

International Accounting Standards and Accounting Quality

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Abstract

We compare characteristics of accounting data for firms that adopt International Accounting Standards (IAS) to a matched sample of firms that do not to investigate whether reporting under IAS is associated with predictable differences in accounting quality and cost of capital. After IAS adoption, firms evidence less earnings management, more timely loss recognition, and more value relevance of accounting data than firms that do not adopt. Also, IAS adopting firms evidence higher accounting quality after adoption than before suggesting that IAS adoption is associated with an improvement in accounting quality. While more speculative, our results also provide weak evidence that IAS-adopting firms may enjoy lower cost of capital after adoption than non-adopting firms, and a reduction in cost of capital following adoption. Overall, our results suggest an improvement in accounting quality associated with IAS adoption.

I INTRODUCTION

We compare characteristics of accounting amounts for firms that adopt International Accounting Standards (IAS) to a matched sample of firms that do not to investigate whether reporting under IAS is associated with predictable differences in accounting quality and cost of capital. In particular, we investigate whether applying IAS is associated with less earnings management, more timely loss recognition, higher value relevance of accounting amounts, and a lower cost of capital. We first conduct a cross-sectional comparison of IAS and matched non-IAS firms in the period after IAS firms adopt. We then conduct a time-series examination of whether IAS adopting firms increase accounting quality and decrease their cost of capital after adopting IAS. Our results suggest that IAS firms have higher accounting quality and may have a lower cost of capital than non-IAS firms. Further, we provide evidence of an improvement in accounting quality and a reduction in cost of capital around the adoption of IAS, changes that are not present to the same extent in our non-adoption sample over the same period.

Notwithstanding the formidable design hurdles that limit our ability to draw strong conclusions from this type of analysis, the findings suggest that using IAS improves financial reporting. In light of the impending changes to IAS promulgated by the International Accounting Standards Board (IASB), our findings support the prospect of improvement in financial reporting as more countries and firms adopt international accounting standards.¹

The first IAS was published in 1975 by the International Accounting Standards Committee (IASC), which was formed in 1973. Since then, the process for setting international accounting standards has undergone substantial evolution, culminating in the 2001 restructuring

¹ Given the inherent limitations of this type of research, one must be careful about drawing conclusions for the future from past experience. In particular, the effectiveness of IAS going forward will be a function of the evolution of the standards and the implementation of those standards. However, our results suggest that IAS may have improved financial reporting in the past which suggests that it may also do so in the future.

of the IASC into the IASB. As of January 1, 2005, all publicly listed companies in the European Union are required to prepare financial statements in accordance with International Financial Reporting Standards (IFRS), and the International Organization of Securities Commissions recommends that the world's securities regulators permit foreign issuers to use IFRS for cross-border offerings.² In addition, the Financial Accounting Standards Board has embarked on a comprehensive project aimed at convergence between IFRS and US Generally Accepted Accounting Standards (GAAP).

Despite the increasing importance of IAS, there is relatively little empirical evidence on whether IAS appears to have improved accounting quality for firms that have adopted it, and the existing evidence is mixed. As discussed in the next section, studies on Germany (Hung and Subramanyam, 2004 and Bartov, Goldberg, and Kim, 2004) and China (Eccher and Healy, 2003) provide mixed evidence on whether international accounting standards have improved reporting, based on association of the resulting accounting data with share price. Other research suggests that IAS lead to smaller analyst forecast errors, although forecast errors reflect a wide range of influences beyond simply the quality of accounting data (Ashbaugh and Pincus, 2001). Although it might seem inevitable that IAS would improve accounting, Cairns (1999), Street and Gray (2001) and Ball, Kothari and Robin (2000) suggest that lax enforcement may result in limited compliance with the standards, thereby limiting their effectiveness.

Our study differs from prior research on IAS in at least two ways. First, our study encompasses a broad sample of firms using IAS in 23 countries, and includes adoption years covering 1994-2003, thereby resulting in a much longer and broader sample period than those in

² IFRS are the standards issued by the IASB, and IAS are the standards issued by the IASC, some of which have been amended by the IASB after it succeeded the IASC. Because the IASB adopted all of the standards issued by the IASC, IFRS encompasses all standards by the IASC and the IASB. Our sample period predates the effective dates of standards issued by the IASB. Thus, throughout we refer to use by our sample firms of IAS rather than IFRS.

prior research. There are advantages and disadvantages associated with studies focused on particular countries and time periods relative to those involving broader sampling criteria. Whereas studies focusing on a single country benefit from having research designs that control for other country-specific factors, it is difficult to extrapolate inferences relating to their findings to other countries. By considering a broader sample, we hope to be able to draw conclusions that are more representative of the effects of IAS. Also, because we consider a range of countries and years, we are more comfortable that results are not limited to a small subset of countries or years.

Second, we directly focus on the characteristics of the resulting accounting amounts under IAS. Whereas several studies provide indirect evidence of the quality of accounting amounts (e.g., analyst earning forecast errors or value relevance), results are generally mixed, and other confounding aspects of markets and firms' information environments make it more difficult to attribute results to the effect of IAS. Although we include measures based on value relevance, we follow prior research (e.g., Leuz, Nanda, and Wysocki, 2003) in focusing more directly on the characteristics of accounting data to provide evidence on earnings management, particularly earnings smoothing, and timely loss recognition. We focus on earnings management metrics because a common concern with applying IAS is that the inherent flexibility IAS affords allows firms to manage earnings, which has long been a concern of securities markets regulators (e.g., Breeden, 1994).³

Our metrics of earnings management are the variance of the change in net income, the ratio of the variance of the change in net income to the variance of the change in cash flows, the

³ Admittedly, a concern with our analysis is that IAS continue to evolve, so the past is not necessarily representative of the future. However, we believe that providing evidence on the effectiveness of current standards while new standards are being developed is potentially more valuable than waiting until the standards are issued. Further, results suggesting that even the early stages of IAS development provided improvements in accounting quality provide some comfort that IAS may improve accounting quality going forward.

correlation between accruals and cash flows, and the frequency of small positive net income (Leuz, Nanda, and Wysocki, 2003; Lang, Raedy and Yetman, 2003; Lang, Raedy and Wilson, 2005). We argue that higher quality earnings are those that evidence less earnings management. Therefore, following prior research, we interpret higher variance of the change in net income, higher ratio of the variances of the change in net income and change in cash flows, less negative correlation between accruals and cash flows, and a lower frequency of small positive net income as evidence of less earnings management. Our metric of timely loss recognition is the frequency of large negative net income (Lang, Raedy, and Yetman, 2003; Lang, Raedy, and Wilson, 2005). Consistent with prior research we interpret a higher frequency of large negative net income as evidence of higher earnings quality. Finally, our metrics for value relevance are the explanatory power of income and equity book value for prices, and stock return for earnings. We interpret higher explanatory power as evidence of higher accounting quality.⁴

Finally, we provide preliminary evidence on the effects of using IAS on firms' cost of equity capital. Cost of capital reduction is a benefit of using IAS anticipated by standard setters.⁵ We estimate equity cost of capital based on the three factor model of Fama and French (1993). If firms using IAS have higher quality accounting amounts and there is a link between accounting quality and equity cost of capital, then firms using IAS may enjoy a lower cost of capital. We view this analysis as exploratory because it is well known that obtaining accurate estimates of cost of capital is difficult.

⁴ The importance of examining multiple dimensions of accounting quality is illustrated by asset impairments. The presence of large asset impairments likely is positively associated with frequency of large negative net income, but could reduce the value relevance of accounting earnings because extreme losses tend to have a low correlation with share prices and returns. See also Wysocki (2005) for a discussion of various approaches to assessing accounting quality.

⁵ For example, in discussing adoption of IFRS, Bob Herz, chairman of the FASB notes, "It's about lowering the cost of capital, lowering the cost of preparation and lowering the cost of using information" (<http://business.timesonline.co.uk/article/0,,16649-1245761,00.html>).

We find that after adoption, IAS-adopting firms evidence less earnings management, more timely loss recognition, and more value relevance of accounting amounts than firms that do not adopt. In particular, firms adopting IAS have significantly higher variance of the change in net income, a higher ratio of the variances of the change in net income and change in cash flows, and a lower frequency of small positive net income. In addition, they have a higher frequency of large negative net income and higher value relevance of accounting amounts. Pre-adoption differences between IAS adopting and non-IAS adopting firms do not explain the post-adoption differences in earnings quality. Prior to adopting IAS, firms either insignificantly differ from non-adopting firms or have metrics consistent with lower accounting quality. Consistent with these findings relating to accounting quality, we also find weak evidence that IAS adopting firms may enjoy a lower cost of capital after adoption than non-adopting firms.

The remainder of our paper is organized as follows. The next section discusses prior research. This is followed by sections describing our empirical approach, an overview of our sample and data, and the study's primary results. These are followed by a section on cost of capital and a final section presenting conclusions and ongoing analyses.

II. PRIOR RESEARCH

As noted earlier, several studies compare IAS to local-GAAP accounting amounts in particular countries. Hung and Subramanyam (2004) compares the effects of using IAS to those of using German GAAP for a sample of eighty German firms that elected to adopt IAS. The study exploits a unique requirement that adopting firms provide both IAS and German GAAP amounts in the year of adoption, and documents that the most common sources of reconciling items relate to deferred taxes, pensions and property, plant and equipment. Further, the adjustments to net income generally are not value relevant. Although the results are interesting,

they may not generalize to other environments for several reasons. First, the sample is relatively small and fairly unique. Further, as Lang, Raedy, and Yetman (2003) observe, firms preparing to adopt new accounting standards likely transition gradually, changing accounting in their local GAAP financial statements to avoid reconciling items. Consistent with that, Hung and Subramanyam (2004) finds relatively few reconciling items related to earnings management, such as hidden reserves, which is striking because the existence of such earnings management items is a common concern with German GAAP.

Second, the conclusions in Hung and Subramanyam (2004) are inconsistent with those in Bartov, Goldberg, and Kim (2004), which also compares the effects of IAS and German GAAP. In particular, Bartov, Goldberg, and Kim (2004) examines the value relevance of earnings by focusing on the magnitude of its coefficients in regressions of returns on earnings based on US GAAP, IAS, and German GAAP. In contrast to Hung and Subramanyam (2004), Bartov, Goldberg, and Kim (2004) conduct their analysis in cross-section and provide evidence that accounting earnings based on IAS are more value relevant than those based on German GAAP (although less value relevant than those under US GAAP). Again, the difference in results may reflect the fact that, at the time of IAS adoption, differences between IAS and local GAAP are less pronounced than in the typical year.

Eccher and Healy (2003) compares the value relevance of accounting amounts based on IAS to those based on Chinese GAAP for a sample of firms in the People's Republic of China. The study finds that accounting amounts based on IAS are not more value relevant than those based on Chinese GAAP for firms that can be owned by foreign investors. Further, accounting amounts based on IAS are less value relevant than those based on Chinese GAAP for firms that

are limited to domestic investors. The authors posit that one reason for the modest performance of IAS may be the lack of effective controls and infrastructure to monitor reporting under IAS.

Using an alternative approach, Ashbaugh and Pincus (2001) investigates whether deviations of local standards relative to IAS cause earnings to be more difficult to forecast, and whether forecasts errors are smaller following adoption of IAS. The study finds that the greater the difference between domestic GAAP and IAS, the greater are the forecast errors and that forecast errors tend to be smaller after firms adopt IAS. Although earnings forecastability may be correlated with accounting quality, it confounds accounting quality with the effects of factors present in the firm's information environment, including analyst private information acquisition and the transparency of other disclosures. Because adoption of IAS and development of domestic GAAP similar to IAS likely occur together, financial statements for firms that adopt IAS or in countries that develop domestic GAAP that is similar to IAS are likely to be more transparent in general. In addition, the enforcement and attestation environment in countries with accounting standards closer to IAS also are more likely to have better implementation of those standards. Further, it is not clear that forecastable earnings are of higher quality because, for example, smoothed earnings will typically be more forecastable, but are not necessarily of higher quality.

The findings from these papers offer mixed evidence concerning whether IAS adoption improves accounting quality. One potential reason for this suggested by the findings in Cairns (1999) and Street and Gray (2001) is substantial noncompliance with IAS among firms purportedly using IAS. In particular, Street and Gray (2001) examines the 1998 financial statements for 279 firms that refer to use of IAS in their financial statements. The study

examines disclosed accounting policies for consistency with major IAS pronouncements and finds that, in many cases, disclosed accounting policies are inconsistent with IAS.

Although not directly focused on IAS, Ball, Kothari, and Robin (2000) reaches similar conclusions based on attributes of accounting amounts for firms in Hong Kong, Malaysia, Singapore, and Thailand, where accounting standards are largely derived from common law sources and therefore are similar to IAS. The study finds that accounting amounts of firms in these countries are of no higher quality (as measured by timely recognition of economic income) than are those of firms in code law countries. The authors attribute this finding to differing incentives of managers and auditors across these reporting regimes, thereby highlighting the importance of considering factors beyond accounting standards when comparing the quality of accounting amounts associated with domestic GAAP and IAS.

Several papers also provide comparisons of IAS to US GAAP. For example, Leuz (2003) compares measures of information asymmetry and market liquidity for firms trading in Germany's New Market, which must choose between IAS and US GAAP in preparing their financial statements. The study finds that there is little evidence of differences in measures of information asymmetry for German firms that adopt US GAAP relative to those that adopt IAS. However, Harris and Muller (1999) documents that, for a small sample of IAS firms cross-listing on US markets, accounting amounts reconciled to US GAAP are more value relevant than the original IAS amounts.⁶ As with the evidence comparing IAS to domestic GAAP, existing research provides mixed evidence on the superiority of IAS relative to US GAAP. Overall, therefore, we view the extent to which IAS improve accounting quality as an open question.

⁶ One study that indirectly compares IAS and US GAAP, Ashbaugh and Olsson (2002), compares valuation models apparently used in valuing non-US firms that are cross-listed on the International Stock Exchange in London, and finds that firms using IAS appear to be valued based on an earnings capitalization model, whereas those using US GAAP appear to be valued based on a residual income model.

III. EMPIRICAL DESIGN

We base our inferences on a consistent pattern of evidence provided by a series of measures of accounting quality identified in prior research. We group our measures into three categories: earnings management, timely loss recognition, and value relevance. Similar to those studies examining differences between cross-listed and other firms (Lang, Raedy, and Yetman, 2003; Lang, Raedy, and Wilson, 2005), it is possible that firms' decisions to use IAS are associated with underlying firm characteristics that could also be associated with our accounting quality measures. As a result, we utilize a matched sample based on home country, industry, and size. Consistent with Lang, Raedy, and Yetman (2003) and Lang Raedy, and Wilson (2005) but modified to our context, we first match each ADOPT firm exactly on country and industry (three-digit SIC code). We then select the NADOPT firm from potential non-adopting firms as that firm whose equity market value is closest to the ADOPT firm's at the end of the year of adoption. Once a non-adopting firm is selected as a match, it is not considered as a potential match for other ADOPT firms. In a few cases, potential matching firms do not have market value of equity available in the adoption year. In those cases, we consider market value of equity for the two years before and after the adoption year.⁷

We first compare ADOPT and NADOPT firms in the post-adoption period to see if accounting amounts determined using international accounting standards evidence higher quality. It is possible that despite our matching procedure, ADOPT and NADOPT firms exhibit differences in quality in the post-adoption period because they differ before adoption. Thus, we also compare their accounting quality in the pre-adoption period. Finally, to assess whether adoption of international accounting standards changes accounting quality for the typical

⁷ We also considered a variety of other matching procedures (e.g., permitting the same matching firms to be used multiple times and considering only matching firms with market value of equity in the adoption year). Inferences are similar using these alternative procedures.

ADOPT firm, we compare accounting quality for our ADOPT firms in the pre-adoption period to the post-adoption period.

Earnings Management

We employ several measures of earnings management. To the extent that results are consistent across the measures, there is greater assurance that findings can be attributed to earnings management rather than other factors. Our measures are designed to detect earnings smoothing and managing earnings towards a target of positive earnings.

Our measures of earnings smoothing focus on variability of earnings (Leuz, Nanda, and Wysocki, 2003; Lang, Raedy, and Yetman, 2003; Lang, Raedy, and Wilson, 2005). Earnings that are smoothed should be less variable than those that are not. We predict that ADOPT firms have less smooth earnings than NADOPT firms. The basis of this prediction is that international accounting standards are based on a conceptual framework similar to that found in common law countries, and Leuz et al. (2002) finds that earnings smoothing is more pronounced non-common law countries. The three earnings smoothing measures we use are similar to those in Leuz et al. (2003).

The first earnings smoothing measure is the variability of the change in net income scaled by total assets, ΔNI . A smaller variance is evidence consistent with earnings smoothing. Our second measure of earnings smoothing is the ratio of the variability of the change in net income, ΔNI , to the variability of the change in operating cash flows, ΔCF . Firms with more volatile cash flows typically have more volatile net income, and our second measure controls for this. If firms use accruals to manage earnings, the variability of the change in net income should be

lower than that of operating cash flows.⁸ We winsorize these two measures at the 5% level because variance measures are sensitive to outliers.

Our third measure of earnings smoothing is the Spearman correlation between accruals, *ACC*, and cash flows, *CF*. Because accounting accruals reverse over time, we expect that accruals and cash flows are negatively correlated. Myers and Skinner (2002) and Land and Lang (2002), among others, argue that a more negative correlation is suggestive of earnings smoothing because managers appear to respond to poor cash flow outcomes by increasing accruals.

Another approach to examining earnings management is to focus on targets toward which firms might manage earnings. A common target is small positive earnings (Burgstahler and Dichev, 1997 and Leuz, Nanda, and Wysocki, 2003). The notion underlying this measure is that management prefers to report small positive earnings rather than negative earnings. Our measure is the coefficient on small positive net income, *SPOS*, in the following regression:⁹

$$ADOPT(0,1) = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 SPOS + \varepsilon_{it} \quad (1)$$

where *ADOPT*(0,1) is an indicator variable set to one for ADOPT firms and zero for NADOPT firms, *SPOS* is an indicator variable that equals one if net income scaled by total assets is between 0 and 0.01 (Lang, Raedy, and Yetman, 2003), *SIZE* is the natural log of end of year market value of equity, *LEV* is end of year total liabilities divided by end of year total equity book value, *GROWTH* is percentage change in sales, *EISSUE* is percentage change in common

⁸ Datastream provides several definitions of operating income. The one we use does not include extraordinary items and other non-operating income. However, because of the concern that the criterion for extraordinary items differs across countries and that excluding extraordinary items would result in differences based on the location on the income statement of one-time items, we replicate the analysis including extraordinary and non-operating items. Results are similar.

⁹ In both the analysis of small positive net income and large negative net income, we report results from OLS estimation rather than from a logit estimation because the model rejects the test for homoskedasticity at the 1% level. Greene (1993) reports that logit models are extremely sensitive to the effects of heteroskedasticity.

stock, *DISSUE* is percentage change in total liabilities, *CF* is annual net cash flow from operating activities, and *TURN* is sales divided by end of year total assets. A negative coefficient on *SPOS* suggests that NADOPT firms manage earnings toward small positive amounts more frequently than do ADOPT firms. Equation (1) includes variables to control for differences in economic factors associated with firms adopting IAS that might not be captured by the matched sample design.¹⁰

Timely Loss Recognition

The next dimension of accounting quality we consider is timely loss recognition. Ball, Kothari, and Robin (2000), Lang, Raedy, and Yetman (2003), and Lang, Raedy, and Wilson (2005) suggest that one characteristic of higher quality earnings is that large losses are recognized as they occur rather than being deferred to future periods. This characteristic is closely related to earnings smoothing in that if earnings are smoothed, large losses should be relatively rare. Following Lang, Raedy, and Yetman (2003), and Lang, Raedy, and Wilson (2005), we measure timely loss recognition as the coefficient on the percentage of large negative net income, *LNEG*, in the following regression:

$$ADOPT(0,1) = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 LNEG + \varepsilon_{it} \quad (2)$$

where all variables are defined as in equation (1) except for *LNEG*, which is an indicator variable set to one for observations for which annual net income scaled by total assets is less than -0.20 , and zero otherwise. A positive coefficient on *LNEG* suggests that ADOPT firms recognize large losses more readily than NADOPT firms. As with equation (1), equation (2) includes variables

¹⁰ The control variables are based on those found in Pagano et al. (2002), which models firms' decisions to cross list their securities, and Lang, Raedy, and Yetman (2003) and Lang, Raedy, and Wilson (2005) which examine accounting quality in an international context. Another approach would be to use *SPOS* as the dependent variable and ADOPT as an independent variable. Results are similar for that specification.

to control for differences in economic factors associated with firms adopting IAS that might not be captured by the matched sample design.

Value Relevance

The final measures of accounting quality we consider relate to value relevance. The presumption is that higher quality accounting amounts have a higher association with share prices and returns (Barth, Beaver, and Landsman, 2001; Lang, Raedy, and Yetman, 2003; Lang, Raedy, and Wilson, 2005). Because we expect ADOPT firms to have higher quality accounting amounts, we predict that ADOPT firms will have higher value relevance measures. The first value relevance measure is the R^2 from a regression of stock price on earnings and equity book value. Following Lang, Raedy, and Yetman (2003) and Lang, Raedy, and Wilson (2005), we regress price, $PRICE$, as of six months after year-end on book value per share, $BVEPS$, and net income per share, $NIPS$, separately for ADOPT and NADOPT firms:¹¹

$$PRICE_{it} = \beta_0 + \beta_1 BVEPS_{it} + \beta_2 NIPS_{it} + \varepsilon_{it} \quad (3)$$

The second value relevance measure is based on the R^2 from a regression of earnings on stock returns, which we estimate separately for ADOPT and NADOPT firms:

$$NI / P_{it} = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it} \quad (4)$$

where NI / P is net income divided by beginning of year stock price, and $RETURN$ is the twelve-month stock return, commencing nine months before fiscal year end and ending three months after fiscal year end (Lang, Raedy, and Wilson, 2005). Higher quality earnings should result in a higher association with stock returns to the extent that firms that manage earnings have a lower association between earnings and stock returns. We estimate equation (4) as a

¹¹ Brown, Lo, and Lys (1999) discusses scale issues related to inferences from price level regressions when samples differ in terms of general share price levels. The study recommends deflating the regression variables by past price to mitigate the effect of scale. As a consequence, consistent with Lang, Raedy, and Wilson (2005), we deflate all variables by price as of six months after the preceding year end.

“reverse” regression with accounting earnings as the dependent variable rather than stock return because this permits us to partition firms based on the sign of the return when considering whether the association differs for good news, i.e., positive stock return, and bad news, i.e., negative stock return. Ball, Kothari, and Robin (2000) predicts that accounting quality differences will be most pronounced for bad news because when firms have good news they have less incentive to manage earnings. To examine whether this is the case, we also estimate equation (4) separately for positive and negative return subsamples of ADOPT and NADOPT firms.

IV. DATA

Our sample comprises 2,295 firm year observations for 411 firms adopting IAS for which Datastream data are available over the period 1990 through 2004. We obtain our sample of IAS adopters from Worldscope, and gather financial and accounting data from Datastream.

Table 1, panel A, includes descriptive statistics for our sample firms in terms of country representation. In general, the sample firm-years are from a wide range of countries, with greatest representation from Switzerland, Germany, and China. Panel B of table 1 reports representation by industry. The sample also comprises a range of industries, with most firms in manufacturing, financing or services. However, given our matching criteria, industry effects should be naturally controlled. Panel C of table 1 reports representation by number of observations and adoption year. The sample observations are from a wide range of years, as are the IAS adoptions.

Table 2, panel A, reports descriptive statistics for the ADOPT and NADOPT firms. In terms of the variables of interest, the ADOPT firms have significantly fewer incidents of small positive earnings and more incidents of large negative earnings. Although these results do not

control for other factors, they suggest that ADOPT firms are less likely to manage earnings towards a target and more likely to recognize losses in a timely manner than NADOPT firms. In terms of control variables, the ADOPT firms are higher growth than the NADOPT firms (median 7% vs. 6%). Despite the size match, the ADOPT firms are somewhat larger than the NADOPT firms, although there is a good deal of overlap between the two distributions. Further, there is some evidence that the ADOPT firms are more likely to issue debt (mean but not median difference is significant), more likely to issue equity (median but not mean difference is significant) and are less highly levered (mean but not median difference is significant).¹² We control for these factors where possible in our empirical analysis.

V. RESULTS

Post-Adoption Period

Table 3 presents our primary results for earnings management, timely loss recognition and stock price associations for ADOPT and NADOPT firms in the post-adoption period.

Earnings Management

The first finding relating to earnings management indicates that ADOPT firms exhibit significantly higher variability in the change in net income, ΔNI (using a variance ratio F-test), 0.0040 versus 0.0033. This finding is consistent with ADOPT firms reporting less smooth earnings than NADOPT firms in the post-adoption period. Of course, the variance of net income could be driven by the variability of cash flows. However, the second finding indicates that the ratio of the variance of change in net income, ΔNI , to the variance in the change in cash flow, ΔCF , is also consistent with ADOPT firms exhibiting less smooth income. In particular, the ratios are 0.729 and 0.696 for ADOPT and NADOPT firms, suggesting that the difference in net

¹² With the exception of the descriptive statistics in table 2 for which statistical significance is assessed using a two-sided alternative, throughout we use a 5% significance level to assess statistical significance based on a one-sided alternative.

income variability is not solely a result of a difference in cash flow variability. As in Lang, Raedy, and Wilson (2005), we do not test the differences between ADOPT and NADOPT firms because we are unaware of any statistical test for differences in the ratios of variances.

Consistent with the first two measures, the third finding indicates that the correlation between accruals, *ACC*, and cash flow, *CF*, is -0.517 for the ADOPT firms and -0.560 for the NADOPT firms, which suggests more smoothing for the non-adopters, although the difference is not significantly different.

Finally, the coefficient on *SPOS* from equation (1) is significantly negative, which indicates that NADOPT firms more frequently report small positive earnings, consistent with managing earnings towards an earnings target. This finding complements the earnings smoothing findings by indicating that not only do ADOPT firms evidence less earnings smoothing than NADOPT firms, but also they appear less likely to manage earnings toward a target.

Timely Loss Recognition

The next finding in table 3 relates to timely loss recognition. The significantly positive coefficient on *LNEG* in equation (2) suggests that, controlling for other factors, ADOPT firms recognize large losses more readily than NADOPT firms. This finding suggests that relative to ADOPT firms, NADOPT firms smooth earnings by delaying the effects of large negative outcomes. In particular, one interpretation of the results relating to *SPOS* and *LNEG* is that managers of NADOPT firms smooth away from large negative earnings and toward small positive earnings, resulting in less timely recognition of losses.

Value Relevance

Our final set of findings in table 3 relates to value relevance of accounting information. First, regressions of price on earnings and equity book value for ADOPT and NADOPT firms reveal that the R^2 for ADOPT firms is significantly greater than that for NADOPT firms, 13.6% vs. 10.3%. Untabulated regression summary statistics indicate that, as expected, the coefficients on earnings and equity book value are significantly positive for both ADOPT and NADOPT firms, and that both coefficients are smaller for NADOPT firms. The findings are consistent with accounting data being more value relevant for ADOPT than for NADOPT firms.

R^2 s from a regression of earnings on returns are 10.5% for ADOPT firms and 8.3% for NADOPT firms, a significant difference which is consistent with higher earnings quality for ADOPT firms. R^2 s for ADOPT firms are higher for both good news (3.1% versus 0%) and for bad news (9.7% versus 9.4%), although the differences are only statistically significant for the good news firms. Taken together, there is evidence of greater value relevance for ADOPT firms based on both the price and returns regressions.

Pre-Adoption Period

One potential concern in interpreting the preceding results is that we may be capturing the effect of self-selection. In particular, if firms with high quality accounting are more likely to adopt IAS, IAS may serve a sorting role but not improve the quality of firms' accounting. To examine this possibility, we replicate our analysis for the period prior to IAS adoption. Table 4 presents findings for earnings management, timely loss recognition, and value relevance for ADOPT and NADOPT firms in the pre-adoption period.

Earnings Management

The first finding relating to earnings management indicates that ADOPT firms exhibit a lower variance in the change in net income, ΔNI , than NADOPT firms in the pre-adoption period, 0.0025 versus 0.0031. This finding contrasts with that from the post-adoption period in which ADOPT firms have significantly higher variance in ΔNI . This indicates that the higher ΔNI variance for ADOPT firms in table 3 in the post-adoption period is not a result of higher ΔNI variance for ADOPT firms in the pre-adoption period. The second finding indicates that the ratio of the variance of change in net income, ΔNI , to the variance in the change in cash flow, ΔCF , is substantially higher for NADOPT firms than for ADOPT firms, 0.62 vs. 0.50. This suggests that ADOPT firms evidence more earnings smoothing than NADOPT firms in the pre-adoption period. This is in contrast with the finding for the post-adoption period, in which NADOPT firms have a somewhat lower ratio in the two variances, indicating that ADOPT firms evidence less earnings smoothing in the post-adoption period. This again indicates that the higher ratio of the variances in ΔNI to ΔCF in table 3 in the post-adoption period is not a result of a higher ratio for ADOPT firms in the pre-adoption period.

The third finding indicates that the correlations between accruals, ACC , and cash flow, CF , are lower for ADOPT firms, -0.54 and -0.57 , suggesting that the ADOPT firms smooth earnings more than the NADOPT firms in the pre-adoption period, although the difference is not significant.

Finally, the coefficient on $SPOS$ from equation (1) is insignificantly different from zero in the pre-adoption period, which indicates that NADOPT and ADOPT firms report small positive earnings with similar frequencies in the pre-adoption period. Similar to our other measures of earnings management, this finding indicates that the significant $SPOS$ finding in

table 3 is not solely attributable to pre-adoption differences in small positive earnings frequencies.

Timely Loss Recognition

The next finding in table 4 relating to timely loss recognition indicates that the *LNEG* coefficient is insignificantly higher for ADOPT than NADOPT firms, providing weak evidence that ADOPT firms recognize losses more readily even in the pre-adoption period. However, the relation strengthens after adoption.

Value Relevance

Our final set of findings in table 4 relates to value relevance of accounting information. In contrast to the results for earnings smoothing and timely loss recognition, regressions of price on earnings and equity book value for ADOPT and NADOPT firms reveal that the R^2 for ADOPT firms is significantly greater than that for NADOPT firms, 28% versus 23%. Thus, the higher value relevance in the post-adoption period evidenced by price regressions for ADOPT firms could be attributable to their having higher value relevance before adoption of international accounting standards. However, the R^2 s from a regression of earnings on returns for ADOPT and NADOPT firms in the pre-adoption period are 7.7% and 8.0%, respectively, suggesting that differences in value relevance as measured by the earnings-returns regression did not exist prior to IAS adoption.

Comparison of Post- and Pre-Adoption Periods

Overall, results for the pre-adoption period provide little evidence that the results in the post-adoption period were also in evidence prior to IAS adoption. To investigate more directly the issue of whether our post-adoption results reflect pre-existing differences or the effect of changes associated with IAS adoption, we conduct an analysis of changes in our measures

around the adoption year for ADOPT and NONADOPT firms. While this analysis has the advantage of effectively using the firm as its own control, there are important caveats. First, because there are different numbers of pre- and post-adoption years for firms in our sample, the pre- and post-adoption panels are unbalanced in terms of number of observations. Second, if firms transition gradually to IAS, some of the observations around the adoption date will be confounded, potentially weakening our results. Third, it is possible that some of the effects of IAS are also manifested in the non-IAS firms because, for example, of local GAAP changing to be more similar to IAS, potentially understating the effects of IAS for the ADOPT firms relative to the NADOPT firms.

Table 5 presents a comparison of findings for earnings management, timely loss recognition, and value relevance for ADOPT firms in the pre- and post-adoption period, as well as significance tests. Tests for all measures except price level regressions suggest improvements in accounting quality. In particular, variability of net income and variability of net income relative to cash flows increase around IAS adoption. The correlation between accruals and cash flows also becomes less negative after adoption, although the change is not statistically significant. Similarly, the proportion of small positive net income decreases significantly after adoption, suggesting less of a tendency to manage toward a target.¹³ In terms of timely loss recognition, the proportion of large negative earnings is significantly higher post-adoption than pre-adoption. The R^2 from the returns regression also increases (although not significantly), which is driven primarily by an increase in the R^2 for bad news. Only the price level regressions do not improve between the pre- and post- periods. However, the drop in R^2 is mirrored by the

¹³ For the tests of small positive and large negative earnings, we re-estimate equations (1) and (2) with the dependent variable changed from an adoption indicator to a post-adoption indicator, so that the tests examine whether there is a higher proportion of small positive and large negative earnings post-adoption relative to pre-adoption.

drop in R^2 for the control firms. As a consequence, it appears that the drop in price regression explanatory power may be driven by factors that are not unique to the adoption firms.

More generally, a relevant question is to what extent the changes we observe for the ADOPT firms are mirrored for the NADOPT sample. For example, Land and Lang (2002) suggests that accounting quality may be improving worldwide. From the preceding analysis we know that the post-adoption differences between the ADOPT and NADOPT firms are generally not reflected in pre-adoption differences, indicating that the changes we observe around adoption for the ADOPT firms do not occur to the same extent for NADOPT firms. Moreover, results in table 3 and 4 suggest that the change in our measures for the ADOPT firms are larger than for the NADOPT firms, except for the price level regression R^2 s which decrease by similar amounts for both samples of firms. Taken together, our results suggest that improvements in accounting quality occur around the adoption of IAS, providing additional support for our cross-sectional results.

VI. EFFECTS OF IAS ADOPTION ON EQUITY COST OF CAPITAL

Next we consider whether adoption of IAS is associated with a reduction in equity cost of capital as a result of providing investors with accounting information of higher quality. Findings from the information economics literature provide theoretical links between accounting information and the cost of capital arising from information asymmetry. An important study is Easley and O'Hara (2004) which develops an asset pricing model in which both public and private information affect asset returns, thereby linking a firm's information structure to its cost of capital. A key result of their model is that firms can influence their cost of capital by affecting the precision and quantity of information available to investors. In particular, the authors note "this can be accomplished by a firm's selection of its accounting standards, as well as through its

corporate disclosure policies.” Related research includes Amihud and Mendelson (1986) which develops an asset pricing model in which investors require a liquidity premium to compensate them for the costs of trading in a firm’s securities. In addition, several studies, relying on somewhat different assumptions, link information and cost of capital by suggesting that increased information provided by financial disclosure can reduce estimation risk, thereby lowering the cost of capital (Klein and Bawa, 1977; Barry and Brown, 1985; Coles and Loewenstein, 1988; Clarkson and Thompson, 1990; and Handa and Linn, 1993).

Several studies provide empirical evidence linking accounting quality and equity cost of capital. Botosan (1997) and Botosan and Plumlee (2002) provide evidence that proxies for expected cost of equity capital are negatively related to the voluntary disclosure level as measured by AIMR corporate disclosure scores. Francis, et al. (2004) relates measures of earnings quality to proxies for equity cost of capital. Bhattacharya, Daouk, and Welker (2003) finds a link between three earnings quality measures (earnings aggressiveness, loss avoidance, and earnings smoothing) and a proxy for cost of equity capital in country-level tests. Barth, Konchitchki, and Landsman (2005) provided evidence that a measure of accounting quality loads incrementally to the Fama-French factors in a returns prediction model, and is correlated with equity cost of capital constructed from a three-factor Fama-French approach similar to the one used here.

Collectively, the theoretical and empirical research linking accounting quality and equity cost of capital leads us to predict that IAS adoption will be associated with a reduction of equity cost of capital. We test this by comparing our estimate of the equity cost of capital for ADOPT firms in the pre- and post-adoption periods, using the matched sample of NADOPT firms to

control for intertemporal changes in equity cost of capital unrelated to IAS adoption. We next describe how we estimate equity cost of capital.

Estimation of Equity Cost of Capital

Botosan and Plumlee (2002) infer cost of capital from share price and earnings forecasts. Because we do not have earnings forecasts for many of our sample firms, we instead follow the approach in Griffin (2002), Ang and Liu (2004) and Massa, Peyer, and Tong (2004), in estimating expected equity cost of capital using the Fama and French (1993) three-factor model, which expresses the firm's equity return in excess of the risk-free rate of return, $R_i - R_f$, as a linear function of the excess return of the market portfolio, $R_m - R_f$, the return on the high minus low book-to-market (HML) factor mimicking portfolio, and the return on the small-minus-big (SMB) factor mimicking portfolio. The procedure has two main steps. First, for each firm, i , we estimate the sensitivity of the firm's return to each of the three Fama-French factors by estimating the following monthly time-series regression:

$$RET_{i,m} - R_{f,m} = \alpha_i + \beta_{RMRF,i}(R_{M,m} - R_{f,m}) + \beta_{HML,i}(HML_m) + \beta_{SMB,i}(SMB_m) + \varepsilon_{i,m} \quad (5)$$

where $\beta_{RMRF,i}$, $\beta_{HML,i}$, and $\beta_{SMB,i}$ are the respective factor coefficients estimated using the most recent 60 months returns, if available, prior to the beginning of firm i 's fiscal year t . For fiscal year t , monthly betas are set equal to the same fitted coefficient estimates,

$\hat{\beta}_{RMRF,i,t}$, $\hat{\beta}_{HML,i,t}$, $\hat{\beta}_{SMB,i,t}$. Betas are updated annually using a rolling 60-month window.¹⁴

Second, we estimate the expected annual factor returns by first calculating each factor's average monthly return over the 60 months prior to month m , and then compounding the resulting average monthly returns over the twelve months prior to the beginning of firm i 's fiscal

¹⁴ Data availability limits the number of firms for which there are 60 months of data. We require a minimum of 24 monthly returns to estimate equation (5).

year.¹⁵ We obtain our estimate of the annual expected equity cost of capital, ECC , for firm i and year t (based on data available at the beginning of year t) by multiplying the expected factor returns by their respective estimated factor loadings:

$$ECC_t = \bar{R}_{f,t} + \hat{\beta}_{RMRF,i,t} * [\overline{R_M - R_f}]_t + \hat{\beta}_{HML,i,t} * [\overline{HML}]_t + \hat{\beta}_{SMB,i,t} * [\overline{SMB}]_t \quad (6)$$

where $[\overline{R_M - R_f}]_t$, $[HML]_t$, and $[SMB]_t$ are the expected annual factor returns for year $t + 1$.

Equity Cost of Capital Results

Table 6 presents equity cost of capital results.¹⁶ Panels A and B tabulate ECC summary statistics for ADOPT and NADOPT firms in the pre- and post-adoption periods. Whereas panel A indicates that both ADOPT and NADOPT firms have essentially the same (and statistically indistinguishable) ECC means in the pre-adoption period, 11.48% and 11.42%, mean ECC for ADOPT firms is 0.77% lower than that for NADOPT firms in the post-adoption period, 5.67% vs. 6.44%, although the difference is not statistically significant because of the large standard errors of the estimates. Panels C and D, which tabulate ECC statistics separately for ADOPT and NADOPT firms, indicate that mean ECC is significantly smaller for both sets of firms in the post-adoption period than in the pre-adoption period. It appears that the drop in our estimate of the cost of capital between the pre- and post-adoptions periods may be attributable, at least in part, to the effects of IAS adoption because the fall in cost of capital is greater in magnitude (albeit insignificant) for adopting firms.

¹⁵ Note that because five-year rolling windows may result in an outdated estimated risk-free rate, we calculate the expected *monthly* risk-free rate based on a one-year rolling risk-free rate, updated monthly. The expected *annual* risk-free rate, $\bar{R}_{f,t}$, is obtained by compounding the expected monthly risk-free rate.

¹⁶ The smaller sample sizes in table 6 relative to earlier tables because of the loss of sample years when estimating the parameters used to estimate ECC in equation (5). In addition, to deal with extreme outliers, we effectively winsorize all ECC estimates by setting ECC to an average of the fitted value from equation (6) and the sample average ECC for each year. Untabulated results based on the non-winsorized ECC s result in similar inferences to those drawn from the findings in table 6.

VII. CONCLUSIONS AND ONGOING ANALYSES

Overall, our results suggest that IAS improve accounting quality and reduce the cost of capital. In particular, firms that adopt IAS show less evidence of earnings smoothing, less evidence of managing earnings towards a target, more timely recognition of losses, and a higher association with returns. Results are generally consistent in cross-section as well as comparing firms before and after adopting IAS, suggesting that the change occurs in conjunction with IAS adoption. Although somewhat more speculative, the cost of capital results provide weak evidence that the improvements in quality may also reduce firms' cost of capital.

Taken as a whole, our results are encouraging in suggesting that IAS adoption appears to improve financial reporting. This conclusion is particularly heartening in that the period we consider is one in which IAS was undergoing substantial change and enforcement was potentially spotty. Assuming increased specificity and enforcement of IAS, our results suggest that IAS could continue to improve financial reporting going forward.

Of course, our results are only suggestive and are subject to numerous caveats. For example, we cannot be sure that our results reflect the effect of IAS and not some omitted correlated variable. However, the facts that results are robust to matching and controls and obtain for the pre-/post-adoption analysis reduce the likelihood of significant omitted correlated variables. Further, it is not clear what the role of IAS is in improving accounting quality. For example, it is possible that firms claiming IAS compliance may attract additional audit or regulatory scrutiny. However, that possibility should be mitigated by the fact that our comparisons are within-country, which should, at least partially, control for regulatory environment.

In ongoing work, we are conducting additional refinements of our analyses. First, we are comparing the effects of IAS across different countries and time periods. Although it seems clear that the effect of IAS likely differs across time periods and countries, it is difficult to predict *ex ante* where IAS should make the biggest difference. On the one hand, countries such as Germany have a stakeholder focus whereas IAS has a shareholder focus, suggesting that the underlying standards may be quite different. On the other hand, Ball, Kothari, and Robin (2000) points to the importance of enforcement in the application of IAS. Because enforcement differs across countries, the application of IAS may as well. Further, although IAS has become better defined in recent years, accounting standards have likely improved worldwide over time (Land and Lang, 2002), so the improvement under IAS may be less pronounced, even if IAS standards are higher quality on average. As a consequence, we view evidence from such analyses as descriptive rather than as a test of a specific hypothesis.

Preliminary analyses splitting the sample between code and common law countries suggest that results are strongest for code law countries. In part, that is not particularly surprising because the majority of our sample observations pertain to code law countries and differences between local GAAP and IAS are likely to be greatest there. Preliminary analyses by time period suggest that results are strongest after 1998, the year when the core standards were completed and IAS adopters were first required to comply completely with IAS. We continue to refine these analyses.

Similarly, we are presently investigating whether cross-listing is an important determinant of IAS adoption and influential in affecting our reported findings. Most previous cross-listing studies focus on US cross-listing because of the additional regulatory oversight associated with US listing. It seems unlikely that firms adopt IAS to cross-list onto US markets

because IAS users must reconcile to US GAAP. Further, our controls for equity issuance should, at least partially, control for cross-listing to raise equity capital.

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Table 1: Frequencies of IAS Adopters**Panel A: Adopter Country Analysis**

	Number of Firm Year Observations	Percentage of Firm-Year Observations	Number of Unique Adoption Firms	Percentage of Unique Adoption Firms
AUSTRALIA	2	0.09	1	0.24
AUSTRIA	191	8.32	30	7.30
BELGIUM	23	1.00	5	1.22
CANADA	5	0.22	1	0.24
CHINA	431	18.78	91	22.14
CZECH REPUBLIC	42	1.83	7	1.70
DENMARK	44	1.92	6	1.46
FINLAND	46	2.00	4	0.97
GERMANY	475	20.70	100	24.33
GREECE	12	0.52	2	0.49
HONG KONG	56	2.44	12	2.92
HUNGARY	66	2.88	11	2.68
MEXICO	2	0.09	1	0.24
NORWAY	2	0.09	1	0.24
POLAND	18	0.78	5	1.22
PORTUGAL	9	0.39	2	0.49
RUSSIAN FEDER	2	0.09	2	0.49
SINGAPORE	27	1.18	8	1.95
SOUTH AFRICA	79	3.44	9	2.19
SPAIN	3	0.13	1	0.24
SWEDEN	5	0.22	2	0.49
SWITZERLAND	661	28.80	91	22.14
TURKEY	84	3.66	16	3.89
UNITED KINGDOM	10	0.44	3	0.73
Totals	2295	100.00	411	100.00

Table 1: Frequencies of IAS Adopters

Panel B: Industry Analysis

	Number of Firm Year Observations	Percentage of Firm-Year Observations	Number of Unique Adoption Firms	Percentage of Unique Adoption Firms
Agriculture, Forestry and Fishing	3	0.13	1	0.24
Mining	148	6.45	25	6.08
Construction	173	7.54	23	5.60
Manufacturing	1141	49.72	188	45.74
Utilities	147	6.41	24	5.84
Retail Trade	56	2.44	9	2.19
Finance, Insurance and Real Estate	349	15.21	60	14.60
Services	252	10.98	74	18.00
Public Administration	26	1.13	7	1.70
Totals	2295	100.00	411	100.00

Table 1: Frequencies of IAS Adopters

Panel C: Adoption Year Analysis

	Number of Firm-Year Observations	Percentage of Firm-Year Observations	Number of Unique Adoption Firms	Percentage of Unique Adoption Firms
1994	311	13.55	27	6.57
1995	127	5.53	16	3.89
1996	130	5.66	20	4.87
1997	193	8.41	30	7.30
1998	256	11.15	35	8.52
1999	305	13.29	64	15.57
2000	440	19.17	96	23.36
2001	187	8.15	41	9.98
2002	205	8.93	47	11.44
2003	141	6.14	35	8.52
Totals	2295	100.00	411	100.00

TABLE 2*Descriptive Statistics for IAS Adoptor (ADOPT) and Non-Adopting Firms (NADOPT)*

Variable ^a	ADOPT (Number of firm-years = 2295)					NADOPT (Number of firm-years = 2295)				
	Mean	Median	Standard Deviation	Q1	Q3	Mean	Median	Standard Deviation	Q1	Q3
Test Variables:										
<i>ΔNI</i>	0.0024	0.0023	0.0591	-0.0137	0.0211	-0.0002	0.0017	0.0568	-0.0130	0.0177
<i>ΔCF</i>	0.0065	0.0069	0.0729	-0.0269	0.0437	0.0022 *	0.0038 *	0.0695	-0.0282	0.0387
<i>ACC</i>	-0.0453	-0.0413	0.0614	-0.0812	-0.0060	-0.0417 *	-0.0376 *	0.0580	-0.0749	-0.0047
<i>CF</i>	0.0727	0.0720	0.0702	0.0243	0.1157	0.0692	0.0667	0.0661	0.0208	0.1115
<i>SPOS</i>	0.1434	0.0000	0.3505	0.0000	0.0000	0.1752 *	0.0000 *	0.3802	0.0000	0.0000
<i>LNEG</i>	0.0327	0.0000	0.1778	0.0000	0.0000	0.0222 *	0.0000 *	0.1474	0.0000	0.0000
<i>RETURN</i>	0.0146	0.0000	0.4082	-0.2379	0.2714	0.0177	0.0185	0.3818	-0.2140	0.2471
<i>EPS/P</i>	0.0749	0.0606	0.1562	0.0166	0.1239	0.0848 *	0.0624	0.1626	0.0149	0.1441
<i>PRICE</i>	1.1456	1.0096	0.5810	0.7707	1.3399	1.1312	1.0135	0.5459	0.7913	1.3205
<i>BVEPS</i>	0.2855	0.1376	0.3863	0.0582	0.3059	0.3082	0.1379	0.4186	0.0655	0.3480
<i>NIPS</i>	0.0516	0.0489	0.1196	0.0125	0.0889	0.0518	0.0485	0.1150	0.0124	0.0943
Control Variables:										
<i>LEV</i>	3.2684	1.4665	4.9997	0.7957	2.8393	3.6889 *	1.5515	5.4827	0.7364	3.0777
<i>GROWTH</i>	0.1746	0.0683	0.5053	-0.0479	0.2269	0.1425 *	0.0587 *	0.4695	-0.0611	0.2091
<i>EISSUE</i>	0.1681	0.0753	0.4984	-0.0537	0.2419	0.1401	0.0543 *	0.4777	-0.0664	0.2151
<i>DISSUE</i>	0.2333	0.0592	0.6644	-0.0771	0.2519	0.1814 *	0.0533	0.5897	-0.0832	0.2391
<i>TURN</i>	0.7922	0.7419	0.5265	0.3621	1.1214	0.7837	0.7105	0.5463	0.3314	1.1256
<i>SIZE</i>	11.9986	12.0983	1.7551	10.7657	13.2880	11.5264 *	11.5886 *	1.7279	10.4162	12.6287
<i>CF</i>	0.0727	0.0720	0.0702	0.0243	0.1157	0.0692	0.0667	0.0661	0.0208	0.1115

* Significantly different between ADOPT and NADOPT firms at the 0.05 levels respectively (two-tailed).

^a We define *ΔNI* as the change in annual earnings, where earnings is scaled by end-of-year total assets; *ΔCF* as the change in annual net cash flow, where cash flow is scaled by end-of-year total assets; *ACC* as earnings less cash flow from operating activities, scaled by end-of-year total assets; *CF* as annual net cash flow from operating activities, scaled by end-of-year total assets; *SPOS* as an indicator set to 1 for observations for which annual earnings scaled by total assets is between 0 and 0.01; *LNEG* as an indicator set to 1 for observations for which annual earnings scaled by total assets is less than -0.20, *RETURN* as the annual return from nine month prior to and three month after the fiscal year end; *PRICE* as price as of six months after the fiscal year-end; *EPS/P* as earnings per share scaled by price per share at the beginning of the year; *LEV* as end-of-year total liabilities divided by end-of-year total equity, *GROWTH* as percentage change in sales; *EISSUE* as percentage change in common stock; *DISSUE* as the percentage change in total liabilities during the period; *TURN* as sales divided by end-of-year total assets; *SIZE* as the natural log of market value of equity in millions as of the end of the year; *BVPS* as book value of shareholders' equity per share; *NIPS* as net income per share.

Table 3: Accounting Quality Analysis of IAS Adoption and Matched Non-Adoption Firms in the Post-Adoption Period

	ADOPT (N=1535)	NADOPT (N=1535)	
Variability of ΔNI	0.0040	0.0033	*
Variability of ΔNI over ΔCF	0.7287	0.6957	
Correlation of ACC and CF	-0.5169	-0.5600	
Small Positive NI ($SPOS$)		-0.0668 #	
Large Negative NI ($LNEG$)		0.1913 #	
Regression Adjusted R^2			
Price	0.1356	0.1033	*
Return Regression:			
Pooling Good News and Bad News Observations	0.1049	0.0830	*
Good News	0.0308	0.0030	*
Bad News	0.0972	0.0941	

*Significantly different between ADOPT and NADOPT firms at the 0.05 level (one-sided).

Significantly different from zero at the 0.05 level (one-sided).

$SPOS$ is defined as the coefficient on $SPOS$ in equation (1):

$$ADOPT(0,1) = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 SPOS + \varepsilon_{it}$$

$LNEG$ is defined as the coefficient on $LNEG$ in equation (2):

$$ADOPT(0,1) = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 LNEG + \varepsilon_{it}$$

$ADOPT(0,1)$ is an indicator variable that equals 1 for ADOPT firms and 0 otherwise.

Price regression is equation (3):

$$PRICE_{it} = \beta_0 + \beta_1 BVEPS_{it} + \beta_2 NIPS_{it} + \varepsilon_{it}$$

Return regression is equation (4):

$$NI / P_{it} = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it}$$

See table 2 for all remaining variable definitions.

Table 4: Accounting Quality Analysis of IAS Adoption and Matched Non-Adoption Firms in the Pre-adoption Period

	ADOPT (N=760)	NADOPT (N=760)
Variability of ΔNI	0.0025	0.0031
Variability of ΔNI over ΔCF	0.5030	0.6212
Correlation of ACC and CF	-0.5395	-0.5708
Small Positive NI ($SPOS$)		-0.0023
Large Negative NI ($LNEG$)		0.1768
Regression Adjusted R^2		
Price	0.2801	0.2343 *
Return Regression		
Pooling Good News and Bad News Observations	0.0766	0.0796
Good News	0.0306	0.0217
Bad News	0.0700	0.0618

*Significantly different between ADOPT and NADOPT firms at the 0.05 level (one-sided).

Significantly different from zero at the 0.05 level (one-sided).

$SPOS$ is defined as the coefficient on $SPOS$ in equation (1):

$$ADOPT(0,1) = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 SPOS + \varepsilon_{it}$$

$LNEG$ is defined as the coefficient on $LNEG$ in equation (2):

$$ADOPT(0,1) = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 LNEG + \varepsilon_{it}$$

$ADOPT(0,1)$ is an indicator variable that equals 1 for ADOPT firms and 0 otherwise.

Price regression is equation (3):

$$PRICE_{it} = \beta_0 + \beta_1 BVEPS_{it} + \beta_2 NIPS_{it} + \varepsilon_{it}$$

Return regression is equation (4):

$$NI / P_{it} = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it}$$

See table 2 for all remaining variable definitions.

**Table 5: Accounting Quality Analysis of IAS Adoption Firms,
Pre- and Post-Adoption Comparison**

	Pre-Adoption (N=760)	Post-Adoption (N=1535)	
Variability of ΔNI	0.0025	0.0040	*
Variability of ΔNI over ΔCF	0.5030	0.7287	
Correlation of ACC and CF	-0.5395	-0.5169	
<hr/>			
Small Positive NI ($SPOS$)		-0.0822	#
<hr/>			
Large Negative NI ($LNEG$)		0.1677	#
<hr/>			
Regression Adjusted R^2			
Price	0.2801	0.1356	*
Return Regression:			
Pooling Good News and Bad News Observations	0.0766	0.1049	*
Good News	0.0306	0.0308	*
Bad News	0.0700	0.0972	

*Significantly different between Pre- and Post-Adoption samples at the 0.05 level (one-sided).

Significantly different from zero at the 0.05 level (one-sided).

$SPOS$ is defined as the coefficient on $SPOS$ in equation (1):

$$POST(0,1) = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 SPOS + \varepsilon_{it}$$

$LNEG$ is defined as the coefficient on $LNEG$ in equation (2):

$$POST(0,1) = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 LNEG + \varepsilon_{it}$$

$POST(0,1)$ is an indicator variable that equals 1 (0) for post- (pre-) adoption firm-years.

Price regression is equation (3):

$$PRICE_{it} = \beta_0 + \beta_1 BVEPS_{it} + \beta_2 NIPS_{it} + \varepsilon_{it}$$

Return regression is equation (4):

$$NI / P_{it} = \beta_0 + \beta_1 RETURN_{it} + \varepsilon_{it}$$

See table 2 for all remaining variable definitions.

Table 6: Cost of Capital Analysis of IAS Adoption and Matched Non-Adoption Firms

Expected Cost-of-Capital, ECC

Panel A: Pre-adoption	N (firms)	Mean	STD
ADOPT firms	131	0.1148	0.0527
NADOPT firms	129	0.1142	0.0535
Difference		0.0006	

Panel B: Post-adoption	N (firms)	Mean	STD
ADOPT	336	0.0567	0.1179
NADOPT	348	0.0644	0.0871
Difference		-0.0077	

Panel C: ADOPT firms	N (firms)	Mean	STD
Post-adoption	336	0.0567	0.1179
Pre-adoption	131	0.1148	0.0527
Difference		-0.0580	*

Panel D: NADOPT firms	N (firms)	Mean	STD
Post-adoption	348	0.0644	0.0871
Pre-adoption	129	0.1142	0.0535
Difference		-0.0498	*