and firm characteristics along with a variety of country-pair differences that might also impact analyst activities. Our main results for forecast accuracy also generally hold after controlling for various analyst and firm characteristics along with a variety of country-pair differences, but are weaker than the analyst following results. Our analyst following results are robust to a wide variety of modifications in our research design, and are corroborated by time-series analysis on a sample of firms voluntarily adopting International Accounting Standards.

In addition, we address the fact that not all firms follow the accounting standards of their home country and that there are other sources of variation in the implementation of accounting standards at the firm level within countries. First, we identify firms that use

[1] Our assumption that analysts are not familiar with GAAP in other countries and must incur costs to gain expertise in understanding other countries' GAAP appears consistent with the assumption that foreign investors incur such costs in Barth et al. (1999).

either U.S. GAAP or IAS using Worldscope data that indicate the accounting standards followed for each firm-year. These firms are excluded from our tests that look at differences in accounting standards at the country-pair level based on the local standards in the firm's home country versus the analyst's home country. We also control for two widely available proxies for firm-level differences in the implementation of accounting standards, presence of a Big 4 auditor, or a qualified audit opinion. Our results are robust to the inclusion of these control variables.

II. RELATED LITERATURE AND MOTIVATION

Despite years of debate about the desirability of accounting harmonization, there is little if any empirical evidence of the existence or magnitude of the benefits from or costs imposed by differences in accounting standards around the world.[2] The objective of our study is to provide such evidence. We begin with a brief overview of the accounting harmonization debate followed by a discussion of how our study relates to the existing literature.

The international effort in harmonizing national accounting standards formally began in 1973 with the establishment of the International Accounting Standards Committee (IASC), which aimed to improve and harmonize financial reporting around the world. However, there was limited adoption of International Accounting Standards before the late 1990s. An important success for international accounting harmonization culminated in 2002 when the EU parliament approved the regulation requiring EU-registered companies to adopt IAS by 2005.[3]

The proponents of accounting harmonization argue that harmonization helps reduce information asymmetry, lowers the cost of capital, and increases capital flow across borders. A single global set of standards facilitates cross-border comparisons of financial data. With accounting harmonization, investors and other market participants could better use their current expertise to analyze firms from countries with accounting standards that they are familiar with. The opponents argue that the characteristics of accounting problems, history, culture, and institutional frameworks in a country determine the form and content of accounting standards. Hence, an appropriate set of accounting standards in one country need not be an appropriate set of accounting standards in another country. Harmonization also increases firms' costs in complying with the new standards. Further, even if a single set of global accounting standards were adopted internationally, lax and inconsistent enforcement may result in limited compliance with the standards and diminished comparability (Ball et al. 2003).

Our study is closely related to the research that has investigated how accounting standards or their implementation affect financial analysts internationally. Hope (2003a) shows that analysts forecast more accurately for firms that disclose their accounting method choice.

[2] Ball (2006) also notes the lack of evidence on which to assess the advantages and disadvantages of uniform accounting rules.

[3] In April 2001, the International Accounting Standards Board (IASB) succeeded the IASC for setting accounting standards. The prospective widespread adoption of international standards in the EU prompted the IASB to revise the standards that it had inherited from the IASC. In March 2004 the IASB completed its ''stable platform'' of standards. The new and revised standards now include new IFRS and the IAS, both of which are now designated International Financial Reporting Standards (IFRS). For simplicity and consistency with the past literature, we refer to these standards as IAS throughout this paper.

Hope (2003b) also finds that strong country-level enforcement is associated with greater forecast accuracy. Basu et al. (1998) show that forecast accuracy is lower for countries with less accrual basis accounting, more market-based accounting, and less accounting choice. Based on a sample of 80 non-U.S. firms that adopted IAS by 1993, Ashbaugh and Pincus (2001) find that the extent of difference between local GAAP and IAS is negatively associated with analysts' earnings forecast accuracy prior to adopting IAS. They also find that analysts' forecast accuracy increases after adopting IAS. Guan et al. (2006) find that analysts provide more accurate forecasts for firms from countries with GAAP that are more similar to U.S. GAAP, and that this effect is stronger in weak disclosure countries and for firms followed by few analysts.

Other researchers have investigated how variation in institutional characteristics other than accounting standards impact analysts internationally. Chang et al. (2000) document considerable variation across countries in analysts' activities. They also find that legal origin helps explain the accuracy of analysts, though Ang and Ciccone (2001) reach the opposite conclusion. Barniv et al. (2005) find that analysts with superior ability and resources consistently outperform other analysts in common law countries, where market forces provide incentives for performance, than in civil law countries, where market-based incentives are less effective. Bae et al. (2007) find that local analysts have an information advantage, i.e., forecast more accurately, than foreign analysts. They also find that the extent of local analysts' advantage is greater in low disclosure, high earnings management environments, and that the information advantage of local analysts is related to U.S. home bias, i.e., the extent to which U.S. investors underweight foreign stocks in their portfolio.

There is also a limited literature that investigates the determinants of analyst following in an international setting. Lang et al. (2004) find that analysts are less likely to follow firms with potential incentives to withhold or manipulate information, and this relation is stronger for firms from low shareholder protection countries. Bushman et al. (2005) find that analyst following increases after initial enforcement of insider trading laws. They further find that this increase is concentrated in emerging markets. However, no study has yet investigated how differences in accounting standards affect analyst following.

Our paper also complements recent research that investigates the relation between firms' choice of accounting standards and international investment allocation decisions. In fact, many firms have voluntarily adopted either IAS or U.S. GAAP to better position themselves in the competition for investors' confidence and scarce capital. Bradshaw et al. (2004) find that conformity to U.S. GAAP helps foreign firms attract U.S. institutional investment since U.S. GAAP is more familiar to these U.S. investors, potentially reducing information-processing costs and providing them with what is perceived to be higher quality information. Covrig et al. (2007) examine the holdings of over 25,000 mutual funds from around the world and find that foreign mutual fund holdings are higher for firms adopting IAS, suggesting that familiar or better GAAP increases foreign investor interest. Empirical assessments of the effects of accounting standards on both investors and analysts can provide valuable, complementary insights, and both approaches have strengths and weaknesses. Investment decisions by investors may be of greater economic significance than analysts' forecasts and recommendations. However, many investors (mutual funds) follow investment strategies unrelated to firm fundamentals (e.g., index funds), while financial analysts almost invariably utilize financial statements. In addition, analysts issue earnings forecasts that allow an assessment of how GAAP differences affect predictions of accounting numbers. We also acknowledge that analyst following could be a function of investor demand, so

our results could also reflect the role that GAAP differences play in affecting investors as well as analysts.[4]

We acknowledge that there is no theory that allows us to specify and test comprehensive models of analyst behavior with respect to either the decision to follow firms or to issue more or less accurate earnings forecasts for the firms they follow. With respect to the decision to follow firms, we assume that this decision is made based on the costs and benefits of following foreign firms. The benefits might include, for example, broadening the analyst's industry coverage to include significant foreign firms, increased commissions for their brokerage firm that accompany expanded coverage and investment recommendations, or investment banking fees. The costs presumably include primarily the direct costs of acquiring information about a new firm, but could include reputational costs if the analyst does a poor job of forecasting and providing recommendations about the new firm. For example, Kini et al. (2005) find that forecast accuracy is rewarded with more favorable employment in the international analyst market. Our hypothesis is that the costs of following a foreign firm increase with the extent of GAAP differences between the analyst's domicile country and the home country of the foreign firm.

We also acknowledge that the costs and benefits that are weighed when deciding whether to follow a foreign firm need not be identical to the factors that affect forecast accuracy. Our hypothesis is, again, that the costs of providing accurate forecasts increase with the extent of GAAP differences between the analyst's home country and the home country of the foreign firm. It is possible that the decision to follow a firm indicates that the benefits of following the firm outweigh the costs of learning the effects of different GAAP on the accounting representation of firm performance. If so, then analysts who choose to follow foreign firms might incur those costs and successfully understand the effects of different GAAP such that GAAP differences do not affect forecast accuracy for analysts following foreign firms. We expect that such a view of the costs of following firms and providing forecasts is too simplistic—the costs are primarily effort-related and are therefore continuous in nature. While the decision to follow a foreign firm may signal the decision to incur costs to learn the effects of different GAAP, it is possible that the effects of GAAP differences would not be completely overcome by the foreign analyst. It is, however, reasonable to anticipate that GAAP differences have a greater effect on foreign analyst following than on their forecast accuracy.

Our hypotheses, stated below in alternative form, reflect our assumption that the costs of both following foreign firms and forecasting earnings for foreign firms increase as the

[4] To ensure that our results are not entirely attributable to the relation between investor demand and analyst activities, we perform the following additional analysis. To see the incremental effect of GAAP differences beyond the demand-driven effect, we partition our sample observations into four groups by the level of openness in firm countries and by the level of GAAP differences between firm countries and analyst countries. We sort our sample countries into Low and High openness groups by the median of our sample countries' openness measures. The openness measure is computed as the ratio of the market capitalization of the constituent firms comprising the IFC Investable index to those that comprise the IFC Global index for each country. The data are from Bekaert et al. (2005). The openness variable measures the proportion of firms that are investable by foreign investors and can proxy for demand from foreign investors. Presumably, the higher the ratio is, the higher the demand from foreign investors for equity investment and accordingly the more demand for foreign analyst services. We also sort our sample countries into Low and High GAAP difference groups based on our two GAAP difference measures, respectively. We then compute the mean foreign analyst following in each subgroup. For both the more and less open countries, the difference in the mean foreign analyst following between the low and high GAAP difference group is significant at better than the .01 level. These results hold for both GAAP difference measures. These results suggest that foreign investor demand is not driving our results.

number of differences between the analyst's home country GAAP and GAAP in the foreign firm's home country increase:

H1: Foreign analyst following is negatively related to the number of differences between GAAP in the home country of the covered firm and GAAP in the domicile country of the analyst.

H2: Foreign analysts' forecast accuracy is negatively related to the number of differences between GAAP in the home country of the covered firm and GAAP in the domicile country of the analyst.

III. RESEARCH DESIGN

Analyst Location

We use Nelson's Directories of Investment Research (1999–2005) for information on the location of financial analysts. Nelson's Directories provide information on nearly 1,700 research firms with nearly 40,000 equity analysts covering publicly traded companies around the world during the period of 1999–2005. We obtain the full names of equity analysts and their country locations from annual volumes of Nelson's Directories for the years 1999 to 2005.

First, we match Nelson research firms to I/B/E/S brokers by broker names and by looking for overlap in analysts' names associated with the brokers between the two databases.[5] For the matched brokers, we match the equity analysts from I/B/E/S and Nelson's Directory by their last names and the initials of their first names. Each volume of Nelson's Directory is usually published in January using data as of November of the previous year. Thus, we classify an analyst's location in the year t volume of Nelson's Directory as applicable to year $t-1$ in the I/B/E/S database.[6] Once the analysts' names are matched, we obtain the country locations of the I/B/E/S analysts. This procedure allows us to identify the country location for approximately 60 percent of all analysts included in the I/B/E/S database for our sample firms.[7]

As discussed earlier, we are interested in identifying analyst location because analyst location is economically significant as a measure of international interest in a firm's equity shares and because location is expected to correlate with GAAP knowledge and familiarity. Implicit in our hypothesis development is the assumption that analysts' locations are stable—i.e., that analysts, by and large, work in the country where they have been trained and educated such that they are most familiar with the GAAP in the country where they are currently located. Of course, like any profession, there is some international mobility among financial analysts. When analysts move from one country to another, the current location no longer necessarily accompanies greater familiarity with local GAAP. International mobility among financial analysts therefore should decrease our ability to observe the effects of differences in GAAP on analysts. However, of the 8,504 cases where a financial analyst is in our database for two consecutive years, analysts change their country location in 474 instances, less than 6 percent of those cases, suggesting that while cross-border relocations by financial analysts do occur, they are not common.

---

[5] In 1998 Nelson became part of Thomson Financial. In September 2000 Thomson Financial acquired Primark, the parent company of I/B/E/S International, and I/B/E/S became a part of the research and analytic unit of the broker/fund management group at Thomson Financial.

[6] We obtain the same results when we classify an analyst's location in year t volume of Nelson's Directory as applicable to year t in I/B/E/S database.

[7] We later provide evidence about the outcome of this matching process on a country-by-country basis.

Measures of GAAP Differences across Countries

There exist a handful of studies that develop measures of differences in accounting standards across countries. Hung (2001) uses an accrual index computed by comparing the accounting standards in 11 areas for 21 countries based on the 1993 *International Accounting Summaries* by Coopers & Lybrand. Relying on the same data source, Young and Guenther (2003) develop an index that captures the degree of disclosure required in a country based on 15 separate disclosure items. Ashbaugh and Pincus (2001) tabulate accounting differences across eight disclosure requirements and four measurement rules relative to IAS for 13 countries. Bradshaw et al. (2004) measure conformity to U.S. GAAP at the firm level based on 13 accounting method choices using data from Worldscope.

Our main interest is in the extent to which accounting standards differ between two countries. Measuring differences in accounting standards is extremely difficult due to the wide range and complexity of accounting standards, creating a very long list of points on which different standards might be said to agree or differ. We adopt two approaches in this study. Our first approach involves identifying a list of 21 important accounting rules based on a review of the past literature and relying on a recent, comprehensive survey of GAAP differences. We then identify differences in these 21 accounting rules between each of the country-pairs in our sample. Our second approach is less judgmental. We use the survey data to identify commonly occurring differences in accounting across countries rather than using the past literature and our own judgment to determine which GAAP differences to focus on. Generally, we find similar results across both measures of GAAP differences.

We rely on the recent *GAAP 2001: A Survey of National Accounting Rules Benchmarked Against International Accounting Standards* (Nobes 2001). In this survey, partners in large accountancy firms from more than 60 countries benchmarked the local accounting standards in their country against IAS, focusing their attention on rules in place as of December 31, 2001. The survey contains information on how local GAAP differs from IAS on 80 key accounting issues, issues incorporating recognition, measurement, and disclosure rules. For each country, the survey captures four types of differences from IAS:

(1) absence of recognition and measurement rules that are present in IAS;
(2) absence of disclosure rules that are present in IAS;
(3) inconsistencies between local GAAP and IAS that could lead to differences for many enterprises; and
(4) other issues that could lead to differences between local GAAP and IAS for certain enterprises.

To help better understand these categories, we provide example items from each category. In the first category, many countries do not require accounting for employee benefits, required under IAS No. 19, or accounting for impairment of assets as required under IAS No. 36. In the second category, common disclosures that are called for under IAS but not required under local GAAP include segment reporting, related-party transactions, and cash flow statements. Category 3 captures differences such as the capitalization of research and development costs and differences in aspects of deferred tax accounting that may affect some industries. Finally, category 4 includes, for example, differences in accounting for long-term construction contracts.[8] Based on a review of the items contained in this list and drawing on prior research that has utilized indices of differences in accounting standards

[8] Ding et al. (2007) also use the GAAP 2001 survey and explore the causes and consequences of the absence of IAS rules (categories 1 and 2) and departures from IAS rules (categories 3 and 4).

across countries, our first measure of GAAP differences across countries is based on a list of 21 key accounting items that meet three criteria: (1) the item is identified as a key accounting item in the past literature, where we primarily rely on the list of items compiled by Comprix et al. (2003), Bradshaw et al. (2004), and Basu et al. (1998); (2) we can determine that countries with GAAP that does not conform to IAS have GAAP that are similar to one another; and (3) the item creates variation across countries, i.e., at least five countries from our sample are different from the sample countries that conform to IAS for that item but are similar to one another.

From this list of 21 key accounting items, we construct a measure of GAAP differences for each country-pair in our sample as follows. First, for each accounting item in the list, countries that do not conform to IAS receive a score of 1 for that accounting item. All other countries receive a score of 0 for that item. Then, for each item in our 21-item list, we compare each pair of countries in our sample. If both countries conform to IAS (i.e., each has a score of 0) for that item, or if both countries differ from IAS (i.e., each has a score of 1) for that item, then that pair of countries is deemed to have similar GAAP for that item and the country-pair is assigned a ''GAAP difference'' score of 0 for that item. If one country conforms to IAS (i.e., a score of 0 for that item) and the other country does not (i.e., a score of 1 for that item), then the two countries are deemed to have different GAAP for that item and the country-pair is assigned a ''GAAP difference'' score of 1 for that item. This procedure is repeated for all 21 accounting items on our list and the total ''GAAP difference'' score is simply the sum of the scores for that country-pair across all 21 items. This score is our first measure of accounting standard differences that theoretically ranges between 0 and 21 and increases as the extent of difference in GAAP between the two countries increases. We denote this measure of GAAP differences *gaapdiff1*. This measure of GAAP differences is more judgmental than the next measure we describe because (1) the list of items we include is based on the past literature, and (2) we utilize the text included in the *GAAP 2001 Survey* to help ensure coding accuracy and to help ensure that all countries coded as different from IAS for each item have similar GAAP for that item.

Table 1 provides both the list of 21 accounting items used in measuring *gaapdiff1* and the individual country scores for each item. The table indicates which countries have been coded 1, indicating that the country differs from IAS for that item. For simplicity in reporting we do not report the country-pair scores, though they can be easily inferred from the country-level data in Table 1. Luxembourg had the most differences from IAS with 18 out of 21, while there were no differences between Singapore and South African GAAP and IAS. The Luxembourg-Singapore and Luxembourg-South Africa country-pairs also had the most different GAAP, with a total of 18 differences in GAAP. In addition to the Singapore-South Africa country-pair, the U.K. and Ireland also had zero GAAP differences (not surprising since Ireland used U.K. GAAP during our sample period).

This measure of differences in accounting standards across countries has some advantages. First, because the measure is constructed based on survey responses from local partners in large accounting firms, we expect little error in identifying similarities and differences between each country's local GAAP and IAS. Second, because the measure includes items identified as key accounting areas in past literature, it should capture meaningful, substantive differences in recognition, measurement, and disclosure rules around the world. The overlap between the items included in this measure and the items included in lists of key accounting differences in the past literature also affords comparability with the past literature.

TABLE 1
The Initial GAAP Differences Measure (*gaapdiff1*)

Panel A: The 21 IAS Items Making Up the Initial GAAP Differences Measure

Item	IAS Rules	Description—Countries Coded 1
1	IAS No. 1.7	Do not require a primary statement of changes in equity
2	IAS No. 12	Do not generally require deferred tax accounting
3	IAS No. 14	Require no or very limited segment reporting
4	IAS No. 17	Require no or very limited capitalization of leases
5	IAS No. 19	Do not have rules for accounting for employee benefit obligations (other than defined contribution plans in some cases)
6	IAS No. 19.52	Do not have rules for accounting for employee benefits other than pensions
7	IAS No. 2.36	Do not require disclosure of FIFO inventory cost when LIFO is used
8	IAS No. 22.56/38.99	Do not require impairment testing of goodwill or other intangibles with lives in excess of 20 years
9	IAS No. 24	Have no or very limited disclosure requirements for related-party transactions
10	IAS No. 32.18/.23	Do not require that companies account for their financial instruments based on substance over form
11	IAS No. 32.77	Do not require the disclosure of the fair value of financial assets and liabilities
12	IAS No. 35	Do not have rules outlining the treatment of discontinued operations
13	IAS No. 36	Do not have rules calling for impairment testing for long-term assets, or impairments are only recorded when deemed permanent
14	IAS No. 37	Do not have specific rules dealing with provisions
15	IAS No. 37.14	Permit establishing provision when there is no obligation
16	IAS No. 37.45	Do not have rules calling for the discounting of provisions
17	IAS No. 38.42	Permit capitalization of research and development costs
18	IAS No. 38.51	Permit capitalization of some other internally generated intangibles (e.g., brands)
19	IAS No. 7	Do not require a statement of cash flows
20	IAS No. 8.6	Permit a broader definition of extraordinary items
21	SIC 12	Do not require the consolidation of special purpose entities

Panel B: Differences from IAS by Country—Used in *gaapdiff1*

Country/Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Argentina		1	1	1	1					1	1	1	1		1	1	1	1		1	1
Australia					1							1		1			1				
Austria	1		1				1	1			1	1	1		1	1			1	1	1
Belgium			1		1		1	1	1	1	1	1			1	1	1		1	1	1
Brazil			1	1	1					1		1	1		1	1	1		1		1
Canada	1						1	1							1	1					
Chile	1		1		1		1	1		1	1	1	1		1	1				1	1
China		1			1		1			1	1	1				1				1	1
Czech	1		1	1	1				1	1		1	1		1	1	1		1	1	1
Denmark	1		1	1	1			1		1		1	1	1						1	1
Egypt	1	1	1	1		1				1	1				1						1
Estonia	1				1					1	1	1	1								1

(*continued on next page*)

TABLE 1 (continued)

Country/Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Finland	1		1	1		1	1		1	1	1	1	1		1	1	1		1		1
France	1			1	1		1	1	1	1		1	1		1	1				1	
Germany	1						1	1	1	1	1	1			1	1				1	1
Greece	1	1	1	1		1	1		1	1	1	1			1	1	1	1	1	1	1
Hong Kong					1					1	1										
Hungary	1	1	1		1		1		1	1	1	1	1		1	1				1	
India	1									1	1	1	1		1	1	1				
Indonesia						1	1				1										1
Ireland										1											
Israel			1			1		1				1				1					1
Italy	1		1	1						1	1	1	1		1	1			1	1	1
Japan	1			1	1		1					1	1		1	1				1	
Korea					1					1	1				1	1					1
Luxembourg	1	1	1	1	1		1	1		1	1	1	1		1	1	1	1	1	1	1
Malaysia						1				1	1	1	1	1				1			1
Mexico													1								
The Netherlands	1														1	1				1	
New Zealand					1								1					1			
Norway	1				1			1		1			1		1		1				
Pakistan										1		1	1	1							
Peru					1																
Philippines				1		1		1		1	1		1		1	1	1				1
Poland			1		1		1	1		1	1		1		1	1	1			1	1
Portugal	1	1					1		1	1	1	1	1	1			1	1		1	1
Russia	1	1			1		1		1	1	1	1	1		1	1	1	1	1	1	1
Singapore																					
Slovenia	1	1	1		1		1				1	1			1					1	
South Africa																					
Spain	1		1	1			1	1	1	1	1	1	1		1	1	1		1	1	1
Sweden	1					1		1		1	1	1	1		1	1	1				
Switzerland	1		1			1	1			1	1	1	1		1	1				1	1
Taiwan							1			1		1	1			1					1
Thailand		1			1							1		1							
The U.K.										1											
Turkey	1	1	1	1	1		1		1	1	1	1	1			1	1			1	
The U.S.								1		1					1	1					
Venezuela					1					1	1	1				1					

The IAS numbers used for reference in this table are the primary IAS standard references given in the GAAP 2001 survey used for coding each item. In each case, the textual description of the GAAP difference was also utilized in the coding, so in some cases countries identified as differing from IAS on the indicated standard are not coded 1 because the text description for that country suggested that the difference from IAS GAAP was minor and unlike the other countries coded as 1. In addition, in some instances countries are coded as 1 even if the indicated standard was not mentioned for that country, if the text for a related item suggested that the country's GAAP was in fact different from IAS on the dimension described above. Since we are interested in GAAP differences across countries, *gaapdiff1* is the sum of the number of differences observed in the scores across all 21 items between each country-pair; *gaapdiff1* therefore has a theoretical maximum value of 21 and minimum value of 0.

Our approach also has some limitations. First, even though we identify a relatively comprehensive list of items that meet the criteria we discussed earlier, this measure is obviously incomplete and does not capture all important aspects of differences in accounting standards across countries. Second, the measure is based on rules in effect in 2001. To the extent that accounting rules changed in the 1998–2004 sample period, we measure differences in accounting standards with error. Third, and perhaps most importantly, this list captures differences in accounting standards, not necessarily actual practice, across countries. To the extent that companies within these countries adopt accounting standards other than their home country standards, provide voluntary disclosures that go beyond those specified in local standards, or fail to comply with local standards, we measure with error the extent of accounting differences at the company level.[9]

We utilize an alternative measure of accounting differences to ensure that our results are robust to the measurement of accounting differences. The second measure we construct also employs the same *GAAP 2001 Survey* but implements a more mechanical approach to identifying key accounting areas and coding differences between IAS and local GAAP. Our second approach involves two steps. Each accounting practice covered in the GAAP 2001 survey is coded by the IAS section number, along with a brief description of the nature of how local GAAP and IAS differ for that item. In creating our first measure, *gaapdiff1*, we perform the coding exercise by hand, utilizing both the IAS section numbers and the text description to ensure that our coding scheme captures ''similar'' differences from IAS across countries.[10] For our second measure, we use an algorithm based solely on the IAS section numbers reported in the *GAAP 2001 Survey* results to (1) identify the important accounting practices to include as individual items in our list, and (2) to code cases where local GAAP does not conform to IAS. First, we identify each IAS section that appeared in the individual country reports for five or more countries included in the survey. This generates a list of 52 distinct IAS sections. Next, for each of these 52 IAS sections we simply code a 1, indicating nonconformity with IAS for each country that includes that particular IAS section number in the country report, without referring to the text to ensure that similar departures from IAS are identified for each country.

Because the types of departures from IAS GAAP under the first two categories of departures from IAS (categories dealing with the absence of recognition, measurement, or disclosure rules) tend to be quite similar across countries while the departures from IAS reported under the last two categories (differences under some circumstances or for some companies) are more subtle differences that are less likely to be consistent across countries, we use only the information appearing under the first two types of departures from IAS for coding the country-level departures from IAS. The construction of the country-pair

[9] As reported later, we partially address this point by collecting data about the actual accounting standards adopted at the firm level. In addition, we perform additional analyses (1) using measures of disclosure (based on CIFAR scores) and earnings management (from Leuz et al. 2003) differences across countries and (2) controlling for auditor type and audit opinion at the firm level.

[10] Our *gaapdiff1* coding has two features that help ensure that two countries coded as different from IAS have similar GAAP. First, a number of the accounting rules we examine involve the presence or absence of required disclosures (e.g., statements of cash flow and changes in equity). In addition, we read the textual description of the departure from IAS for each country to ensure that each country had similar rules. In over 80 percent of the departures from IAS we identify, our coding reflects little judgment and is nearly unambiguous. For example, all 19 countries coded as departing from IAS because they do not require the disclosure of FIFO inventory when LIFO is used have statements in the GAAP survey that clearly state that this disclosure is not required. In the remaining cases, we apply some judgment in coding departures from IAS even though the textual descriptions of the departures from IAS are not virtually identical across countries. In most cases, this involves coding a country as departing from IAS when the textual description indicates that the IAS rule is followed in only very limited circumstances in that country.

GAAP differences then mirrors the procedures we follow for *gaapdiff1*. We label this measure of GAAP differences *gaapdiff2*. The Appendix details the accounting items that are included in the construction of *gaapdiff2*.[11]

Our first GAAP difference measure, *gaapdiff1*, covers 21 accounting items for a total of 1,176 country-pairs. This measure ranges from 0 to 18, with a mean of 9. Our second GAAP difference measure, *gaapdiff2*, covers 52 accounting items for a total of 1,176 country-pairs. This measure ranges from 0 to 25, with a mean of 13.1. The Pearson (spearman) correlation between *gaapdiff1* and *gaapdiff2* is 0.57 (0.52), implying that our measures capture similar phenomena, though the correlation is modest enough to suggest that each measure captures different aspects of GAAP differences across countries to some extent.

Our discussion and empirical analysis reflect the assumption that accounting standards are exogenous, i.e., that differences in accounting standards across countries impact foreign analyst behavior, but that foreign analyst activities and their demands for information do not impact differences in accounting standards. We acknowledge that foreign investor and analyst demand for information is certainly one factor that could impact how accounting standards are set at the national level. However, we suspect that this source of demand influencing accounting standards is, at best, a second-order effect relative to within-country issues. Absent fundamental changes such as a country's decision to adopt IAS, accounting standards are relatively stable and do not respond quickly to demand forces such as emerging demands for fewer differences with another country due to increased investor and analyst demand from that country. In addition, given the diversity in accounting standards evident in Table 1, it is not clear how standard setters could respond to calls for reducing accounting differences with other countries when those calls could come from countries with quite different accounting standards. Finally, it would be very difficult to empirically model potential endogeneity of accounting standards in the absence of theoretical guidance to assist in identifying exogenous determinants of accounting standards. For these reasons, we do not attempt to structure our empirical analysis to allow for the potential endogeneity of accounting standards.[12]

To summarize, we utilize two different measures of differences in accounting standards across countries. The variable *gaapdiff1* is a judgmentally prepared list, which identifies 21 key accounting areas from the past literature and uses both IAS section numbers and the accompanying text from the *GAAP 2001 Survey* to identify GAAP differences across countries. For *gaapdiff2* we also use the *GAAP 2001 Survey* to identify accounting differences across countries but adopt a more mechanical approach to identify 52 important areas of accounting and to determine country-level conformity to or departure from IAS for each of these 52 areas. Each measure has advantages and disadvantages, and neither is perfect or complete. Importantly, as we show later, our main results are generally quite consistent across both measures, enhancing our confidence in the results.

Dependent and Control Variables

The main purpose of this paper is to examine whether accounting differences across countries are related to foreign analyst following and forecast accuracy. We compute our

[11] Because of the large number of IAS sections and countries involved, we do not report the country by country coding of departures from IAS for this list. The country-level departures from IAS used in the construction of *gaapdiif2* are available from the authors upon request.

[12] We do report the results of time-series analysis of firms voluntarily adopting International Accounting Standards later in the paper. This analysis is less subject to potential endogeneity concerns than our cross-sectional tests.

measure of foreign analyst following, for_anal_{ja}, as the average number of foreign analysts per year from country a who forecast annual earnings for firm j during the seven-year period of 1998–2004. We use the average number of analysts from each foreign country rather than our full panel data because the number of analysts following a company cannot be considered independent across time.[13] For a particular firm, if GAAP differences matter, then there would be more analysts covering the firm from the countries that have fewer GAAP differences from the firm's country than from the countries that have more GAAP differences. To measure forecast accuracy we use the price-scaled absolute difference between an earnings forecast and the actual earnings for firm j at time t. We deflate by stock price to facilitate comparison across firms. The stock prices $P_{j,T-1}$ are the latest available monthly stock price in the previous year from the I/B/E/S summary file.[14] We apply the same price $P_{j,T-1}$ to all of the forecasts made for firm j for the fiscal year T.[15]

Previous research suggests various factors that might affect analyst following across firms, such as firm size, ADR status, and forecast difficulty.[16] Previous studies have also documented that forecast accuracy depends on forecast horizon, analysts' forecast ability, resources, and forecast complexity (Ang and Ciccone 2001; Clement 1999). Thus, we incorporate various proxies for these factors as control variables. We use analysts' general forecast experience and firm-specific experience to proxy for their ability, and use the number of analysts working with their research firms to proxy for the resources available to the analysts.

We also draw on past literature to identify a wide range of variables that may differ across countries and influence analyst activities. We control for these variables because they are likely to be correlated with GAAP differences. Including these variables is important to assess the incremental effect of GAAP differences on analysts after controlling for other important differences between countries. Our comprehensive list of country-pair control variables is drawn primarily from Sarkissian and Schill (2004), who construct a comprehensive set of country-pair level variables in their analysis of firms' cross-listing decisions. The list of control variables they construct captures virtually all of the important country-level characteristics that have appeared in the prior international finance and accounting literatures. We provide estimates with and without these country controls to assess the impact of including these control variables on our results. The details of variables used in the study including definitions, measurement, and data sources are described in Table 2. We discuss the variables in more detail as we discuss our results.

---

[13] We later report sensitivity tests using alternative measure, *for_anal/total*, which scales the number of analysts as defined above by the average annual total number of foreign analysts following firm j during 1998–2004. We obtain similar results when we restrict our sample to year 2001, the year GAAP differences are measured, instead of using the averages for both dependent and independent variables during the sample period.

[14] We obtain similar results when we use monthly stock prices from Compustat.

[15] We later report results of sensitivity analysis using a second measure of forecast accuracy, the absolute forecast error scaled by actual earnings disclosed in I/B/E/S.

[16] Our primary reference for control variables in the analyst following model is Lang et al. (2003), which examines analyst following in an international context focused on equity cross-listing. We do not include the earnings surprise variable in their model because they find it is not related to analyst following. We substituted forecast diversity for the returns-earnings correlation and the standard deviation of returns (all can be viewed as measure of uncertainty and/or information asymmetry which complicate the forecasting process) because we lose around 1/3 of our sample if we use the later two variables (which require return data). However, adding return standard deviation and the return-earnings correlation to our analyst following regressions does not qualitatively alter our conclusions. Both GAAP difference measures remain significant in the analyst following regressions. The coefficients on return standard deviation and the return-earnings correlation have signs consistent with those reported in Lang et al. (2003).

TABLE 2
Variable Descriptions

Panel A: Dependent Variables

for_anal_{ja}	Average annual number of analysts who follow firm j from another country during 1998–2004. It is 0 if there is no analyst from country a (identified by various volumes of Nelson's directory) following firm j. We multiply by 100 for expositional purposes only.
$afep_{ijt}$	Absolute forecast errors scaled by the most recent stock prices in the previous year. It is computed as the price-scaled absolute difference between an earnings forecast by analyst i and the actual earnings for firm j at time t. To facilitate exposition we multiply this variable by -100 so that larger values represent more accurate forecasts.

Panel B: Independent Variables

$gaapdiff1_{fa}$	Total number of GAAP differences between country f and country a based on GAAP 2001 survey as described in Panel A of Table 1.
$gaapdiff2_{fa}$	Total number of GAAP differences between country f and country a based on GAAP 2001 survey as described in the Appendix.

Panel C: Control Variables

$horizon_{ijt}$	Forecast age in years between the forecast date t and the corresponding I/B/E/S report date of the actual earnings.
mv_{jY}	Market capitalization in U.S. $ billions for firm j in year Y. It is the product of the number of shares outstanding and monthly stock price from I/B/E/S summary files.
$firmex_{ijt}$	Analyst firm-specific experience, defined as the time interval in years between analyst i's first forecast for a particular firm j in I/B/E/S database and his forecast at time t for firm j.
$genex_{it}$	Analyst general experience, defined as the time interval in years between analyst i's first forecast in the I/B/E/S database and his current forecast at time t.
$brsize_{iY}$	Brokerage size, defined as the number of analysts working for the I/B/E/S brokerage that analyst i is associated with in year Y.
$nfirm_{iY}$	Number of firms analyst i covers in year Y in the I/B/E/S database.
$nctry_{iY}$	Number of countries analyst i covers in year Y in the I/B/E/S database.
$diversity_{jY}$	Diversity of analysts' forecasts for a firm in year Y. It is computed as the ratio of standard deviation of forecasts for firm j in year Y in the I/B/E/S database to the product between the absolute value of consensus forecast and the square root of the number of analyst following firm j in year Y.
adr_{jt}	Dummy variable indicating whether firm j has an ADR program in place at time t. For the sample of analyst following, it takes the value of 1 if firm j has ever had an ADR program since 1990, and 0 otherwise. The data are from the website of the Bank of New York (2001).
$dist_{fa}$	Geographic distance in thousands of kilometers between firm's country and analyst's country based on latitudes and longitudes of the important cities. The data source is CEPII at http://www.cepii.fr/anglaisgraph/bdd/distances.htm.
$cult_{fa}$	Dummy variable equals 1 if firm's country and analyst's country share either a common language or were historically part of the same colonial empire. The data source is CEPII at http://www.cepii.fr/anglaisgraph/bdd/distances.htm.
$econ\_prox_{fa}$	Percentage of firm-country's exports going to analyst's country for the year 2001. The data are from the TradeAnalyzer database.

(*continued on next page*)

TABLE 2 (continued)

cap_corr_{fa}	Proxy for correlation of industry structure between firm's country and analyst's country. First we calculate the average weight of each one-digit industry (up to ten industries in total) for each country during 1998–2004 by market capitalization. We then calculate the Pearson correlation of the industry weights for each country-pair. The data source is Worldscope.
$stkturn_{fa}$	Ratio of firm-country's stock turnover rate to analyst-country's stock turnover rate based on data from World Development Indicators.
gdp_{fa}	Ratio of firm-country's GDP to analyst-country's GDP based on data from World Development Indicators.
$capgdp_{fa}$	Ratio of firm-country's GDP-scaled equity market size to analyst-country's GDP-scaled equity market size based on data from World Development Indicators.
$legorig_{fa}$	It is the difference between firm's country and analyst's country based on a dummy variable that equals 1 if a country is of English common law origin, and 0 otherwise. The raw data are from La Porta et al. (1998).
$antidir_{fa}$	It is the difference between firm's country and analyst's country in the Anti-Director Rights Index. The original index ranges from 0 to 5, with higher scores for stronger investor rights. The raw data are from La Porta et al. (1998).
$crosslist_{fa}$	The number of firms from firm's country that cross-listed in analyst's country scaled by the number of total domestic firms in firm's country. The cross-listing data are from Sarkissian and Schill (2004) and the number of domestic firms is from World Development Indicators.
$tot\_for\_anal_{a}$	The average total number of analysts from the analyst's country who follow at least one foreign firm during the 1998–2004 sample period.
$cifar_{fa}$	The difference between firm's country and analyst's country in the CIFAR index of financial disclosure. The data are from Bushman et al. (2004).
$earn\_mgmt_{fa}$	The difference between firm's country and analyst's country in the index of earnings management based on data from Leuz et al. (2003).
$big4_{j}$	Dummy variable equals 1 if a firm is audited by one of the Big 4 accounting firms based on data from Worldscope, and 0 otherwise. This is a static data item in Worldscope so it is measured as of the latest fiscal year reported in the database for firm j.
$qualified_{jY}$	Dummy variable equals 1 if a firm receives a qualified opinion in year Y based on data from Worldscope, and 0 otherwise.

In this table i = analyst, j = firm, t = time of the forecast, f = country location of the firm, a = country location of the analyst, and Y = year.

IV. SAMPLE AND DESCRIPTIVE STATISTICS

Sample

We impose the following criteria to yield our final sample:

(1) Country-level GAAP differences relative to IAS are available in the *GAAP 2001 Survey*.
(2) The location of equity analysts can be identified. Because we are interested in how GAAP differences affect foreign analysts, we exclude local analysts from our final sample. Therefore, a firm must be followed by at least one foreign analyst to be included in our sample.

(3) The annual earnings forecasts are restricted to the latest forecast for each firm/year/analyst with a minimum of 30 days before the I/B/E/S report dates but no longer than one year before the fiscal year-end.[17]
(4) Actual earnings are available from the I/B/E/S actual data file.

The intersection of I/B/E/S and the GAAP 2001 survey yields 1,176 distinct country-pairs. Because our tests examine the effects of GAAP differences between the firm's local GAAP and the GAAP of the foreign analysts' home country, we exclude firm-years from our primary sample when companies do not use local standards based on Worldscope yearly data. Worldscope data on the accounting standards used by the firm are available for approximately one-half of our sample. In our primary tests we retain firms that do not have data on the accounting standards used by the firms, reflecting our assumption that smaller firms without standards data are very likely to be local standard users. Our sample for forecast accuracy covers 6,888 analysts making a total of 43,968 forecasts for 6,169 firms from 49 countries during 1998–2004. We eliminate the extreme 1 percent of our sample of forecast accuracy to eliminate the effects of possible data errors.

Our sample for analyst following is constructed as follows. We compute the average of the annual number of foreign analysts that follow each firm from each of the 48 foreign countries during 1998–2004. Foreign analyst following is 0 if there is no analyst following for a firm from a particular country over our sample period.[18]

Descriptive Statistics

Table 3, Panel A shows the distribution of firms, analysts, and firm market capitalization by country. The analyst match rates reported in this panel show the proportion of I/B/E/S analysts following firms in each country for whom we are able to identify location using Nelson's Directories. This match rate varies around the mean of about 60 percent, ranging from a low of 40 percent (India and Malaysia) to a high of 75 percent (Canada). One concern with the variation in match rates is that we could systematically identify more foreign analysts for larger and more developed countries than for less developed countries, and this bias could be related to our measures of GAAP differences. While we cannot entirely dismiss biases in our sample construction as a contributor to our results, the fact that our match rates are 40 percent or more for all countries and that most country match rates fall reasonably close to the sample mean of 60 percent suggests that biases in sample construction are unlikely to have a significant effect on our results.[19] Sixteen out of a total of 49 countries have more than 100 firms in our final sample. Thirty-four countries have at least 40 firms. There are 27 countries with 100 or more foreign analysts covering firms in their market. Forty-two countries have at least 40 foreign analysts. The analysts in our sample come from 46 sample countries; the U.S. and the U.K. have the largest analyst

[17] Our main results remain qualitatively the same when we restrict the annual forecasts to at least five days before the I/B/E/S report dates.
[18] We also repeated our test on a smaller sample of firms that are followed by at least five foreign analysts to see if very low foreign coverage is driving our results. Our results are qualitatively unchanged for this sample. In addition, our full sample includes firms with an ADR program that may be reconciling their accounting numbers to U.S. GAAP. If we drop all firms without accounting standard data and all firms with an ADR (and omit the ADR dummy variable), our results for analyst following remain qualitatively unchanged, but the negative relation between *gaapdiff2* and forecast accuracy becomes insignificant in this smaller sample.
[19] As we discuss in more detail later, we control for the effects of variation in the number of analysts we identify across countries by including the total number of analysts residing in the analyst's country as a control variable in our analysis of analyst following. We also report the results of several additional specifications that deal with variation in the number of analysts across countries by altering how we construct our sample later in the paper. Our main inferences are unaffected in these tests.

TABLE 3
Summary Statistics

Panel A: Number of Covered Firms, Analysts Covering Firms from the Country, Analysts Domiciled in the Country, Number of Forecasts for Covered Firms, and Mean Market Capitalization by Country[a]

Country	Analyst Match Rate	No. of Firms	No. of Analysts Covering Firms	No. of Analysts Domiciled	No. of Forecasts for Covered Firms	Mean Market Cap (U.S.$ billion)
Argentina	0.50	34	101	21	301	1.290
Australia	0.47	151	61	130	271	1.951
Austria	0.57	26	99	6	142	0.674
Belgium	0.65	75	383	61	802	2.669
Brazil	0.43	95	164	59	886	3.475
Canada	0.75	519	1,658	266	5,715	2.276
Chile	0.56	32	107	18	338	1.237
China	0.50	103	188	52	536	1.115
Czech	0.51	21	42	3	97	0.294
Denmark	0.58	62	323	50	716	1.338
Egypt	0.74	14	26	1	77	0.591
Estonia	0.49	3	11	0	12	0.694
Finland	0.60	79	331	24	1,010	1.127
France	0.61	261	1,272	502	4,083	4.189
Germany	0.59	218	807	291	2,434	4.177
Greece	0.59	46	78	1	268	1.095
Hong Kong	0.46	182	212	519	654	2.980
Hungary	0.54	15	34	4	130	0.158
India	0.40	92	75	20	373	1.363
Indonesia	0.44	58	82	18	292	6.531
Ireland	0.67	35	180	38	413	2.159
Israel	0.46	17	36	17	84	1.021
Italy	0.61	141	736	24	2,187	4.075
Japan	0.44	225	45	70	344	7.385
Korea	0.51	71	66	51	177	2.704
Luxembourg	0.69	2	11	0	12	1.380
Malaysia	0.40	114	174	32	714	0.830
Mexico	0.53	77	175	48	1,194	1.496
The Netherlands	0.61	114	867	116	2,368	4.711
New Zealand	0.52	58	69	17	180	1.249
Norway	0.58	62	269	45	597	1.303
Pakistan	0.58	11	6	3	17	0.312
Peru	0.53	20	53	6	125	0.387
Philippines	0.49	41	101	16	273	0.613
Poland	0.57	46	64	3	357	0.636
Portugal	0.57	42	208	19	499	1.475
Russia	0.64	20	41	8	106	3.269
Singapore	0.44	78	156	205	406	1.664

(*continued on next page*)

TABLE 3 (continued)

Country	Analyst Match Rate	No. of Firms	No. of Analysts Covering Firms	No. of Analysts Domiciled	No. of Forecasts for Covered Firms	Mean Market Cap (U.S.$ billion)
Slovenia	0.55	2	2	0	4	0.393
South Africa	0.57	154	77	51	404	1.264
Spain	0.57	106	634	104	1,877	3.815
Sweden	0.62	141	625	153	2,087	1.867
Switzerland	0.62	58	341	57	719	4.830
Taiwan	0.49	127	162	49	711	2.234
Thailand	0.46	77	150	24	540	0.582
The U.K.	0.61	483	601	2,326	1,958	5.235
Turkey	0.42	73	48	1	302	0.353
The U.S.	0.69	1,680	1,386	1,759	6,109	8.479
Venezuela	0.53	8	43	5	67	0.595

Panel B: Summary Statistics for the Sample of Analyst Forecast Accuracy[b]

Variable	Mean	Median	Std. Dev.	Minimum	Maximum
afep	−2.039	−0.966	3.661	−45.040	0.000
horizon	0.490	0.436	0.246	0.088	2.201
firmex	0.983	0.585	1.489	0.000	20.327
genex	3.446	2.287	3.697	0.000	22.392
nfirm	10.352	9.000	7.560	1.000	140.000
nctry	2.712	2.000	1.555	1.000	13.000
brsize	131.487	103.000	115.837	1.000	444.000

Panel C: Summary Statistics for the Sample of Analyst Following[c]

Variable	Mean	Median	Std. Dev.	Minimum	Maximum
sum_for_anal	2.517	1.333	2.824	1.000	28.343
for_anal	0.052	0.028	0.059	0.021	0.590
adr	0.126	0.000	0.332	0.000	1.000
mv	4.508	0.754	14.425	0.001	345.502

[a] The final sample includes 6,888 distinct analysts and 6,169 firms from 49 countries during 1998–2004. The annual earnings forecasts are restricted to the latest ones for each firm/year/analyst with a minimum of 30 days before the I/B/E/S report dates. The number of analysts covering firms and the number of analysts domiciled reported in this table are larger than the 6,888 distinct analysts in our sample because analysts may cover firms from more than one foreign country and in some cases analysts switch country of domicile.

[b] For *afep*, *horizon*, *firmex*, and *genex*, we first compute the median of the variables for each distinct analyst, and then compute the summary statistics across analysts for each variable. For the remaining variables, the descriptive statistics are based on the observations for each analyst year.

[c] In this panel, *sum_for_anal* is the average number of foreign analyst following during 1998–2004 from all of the other countries and *for_anal* is the average number of foreign analyst following during 1998–2004 from each of the other countries. For *adr* and *mv* we first compute the mean for each firm, and then compute the summary statistics across firms.

populations in our sample. The covered firms are the smallest in Hungary and the Czech Republic, with an average market capitalization of only U.S.$158 and U.S.$294 million, respectively. The sample firms in the U.S. and Japan are the largest, with an average market capitalization of more than U.S.$7 billion.

Table 3, Panel B shows the summary statistics for the sample of analysts' forecasts. The mean absolute forecast error scaled by price is around 2 percent. The mean forecast horizon is about 0.5 year. On average the analysts in our sample have followed a firm for about one year and been in their business for more than three years. These analysts cover an average of ten firms, 2.2 I/B/E/S industry groups, and 2.7 countries.[20] They work in brokerage houses employing more than 130 analysts on average.

Finally, Table 3, Panel C shows the summary statistics for the sample of analyst following. We calculate the number of foreign analysts from all foreign countries for each firm in this panel. The mean number of foreign analysts for each firm from all of the other countries is 2.5, while the median is 1.33.[21] An ADR program is in place at some point since 1990 for 12.6 percent of our sample firms. There is substantial variation in firm size across our sample firms.

V. EMPIRICAL RESULTS

Foreign Analyst Following and GAAP Differences Without Country Pair Controls

The main purpose of this paper is to examine whether GAAP differences have any impact on foreign analyst following and forecast accuracy. We begin by estimating the following baseline regressions that control for firm and analyst characteristics but do not control for country characteristics other than GAAP differences in order to utilize the full sample and to ensure that our results hold in regressions without potentially collinear country characteristics included as controls.

$$for\_anal_{ja} = \alpha + \beta_1 gaapdiff_{fa} + \beta_2 mv_j + \beta_3 adr_j + \beta_4 diversity_j + \sum_{i=2}^{13} \eta_i industry_i + \varepsilon_j,$$

where *j* stands for firm, *f* for the country location of the firm, and *a* for the country location of the analyst. The dependent variable is the average annual number of foreign analysts that follow a firm from each of 48 foreign countries during 1998–2004, multiplied by 100 for reporting and expositional purposes. The industry classification we use is the primary industry division in I/B/E/S, which includes a total of 13 sectors. The ADR dummy takes the value of 1 if a firm has ever had an ADR program since 1990, and 0 otherwise. All other variables are the mean of the annual observations for each firm as defined in Table 2.

Table 4 shows the multivariate regression results on analyst following with *gaapdiff1* (column (1)) and *gaapdiff2* (column (2)) as the measure of GAAP differences. Following

[20] The industry classification that we use is the primary division in I/B/E/S that includes a total of 13 sectors (including "MISCELL" and "UNDESIG").

[21] As mentioned earlier, we retain all firms with at least one foreign analyst in our full sample because we know of no reason to require more than one foreign analyst. Our main results are qualitatively similar if we require at least five foreign analysts or do not require any foreign analyst to be included in our sample.

TABLE 4
International GAAP Differences and Foreign Analyst Following and Forecast Accuracy

Dependent Variable	***for_anal***	***for_anal***	***afep***	***afep***
gaapdiff1	−0.129		−0.079	
	(−3.29)***		(−2.55)**	
gaapdiff2		−0.175		−0.073
		(−6.79)***		(−2.76)***
mv	0.014	0.010	0.015	0.015
	(3.68)***	(2.97)***	(5.40)***	(5.33)***
diversity	0.657	1.859	−31.890	−31.665
	(0.55)	(1.56)	(−1.54)	(−1.52)
adr	0.743	0.905	−0.251	−0.224
	(6.83)***	(8.93)***	(−1.98)**	(−1.67)*
horizon			−1.935	−1.942
			(−13.78)***	(−13.80)***
brsize			0.099	0.085
			(3.10)***	(2.44)**
nfirm			0.027	0.026
			(0.50)	(0.49)
firmex			0.038	0.032
			(3.15)***	(2.63)***
genex			0.024	0.022
			(2.60)***	(2.36)**
constant	2.412	3.111	−2.060	−1.934
	(6.52)***	(9.71)***	(−5.15)***	(−4.85)***
Industry	Yes	Yes	Yes	Yes
Obs.	291,264	291,264	43,547	43,547
Log Likelihood	−117,239	−116,918		
R^2			0.07	0.08

*, **, *** Significant at 10 percent, 5 percent, and 1 percent, respectively.
The table shows the impact of international GAAP differences on foreign analyst following and foreign analyst forecast accuracy. Foreign analysts are located in a different country from the firms they cover. We identify the geographic location of equity analysts based on *Nelson's Directory of Investment Research* from 1998 to 2004. The main sample excludes firms identified as using either U.S. GAAP or IAS. The dependent variable is for_anal_{ja}, the average annual number of analysts from country *a* who follow firm *j* from another country during 1998–2004. It is 0 if there is no analyst from country *a* following firm *j*. We multiply this variable by 100. The dependent variable $afep_{ijt}$ is absolute forecast error scaled by the most recent stock price in the previous year. To facilitate exposition we multiply this variable by −100 so that higher values represent more accurate forecasts. The annual earnings forecasts are restricted to the latest ones for each firm/year/analyst with a minimum of 30 days before the I/B/E/S report dates during 1998–2004.
All of the variables are defined in Table 2.
We do not report coefficients for industry dummies. Robust z- or t-statistics adjusted for country-pair level clustering are in parentheses.

Rock et al. (2001), we use the negative binomial model to estimate analyst following.[22] In this estimation and all subsequent tests, we adjust standard errors for country-pair level clusters. Cluster analysis inflates standard errors for the potential cross-correlation at the

[22] We check the sensitivity of our results by also estimating the model using OLS and logit (both with country-pair clusters), a random effect model, and Tobit regressions. In each case, the coefficient on *gaapdiff1* and *gaapdiff2* is negative and significant at the .01 level. We conclude that our results are not sensitive to the estimation method we use.

cluster level. Significance levels are much lower with country-pair level cluster adjusted standard errors than without this adjustment (e.g., z-statistics on *gaapdiff1* and *gaapdiff2* are −18.6 and −31.53 without clustering, respectively). This dramatic reduction in reported significance levels should be considered when comparing our results with prior international studies that do not utilize clustered standard errors (e.g., Sarkissian and Schill 2004). The number of analysts following increases with firm size, but is unrelated to forecast diversity. Firms with ADR programs attract more analysts. We include industry dummy variables to control for possible industry effects but do not report the industry coefficients to conserve space.

For both columns (1) and (2) of Table 4, we find a negative and significant reduction in analyst following as our measures of GAAP differences increase. In interpreting these coefficients, it is important to remember that the coefficient reflects the reduction in the number of foreign analysts from another country per GAAP difference between two countries, but that the negative binomial estimation is nonlinear. We assess the economic magnitude of the effect by looking at the marginal effect of changing the number of GAAP differences while holding other explanatory variables constant. When we set *gaapdiff1* and all of the control variables at their sample mean, the number of foreign analysts *per foreign country* is 0.042, which equals about two foreign analysts in total. When we set *gaapdiff1* at 0 and hold all control variables at the sample mean, the number of foreign analysts *per foreign country* is 0.135, which equals about 6.5 foreign analysts in total, an increase of over 200 percent. For *gaapdiff2* the marginal effect is even larger.

As noted earlier, our regressions include only those firms that have at least one foreign analyst, and we do not include local analysts (located in the same country as the firm) in our analysis. We exclude local analysts because while we think we can identify and control for other factors that might influence analyst behavior *among foreign analysts*, we are less confident that we can identify and control for all factors that might influence local *versus* foreign analyst decisions to follow firms. While GAAP differences might have the most influence in deterring *all* foreign analysts, there are clearly many more issues that could reduce costs for local analysts relative to foreign analysts (e.g., ease of building relationships with management that could result in private information for local analysts). To ensure that our results are not driven by our decision to exclude local analysts, we repeat the analysis including local analysts and setting *gaapdiff1* and *gaapdiff2* to 0 for local analysts. This results in a much larger sample of firms since we include firms that are followed only by local analysts (i.e., we drop the requirement that firms be followed by at least one foreign analyst). Our results are much stronger with local analysts included, with coefficients (z-statistics with country-pair clusters) of −0.325 (−7.82) and −0.287 (−9.80) on *gaapdiff1* and *gaapdiff2*, respectively. We continue reporting results throughout based on the sample that includes only foreign analysts because of our concerns that local analysts have advantages other than GAAP familiarity that we cannot control for in the analysis.

Foreign Analyst Forecast Accuracy and GAAP Differences Without Country Pair Controls

Columns 3 and 4 of Table 4 show our main results for analysts' forecast accuracy, with *afep* (the absolute forecast error scaled by stock price and multiplied by −100 so the variable increases with accuracy and to facilitate reporting and exposition) as the dependent variable.

$$afep_{ijt} = \alpha + \beta_1 gaapdiff_{fa} + \beta_2 horizon_{ijt} + \beta_3 \log(brsize_{iY}) + \beta_4 \log(nfirm_{iY}) + \beta_5 firmex_{ijt} + \beta_6 genex_{it} + \beta_7 mv_{jY} + \beta_8 diversity_{jY} + \sum_{i=2}^{13} \eta_i industry_i + \sum_{Y=1998}^{2003} \gamma_Y year_Y + \varepsilon_{ijt}$$

where *i* stands for analyst, *j* stands for firm, *t* for time of the forecast, *f* for country location of the firm, *a* for country location of analyst, *Y* for year. All of the variables are defined in Table 2. We run OLS regressions with country-pair clusters.[23] In contrast to our analysis of analyst following, we utilize our full time-series, cross-sectional data since forecast errors can more appropriately be considered independent over time.

In this analysis, we take the natural log of brokerage size and the number of firms an analyst follows because of skewness in the distribution of these variables.[24] Not surprisingly, the most important determinant of forecast accuracy is forecast horizon. Analysts provide less accurate forecasts when they forecast at longer horizons. The coefficients on research firm size are positive, indicating that better resources available to analysts increase their forecast accuracy. The coefficients on both analysts' firm-specific experience and general forecast experience are positive, suggesting that analysts who are more experienced provide more accurate forecasts. Analysts are more accurate in forecasting larger firms and less accurate in forecasting firms with ADRs. Both GAAP difference measures are negatively related to forecast accuracy, indicating that larger GAAP differences dampen foreign analysts' ability to provide accurate earnings forecasts.[25]

Country-Pair Differences in Other Characteristics and GAAP Differences

Table 4 includes all available observations but does not include controls for country-level characteristics that could potentially impact analyst following and forecast accuracy. Table 5 introduces controls for differences between country-pairs on a number of country-level characteristics that could potentially affect our results, at the cost of modest reductions in sample sizes as not all country characteristics are available for all sample countries. Included in the regressions now are the country-level variables summarized in Table 2. This list includes all the control variables that Sarkissian and Schill (2004) create in order to explain firms' cross-listing decisions as well as the cross-listings between the firm's country and the analysts' country. This comprehensive set of control variables captures differences (or similarities) between the firm's country and the analyst's country in language, colonial history, trade, industrial structure, geographic location, size of the economy and the stock market, stock market liquidity, cross-listing of equity shares, legal origin, and shareholder protection.[26]

---

[23] Once again clustering at the country-pair level has a dramatic effect on significance levels. Without clustering, the t-statistics on *gaapdiff1* and *gaapdiff2* are −15.26 and −16.82, respectively. We also run the regression using firm level rather than country-pair level clustering. Both GAAP difference measures have significantly negative coefficients in this specification.

[24] Our main results remain the same if we use the raw number for brokerage size and number of firms an analyst follows.

[25] In Table 4, the coefficient on *gaapdiff1* is −0.079, which implies that all else equal, when GAAP difference between two countries increases by 1, the absolute forecast error scaled by price increases by 0.079 percent. Since the sample mean absolute forecast error scaled by price is two percent in Table 3, and the mean GAAP difference for *gaapdiff1* is 9, foreign analysts would have been 35 percent ((9*0.079)/2 = 0.35) more accurate in their forecasts if there were no GAAP differences between two countries. The coefficient on *gaapdiff2* implies a similar impact on forecast accuracy.

[26] We thank Sergei Sarkissian for sharing the country-pair cross-listing data with us.

We recreate each of their control variables, in most instances using exactly the same measure, since these same measures are expected to explain analysts' coverage decisions and forecast accuracy in addition to our primary experimental variable, GAAP differences.[27] We expect that GAAP differences across countries are also related to a variety of these factors, so failure to control for these variables could lead to a biased estimate of the impact of GAAP differences.[28]

In addition, Table 3 demonstrates that there is substantial variation in the number of analysts we identify as resident in each of our sample countries. This variation reflects differences in the number of analysts who reside in each country and follow foreign firms, and differences in our success in identifying location across countries. Since the number of analysts from each country who follow any given foreign firm is expected to be a function of the total number of analysts in this sample country, we include an additional control variable. We define *tot_for_anal* as the average total number of analysts from the analyst's country who follow at least one foreign firm during the 1998–2004 sample period and include this variable in our analysis of analyst following.[29]

We report the results including these control variables in Table 5. The coefficients on the initial set of control variables are generally consistent with the results reported in Table 4. Despite collinearity among these variables that impacts the significance of individual coefficients, many of the relations between analyst following and these control variables are significant and have intuitively appealing signs. Foreign analyst following is greater when the firm's country and the analyst's country share a common language or colonial history, when economic ties between the countries are stronger, and when the two countries are geographically closer. The negative signs on *gdp* and *capgdp* suggest that analysts' interest flows from richer countries with better-developed stock markets to poorer countries with smaller equity markets. Higher correlation of industrial structure is weakly negatively related to foreign analyst following, contrary to our expectations. There is a strong positive relation between the total number of analysts in the analyst's country and analyst following from that country at the firm level. The most important result in the first two columns of Table 5 is that the relation of GAAP differences to analyst following remains statistically significant across both specifications even after controlling for these additional country characteristics and with country-pair clustering to adjust standard errors. The introduction of the control variables does, however, noticeably decrease the economic significance of the relation between GAAP differences and foreign analyst following to about one-third of the magnitude in our earlier specification. The coefficient on *gaapdiff1*, for example, now implies an 84 percent increase in foreign analyst following as *gaapdiff1* changes from the sample mean of 9 to 0, holding all other variables at the sample mean.

The last two columns of Table 5 show the impact of GAAP differences on foreign analysts' forecast accuracy after we control for country-pair characteristics. In general, the

[27] We use a different measure of stock market liquidity that is available for more countries. Sarkissian and Schill (2004) calculate *cap_corr* using ranks rather than actual industry weightings. Our results are similar if we calculate the correlation of industry structure based on ranks.

[28] In an earlier version of the paper we included controls for a variety of country characteristics in levels form, rather than controlling for country-pair differences in these variables. Our measures of GAAP differences were also significantly negatively related to foreign analyst following and forecast accuracy in those earlier tests.

[29] We do not include this variable in our analysis of forecast accuracy since there is no reason to expect a relation between the number of analysts located in the analyst's country and individual analyst forecast accuracy. We did, however, confirm that this relation is insignificant.

TABLE 5
International GAAP Differences and Foreign Analyst Following and Forecast Accuracy, Controlling for Country-Pair Differences

Dependent Variable	***for_anal***	***for_anal***	***afep***	***afep***
gaapdiff1	−0.068		−0.036	
	(−2.02)**		(−1.25)	
gaapdiff2		−0.062		−0.059
		(−2.38)**		(−2.51)**
mv	0.010	0.011	0.014	0.014
	(3.16)***	(3.15)***	(5.38)***	(5.30)***
diversity	−9.127	−9.085	−89.606	−89.403
	(−5.21)***	(−5.23)***	(−2.85)***	(−2.85)***
adr	0.452	0.470	−0.219	−0.189
	(3.38)***	(3.66)***	(−1.74)*	(−1.48)
horizon			−1.878	−1.876
			(−13.98)***	(−13.96)***
brsize			0.140	0.132
			(5.25)***	(4.91)***
nfirm			0.020	0.023
			(0.48)	(0.58)
firmex			0.044	0.041
			(3.43)***	(3.37)***
genex			0.020	0.019
			(1.93)*	(1.80)*
dist	−0.155	−0.162	−0.019	−0.021
	(−6.25)***	(−6.32)***	(−0.56)	(−0.63)
cult	1.331	1.315	0.313	0.253
	(5.19)***	(5.27)***	(1.16)	(1.11)
econ_prox	0.172	0.162	0.007	0.006
	(2.69)***	(2.61)***	(1.10)	(0.86)
cap_corr	−0.604	−0.609	0.442	0.428
	(−1.85)*	(−1.85)*	(1.24)	(1.31)
stkturn	−0.029	−0.015	0.119	0.119
	(−0.49)	(−0.24)	(1.07)	(1.09)
gdp	−0.007	−0.006	0.006	0.006
	(−1.98)**	(−1.64)	(1.07)	(1.23)
capgdp	−0.016	−0.015	0.018	0.025
	(−3.13)***	(−3.04)***	(1.59)	(2.05)**
legorig	−0.194	−0.187	0.066	0.070
	(−0.87)	(−0.84)	(0.31)	(0.32)
antidir	−0.062	−0.046	0.087	0.084
	(−0.88)	(−0.68)	(1.15)	(1.07)
crosslist	20.039	16.498	−0.276	−0.582
	(0.76)	(0.74)	(−0.30)	(−0.63)
tot_for_anal	0.005	0.005		
	(4.92)***	(5.12)***		
Constant	1.638	1.714	−3.144	−2.836
	(3.41)***	(3.22)***	(−4.56)***	(−4.68)***

(*continued on next page*)

TABLE 5 (continued)

Dependent Variable	***for_anal***	***for_anal***	***afep***	***afep***
Industry	Yes	Yes	Yes	Yes
Obs.	212,121	212,121	41,239	41,239
Log Likelihood	−103,927	−103,922		
R^2			0.09	0.10

*, **, *** Significant at 10 percent, 5 percent, and 1 percent, respectively.
The table shows the impact of international GAAP differences on foreign analyst following and foreign analyst forecast accuracy. Foreign analysts are located in a different country from the firms they cover. We identify the geographic location of equity analysts based on *Nelson's Directory of Investment Research* from 1998 to 2004. The main sample excludes firms identified as using either U.S. GAAP or IAS. The dependent variable is for_anal_{ja}, the average annual number of analysts from country *a* who follow firm *j* from another country during 1998–2004. It is 0 if there is no analyst from country *a* following firm *j*. We multiply this variable by 100. The dependent variable $afep_{ijt}$ is absolute forecast error scaled by the most recent stock price in the previous year. To facilitate exposition we multiply this variable by −100 so that higher values represent more accurate forecasts. The annual earnings forecasts are restricted to the latest ones for each firm/year/analyst with a minimum of 30 days before the I/B/E/S report dates during 1998–2004.
All of the variables are defined in Table 2.
We do not report coefficients for industry dummies. Robust z- or t-statistics adjusted for country-pair level clustering are in parentheses.

control variables do not have significant incremental explanatory power for forecast accuracy. This lack of significance could indicate that while these controls affect analyst coverage decisions, once analysts decide to cover a firm they overcome the effects of language, distance, etc., in order to provide accurate forecasts, but should be interpreted cautiously due to collinearity among the control variables that could dampen significance levels. The addition of these controls reduces the significance of the negative coefficient on *gaapdiff1* below conventional levels, while *gaapdiff2* remains significantly negatively related to forecast accuracy.[30] This attenuation in significance level may reflect the fact that analysts' incentives to provide accurate forecasts motivates them to incur costs to overcome the effects of GAAP differences once they have decided to follow a foreign firm, moderating the impact of GAAP differences on forecast accuracy. In part, the decision to follow a foreign firm signals the analyst's decision that the benefits of following the firm outweigh the costs, including the costs of dealing with unfamiliar GAAP.[31]

[30] The economic significance of the effect of our GAAP difference variables on forecast accuracy is only about half as big after controlling for country characteristics.

[31] We also investigate the possibility that analysts facing greater GAAP differences minimize their forecast errors by following analysts facing fewer GAAP differences by calculating the lead-follow ratio (LFR) developed by Cooper et al. (2001). Put simply, the LFR is the ratio of the total number of days between an analyst's forecast and the two preceding forecasts to the total number of days between an analyst's forecast and the two subsequent forecasts. Leading analysts are expected to have their forecasts quickly followed by others, so leaders are expected to have ratios greater than 1. Followers have lower LFRs than leaders. If analysts facing greater GAAP differences are followers there should be a negative correlation between our GAAP difference measures and the LFR (higher GAAP differences should be related to followers with lower LFR.) Both of our GAAP difference measures are negatively correlated with the LFR at around the −0.05 level (−0.0492 with *gaapdiff1* and −0.05661 for *gaapdiff2*). While this is consistent with the idea that analysts facing greater GAAP differences follow analysts facing fewer GAAP differences, regressions using all country-pair characteristics as controls do not reveal a significant negative relation between either GAAP difference measure and the LFR.

Alternative Measures of Accounting Differences and Firm-Level Accounting Measures

Adding CIFAR and Earnings Management Differences

One criticism of our approach to measuring accounting differences across countries is that we focus on the accounting standards in place in each country rather than focusing on differences in actual accounting practice across countries. Since the primary issue in accounting harmonization debates deals with whether to harmonize accounting standards, we believe that this focus is appropriate. In addition, since understanding the accounting rules in place seems like a prerequisite to effectively following and forecasting a firm, we believe that variation in rules likely has a significant effect on analysts, even if there is additional variation across or within countries in how GAAP are implemented. Nevertheless, we also estimated our equations that include all the country controls mentioned above and included two alternative measures of accounting variation across countries, CIFAR disclosure scores, which are based on disclosure practices in place at large companies in each country, and the earnings management ranks constructed by Leuz et al. (2003). In both cases, we calculate the difference between the firm's country and the analyst's country to capture how different the disclosure or earnings management practices are between each country-pair.

Untabulated results show that the CIFAR disclosure index has no incremental explanatory power over our measure of GAAP differences, and the inclusion of the CIFAR index does not alter our inferences with respect to *gaapdiff1* or *gaapdiff2*. Earnings management, on the other hand, has a significantly negative relation with analyst following. Since the earnings management rank increases with greater earnings management, this negative relation indicates that analyst following falls when there is greater earnings management in the firm's country than in the analyst's country, as intuition would suggest. While including this variable suggests that variation in accounting practices does impact foreign analysts, both *gaapdiff1* and *gaapdiff2* remain significantly negatively related to foreign analyst following, suggesting that variation in both accounting standards and practices across countries affect analysts. We also perform similar analyses on the forecast accuracy sample. Neither CIFAR nor earnings management is significantly related to forecast accuracy. None of our earlier inferences are changed except *gaapdiff2* loses significance when earnings management is added to the equation.

Adding Firm-Level Controls for Auditor and Audit Opinion

Our *gaapdiff* variables measure GAAP differences at the country level but fail to capture variation in how those standards are implemented within the country at the firm level. Testing whether firm-level variation in the implementation of accounting standards also affects analysts requires a measure of standards implementation at the firm level, and such measures are not widely available. We develop two proxies for firm-level implementation of accounting standards that are widely available. We create a variable called *Big4* that takes on a value of 1 if the firm's auditor is one of the Big 4 accounting firms, and 0 otherwise.[32] We also create a variable called *qualified* that takes a value of 1 if the firm receives a qualified audit opinion in Year *Y*. We include each of these variables in our regressions that include country-pair control variables. If better firm-level implementation of accounting standards attracts analysts and makes it easier to forecast earnings, then we expect a positive coefficient on *Big4* and a negative coefficient on *qualified*. Auditor identity

[32] Auditor identity is a static variable in the Worldscope database so we are not able to classify each firm-year based on auditor identity.

and audit opinion are not available for all sample firms so our samples for these tests are smaller than the full sample.

Untabulated results show that while *Big4* has the expected positive sign and *qualified* has the expected negative sign, these variables are not significantly related to analyst following. Including these variables does not alter our inferences about country-level GAAP differences since both measures of GAAP differences are significantly negatively related to foreign analyst following in these tests. In regressions explaining forecast accuracy *Big4* has the expected positive sign and is significant and *qualified* has the expected negative sign and is also significant. The variable *gaapdiff1* remains insignificantly related to forecast accuracy, while the significant negative relation between *gaapdiff2* and forecast accuracy continues to hold in these tests. In sum, adding proxies for variation in the implementation of accounting standards at the firm level does not alter our inferences.

Sensitivity Tests

In this section, we report the results of a number of additional tests that examine the sensitivity of our results to alternative specifications. Because our main results for forecast accuracy are not as strong as the results for analyst following, the focus of this analysis is on alternative specifications for our tests of analyst following.

Alternative Proxies for Dependent Variables

So far we have used one proxy for foreign analyst following, *for_anal*, and one proxy for forecast accuracy, *afep*. We also estimated our equations with alternative proxies for our dependent variables. Our alternative proxy is *for_anal/total*, which scales the number of analysts as previously defined by the average total number of foreign analysts following each firm during 1998–2004. The scaling effectively converts this alternative proxy for analyst following to the proportion of total analysts following the firm who are from each foreign country. An advantage of this specification is that it effectively controls for firm characteristics that impact analysts' willingness to follow the firm in general, without regard to analyst location. Because this scaling method controls for firm characteristics, we do not include any firm characteristics in this specification. The results for analyst following are reported in columns (1) and (2) of Table 6. Both GAAP difference measures remain significant and negatively related to analyst following in this specification.

Our main results for analyst following use firm-level data. One concern with this specification is that there could be cross-sectional correlation between error terms at the country-pair level. Our main results include clustered standard errors at the country-pair level to mitigate this concern, but an alternative way to deal with the problem is to collapse the data down to country-pair observations based on the mean value for the firms in each country. This specification not only eliminates concerns about repeated observations at the country-pair level, but also only utilizes one observation for each country-pair and addresses concerns that our results could be driven by the concentration of observations in a few key countries. Due to missing values for some country-pair control variables, our sample size for this analysis is 1,406 country-pair observations. In this analysis, the dependent variable and all firm-level control variables reflect the mean across all firms located in each country. Because the alternative proxy for analyst following discussed above also controls for firm characteristics, we perform this analysis using the alternative proxy.

We report this country-pair analysis in columns (3) and (4) of Table 6. As shown in this table, both GAAP difference measures are negative and significant in this specification. We also repeated this country-pair analysis using our original proxy for the number of

TABLE 6
International GAAP Differences and Foreign Analyst Following, Alternative Specifications

	Alternative Proxy for Analyst Following		Country-Pair Level Alternative Proxy		Including Firms with No Foreign Analyst		Dropping U.S., U.K., and Canada		Developed Countries Only		Matched Sample	
Model	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
gaapdiff1	−0.075 (−1.95)*		−0.061 (−3.01)***		−0.084 (−2.09)**		−0.080 (−1.99)**		−0.130 (−3.76)***		−0.035 (−4.12)***	
gaapdiff2		−0.071 (−2.25)**		−0.109 (−6.10)***		−0.061 (−1.87)*		−0.101 (−2.48)**		−0.080 (−3.01)***		−0.027 (−3.22)***
mv					0.068 (6.06)***	0.069 (6.40)***	0.003 (0.82)	0.005 (1.08)	0.020 (4.68)***	0.022 (4.46)***	0.006 (3.89)***	0.004 (3.48)***
diversity					0.055 (0.88)	0.047 (0.76)	7.348 (0.39)	5.998 (0.32)	−7.081 (−4.37)***	−7.026 (−4.31)***	−166.701 (−0.75)	14.772 (0.10)
adr					1.003 (7.38)***	1.02 (7.80)***	0.716 (5.83)***	0.738 (5.70)***	0.683 (4.73)***	0.696 (5.60)***	0.212 (3.65)***	0.188 (4.37)***
dist	−0.112 (−3.93)***	−0.120 (−4.15)***	−0.191 (−11.40)***	−0.202 (−11.87)***	−0.144 (−5.23)***	−0.151 (−5.61)***	−0.290 (−8.89)***	−0.294 (−9.40)***	−0.111 (−3.64)***	−0.114 (−3.78)***	−0.000 (−5.81)***	−0.000 (−7.22)***
cult	1.423 (4.74)***	1.383 (4.80)***	1.379 (8.83)***	1.301 (8.61)***	1.133 (3.77)***	1.173 (3.98)***	1.291 (4.78)***	1.383 (5.16)***	0.964 (3.34)***	1.135 (3.52)***	−0.132 (1.22)	0.046 (0.46)
econ_prox	0.198 (2.61)***	0.184 (2.52)**	0.106 (5.71)***	0.100 (5.57)***	0.125 (2.23)**	0.117 (2.15)**	0.173 (3.33)***	0.152 (3.31)***	0.175 (2.48)**	0.163 (2.27)**	0.009 (2.74)***	0.005 (1.81)*
cap_corr	−0.720 (−2.05)**	−0.714 (−2.03)**	0.224 (1.19)	0.184 (0.98)	−0.566 (−1.74)*	−0.561 (−1.73)*	0.074 (0.23)	0.108 (0.33)	−0.109 (−0.35)	−0.287 (−0.89)	0.009 (0.08)	0.208 (1.59)
stkturn	−0.048 (−0.82)	−0.031 (−0.52)	−0.115 (−2.01)**	−0.113 (−1.90)*	−0.004 (−0.05)	0.007 (0.11)	−0.240 (−2.62)***	−0.262 (−2.91)***	0.556 (2.33)**	0.482 (1.93)*	0.036 (0.83)	0.039 (0.87)
gdp	−0.007 (−1.91)*	−0.006 (−1.54)	0.002 (0.38)	0.002 (0.39)	−0.011 (−3.63)**	−0.011 (−3.35)***	−0.064 (−4.90)***	−0.064 (−4.91)***	−0.017 (−4.57)***	−0.015 (−4.04)***	0.006 (2.28)**	0.010 (3.67)***
capgdp	−0.019 (−3.21)***	−0.018 (−3.12)***	−0.014 (−1.96)**	−0.011 (−1.58)	−0.013 (−2.65)***	−0.013 (−2.61)***	−0.012 (−2.55)**	−0.012 (−2.62)***	−0.008 (−1.59)	−0.006 (−1.23)	0.002 (0.37)	0.003 (0.72)

(*continued on next page*)

TABLE 6 (continued)

legorig	−0.116	−0.105	−2.698	−3.698	−0.224	−0.202	13.413	13.281	−4.678	−0.110	0.306	−0.202
	(−0.45)	(−0.41)	(−0.55)	(−0.82)	(−0.91)	(−0.82)	(0.58)	(0.67)	(−1.47)	(−0.01)	(0.93)	(−0.85)
antidir	0.010	0.033	−0.010	−0.066	−0.084	−0.076	−0.682	−0.653	−0.854	−0.897	0.148	0.107
	(0.13)	(0.43)	(−0.07)	(−0.50)	(−1.04)	(−0.94)	(−2.54)**	(−2.38)**	(−3.11)***	(−3.27)***	(1.27)	(1.08)
crosslist	21.971	15.162	−0.045	−0.056	32.871	28.48	−0.030	0.001	0.074	0.107	−0.029	−0.034
	(0.71)	(0.58)	(−1.04)	(−1.28)	(1.26)	(1.29)	(0.34)	(0.01)	(0.96)	(1.39)	(−1.08)	(−1.48)
tot_for_anal	0.005	0.005	0.006	0.006	0.004	0.004	0.025	0.024	0.004	0.004	0.001	0.001
	(4.48)***	(4.84)***	(11.47)***	(11.79)***	(4.28)***	(4.36)***	(5.26)***	(5.16)***	(4.94)***	(5.02)***	(3.13)***	(4.32)***
Constant	0.308	0.438	0.596	1.392	0.943	0.863	2.281	2.834	1.049	0.802	1.168	1.001
	(0.60)	(0.74)	(2.16)**	(4.67)***	(1.90)*	(1.63)	(3.94)***	(4.18)***	(2.10)**	(1.30)	(4.90)***	(3.00)***
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	212,121	212,121	1,406	1,406	693,861	693,861	65,892	65,892	105,160	105,160	14,126	15,113
Log Likelihood	−92,106	−92,096	−1,470	−1,455	−127,473	−127,484	−33,035	−33,017	−75,762	−75,801	−33,379	−31,405

*, **, *** Significant at 10 percent; 5 percent; and 1 percent, respectively.

The table shows the impact of international GAAP differences on foreign analyst following. Foreign analysts are located in a different country from the firms they cover. We identify the geographic location of equity analysts based on *Nelson's Directory of Investment Research* from 1998 to 2004. The main sample excludes firms identified as using either U.S. GAAP or IAS. For columns (5)–(12), the dependent variable is for_anal_{ja}, the average annual number of analysts from country *a* who follow firm *j* from another country during 1998–2004. It is 0 if there is no analyst from country *a* following firm *j*. We multiply this variable by 100.

All of the variables are defined in Table 2. We do not report coefficients for industry dummies.

Robust z-statistics adjusted for country-pair level clustering (this adjustment does not apply to columns (3) and (4)) are in parentheses. Columns 1 and (2) use an alternative measure of analyst following that scales analyst following by the total number of foreign analyst following the firm, columns (3) and (4) use the alternative proxy for analyst following at the country-pair level rather than firm level, columns (5) and (6) report results for the sample that include firms with 0 foreign analyst, columns (7) and (8) report results for the sample excluding the U.S., the U.K. and Canada, columns (9) and (10) report results using observations from 24 developed countries, columns (11) and (12) report the results on matched samples (*gaapdiff1 and gaapdiff2* are binary variables in the matched samples).

analysts following where we do not scale the variable by the total number of foreign analysts following the firm. We include firm characteristics in this regression. Again, both GAAP difference variables retained negative and significant signs.

The alternative measure of forecast accuracy we use is *afea*, the absolute forecast error scaled by actual earnings as reported in I/B/E/S. We also calculated forecast accuracy by subtracting the mean or the median forecast 30 days before the I/B/E/S report date, rather than actual earnings, from each forecast. Neither modification qualitatively alters our main results, except both *gaapdiff1* and *gaapdiff2* are negative and significantly related to *afea*, while only *gaapdiff2* is significantly related to our original proxy, *afep* (these results are not tabulated).

Including Firms with No Foreign Analyst Following

Our primary results use a sample of firms with at least one foreign analyst following the firm. Since our primary interest is in explaining variation in analyst following across foreign countries, this sample seems appropriate. To examine the sensitivity of our results to this sample restriction, we also estimated our analyst following regressions on a sample including all firms, regardless of whether the firm is followed by any foreign analyst. Since many firms do not attract foreign analysts, this sample is much larger than our primary sample. We report the results of this analysis in columns (5) and (6) of Table 6. Using this expanded sample does not qualitatively alter the conclusions from our analysis.

Dropping the U.S., the U.K., and Canada, Retaining Only Developed Countries

One potential concern is that differences between more developed and less developed countries are responsible for our results. While our model includes a comprehensive set of country-pair control variables that should control for important differences between more developed and less developed countries, it is still possible that our results reflect the fact that analysts and the firms they follow tend to be located in the more developed countries, which tend to have similar GAAP. If so, then analyst following could be concentrated in the more developed countries and our GAAP difference measures could simply proxy for other omitted factors that distinguish more from less developed countries. We perform two additional sets of analyses to address this concern. First, the U.K., the U.S., and Canada are all highly developed countries with significant concentrations of both analysts and firms in our sample. These three countries share a number of historic, political, and economic ties, and all have similar GAAP. It is possible that the concentration of sample observations in these three countries is responsible for our results. Accordingly, we exclude these three countries from our sample and re-estimate our model of analyst following including our controls for country-pair characteristics. The results of this specification are reported in columns (7) and (8) of Table 6. Not surprisingly, deleting these three countries has a substantial impact on our sample size, causing a loss of around two-thirds of our sample observations. Nevertheless, both GAAP difference measures retain negative and significant coefficients in this specification, leading us to conclude that the inclusion of these three key countries in our sample is not responsible for our results.

We also reran our analyst following regressions including *only* the firm and analyst observations from the more developed countries.[33] Columns 9 and 10 of Table 6 report the results of this analysis. Again, in tests that control for country-pair characteristics, both

[33] The 24 developed (out of our total of 49) countries we retained in this analysis are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Luxembourg, The Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the U.K., and the U.S.

gaapdiff1 and *gaapdiff2* have significantly negative coefficients. We conclude that our results are not due to GAAP differences simply capturing variation in analyst location across more developed versus less developed countries.

Utilizing a Matched Sample for Firms Followed by Two or More Analysts

We also construct a matched sample in which each firm in each year is followed by analysts from at least two countries with different *gaapdiff1* (or *gaapdiff2*). For each firm and year, we partition the sample into a high GAAP difference group and a low GAAP difference group based on the median score of the GAAP difference measure for that firm and year. One potential advantage of using such a matched sample is that it controls for firm effects that could impact analysts. Another advantage of this approach is that the resulting sample contains no zero analyst following observations. This specification therefore tests whether our measures of GAAP differences explain the number of analysts following the firm rather than just explaining whether any analyst from any given country follows the firm. There are 1,524 distinct firms for this matched sample. Both mean and median tests show that there are significantly more foreign analysts from countries with lower GAAP difference. For example, the average number of analysts following from low GAAP difference countries using *gaapdiff1* and *gaapdiff2*, respectively, are 5.58 and 5.98, while the average number of analyst following from high GAAP difference countries are only 2.72 and 2.07, respectively. The median number of analyst following from low GAAP difference countries using *gaapdiff1* and *gaapdiff2*, respectively, are four and five, while the median number of analyst following from high GAAP difference countries are only one and two, respectively. The differences are significant at the 1 percent level. The forecasts of foreign analysts from low GAAP difference countries are also more accurate than those of foreign analysts from high GAAP difference countries, and these results are significant at conventional levels with both measures.

We also repeat our regression analysis on this sample of firms to control for our country-pair control variables. The actual number of GAAP differences between the firm's home country and the analyst's home country varies across firm-country-pairs in both the high and low GAAP difference groups because these partitions are based on firm-year median GAAP differences. Accordingly, in these regressions, the *gaapdiff* measures take on only two values, 0 for the low GAAP difference group and 1 for the high GAAP difference group. We then run regressions that control for all of previously identified country characteristics and include the binary variable, *gaapdiff1* or *gaapdiff2*. Columns 11 and 12 of Table 6 report the results of running our analyst following regressions on the matched sample. Both of our GAAP difference measures retain negative and significant coefficients in this matched sample. We conclude that neither uncontrolled firm characteristics nor the presence of zero observations is affecting our inferences in the paper.

Time-Series Analysis on Firms Voluntarily Adopting International Accounting Standards

Despite extensive sensitivity analyses on our cross-sectional sample, it is of course always possible that there is some omitted variable that we have not identified that our GAAP difference measures could proxy for. In addition, our cross-sectional analysis is subject to some concerns due to the potential endogeneity of accounting standards at the national level. Accordingly, we also provide analysis of a sample of firms switching from local standards to IAS. While this analysis has some advantages, it is not clear that the time-series approach is superior to the cross-sectional approach utilized so far. There are

several considerations. First, an examination of firms voluntarily switching to IAS necessarily involves a much smaller sample. Second, firms switching to IAS are a self-selected sample of firms that are likely to be accessing capital markets and undertaking a wide range of activities to attract analyst and investor interest in addition to changing accounting standards, so this approach introduces a new set of potentially omitted variables. Third, it is not clear exactly how to code and interpret ''GAAP differences'' for firms switching to IAS. For local analysts not familiar with IAS, this switch may increase GAAP differences. For foreign analysts not familiar with IAS, this switch could increase or decrease GAAP differences, depending on whether the firm's local GAAP or IAS is closer to the foreign analyst's home country GAAP. For analysts familiar with IAS, the switch is likely to reduce or eliminate any GAAP induced costs of following the firm. Accordingly, our analysis of this sample focuses on the effects of switching to IAS on two groups of analysts—those following other firms using IAS and those not following other firms using IAS. Unlike our earlier tests that focus only on foreign analysts, we include both local and foreign analysts in this time-series analysis.

We construct a sample of firms switching from their local GAAP to IAS based on accounting standards coding contained in Worldscope for 1998–2004. Because of known errors in coding accounting standards use, we eliminate all firms that we consider ''dubious'' IAS adopters.[34]

Firms switching to IAS between 1998 to 2004	1,096
Less: Firms missing analyst following data in year −1 or zero	(652)
Less: ''Dubious'' IAS adopters	
Firm adopts IAS more than once (after reverting to local GAAP)	(41)
Firm switches back to local standards permanently after switching to IAS	(24)
Firm first switches to U.S. GAAP and then to IAS	(6)
Final Sample	373

We then examine changes in analyst following for these 373 firms between the year before IFRS adoption (−1) and the year of IAS adoption. For purposes of this analysis, we put analysts into two groups, those following a firm using IAS at year −1, and those not following a firm using IAS at year −1. If GAAP differences matter to analysts, then the prediction is that analyst following will increase among analysts with IAS experience, and stay constant or decline among the analysts without IAS experience. That is exactly what we find. Between year −1 and zero, the mean (median) analyst following for analysts with IAS experience goes from 4.49 (2) to 5.35 (3). This change in analyst following is significant at the 5 percent level for the mean, 1 percent level for the median. For analysts without IAS experience, the mean (median) number of analysts following goes from 5.32 (3) to 5.11 (3) between years −1 and 0. Neither of these changes is significant. These results corroborate our cross-sectional analyses and suggest that adopting IAS reduces costs for analysts who are familiar with IAS, but not for other analysts. These tests also help allay concerns that the potential endogeneity of accounting standards at the country level is impacting our inferences.

VI. CONCLUSIONS

This paper investigates whether GAAP differences across countries are associated with foreign analyst following and foreign analysts' forecast accuracy. We compute two proxies

[34] For example, see Covrig et al. (2007, footnote 21).

for GAAP differences for 1,176 country-pairs and provide evidence that GAAP differences are negatively associated with both foreign analyst following and forecast accuracy. Our results are quite robust across alternative model specifications and sample selections for analyst following, though the results for forecast accuracy are more sensitive to modifications in our research design and sample composition. Our results hold when we control for a wide range of country-pair characteristics in addition to GAAP differences. Despite our attempts to control for the other country-pair characteristics, we caution that we are unable to completely rule out the possibility that our GAAP difference measures capture other country-pair differences. However, supplemental time-series analysis on a sample of firms voluntarily adopting IAS yields similar conclusions, enhancing our confidence that GAAP differences are responsible for our results.

The evidence that GAAP differences matter even to financial analysts who specialize in collecting, analyzing, and disseminating financial information about the covered firms suggests that there are potential economic costs associated with variation in accounting rules across countries. We again caution, however, that our research by no means provides a comprehensive assessment of the costs or benefits of accounting harmonization. Our research does point out the need for additional study of the costs and benefits of accounting harmonization to provide important policy inputs to standard setting bodies around the world. The recent adoption of IAS throughout the European Union provides an opportunity to extend our results to a setting where time-series analysis around a mandated change in accounting could be undertaken.

APPENDIX
ACCOUNTING STANDARDS INCLUDED IN *gaapdiff2*

The IAS numbers used for reference in this table are the primary IAS standard reference given in the GAAP 2001 Survey used for coding each item. Since the construction of *gaapdiff2* is more mechanical and less judgmental than *gaapdiff1*, we ignored the textual descriptions for each item and simply coded each country with a 1 if the IAS section referred to is mentioned for that country. Since we are interested in GAAP differences across countries, *gaapdiff2* is the sum of the number of differences observed in the scores across all 52 items for each country-pair.

IAS Standard No.	Area of Accounting
IAS No. 1.7	Statement of changes in equity
IAS No. 7	Cash flow statement
IAS No. 7.45	Reconciliation of cash flow to cash and cash equivalents
IAS No. 8.6	Extraordinary items
IAS No. 10	Subsequent events
IAS No. 11	Construction contracts
IAS No. 11.22	Contract method for construction contracts
IAS No. 12	Deferred taxes
IAS No. 12.53	Discounting of deferred taxes
IAS No. 14	Segment reporting
IAS No. 14.26	Basis of determining segments
IAS No. 14.55	Segment reporting of assets and liabilities
IAS No. 16	Asset revaluation
IAS No. 17	Leases
IAS No. 17.12	Finance leases
IAS No. 17.25	Operating lease expenses

IAS No. 17.30	Finance lease income
IAS No. 19	Employee benefit obligations
IAS No. 19.52	Constructive obligation under pension plans
IAS No. 19.64	Pension obligation measurement
IAS No. 19.92	Actuarial gains and losses on Pensions
IAS No. 2.36	Asset impairment testing
IAS No. 21.11	Foreign currency monetary balances
IAS No. 21.36	Price level adjustment in hyperinflationary economies
IAS No. 21.37	Disposal of foreign segments
IAS No. 22	Classification of business combinations on acquisition
IAS No. 22.31	Provisions in the context of acquisitions
IAS No. 22.8	Business combinations
IAS No. 24	Related-party transactions
IAS No. 28	Accounting for associates
IAS No. 29	Inflation accounting
IAS No. 31	Joint ventures
IAS No. 31.25	Joint ventures $<$ 20 percent owned
IAS No. 32.18	Classification of issuer's financial instruments
IAS No. 32.23	Compound financial instruments
IAS No. 32.77	Disclosure of fair values of financial assets and liabilities
IAS No. 33	Earnings per share
IAS No. 35	Discontinued operations
IAS No. 36	Asset impairment
IAS No. 36.5	Conditions to record asset impairment
IAS No. 37	Provisions
IAS No. 37.45	Discounting of provisions
IAS No. 38	Intangible assets
IAS No. 38.42	Research and development
IAS No. 38.51	Capitalization of internally generated intangibles such as brands
IAS No. 38.56	Start-up costs
IAS No. 38.57	Training advertising and pre-opening costs
IAS No. 38.99	Annual impairment reviews on long-lived assets
IAS No. 39.142	Hedge accounting for derivatives
IAS No. 39.35	Derecognition of financial assets
IAS No. 39.93	Trading liabilities and derivatives
IAS No. 40.69	Fair values of investment properties

REFERENCES

Ang, J. S., and S. J. Ciccone, 2001. International differences in analyst forecast properties. Working paper, University of New Hampshire.

Ashbaugh, H., and M. Pincus. 2001. Domestic accounting standards, international accounting standards, and the predictability of earnings. *Journal of Accounting Research* 39: 417–434.

Bae, K-H., R. M. Stulz, and H. Tan. 2007. Do local analysts know more? A cross-country study of the performance of local analysts and foreign analysts. *Journal of Financial Economics* (forthcoming).

Ball, R., A. Robin, and J. S. Wu. 2003. Incentives versus standards: Properties of accounting income in four East Asian countries. *Journal of Accounting and Economics* 36 (1–3): 235–270.

———. 2006. International financial reporting standards (IFRS): Pros and cons for investors. *Accounting and Business Research* (June): 5–27.

Bank of New York. 2001. *ADR Directory*. Available at: http://160.254.123.37/dr_directory.jsp.

Barniv, R., M. Myring, and W. Thomas. 2005. The association between the legal and financial reporting environments and forecast performance of individual analysts. *Contemporary Accounting Research* 4 (Winter): 727–758.

Barth, M., G. Clinch, and T. Shibano. 1999. International accounting harmonization and global equity markets. *Journal of Accounting and Economics* 26: 201–235.

Basu, S., L. Hwang, and C-L. Jan. 1998. International variation in accounting measurement rules and analysts' earnings forecast errors. *Journal of Business Finance & Accounting* 25: 1207–1247.

Bekaert, G., C. R. Harvey, and C. Lundblad. 2005. Does financial liberalization spur growth? *Journal of Financial Economics* 77: 3–55.

Bradshaw, M., B. Bushee, and G. Miller. 2004. Accounting choice, home bias, and U.S. investment in non-U.S. firms. *Journal of Accounting Research* 42: 795–841.

Bushman, R. M., J. D. Piotroski, and A. J. Smith. 2004. What determines corporate transparency? *Journal of Accounting Research* 42: 207–252.

———, ———, and ———. 2005. Insider trading restrictions and analysts' incentives to follow firms. *Journal of Finance* 60: 35–66.

Chang, J. J., T. Khanna, and K. Palepu. 2000. *Analyst Activity around the World*. HBS Strategy Unit Working Paper No. 01–061 (January). Available at: http://ssrn.com/abstract=204570.

Clement, M. B. 1999. Analyst forecast accuracy: Do ability, resources, and portfolio complexity matter? *Journal of Accounting and Economics* 27: 285–303.

Comprix, J., K. A. Muller III, and M. Stanford. 2003. Economic consequences from mandatory adoption of IASB standards in the European Union. Working paper, The Pennsylvania State University.

Cooper, R., T. Day, and C. Lewis. 2001. Following the leader: A study of individual analysts' earnings forecasts. *Journal of Financial Economics* 61: 383–416.

Covrig, V., M. L. DeFond, and M. Hung. 2007. Home bias, foreign mutual fund holdings, and the voluntary adoption of international accounting standards. *Journal of Accounting Research* 25: 41–70.

Ding, Y., O-K. Hope, T. Jeanjean, and H. Stolowy. 2007. Differences between domestic accounting standards and IAS: Measurement, determinants and implications. *Journal of Accounting and Public Policy* 26 (1): 1–38.

Guan, Y., O-K. Hope, and T. Kang. 2006. Does similarity of local GAAP to U.S. GAAP explain analysts' forecast accuracy? *Journal of Contemporary Accounting and Economics* 2 (2) (December).

Hope, O-K. 2003a. Accounting policy disclosures and analysts' forecasts. *Contemporary Accounting Research* 20 (Summer): 295–321.

———. 2003b. Disclosure practices, enforcement of accounting standards, and analysts' forecast accuracy: An international study. *Journal of Accounting Research* 41: 235–272.

Hung, M. 2001. Accounting standards and value relevance of financial statements: An international analysis. *Journal of Accounting and Economics* 30: 401–420.

Kini, O., S. L. Mian, M. Rebello, and A. Venkateswaran. 2005. *Core Specialization, Forecast Accuracy, and the Market for International Analysts*. Available at: http://ssrn.com/abstract=849306.

Lang, M. H., K. V. Lins, and D. P. Miller. 2003. ADRs, analysts, and accuracy: Does cross-listing in the United States improve a firm's information environment and increase market value? *Journal of Accounting Research* 41 (2): 317–345.

———, ———, and ———. 2004. Concentrated control, analyst following, and valuation: Do analyst matter most when investors are protected least? *Journal of Accounting Research* 42: 589–623.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny. 1998. Law and finance. *Journal of Political Economy* 106 (6): 1113–1155.

Leuz, C., D. Nanda, and P. D. Wysocki. 2003. Investor protection and earnings management: An international comparison. *Journal of Financial Economics* 69: 505–527.

Nobes, C. 2001. GAAP 2001—A survey of national accounting rules benchmarked against international accounting standards. *International Forum on Accountancy Development* (IFAD).

Rock, S., S. Sedo, and M. Willenborg. 2001. Analyst following and count-data econometrics. *Journal of Accounting and Economics* 30: 351–373.

Sarkissian, S., and M. J. Schill. 2004. The overseas listing decision: New evidence of proximity preference. *Review of Financial Studies* 17 (3): 769–809.

Young, D., and D. A. Guenther. 2003. Financial reporting environments and international capital mobility. *Journal of Accounting Research* 41: 553–579.