

Are International Accounting Standards-based and US GAAP-based Accounting Amounts Comparable?

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Abstract

We address whether IAS as applied by non-US firms results in accounting amounts that are comparable to those resulting from US GAAP as applied by US firms. We assess comparability using value relevance of equity book value and net income, and the correlation between net incomes. We find US firms applying US GAAP generally have higher value relevance of accounting amounts than non-US firms applying IAS. Value relevance generally became more comparable after non-US firms applied IAS than when they applied non-US domestic standards; we find more consistent evidence for an increase in net income comparability. We also find that value relevance and net income comparability are higher for both IAS adoption and IAS sample years after 2005. Findings indicate that value relevance is more comparable for firms in common law countries; the increase in net income comparability after non-US firms apply IAS holds for both common and code law IAS firms. Our findings suggest that widespread application of IAS by non-US firms has enhanced financial reporting comparability with US firms, but differences remain.

1. Introduction

The question we address is whether application of International Accounting Standards (IAS) as applied by non-US firms results in accounting amounts that are comparable to those resulting from US Generally Accepted Accounting Principles (GAAP) as applied by US firms. Although there is a growing literature examining whether application of IAS affects quality of accounting amounts and has economic implications in capital markets, no study directly examines whether application of IAS by non-US firms results in accounting amounts that are comparable to those based on application of US GAAP by US firms. We operationalize comparability by assessing the value relevance of equity book value and net income of firms that apply IAS and US GAAP, and the correlation between net incomes for the two groups of firms. Although US firms applying US GAAP generally have higher value relevance of accounting amounts, several findings support evidence of increased value relevance and net income comparability after non-US firms adopt IAS and in more recent years.

These findings are potentially relevant to current policy debates relating to possible use of IAS by US firms.¹ Following its 2007 decision to permit non-US firms cross-listing in the US to file financial statements based on IAS, the US Securities and Exchange Commission (SEC) presently is considering permitting US firms to file financial statements based on IAS. A major reason for this is the possibility that accounting amounts based on IAS may be comparable to those based on US GAAP. Four contributing factors underlying this possibility are the efforts of the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) to converge accounting standards, the increasing use of IAS throughout the

¹ The International Accounting Standards Board (IASB) issues International Financial Reporting Standards (IFRS), which include standards issued not only by the IASB, but also by its predecessor body, the International Accounting Standards Committee, some of which have been amended by the IASB. Because most of our sample period pre-dates the effective dates of standards issued by the IASB, following the convention of Barth, Landsman, and Lang (2008), throughout we refer to IAS rather than IFRS.

world, development of international auditing standards, and the increasing coordination of international securities market regulators. A goal of these efforts is to develop similar accounting standards and more consistent interpretation, auditing, and enforcement of the standards. The application of US GAAP or IAS reflects the combined effect of these features of the financial reporting system. The SEC is ultimately concerned with comparability of financial statement accounting amounts, not simply comparability of accounting standards. Although our findings indicate that accounting amounts for US firms applying US GAAP and for non-US firms applying IAS are not fully comparable, the findings indicate that comparability has increased following IAS adoption by non-US firms, especially in more recent years.

We use four metrics to assess comparability based on value relevance. The first is based on the explanatory power of equity book value and net income for share price. The second is based on the explanatory power of earnings and change in earnings for stock return. The third and fourth are based on the explanatory power of stock return for net income separately for firms with positive and negative annual stock return, i.e., good and bad news firms. We assess net income comparability using the degree to which earnings, deflated by beginning of year price, for non-US firms correlate with those of matched US firms by regressing earnings for non-US firms on earnings for US firms.² We measure correlation using both the magnitude of the regression coefficient on US earnings and the model explanatory power. Because our value relevance and correlation metrics reflect the effects of the economic environment that are unattributable to the financial reporting system, such as the volatility of economic activity and information environment, we match each non-US firm applying IAS (IAS firms) to a US firm applying US GAAP that is of similar size and in the same industry as the IAS firm (US firms). IAS firms are domiciled in 26 countries.

² Throughout we use the terms “net income” and “earnings” interchangeably.

Regarding value relevance, we first assess comparability based on the full sample. We also assess comparability for IAS adoption and sample years before and after 2005, and based on the legal origins of the IAS firms' countries. Our motivation for testing for differences in comparability using the 2005 partitioning for adoption year is that comparability likely changed after IAS adoption became mandatory, and 2005 is the year in which IAS adoption became mandatory in many countries. Similarly, our motivation for testing for differences in comparability using the 2005 sample year partitioning is that comparability likely changed following 2005, the year in which substantial changes in IAS became effective as a result of the IASB's improvements project. In addition, interpretation, auditing, and enforcement likely improved after 2005 as regulators and auditors allocated greater resources to, and became more familiar with, IAS subsequent to mandatory adoption in many countries. Our motivation for testing for differences in comparability using legal origin based on a code or common law classification is that application of even a common set of accounting standards may not have uniform effects on accounting amounts in reporting regimes with different regulatory, litigation, and auditing environments. Regarding net income comparability, we examine whether it is higher after non-US firms adopt IAS than when they applied non-US domestic standards, and whether it is higher after IAS adoption for non-US firms regardless of the legal origin of the country in which firms are domiciled.

We find that accounting amounts of US firms applying US GAAP generally have higher value relevance than those of non-US firms applying IAS. However, value relevance generally became more comparable after non-US firms adopted IAS than when they applied non-US domestic standards. Findings also indicate that value relevance for the two groups of firms is more comparable for both IAS adoption and IAS sample years after 2005, which suggests that

efforts to converge accounting standards, the increasing use of IAS throughout the world, the development of international auditing standards, and the increasing coordination of international securities market regulators have increased comparability of accounting amounts. We also find that non-US firms have higher net income comparability with US firms when non-US firms apply IAS than when they applied non-US domestic standards. In addition, for non-US firms applying IAS, we find net income comparability is higher for both adoption and sample years after 2005. Tests for differences in comparability based on the legal origins of the non-US firms' countries indicate that value relevance is more comparable for firms in common law countries. The tests also indicate that net income comparability is higher for both code and common law firms when they apply IAS than when they applied non-US domestic standards.

The remainder of the paper is organized as follows. The next section discusses institutional background and related literature. Sections three and four develop the hypotheses and explain the research design. Sections five and six describe the sample and data and present the results. Section seven offers a summary and concluding remarks.

2. *Institutional Background and Related Research*

2.1 INSTITUTIONAL BACKGROUND

The SEC and the FASB have been working with their international counterparts on a convergence effort to develop high quality, internationally comparable financial information that investors find useful for decision making in global capital markets (SEC, 2008; Financial Accounting Foundation, 2009). The convergence efforts have focused on coordinating standard setting and reducing differences in accounting standards. To this end, the FASB and IASB are working to achieve the standard-setting milestones specified in their Memorandum of Understanding (FASB and IASB, 2008) with a goal of developing a single set of high quality

accounting standards. However, comparability of accounting information is a function not only of accounting standards, but also of interpretation, auditing, and the regulatory and litigation environment. Recognizing this, the International Auditing and Assurance Standards Board has been developing International Standards on Auditing to enhance convergence in application of accounting standards around the world. Similarly, the SEC and the International Organization of Securities Commissions are working to coordinate oversight and regulation to facilitate consistent enforcement across countries.

In 2007, the SEC issued a Final Rule (SEC, 2007) permitting non-US firms that apply IAS as issued by the IASB to file financial statements with the SEC without reconciliation to US GAAP. The rationale underlying the SEC's decision is the belief that IAS-based financial statement information has become sufficiently comparable to US GAAP-based information so as to render the reconciliation requirement unnecessary. Despite the fact that the SEC permits non-US firms to file financial statements based on IAS, the SEC currently requires US firms to file financial statements based on US GAAP. Consistent with the SEC's stated desire for firms to use a single set of high quality accounting standards, in November 2008, the SEC issued a proposed rule, "Roadmap for the Potential Use of Financial Statements Prepared in Accordance with International Financial Reporting Standards by U.S. Issuers," that would require US firms to apply IAS. The roadmap states:

Through this Roadmap, the Commission is seeking to realize the objective of providing investors with financial information from U.S. issuers under a set of high-quality globally accepted accounting standards, which would enable U.S. investors to better compare financial information of U.S. issuers and competing international investment opportunities.

Implicit in the SEC's decision regarding the application of IAS by US firms is the notion that financial statement information based on IAS is comparable in quality to that based on US

GAAP, and that application of IAS will benefit US firms and investors by increasing comparability of resulting accounting amounts. If the Roadmap is adopted as proposed, then larger US firms will be required to apply IAS beginning in 2014 and smaller firms by 2016.³

In its comment letter on the Roadmap, the Financial Accounting Foundation (FAF, 2009), which oversees the FASB, recommends study of the “best path forward for the U.S. financial reporting system toward the ultimate end goal,” and that the SEC should consider “other possible approaches [beyond those specifically described in the Roadmap], such as convergence through continuation of the joint standard-setting efforts of the FASB and the IASB over a longer period as advocated by some investors and other parties.” The FAF recommends that the study include:

Steps that can and should be taken through continued international cooperation to more fully realize the potential benefits afforded by adopting a single set of high-quality global accounting standards, given the important effects of other factors that impact the quality and the comparability of reporting outcomes, such as differing incentives, enforcement, and auditing practices, which continue to change over time.

Our goal is to provide input to this debate by providing evidence on the effectiveness of convergence efforts to date, as well as remaining differences in comparability of accounting amounts. Although our study cannot address the normative question regarding which approach is best, because, e.g., we cannot assess the costs and benefits of IAS adoption versus continued convergence, it provides evidence on the effects of convergence in accounting standards, auditing, and enforcement.

2.2 RELATED RESEARCH

³ Recent events, including the financial crisis, change in SEC leadership, and perceived political influence on the IASB’s standard-setting process may extend the adoption dates specified in the SEC’s Roadmap. In addition, some commentators express the view that costs of IFRS adoption outweigh perceived benefits, in part because the convergence effort has reduced any gain to IFRS adoption (Bothwell, 2009).

Although there is a substantial literature comparing quality of accounting amounts internationally as well as capital market effects of IAS adoption (see Hail, Leuz, and Wysocki, 2009), there is less evidence on the comparability of accounting amounts resulting from application of IAS and US GAAP. Studies in the literature can be characterized as relating to comparisons of accounting amounts resulting from application of IAS and non-US domestic standards, application of US GAAP and non-US domestic standards, and application of IAS and US GAAP.

Relating to studies that compare accounting amounts based on, and the economic implications of, non-US firms applying IAS and domestic standards, Barth, Landsman, and Lang (2008) finds that accounting quality of firms applying IAS in 21 countries, not including the US, generally is higher than that of firms applying domestic standards. Studies relating to German firms include Bartov, Goldberg, and Kim (2005), Van Tendeloo and Vanstraelen (2005), Daske (2006), and Hung and Subramanyam (2007). With the exception of Bartov, Goldberg, and Kim (2005), these studies generally fail to find differences in accounting quality or economic implications, e.g., cost of capital. Daske et al. (2008) analyzes the economic consequence of mandatory application of IAS in 26 countries and generally finds capital market benefits. However, the capital market benefits exist in countries with strict enforcement regimes and institutional environments that provide strong reporting incentives.

Several studies compare accounting amounts based on, and the economic implications of, US firms applying US GAAP and non-US firms applying domestic standards. Alford, Jones, Leftwich, and Zmijewski (1993) documents differences in earnings information content and timeliness for 17 countries. The study finds mixed evidence regarding whether US GAAP earnings is more informative or more timely than earnings based on non-US domestic standards.

Land and Lang (2002) compares earnings-price ratios for firms in six countries and the US, and finds they converge between an earlier and a later sample period. Using samples of firms from six countries plus the US and 30 countries plus the US, Ball, Kothari, and Robin (2000) and Leuz, Nanda, and Wysocki (2003), respectively, provide evidence that observed differences in the properties of accounting amounts, including quality differences, reflect cross-country differences in incentives, enforcement, and attestation, in addition to differences in accounting standards.

Evidence from studies comparing accounting amounts based on, and the economic implications of, non-US firms applying IAS and US firms applying US GAAP is particularly relevant to the comparability question raised by the SEC in its Roadmap. Several studies focus on comparisons using German firms that were permitted to choose to apply either IAS or US GAAP. Leuz (2003) compares measures of information asymmetry for German firms trading on Germany's New Market and finds little evidence of differences in bid/ask spreads and trading volume for firms that apply US GAAP relative to those that apply IAS. Bartov, Goldberg, and Kim (2005) documents that earnings response coefficients are highest for those applying US GAAP, followed by those applying IAS, and followed by those applying German standards. However, because these studies examine the properties of IAS-based accounting amounts in a single country with unique institutional features, it is not clear to what extent conclusions from these studies would be applicable to comparisons between IAS and US firms more generally.

Several studies compare properties of accounting amounts based on IAS with those based on US GAAP reconciled amounts for firms that cross-listed on US markets. Harris and Muller (1999) provides evidence that US GAAP-reconciled amounts for 31 firms applying IAS are value relevant incremental to IAS-based accounting amounts. Gordon et al. (2008) and Hughes

and Sander (2008) compare earnings attributes for earnings based on IFRS and based on US GAAP-reconciled amounts. The studies generally find IAS and US GAAP-reconciled earnings are comparable, although there is some evidence that US GAAP-reconciled earnings are of higher quality. Although these studies provide some evidence regarding comparability of accounting amounts based on US GAAP and IAS, the studies' findings do not bear directly on our research question of comparability of US GAAP-based accounting amounts applied by US firms and IAS-based accounting amounts applied by non-US firms.

There are several reasons why this is true. First, by design, these studies do not include US firms. However, a primary concern of the SEC is with the comparability of accounting amounts of IAS firms with those of US firms. Cross-listed firms do not face the same incentives, auditing, regulation, and litigation environment as faced by US firms (Lang, Raedy, and Wilson, 2006). Second, the properties of accounting amounts resulting from reconciliation of earnings and equity book value to US GAAP are not the same as those resulting from comprehensive application of US GAAP (Bradshaw and Miller, 2008). Third, because of the reconciliation requirement, cross-listed firms likely made US GAAP-consistent choices under IAS to minimize reconciling items that likely would not be made absent reconciliation requirements (Lang, Raedy, and Yetman, 2003). Fourth, although within-firm comparisons of US GAAP- and IAS-based accounting amounts mitigate the need to control for factors other than accounting standards, the SEC's concerns about comparability include the effects of all factors that affect accounting amounts, e.g., managerial incentives, auditing, and regulatory and litigation environments.

3. *Comparability of IAS and US GAAP Accounting Amounts*

3.1 FACTORS AFFECTING COMPARABILITY

Accounting amounts reflect the interaction of features of the financial reporting system, which include accounting standards, their interpretation, enforcement, and litigation, all of which can affect comparability. Relating to standards, the IASB has adopted an approach in developing standards different from the FASB that could result in lack of comparability of accounting amounts. In particular, the IASB's approach relies more on principles, whereas the FASB's approach relies more on rules.⁴ Reliance on principles specifies guidelines, but requires judgment in application. Reliance on rules specifies more requirements that leave less room for discretion. Ewert and Wagenhofer (2005) develops a rational expectations model that shows that accounting standards that limit opportunistic discretion result in accounting earnings that are more reflective of a firm's underlying economics. However, although discretion in accounting can be opportunistic and possibly misleading about the firm's economic performance, it can be used to reveal private information about the firm (Watts and Zimmerman, 1986).

Relating to other features of the financial reporting system, Ball (1995, 2006), Lang, Raedy, and Wilson (2006), Daske et al. (2007), and Bradshaw and Miller (2008) observe that both accounting standards and the regulatory and litigation environment can affect reported accounting amounts. For example, Cairns (1999), Ball, Kothari, and Robin (2000), Street and Gray (2001), and Ball, Robin, and Wu (2003) suggest that lax enforcement can result in limited compliance with IAS. Thus, because of the inherent flexibility of principles-based standards and potential weakness in other features of financial reporting systems outside the US, accounting amounts based on IAS and US GAAP may not be comparable.

3.2 ASSESSING COMPARABILITY

⁴ The distinction here is more relative than absolute. IAS and US GAAP include both general principles and rules, depending on context (Schipper, 2003). However, the FASB has generally provided more detailed guidance on application of accounting principles than has the IASB.

We use two approaches to assess comparability of accounting amounts resulting from application of IAS and US GAAP. The first is a comparison of the value relevance of accounting amounts based on earnings and equity book value for IAS firms and matched US firms. Value relevance is one of several accounting quality measures used in prior research to assess accounting quality (Lang, Raedy, and Yetman, 2003; Lang, Raedy, and Wilson, 2006; Barth, Landsman, and Lang, 2008). A benefit of focusing on value relevance measure is that, as Barth, Landsman, and Lang (2008) notes, value relevance is a summary measure of how well accounting amounts reflect a firm's underlying economics, regardless of potential sources of differences in accounting quality as reflected in other quality metrics. Another benefit of focusing on value relevance is that the objective of financial reporting as articulated in the Conceptual Frameworks of the FASB and IASB is to provide information that is useful to investors and other financial statement users in making their capital allocation decisions. Value relevance captures the extent to which accounting amounts reflect the effects of equity investors' investment decisions. Therefore, comparing value relevance for firms that apply IAS and US GAAP should provide evidence to the SEC as it considers whether the information provided to investors by non-US firms applying IAS is comparable to the information provided by US firms applying US GAAP.

Our second approach to assess comparability is to examine the degree to which earnings for IAS and US firms are correlated. This approach follows De Franco, Kothari, and Verdi (2008), which measures comparability as the degree to which earnings for two firms in the same industry covary over time. We build on the insights of De Franco, Kothari, and Verdi (2008) by measuring comparability in a cross-sectional context. In particular, we measure comparability as

the degree to which contemporaneous earnings for non-US firms applying IAS are correlated with those of matched US firms applying US GAAP.

Relating to value relevance comparability, we begin our assessment by examining the value relevance metrics described in section 4.2 for the full sample of IAS firms and those of matched US firms. Although Barth, Landsman, and Lang (2008) finds that accounting quality improved around IAS adoption, that study's evidence is based on firms that voluntarily adopted IAS and a sample period that predates recent developments in accounting standards and related institutions. Our sample comprises firms from a larger number of countries, including those affected by the wave of mandatory adoptions in 2005, and findings from our more recent period are likely to be more relevant to the SEC's Roadmap proposals.

We next examine whether value relevance comparability with US firms differs for IAS firms that adopted IAS before and after 2005. The purpose of this examination is to determine whether comparability differs for firms that adopt IAS before and after it was mandatory in most countries. In 2005, IAS adoption became mandatory in many countries. It is likely that value relevance comparability with US firms' accounting amounts is higher in the years after IAS became mandatory. Although incentives of early adopters of IAS could result in them having accounting amounts exhibiting more comparable value relevance than accounting amounts of firms that waited until IAS became mandatory, more uniform application of IAS in the period after IAS became mandatory should result in more comparability. Similarly, we examine whether comparability differs for IAS firm-year observations corresponding to sample years before or after 2005. The purpose of this examination is to determine whether comparability is higher in later time periods than in earlier time periods because the provisions of IAS allegedly improved over time.

Lastly, we examine whether value relevance comparability differs based on the legal origins of the IAS firms' countries based on common and code law classification. As noted in section 3.1, findings in prior research suggest that application of accounting standards is not likely to have uniform effects on accounting amounts in reporting regimes with different regulatory and litigation environments, and that common and code law are key classifications (Ball, Kothari, and Robin, 2000; Ball, Robin, and Wu, 2003).

Our assessment of comparability based on net income correlation is structured similarly to that for value relevance. We begin by examining whether net income comparability with US firms differs before and after IAS firms adopt IAS. We do this by comparing the correlation between net income of IAS and US firms after the IAS firms applied IAS and the correlation between net income of IAS firms and US firms when the IAS firms applied non-US domestic standards. We next examine whether net income comparability with US firms differs for IAS firms that adopted IAS before and after 2005, and whether comparability differs for IAS firm-year observations corresponding to sample years before or after 2005. Lastly, we examine whether net income comparability differs based on the legal origins of the IAS firms' countries.

Regarding value relevance, we predict value relevance for US firms is higher than that for IAS firms. Although prior research does not directly address this question, Lang, Raedy and Yetman (2003) and Leuz, Nanda and Wysocki (2003) suggest that US financial reporting quality is generally higher than that of other countries, which likely reflects the combined effects of high quality accounting standards and strong enforcement and auditing. We expect this prediction to hold regardless of when IAS firms adopted IAS, for all firm-years during which IAS firms apply IAS, and regardless of the legal origin of IAS firms' countries. We also predict that value relevance is more comparable to that of US firms after the IAS firms adopt IAS than when they

applied non-US domestic standards. In addition, we predict that the difference in value relevance is smaller, i.e., value relevance comparability is higher, for IAS firms that adopted IAS after 2005 than those that adopted earlier, and for observations corresponding to sample years after 2005. It is difficult to predict differences in comparability for firms from countries with different legal origins. For example, although IAS may represent more of relative improvement in accounting standards for firms from code law countries, code law countries likely have weaker enforcement and auditing, which affects the application of the standards (Ball, Kothari, and Robin, 2000; Ball, Robin, and Wu, 2003).

Regarding comparability based on net income correlation, we make analogous predictions to those for value relevance comparability. In particular, we predict comparability is higher after IAS firms adopt IAS than when they applied non-US domestic standards, regardless of the legal origin of IAS firms' countries. We also predict that net income comparability is higher for IAS firms that adopted IAS after 2005 than those that adopted earlier, and for firm-year observations corresponding to sample years after 2005. We make no prediction regarding differences in net income comparability for firms from countries with different legal origins.

4. Research Design

4.1 MATCHING PROCEDURE

To test our predictions, we use a matched sample design. In particular, for each non-US firm that applies IAS (IAS firm) we select a US firm that applies US GAAP (US firm) in the same industry as the IAS firm whose size as measured by equity market value is closest to the IAS firm's at the end of the year of its adoption of IAS (Barth, Landsman, and Lang, 2008). Our analyses include all firm-years for which the IAS firm and its matched US firm both have data. For example, if the IAS firm has data from 1994 through 2000, and its matched US firm has data

for 1995 through 2002, then our analysis includes data from 1995 through 2000 for the IAS firm and its matched US firm. Following prior research, we employ this matching procedure to mitigate the effects on our inferences of economic differences unattributable to the financial reporting system.

4.2 VALUE RELEVANCE COMPARABILITY METRICS

We use four measures of value relevance. Our primary measure is based on the explanatory power of earnings and equity book value for stock price (Lang, Raedy, and Yetman, 2003; Lang, Raedy, and Wilson, 2006; Barth, Landsman, and Lang, 2008). Our second measure is based on the explanatory power of earnings and change in earnings for stock return. A feature of the return regression is that it focuses on the timeliness of earnings. Because prior research suggests that timely loss recognition affects the relation between earnings and return, we use an additional measure, the explanatory power of stock return for earnings, estimated separately for firms with positive (negative) stock return, i.e., good (bad) news firms (Basu, 1996; Ball, Kothari, and Robin, 2000; Lang, Raedy, and Yetman, 2003; Lang, Raedy, and Wilson, 2006; Barth, Landsman, and Lang, 2008).

To construct each value relevance metric, we use a two-step procedure. In the first step, we regress each dependent variable, i.e., stock price, stock returns, or earnings, on industry and country fixed effects. In the second step, we regress the residual from the first-step regression on the relevant explanatory variables, i.e., earnings and equity book value, earnings and change in earnings, and stock return, separately for IAS firms and their matched US firms. We employ this two-step procedure to remove any variation in the dependent variable of interest, e.g., stock price, that can be explained by the indicator variables. By construction, this procedure attributes to the indicator variables any joint explanatory power for the dependent variable of the indicator

variables and the relevant explanatory variables, e.g., earnings and equity book value. Thus, each value relevance metric reflects only the explanatory power of the relevant explanatory variables for the dependent variable.

We estimate the first-step regression using those observations relevant to each value relevance comparison. For example, when we compare value relevance of IAS and US firms after the IAS firms adopt IAS, we estimate the first-step regression using the combined sample of IAS firms and their matched US firms for sample years after the IAS firms adopt IAS. Similarly, when we compare value relevance of IAS and US firms before the IAS firms adopt IAS, we estimate the first-step regression using the combined sample of IAS firms and their matched US firms for sample years before the IAS firms adopt IAS, i.e., when they applied domestic standards. We estimate separate first-step regressions in this way because the impact on model explanatory power of the indicator variables is likely to differ for each value relevance comparison.

Our first value relevance metric, Price, is based on the explanatory power from a regression of stock price, P , on net income per share, NI , and book value of equity per share, BVE . In particular, our first value relevance metric is the adjusted R^2 from equation (1):

$$P_{it}^* = \beta_0 + \beta_1 BVE_{it}^s + \beta_2 NI_{it}^s + \varepsilon_{it} . \quad (1)$$

P^* is the residual from the regression of share weighted P , P^s , from the first-step regression described above. BVE^s and NI^s are share weighted BVE , and NI . We share-weight all variables to enable us to pool observations from different IAS countries that could have differences in share price arising from differences in typical trading ranges. The share weighting for each IAS country is the average number of shares outstanding for firms in that country divided by the average number of shares outstanding for firms in the pooled IAS sample. By convention, we set

the share-weight to one for US firms. Following prior research, to ensure accounting information is in the public domain, P is stock price six months after fiscal year-end (Lang, Raedy, and Yetman, 2003; Lang, Raedy, and Wilson, 2006; Barth, Landsman, and Lang, 2008). NI is net income before extraordinary items. i and t refer to firm and year.

Our second value relevance metric, Return, is based on the adjusted R^2 from a regression of annual stock return, $RETURN$, on net income and change in earnings, deflated by beginning of year price, NI/P and $\Delta NI/P$. In particular, our second value relevance metric is the adjusted R^2 from equation (2):

$$RETURN_{it}^* = \beta_0 + \beta_1 NI / P_{it} + \beta_2 \Delta NI / P_{it} + \beta_3 LOSS_{it} + \beta_4 LOSS \times NI / P_{it} + \beta_5 LOSS \times \Delta NI / P_{it} + \varepsilon_{it} \quad (2)$$

$RETURN^*$ is the residual from the regression of $RETURN$ from the first-step regression.⁵ We measure $RETURN$ as the cumulative percentage change in stock price beginning nine months before fiscal year end and ending three months after fiscal year end, adjusted for dividends and stock splits. We permit the coefficients on NI/P and $\Delta NI/P$ to differ for loss firms (Hayn, 1995) using the indicator variable $LOSS$, which equals one if NI/P is negative and zero otherwise.

Our third and fourth value relevance metrics, Good News and Bad News, are based on the adjusted R^2 s from regressions of net income deflated by beginning of year price on annual stock return. We estimate the earnings-returns relation separately for positive and negative return subsamples. Because we partition firms based on the sign of the return, we estimate two “reverse” regressions with earnings as the dependent variable, where one is for good news firms and the other is for bad news firms (Ball, Kothari, and Robin, 2000).

$$[NI / P]_{it}^* = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it} \quad (3)$$

⁵ There is no need to share weight the variables in equation (2) because each is deflated by price per share.

Analogously to equations (1) and (2), $[NI / P]_{it}^*$ is the residual from the first-step regression of NI/P on the indicator variables.

We test for differences in each metric using an empirical distribution of the differences using a boot-strapping procedure. Specifically, for each test, we first randomly select, with replacement, firm observations that we assign as either an IAS or a US firm.⁶ We then calculate the difference in the metric that is the subject of the particular test for the two randomly assigned types of firms. We obtain the empirical distribution of this difference by repeating this procedure 1,000 times. We deem a difference as being significant if our observed sample difference exceeds 950 of the differences calculated based on the boot-strapping procedure. An advantage of this approach for testing significance of the differences is that it requires no assumptions about the distribution of each metric.

We estimate equations (1) through (3) using five groupings of the sample firm-years. First, we use all firm-year observations after the IAS firms adopt IAS. Second, we use all firm-year observations before the IAS firms adopt IAS, i.e., when they applied non-US domestic standards. Estimation using this second grouping permits us to examine whether value relevance comparability increased after IAS firms adopt IAS. Third, we partition firm-year observations after IAS firms adopt IAS into two groups based on whether the IAS firm adopted IAS before or after 2005. The purpose of estimating the value relevance regressions using this grouping is to determine whether findings differ for firms that adopt IAS before and after it was mandatory in most countries. Fourth, we partition firm-year observations after IAS firms adopt IAS into two groups corresponding to sample years before or after 2005. The purpose of estimating

⁶ Inferences are unchanged if we sample with replacement.

regressions using this grouping is to determine whether findings differ between earlier versus later time periods because the provisions of IAS changed over time.

Fifth, we partition observations after IAS firms adopt IAS into two groups based on firms' countries legal origins, common law and code law. We do this because, as explained in section 3, findings in prior research suggest that application of accounting standards is not likely to have uniform effects on accounting amounts in reporting regimes with different regulatory and litigation environments (Ball, Kothari, and Robin, 2000; Ball, Robin, and Wu, 2003). La Porta et al. (1998) and subsequent studies indicate that legal origin differences affect institutional features of financial markets, including the financial reporting environment. Key legal origin groups identified in prior research are common law and code law. The common law legal origin group in our sample includes Australia, Canada, Hong Kong, Ireland, Singapore, South Africa, and the UK; the code law legal origin group includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland.

4.3 NET INCOME COMPARABILITY METRICS

We measure net income comparability as the degree to which earnings, deflated by price, for non-US firms applying IAS are correlated with those of matched US firms applying US GAAP. In particular, we estimate the following regression:⁷

$$[NI / P]_{it}^{*(IAS)} = \beta_0 + \beta_1 [NI / P]_{it}^{*(US)} + \varepsilon_{it}, \quad (4)$$

where $[NI / P]_{it}^{*(IAS)}$ and $[NI / P]_{it}^{*(US)}$ are NI/P^* for the IAS firm and its matched US firm. As with equations (1) through (3), we use the NI/P^* rather than NI/P to mitigate the effects of

⁷ De Franco, Kothari, and Verdi (2008) estimates net income correlations deflating net income by average total assets. We deflate by beginning-of-year stock price instead of average total assets because asset measurement and recognition rules differ among IAS, non-US domestic standards, and US GAAP, and thus deflating by total assets could affect inferences regarding net income correlation. In addition, we use price as the deflator in equation (3). Therefore, deflating by price in equation (4) enhances the internal consistency of the metrics.

country and industry differences on comparisons of correlations.⁸ We operationalize correlation as the R^2 from equation (4) and the magnitude of the US earnings-price coefficient, β_1 .

We estimate equation (4) using several groupings of the sample firm-years to test for differences in net income comparability. For each test of differences we compare β_1 and R^2 from equation (4) obtained using the two groups of firm-year observations that are relevant to the difference test. First, to examine whether net income comparability changed after IAS firms adopt IAS, we first estimate equation (4) using all firm-year observations after the IAS firms adopt IAS, i.e., with $[NI / P]^{*(IAS)}$ as the dependent variable, and using all firm-year observations when they applied non-US domestic standards, i.e., with $[NI / P]^{*(IAS-DOM)}$ as the dependent variable. $[NI / P]^{*(IAS-DOM)}$ is the residual from the first-step regression of net income to price for IAS firms when they applied domestic accounting standards. Second, to determine whether net income comparability changed after IAS firms adopt IAS for firms in countries with different legal origins, we repeat these same two estimations but using subsamples of observations that correspond to IAS firms from countries with common and code law legal origins. We also test for differences in changes in net income comparability across firms from common and code law countries. Third, we test for differences in net income comparability based on whether IAS firms adopted IAS before or after 2005 by estimating equation (4) using IAS firm-year observations corresponding to the two groups. Fourth, we test for differences in net income comparability based on sample firm years before or after 2005 by estimating equation (4) using IAS firm-year observations corresponding to sample years before or after 2005.

⁸ As with the value relevance comparability tests, we estimate the first-step regression using those observations relevant to each second step analysis.

As with the value relevance metrics, we test for differences based on the empirical distribution of the difference between the R^2 from the two estimations of equation (4) that are relevant to the particular test. To test for differences in β_1 , we estimate a version of equation (4) in which we pool observations from the two estimations relevant to the particular test, and include an indicator variable to distinguish one group of observations from the other, and a variable that interacts the indicator variable and $[NI / P]^{*(US)}$.

5. *Data and Sample*

We obtain our sample of IAS firms from Worldscope, which identifies the set of accounting standards a firm uses to prepare its financial statements and its industry. The two Worldscope standards categories that we code as IAS based on the Worldscope Accounting Standards Applied data field are “international standards” and “IASC” or “IFRS.”⁹ There are two sources of potential error in classifying a firm as applying IAS. The first is that firms do not always indicate clearly the accounting standards that they apply in their financial statements. The second is that Daske et al. (2007) reports that the Worldscope data field contains classification errors. If a substantial portion of firms we classify as IAS firms is affected by these sources of classification error and if IAS-based accounting amounts are more comparable to US GAAP-based accounting amounts than are accounting amounts based on other standards, it is likely that our tests are biased against our finding that IAS- and US GAAP-based accounting amounts are comparable.¹⁰ We limit IAS firms to those that do not cross-list in the US to eliminate effects on the IAS accounting amounts associated with the reconciliation requirement (Harris and Muller, 1999; Lang, Raedy, and Wilson, 2006).

⁹ Worldscope category 23 was “IASC” prior to 2004 and “IFRS” in 2005 and 2006.

¹⁰ Limiting our comparisons to IAS firms classified by Worldscope as applying IASC or IFRS results in inferences similar to those we obtain from our tabulated findings.

We gather data for IAS firms from DataStream and data for US firms from Compustat and CRSP. We winsorize at the 5% level all variables used to construct our metrics to mitigate the effects of outliers on our inferences. The resulting sample of IAS firms comprises 15,458 firm year observations for 3,055 firms that adopted IAS between 1995 and 2006. Of the 15,458 firm years, 4,526 are post-IAS adoption observations, and 10,932 are pre-adoption observations.

Table 1, panel A, provides a breakdown of sample firms by country. Sample firms are from 26 countries, with the greatest proportion from the United Kingdom, Australia, France, and Germany. Panel B of table 1 provides an industry breakdown. Sample firms are from many industries, with the greatest proportion from manufacturing, services, finance, insurance and real estate, and construction. Panel C of table 1 provides a breakdown by IAS adoption year. The number of firms adopting IAS each year rises until 1999, then remains relatively constant through 2003, and jumps substantially in 2005 when IAS became mandatory for firms in many countries.

Table 2 reports descriptive statistics for IAS and US firms based on data for IAS firms and their matched US firms after the IAS firms adopted IAS. Although we do not conduct significance tests for differences in means between IAS and US firms, table 2 suggests that despite our share-weighting procedure, mean differences likely exist for P^* and BVE^* . Because it is likely that these mean differences in the tabulated variables are at least in part attributable to country and industry differences, as described in section 4, we include country and industry fixed effects when constructing our metrics.

6. *Results*

6.1 VALUE RELEVANCE

Application of IAS and non-US Domestic Standards

Table 3 presents findings from estimation of equations (1) through (3) for the full sample. Panels A presents findings based on IAS firms applying IAS and panel B presents findings based on IAS firms applying non-US domestic standards. Panel A indicates that the first value relevance metric, Price, for US firms, 0.5714, is significantly higher than that for IAS firms, 0.4319. As with Price, the second value relevance metric, Return, for US firms, 0.1119, is higher than that for IAS firms, 0.1015. However, the difference is not significant. Findings for Good News and Bad News indicate significant differences between US and IAS firms. Good News is higher for IAS firms, 0.0160 versus 0.0043; Bad News is higher for US firms, 0.1441 versus 0.0650.¹¹ Taken together, the findings in panel A indicate that three of the four value relevance metrics are higher for US firms than for IAS firms.

In contrast to panel A, the findings in panel B indicate that all four of the value relevance metrics are higher for US firms than for IAS firms when they applied non-US domestic standards. Only the difference in Bad News is insignificant. To determine whether comparability in value relevance increased from when IAS firms applied non-US domestic standards to when they apply IAS, panel C presents change in differences in value relevance. The findings indicate that comparability increased significantly based on the Price and Return metrics. However, comparability decreased based on Bad News and there is no change in comparability based on Good News.

Partitioning Sample based on IAS Adoption Before and After 2005

¹¹ Finding adjusted R^2 is higher for bad news than good news for both US and IAS firms is consistent with bad news being reflected in earnings in a more timely manner than good news (Basu, 1997). As documented in table 6, more than half of our observations relate to firms from code law countries. The US has a common law legal origin. The fact that the good news (bad news) R^2 is higher (lower) for IAS firms than for US firms is consistent with the Ball, Kothari and Robin (2003) finding that earnings are more asymmetrically conservative for firms from code law countries than for firms from common law countries because accounting institutions in common law countries encourage timely recognition of losses but delayed recognition of gains.

Table 4 presents findings from estimation of equations (1) through (3), partitioning firm-years based on whether the IAS firm adopted IAS before or after 2005. Panel A (panel B) presents findings for IAS firms that adopted IAS before (after) 2005. The findings in panel A reveal that the matched US firms have higher value relevance for all metrics, with only the difference in Return being insignificant. Turning to panel B, inferences are generally the same as those in panel A, except that the significant difference in Good News is attributable to IAS firms having higher value relevance. Moreover, the inferences in panel B are identical to those obtained from table 3. This is not surprising, given that firm-year observations relating to post-2005 IAS adopters comprise 82% of the total firm-year observations for the full sample.

Inspection of panels A and B suggests that differences in value relevance between IAS and US firms are smaller for the after-2005 IAS adopters than for the before-2005 IAS adopters—i.e., value relevance metrics for after-2005 IAS adopters are more comparable to US firms' value relevance metrics. For example, the difference for Price for before-2005 adopters is 0.3322 versus 0.1408 for after-2005 adopters. To test whether value relevance for the after-2005 IAS adopters is more comparable to that of US firms, panel C presents differences in the absolute value of the differences between the value relevance metrics for US and IAS firms for the after- and before-2005 IAS adoption firms. We predict comparability is greater for after-2005 IAS adopters, which is indicated by a negative sign for the “Difference After – Before” in the right-most column. Panel C reveals evidence consistent with our predictions. The difference metric is smaller for the after-2005 adopters than it is for the before-2005 adopters for all metrics. That is, the “Difference After – Before” amounts are negative for all metrics, with those relating to Price and Bad News being significantly negative. Taken at face value, these findings suggest that mandatory adoption of IAS resulted in more comparable value relevance than

voluntary adoption. However, it is possible that this result could be attributable to a temporal effect rather than the effect of mandatory adoption.

Partitioning Sample based on Sample year Before and After 2005

To assess whether there is a temporal effect, table 5 presents findings from estimation of equations (1) through (3), partitioning firm-years based on whether the firm-year observation for the IAS firm is before or after 2005. Table 5 presents statistics analogous to those in table 4, where panel A (panel B) presents findings for before- (after-) 2005 firm-years, and panel C presents differences in the absolute value of the differences between the value relevance metrics in panels A and B. The findings in panels A and B reveal inferences identical to those in panels A and B of table 4. The findings in panel C are the same as those in panel C of table 4, except that the insignificant “Difference After – Before” amount is positive for Return. Taken together, the findings in tables 4 and 5 do not enable us to distinguish whether the increase in comparability in more recent years is attributable to mandatory adoption of IAS or other changes in IAS or its application since 2005. However, the two sets of results consistently support the conclusion that IAS firms accounting amounts are more comparable to US GAAP accounting amounts in the period following 2005 than before 2005.

Legal Origin After IAS Adoption

Table 6 presents findings from estimation of equations (1) through (3), partitioning firm-years based on whether the firm-year observation is for an IAS firm from a country with common or code law legal origin. Table 6 presents statistics analogous to those in table 3, where panels A and B present findings for common and code law firm-years. Panel A reveals that three of the four value relevance metrics are insignificantly different for common law IAS firms and

US firms. The only significant difference is for Bad News, where the metrics are 0.1058 and 0.1867 for IAS firms and matched US firms.

In contrast to panel A, the findings for code law firms in panel B reveal that three of the four value differences are significant. Two of the metrics, those for Price and Bad News, indicate that US firms have higher value relevance, whereas the third, Good News, indicates that IAS firms have higher value relevance.¹² These inferences are identical to those in table 3, i.e., findings for code law firms are representative for the full sample. The findings in panels A and B suggest that IAS adopters from common law countries differ from those from code law countries in that common law IAS firms have value relevance that is more comparable to US firms.¹³ Further, the findings support the notion that comparability between IAS and US GAAP in practice is a function of local institutions rather than simply the accounting standards.

6.2 NI/P CORRELATIONS

Table 7 presents regression summary statistics associated with estimation of equation (4). Panel A presents statistics relating to estimations in which the dependent variable is, in turn, $[NI / P]^{*(IAS)}$ and $[NI / P]^{*(IAS-DOM)}$. The results indicate that the coefficient on $NI / P^{*(US)}$ is positive and significant for both the $[NI / P]^{*(IAS)}$ and $[NI / P]^{*(IAS-DOM)}$ estimations, i.e., before and after the IAS firms adopt IAS. More importantly for our research question, consistent with predictions, the coefficient is significantly larger after the IAS firms adopt IAS than before, increasing by 0.11 from 0.15 to 0.26. Also consistent with predictions, the findings indicate that R^2 increases significantly by 1.10% from 0.85% to 1.95%. These findings suggest that IAS-

¹² As noted in the prior footnote, finding that the bad (good) news R^2 is higher (lower) for firms from common law (code law) countries is consistent with Ball, Kothari, and Robin (2003).

¹³ We repeated the analyses in table 6 using sample observations after 2005. Inferences are unchanged from those relating to the tabulated findings.

based net income is more comparable to US GAAP-based net income than is net income based on non-US domestic standards.

Panel B presents analogous statistics relating to estimating equation (4) using subsamples of firms based on common and code law legal origin. The findings indicate that inferences relating to both subsamples are identical to those based on the full sample. The $NI / P^{*(US)}$ coefficient increases significantly from the period before IAS adoption to after for common and code law firms. The respective increases are 0.05 and 0.12. The analogous increases in R^2 are 0.73% and 1.35%, each of which is significant.

In addition, untabulated findings also indicate that increases in both the $NI / P^{*(US)}$ coefficient and R^2 from when they applied non-US domestic standards to when they apply IAS are significantly higher for firms from code law countries. These findings suggest that the effect of IAS on comparability with US GAAP is more pronounced for firms from code law countries than common law countries, which is consistent with the notion that IAS are more similar to common law standards and, therefore, have more of an effect on firms from code law countries.

Panel C presents statistics relating to subsample estimations of equation (4) in which the dependent variable is $[NI / P]^{*(IAS)}$. The first pair (second pair) of columns presents findings from partitionings of firm-years based on whether the IAS firm adopted IAS before or after 2005 (whether the firm-year observation for the IAS firm is before or after 2005). The findings from both subsample analyses are similar. In particular, although the $[NI / P]^{*(US)}$ coefficient is significantly positive for all four estimations, it does not change significantly for firms that adopted IAS after 2005 and for firm-year observations after 2005. In contrast, the respective R^2 s for firms that adopted IAS after 2005 and for firm-year observations after 2005 increase from 1.15 to 2.20 and from 1.11 to 2.30. Taken together, the findings in panel C indicate that there is

an increase in comparability in more recent years and for firms adopting IAS when it largely became mandatory. However, as with the value relevance findings, the net income comparability findings do not permit us to determine whether the increase in comparability in more recent years is attributable to mandatory adoption of IAS or to other changes in IAS or its application since 2005.

7. Summary and Concluding Remarks

The question we address is the extent to which IAS as applied by non-US firms results in accounting amounts that are comparable to those resulting from US GAAP as applied by US firms. We assess comparability using value relevance of equity book value and net income, and the correlation between net incomes for the two groups of firms.

We find US firms applying US GAAP generally have higher value relevance of accounting amounts. This finding suggests that despite recent trends towards convergence of accounting standards, interpretation, auditing, and enforcement, financial reporting is not fully comparable. Relative to when non-US firms applied domestic standards, value relevance is more comparable based on price and return metrics but is less comparable based on the bad news metric after they applied IAS. In addition, we find non-US firms have higher net income comparability with US firms when non-US firms apply IAS than when they applied non-US domestic standards. Collectively, these findings suggest that widespread application of IAS by non-US firms is associated with financial reporting that is more comparable with US firms than is application of non-US domestic standards. We also find value relevance and net income comparability are higher for both IAS adoption and IAS sample years after 2005. The findings suggest that the combination of mandatory adoption of IAS, greater convergence IAS and US

GAAP, and global improvements in consistency in auditing and enforcement enhanced comparability.

Tests for differences in comparability based on the legal origins of the non-US firms' countries indicate that value relevance is more comparable for firms in common law countries. The tests also indicate that net income comparability is higher for both code and common law firms when they apply IAS than when they applied non-US domestic standards. However, the greater increase in comparability for code law firms suggests that IAS represents more of an improvement in accounting standards for firms from code law countries than common law countries, which is consistent with the notion that IAS are less similar to accounting standards as traditionally applied in code law countries.

Taken together, our study's findings suggest that widespread application of IAS by non-US firms has enhanced financial reporting comparability with US firms, but that differences remain.

REFERENCES

- Alford, A., J. Jones, R. Leftwich, and M. Zmijewski, 1993. The Relative Information Content of Accounting Disclosures in Different Countries. *Journal of Accounting Research* 31 (Supplement): 183-223.
- Ball, R. 1995. Making Accounting More International: Why, How, and How Far Will It Go? *Journal of Applied Corporate Finance* 8: 19-29.
- Ball, R. 2006. International Financial Reporting Standards (IFRS): Pros and Cons for Investors. *Accounting Business Research International Accounting Policy Forum*: 5-27.
- Ball, R.; S.P. Kothari; and A. Robin. 2000. The Effect of International Institutional Factors on Properties of Accounting Earnings.” *Journal of Accounting and Economics* 29: 1-51.
- 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: 235-270.
- Barth, M.E., W.R. Landsman, and M. Lang. 2008. International Accounting Standards and Accounting Quality. *Journal of Accounting Research* 46, 467-498.
- Bartov, E., S. Goldberg, and M. Kim. 2005. Comparative Value Relevance among German, U.S. and International Accounting Standards: A German Stock Market Perspective. *Journal of Accounting, Auditing and Finance* 20: 95-119.
- Basu, S., 1997, The Conservatism Principle and the Asymmetric Timeliness of Earnings, *Journal of Accounting and Economics* 24, 3-37.
- Bothwell, J.L. 2009. Adopting International Financial Reporting Standards for Use in the United States: An Economic and Public Policy Perspective. FASB. Working paper
- Bradshaw, M.T., and G.S. Miller. 2008. Will Harmonizing Accounting Standards Really Harmonize Accounting? Evidence from Non-U.S. Firms Adopting US GAAP. *Journal of*

Accounting, Auditing and Finance 23: 233-263.

Cairns, D. 1999. Degrees of compliance. *Accountancy International* (September): 68-69.

Daske, H. 2006. Economic Benefits of Adopting IFRS or US-GAAP – Have the Expected Costs of Equity Capital really decreased? *Journal of Business, Finance, and Accounting* 33: 329-373.

Daske, H., L. Hail, C. Leuz, and R. Verdi. 2007. Adopting a Label: Heterogeneity in the Economic Consequences of IFRS Adoptions. Working paper, Wharton School.

Daske, H., L. Hail, C. Leuz, and R. Verdi. 2008. Mandatory IFRS Reporting Around the World: Early Evidence on the Economic Consequences. *Journal of Accounting Research* 46, 1085-1142.

De Franco, G., S.P. Kothari, R.S. Verdi. 2008. The Value of Earnings Comparability. Working paper, MIT Sloan School of Management.

Ewert, R., and A. Wagenhofer. 2005. Economic Effects of Tightening Accounting Standards to Restrict Earnings Management. *The Accounting Review* 80: 1101-1124.

Financial Accounting Foundation. 2009. Comment letter on the SEC Roadmap, March 11.

Financial Accounting Standards Board and International Accounting Standards Board. 2008. Completing the February 2006 Memorandum of Understanding: A Progress Report and Timetable for Completion. Norwalk, CT. and London, UK, September.

Gordon, E.A., B.N. Jorgensen, and C.L. Linthicum. 2008. Could IFRS Replace US GAAP? A Comparison of Earnings Attributes and Informativeness in the US Market. Working paper.

Hail, L., C. Leuz, and P. Wysocki. 2009. Global Accounting Convergence and the Potential Adoption of IFRS by the United States: An Analysis of Economic and Policy Factors. Working Paper, University of Pennsylvania.

- Hayn, C. 1995. The Information Content of Losses. *Journal of Accounting and Economics* 20: 125-153.
- Harris, M., and K. Muller. 1999. The Market Valuation of IAS versus US GAAP Accounting Measures Using Form 20-F Reconciliations. *Journal of Accounting and Economics* 26: 285-312.
- Hughes, S.B., and J.F. Sander. 2008. The Implications of IFRS Adoption: The Extent of Convergence and Consistency between IFRS and US GAAP Net Income. Working paper.
- Hung, M. and K.R. Subramanyam. 2007. Financial Statement Effects of Adopting International Accounting Standards: The Case of Germany. *Review of Accounting Studies* 12: 623-657.
- International Accounting Standards Board. 2003a. Improvements to International Accounting Standards. IASB, London.
- International Accounting Standards Board. 2003b. IAS 32 Financial Instruments: Disclosure and Presentation. IASB, London.
- International Accounting Standards Board. 2003c. IAS 39 Financial Instruments: Recognition and Measurement. IASB, London.
- Land, J., and M. Lang. 2002. Empirical Evidence on the Evolution of International Earnings. *The Accounting Review* 77: 115-134.
- Lang, M., J. Raedy, and M. Yetman. 2003. How Representative are Firms that are Cross Listed in the United States? An Analysis of Accounting Quality. *Journal of Accounting Research* 41: 363-386.
- Lang, M., J. Raedy, and W. Wilson. 2006. Earnings Management and Cross Listing: Are Reconciled Earnings Comparable to US Earnings? *Journal of Accounting and Economics* 42: 255-283.

- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R.W. Vishny. 1998. Law and Finance. *Journal of Political Economy* 106: 1113-1155.
- Leuz, C. 2003. IAS Versus U.S. GAAP: Information Asymmetry-based Evidence from Germany's New Market. *Journal of Accounting Research* 41: 445-472.
- Leuz, C.; D. Nanda; and P. Wysocki. 2003. Earnings Management and Investor Protection: An International Comparison. *Journal of Financial Economics* 69: 505-527.
- Schipper, K. 2003. Principles-Based Accounting Standards. *Accounting Horizons*, March: 61-72.
- Securities and Exchange Commission. 2007. Final Rule: Acceptance from Foreign Private Issuers of Financial Statements Prepared in Accordance with International Financial Reporting Standards without Reconciliation to U.S. GAAP.
- Securities and Exchange Commission. 2008. Roadmap for the Potential Use of Financial Statements Prepared in Accordance with International Financial Reporting Standards by U.S. Issuers; Proposed Rule.
- Street, D. and S. Gray. 2001. Observance of International Accounting Standards: Factors Explaining Non-compliance. ACCA Research Report No. 74.
- Van Tendeloo, B. and A. Vanstraelen. 2005. Earnings Management under German GAAP versus IFRS. *European Accounting Review* 14:1, 155-180.
- Watts, R. and J. Zimmerman. 1986. Positive Accounting Theory. Prentice-Hall, Upper Saddle River, New Jersey.

TABLE 1
IAS Firm Sample Composition by Country, Industry, and Year of Adoption

Panel A: Composition by Country				
	Number of Firm- Year Observations	Percentage of Firm-Year Observations	Number of Firms	Percentage of Firms
Australia	2,901	18.77	747	24.45
Austria	174	1.13	30	0.98
Belgium	303	1.96	58	1.90
Canada	16	0.10	4	0.13
Czech Republic	66	0.43	12	0.39
Denmark	541	3.50	92	3.01
Finland	549	3.55	99	3.24
France	1,734	11.22	340	11.13
Germany	1,543	9.98	312	10.21
Greece	140	0.91	47	1.54
Hong Kong	51	0.33	11	0.36
Hungary	19	0.12	7	0.23
Ireland	233	1.51	31	1.01
Israel	3	0.02	3	0.10
Italy	842	5.45	147	4.81
Netherlands	606	3.92	81	2.65
Norway	581	3.76	107	3.50
Peru	38	0.25	38	1.24
Philippines	16	0.10	16	0.52
Portugal	193	1.25	30	0.98
Singapore	31	0.20	5	0.16
Spain	16	0.10	8	0.26
Sweden	1,033	6.68	204	6.68
Switzerland	400	2.59	73	2.39
Turkey	60	0.39	28	0.92
United Kingdom	3,369	21.79	525	17.18
Totals	15,458	100.00	3,055	100.00

TABLE 1
IAS Firm Sample Composition by Country, Industry, and Year

Panel B: Composition by Industry				
	Number of Firm-Year Observations	Percentage of Firm-Year Observations	Number of Firms	Percentage of Firms
Agriculture, Forestry and Fishing	81	0.52	16	0.52
Mining	1,134	7.34	242	7.92
Construction	1,142	7.39	176	5.76
Manufacturing	5,843	37.80	1,076	35.22
Utilities	491	3.18	89	2.91
Gas Distribution	57	0.37	11	0.36
Retail Trade	574	3.71	114	3.73
Finance, Insurance and Real Estate	2,307	14.92	501	16.40
Services	3,638	23.53	797	26.09
Public Administration	191	1.24	33	1.08
Totals	15,458	100.00	3,055	100.00

TABLE 1
IAS Firm Sample Composition by Country, Industry, and Year

	Year of IAS Adoption		Observation Year	
	Number of Firms	Percentage of Firms	After IAS Adoption	Before IAS Adoption
1991	n/a	n/a	0	1
1992	n/a	n/a	0	2
1993	n/a	n/a	0	7
1994	n/a	n/a	0	29
1995	3	0.10	3	253
1996	6	0.20	8	450
1997	9	0.29	16	577
1998	17	0.56	29	671
1999	35	1.15	58	779
2000	31	1.01	70	880
2001	30	0.98	81	1,257
2002	49	1.60	117	1,529
2003	39	1.28	123	1,762
2004	83	2.72	169	1,944
2005	1,598	52.31	1,669	791
2006	1,155	37.81	2,183	0
Totals	3,055	100.00	4,526	10,932

The sample comprises non-US firms that adopted IAS between 1995 and 2006 (IAS firms).

TABLE 2
Descriptive Statistics: IAS Firms and US Firms

Variables	IAS Firms (N = 4,526)		US Firms (N = 4,526)	
	Mean	Standard Deviation	Mean	Standard Deviation
P^S	8.87	13.26	21.37	17.70
BVE^S	6.09	12.31	9.06	7.74
NI^S	0.74	1.36	0.78	1.37
$RETURN$	0.25	0.43	0.13	0.45
NI/P	0.06	0.15	0.05	0.10
$\Delta NI/P$	0.02	0.06	0.01	0.08

P^S is share-weighted stock price six months after fiscal year-end; BVE^S is share-weighted book value of equity per share; NI^S is share-weighted net income per share; $RETURN$ is annual stock return beginning nine months before and ending three months after fiscal year end; NI/P is net income per share scaled by beginning of year stock price; and Δ denotes annual change. The share weighting for each IAS country is the average number of shares outstanding for firms in that country divided by the average number of shares outstanding for firms in the pooled IAS sample. By convention, we set the share weight to one for US firms. The sample comprises non-US firms that adopted IAS between 1995 and 2006 (IAS firms) and a sample of US firms matched to the IAS firms on size and industry (US firms). All statistics are for IAS and US firms after IAS firms adopted IAS.

TABLE 3
Comparison of IAS and US Firms' Value Relevance

Panel A. After IAS Adoption (Prediction: US > IAS)				
	Regression R ²	IAS Firms (N = 4,526)	US Firms (N = 4,526)	
	Price	0.4319	0.5714*	
	Return	0.1015	0.1119	
	Good News	0.0160	0.0043*	
	Bad News	0.0650	0.1441*	
Panel B. Before IAS Adoption (Prediction: US > IAS)				
		IAS Firms (N = 10,932)	US Firms (N = 10,932)	
	Price	0.2804	0.4960*	
	Return	0.1028	0.1275*	
	Good News	0.0015	0.0132*	
	Bad News	0.0855	0.0885	
Panel C. Change in Differences Before and After IAS Adoption (Prediction: After < Before)				
	Difference After Adoption	Difference Before Adoption	Change in Difference After – Before	
	Price	0.1395	0.2156	-0.0761*
	Return	0.0104	0.0247	-0.0143*
	Good News	0.0117	0.0117	0.0000
	Bad News	0.0791	0.0030	0.0761*

* denotes difference between IAS and US firms' metrics in panels A and B, and change in difference in panel C, is significant.

Price is the regression R² from $P_{it}^* = \beta_0 + \beta_1 BVE_{it}^s + \beta_2 NI_{it}^s + \varepsilon_{it}$, where P^* is the residual from a first-step regression of share-weighted stock price six months after fiscal year-end, P^s , on industry and country fixed effects. BVE^s is share-weighted book value of equity per share and NI^s is share-weighted net income per share. The share weighting for each IAS country is the average number of shares outstanding for firms in that country divided by the average number of

shares outstanding for firms in the pooled IAS sample. By convention, we set the share weight to one for US firms.

Return is the regression R^2 from

$RETURN_{it}^* = \beta_0 + \beta_1 NI / P_{it} + \beta_2 \Delta NI / P_{it} + \beta_3 LOSS_{it} + \beta_4 LOSS \times NI / P_{it} + \beta_5 LOSS \times \Delta NI / P_{it} + \varepsilon_{it}$, where $RETURN^*$ is the residual from a first-step regression of annual stock return, beginning nine months before and ending three months after fiscal year end, on industry and country fixed effects. NI/P is net income per share scaled by beginning of year stock price; $LOSS$ is an indicator variable that equals one if NI/P is negative and zero otherwise; and Δ denotes annual change.

Good News and Bad News are the regression R^2 s from $[NI / P]_{it}^* = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it}$, where $[NI / P]_{it}^*$ is the residual from the first-step regression of NI/P on country and industry fixed effects. Good News (Bad News) is the R^2 from the equation estimated using firms with positive (negative) $RETURN$.

In each first-step regression, we estimate the regression separately for firms relevant to the comparison we make. For example, when we compare value relevance of IAS and US firms after the IAS firms adopt IAS, we estimate the first-step regression on the combined sample of IAS firms and their matched US firms for sample years after the IAS firms adopt IAS. i and t denote firm and year. To test for differences in R^2 , we estimate the equation 1,000 times, randomly assigning firms to the relevant partitions and base significance tests on the frequency of observing an R^2 difference greater than or equal to the tabulated difference. The sample comprises non-US firms that adopted IAS between 1995 and 2006 (IAS firms) and a sample of US firms matched to the IAS firms on size and industry (US firms).

TABLE 4

Comparison of IAS and US Firms' Value Relevance Partitioned on Adoption of IAS Before and After 2005

Panel A. Before 2005 Adoption (Prediction: US > IAS)

Regression R ²	IAS Firms (N = 798)	US Firms (N = 798)
Price	0.2163	0.5485*
Return	0.0539	0.0788
Good News	0.0009	0.0307*
Bad News	0.0247	0.1979*

Panel B. After 2005 Adoption (Prediction: US > IAS)

Regression R ²	IAS Firms (N = 3,728)	US Firms (N = 3,728)
Price	0.4347	0.5755*
Return	0.1151	0.1227
Good News	0.0214	0.0005*
Bad News	0.0842	0.1316*

**Panel C. Difference in Differences for Adoption Before and After 2005
(Prediction: After < Before)**

	Difference After	Difference Before	Difference in Difference After – Before
Price	0.1408	0.3322	-0.1914*
Return	0.0076	0.0249	-0.0173
Good News	0.0209	0.0298	-0.0089
Bad News	0.0474	0.1732	-0.1258*

* denotes difference between IAS and US firms' metrics in panels A and B, and difference in difference in panel C, is significant.

Price is the regression R² from $P_{it}^* = \beta_0 + \beta_1 BVE_{it}^s + \beta_2 NI_{it}^s + \varepsilon_{it}$, where P^* is the residual from a first-step regression of share-weighted stock price six months after fiscal year-end, P^s , on industry and country fixed effects. BVE^s is share-weighted book value of equity per share and NI^s is share-weighted net income per share. The share weighting for each IAS country is the

average number of shares outstanding for firms in that country divided by the average number of shares outstanding for firms in the pooled IAS sample. By convention, we set the share weight to one for US firms.

Return is the regression R^2 from

$RETURN_{it}^* = \beta_0 + \beta_1 NI / P_{it} + \beta_2 \Delta NI / P_{it} + \beta_3 LOSS_{it} + \beta_4 LOSS \times NI / P_{it} + \beta_5 LOSS \times \Delta NI / P_{it} + \varepsilon_{it}$, where $RETURN^*$ is the residual from a first-step regression of annual stock return, beginning nine months before and ending three months after fiscal year end, on industry and country fixed effects. NI/P is net income per share scaled by beginning of year stock price; $LOSS$ is an indicator variable that equals one if NI/P is negative and zero otherwise; and Δ denotes annual change.

Good News and Bad News are the regression R^2 s from $[NI / P]_{it}^* = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it}$, where $[NI / P]_{it}^*$ is the residual from the first-step regression of NI/P on country and industry fixed effects. Good News (Bad News) is the R^2 from the equation estimated using firms with positive (negative) $RETURN$.

In each first-step regression, we estimate the regression separately for firms relevant to the comparison we make. For example, when we compare value relevance of IAS and US firms after the IAS firms adopt IAS, we estimate the first-step regression on the combined sample of IAS firms and their matched US firms for sample years after the IAS firms adopt IAS. i and t denote firm and year. To test for differences in R^2 , we estimate the equation 1,000 times, randomly assigning firms to the relevant partitions and base significance tests on the frequency of observing an R^2 difference greater than or equal to the tabulated difference. The sample comprises non-US firms that adopted IAS between 1995 and 2006 (IAS firms) and a sample of US firms matched to the IAS firms on size and industry (US firms).

TABLE 5

Comparison of IAS and US Firms' Value Relevance in the Post-IAS Period Partitioned on Observation Year Before and After 2005

Panel A. Before 2005 (Prediction US > IAS)

	IAS Firms (N = 674)	US Firms (N = 674)
Price	0.2081	0.5187*
Return	0.0602	0.0694
Good News	0.0001	0.0409*
Bad News	0.0264	0.1826*

Panel B. After 2005 (Prediction US > IAS)

	IAS Firms (N = 3,800)	US Firms (N = 3,800)
Price	0.4319	0.5715*
Return	0.1015	0.1119
Good News	0.0160	0.0043*
Bad News	0.0649	0.1441*

Panel C. Change in Differences for Before and After 2005 (Prediction After < Before)

	Difference After	Difference Before	Difference After – Before
Price	0.1396	0.3106	-0.1710*
Return	0.0104	0.0092	0.0012
Good News	0.0117	0.0408	-0.0291*
Bad News	0.0792	0.1562	-0.0770

* denotes difference between IAS and US firms' metrics in panels A and B, and change in difference in panel C, is significant.

Price is the regression R^2 from $P_{it}^* = \beta_0 + \beta_1 BVE_{it}^s + \beta_2 NI_{it}^s + \varepsilon_{it}$, where P^* is the residual from a first-step regression of share-weighted stock price six months after fiscal year-end, P^s , on industry and country fixed effects. BVE^s is share-weighted book value of equity per share and NI^s is share-weighted net income per share. The share weighting for each IAS country is the average number of shares outstanding for firms in that country divided by the average number of shares outstanding for firms in the pooled IAS sample. By convention, we set the share weight to one for US firms.

Return is the regression R^2 from

$RETURN_{it}^* = \beta_0 + \beta_1 NI / P_{it} + \beta_2 \Delta NI / P_{it} + \beta_3 LOSS_{it} + \beta_4 LOSS \times NI / P_{it} + \beta_5 LOSS \times \Delta NI / P_{it} + \varepsilon_{it}$, where $RETURN^*$ is the residual from a first-step regression of annual stock return, beginning nine months before and ending three months after fiscal year end, on industry and country fixed effects. NI/P is net income per share scaled by beginning of year stock price; $LOSS$ is an indicator variable that equals one if NI/P is negative and zero otherwise; and Δ denotes annual change.

Good News and Bad News are the regression R^2 s from $[NI / P]_{it}^* = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it}$, where $[NI / P]_{it}^*$ is the residual from the first-step regression of NI/P on country and industry fixed effects. Good News (Bad News) is the R^2 from the equation estimated using firms with positive (negative) $RETURN$.

In each first-step regression, we estimate the regression separately for firms relevant to the comparison we make. For example, when we compare value relevance of IAS and US firms after the IAS firms adopt IAS, we estimate the first-step regression on the combined sample of IAS firms and their matched US firms for sample years after the IAS firms adopt IAS. i and t denote firm and year. To test for differences in R^2 , we estimate the equation 1,000 times, randomly assigning firms to the relevant partitions and base significance tests on the frequency of observing an R^2 difference greater than or equal to the tabulated difference. The sample comprises non-US firms that adopted IAS between 1995 and 2006 (IAS firms) and a sample of US firms matched to the IAS firms on size and industry (US firms).

TABLE 6
Comparison of IAS and US Firms' Value Relevance Partitioned by Legal Origin After IAS Adoption

Panel A. Common Law (Prediction US > IAS)

	IAS Firms (N = 1,582)	US Firms (N = 1,582)
Price	0.4779	0.5644
Return	0.1015	0.1314
Good News	0.0036	0.0001
Bad News	0.1058	0.1867*

Panel B. Code Law (Prediction US > IAS)

	IAS Firms (N = 2,087)	US Firms (N = 2,087)
Price	0.3708	0.5741*
Return	0.1018	0.1043
Good News	0.0251	0.0074*
Bad News	0.0339	0.1134*

* denotes difference between IAS and US firms' metrics is significant.

Price is the regression R^2 from $P_{it}^* = \beta_0 + \beta_1 BVE_{it}^s + \beta_2 NI_{it}^s + \varepsilon_{it}$, where P^* is the residual from a first-step regression of share-weighted stock price six months after fiscal year-end, P^s , on industry and country fixed effects. BVE^s is share-weighted book value of equity per share and NI^s is share-weighted net income per share. The share weighting for each IAS country is the average number of shares outstanding for firms in that country divided by the average number of shares outstanding for firms in the pooled IAS sample. By convention, we set the share weight to one for US firms.

Return is the regression R^2 from

$RETURN_{it}^* = \beta_0 + \beta_1 NI / P_{it} + \beta_2 \Delta NI / P_{it} + \beta_3 LOSS_{it} + \beta_4 LOSS \times NI / P_{it} + \beta_5 LOSS \times \Delta NI / P_{it} + \varepsilon_{it}$, where $RETURN^*$ is the residual from a first-step regression of annual stock return, beginning nine months before and ending three months after fiscal year end, on industry and country fixed effects. NI/P is net income per share scaled by beginning of year stock price; $LOSS$ is an indicator variable that equals one if NI/P is negative and zero otherwise; and Δ denotes annual change.

Good News and Bad News are the regression R^2 s from $[NI / P]_{it}^* = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it}$, where $[NI / P]_{it}^*$ is the residual from the first-step regression of NI/P on country and industry fixed effects. Good News (Bad News) is the R^2 from the equation estimated using firms with positive (negative) $RETURN$.

In each first-step regression, we estimate the regression separately for firms relevant to the comparison we make. For example, when we compare value relevance of IAS and US firms after the IAS firms adopt IAS, we estimate the first-step regression on the combined sample of IAS firms and their matched US firms for sample years after the IAS firms adopt IAS. Common law firms are those from Australia, Canada, Hong Kong, Ireland, Singapore, South Africa, and the UK. Code law firm are those from Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland. i and t denote firm and year. To test for differences in R^2 , we estimate the equation 1,000 times, randomly assigning firms to the relevant partitions and base significance tests on the frequency of observing an R^2 difference greater than or equal to the tabulated difference. The sample comprises non-US firms that adopted IAS between 1995 and 2006 (IAS firms) and a sample of US firms matched to the IAS firms on size and industry (US firms).

TABLE 7
IAS and US firm Net Income Correlation

		Dependent Variable			
		$[NI / P]^{*(IAS_DOM)}$	$[NI / P]^{*(IAS)}$		
Panel A. Non-US Domestic Standards and IAS					
<i>Intercept</i>		-0.06*	-0.05		
$[NI / P]^{*(US)}$		0.15*	0.26*		
R ² (%)		0.85	1.95		
N		10,932	4,526		
Test coefficient $IAS > IAS_DOM$			0.11*		
Test $R^2_{IAS} > R^2_{DOM}$			1.10*		
Panel B. Legal Origins					
		Dependent Variable			
		Common		Code	
		$[NI / P]^{*(IAS_DOM)}$	$[NI / P]^{*(IAS)}$	$[NI / P]^{*(IAS_DOM)}$	$[NI / P]^{*(IAS)}$
<i>Intercept</i>		-0.01	-0.02	-0.14	-0.10
$[NI / P]^{*(US)}$		0.07*	0.12*	0.23*	0.35*
R ² (%)		1.34	2.07	1.05	2.40
N		5,037	1,582	5,580	2,908
Test $IAS > IAS_DOM$			0.05*		0.12*
Test $R^2_{IAS} > R^2_{DOM}$			0.73*		1.35*

TABLE 7 (continued)
IAS and US firm Net Income Correlation

	Dependent Variable $[NI / P]^{*(IAS)}$			
	Adoption Year		Observation Year	
	Before 2005	After 2005	Before 2005	After 2005
<i>Intercept</i>	0.06	-0.08*	-0.13	-0.04
$[NI / P]^{*(US)}$	0.31*	0.25*	0.27*	0.26*
R ² (%)	1.15	2.20	1.11	2.30
N	777	3,726	654	3,849
Test difference in coefficient	-0.06		-0.01	
Test difference in R ²	1.05*		1.19*	

*indicates significance at the 0.05 level.

The tabulated summary statistics are from various estimations of

$[NI / P]_{it}^{*(IAS)} = \beta_0 + \beta_1 [NI / P]_{it}^{*(US)} + \varepsilon_{it}$, where $[NI / P]_{it}^{*(IAS)}$ and $[NI / P]_{it}^{*(US)}$ are $[NI / P]_{it}^*$ for the IAS firm and its matched US firm, which are the residuals from a first-step regression of NI/P on country and industry fixed effects. NI/P is net income per share scaled by beginning of year stock price. In panels A and B, IAS_DOM and IAS denote whether net income for IAS firms is based on domestic standards or IAS.

To test for differences in coefficients, we re-estimate the equation after including an indicator variable and the indicator variable interacted with $[NI / P]_{it}^{*(US)}$ and pooling the observations relevant to the test. The test is whether the coefficient on the indicator variable is significantly different from zero. The indicator variable equals one depending on the test conducted. For example, when testing IAS_DOM versus IAS in panel A, we re-estimate the equation using all IAS firm observations and set the indicator variable to one for observations based on IAS_DOM and zero otherwise. To test for differences in R², we estimate the equation 1,000 times, randomly assigning firms to the relevant partitions and base significance tests on the frequency of observing an R² difference greater than or equal to the tabulated difference.

The sample comprises non-US firms that adopted IAS between 1995 and 2006 (IAS firms) and a sample of US firms matched to the IAS firms on size and industry (US firms). Common law firms are those from Australia, Canada, Hong Kong, Ireland, Singapore, South Africa, and the UK. Code law firm are those from Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland. i and t denote firm and year.

