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Comparing Abnormal Accruals Estimates across Samples: An International Test

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Abstract

This study examines whether accruals models' performance, in terms of predictive accuracy and power to detect earnings management, varies across strongly heterogeneous samples, such as different countries. We analyse the performance of two accruals estimation models, that is, the Modified Jones model and the Dechow–Dichev model. Using accounting data from nine countries for the period 1989–2009, we find that the models exhibit considerable cross-country performance variation and, more importantly, that this variation is systematic. We empirically establish that the international variation in sales growth persistence, accounting practices, and sample size explains a significant proportion of the cross-country performance variation, highlighting a potential inference problem in across-sample comparisons.

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Notes

During the past years, researchers have turned to other measures of earnings management. Examples of such measures are the unexpected movements in separately identifiable working capital accounts (McNichols and Wilson, 1988; Beaver et al., 1989; Wahlen, 1994; Teoh et al., 1998), the correlation between cash flows and accruals (Leuz et al., 2003) or discontinuities in earnings distributions (Burgstahler and Dichev, 1997; Degeorge et al., 1999; Bhattacharya et al., 2003). Traditional accruals models remain nonetheless important in studying earnings management practices, especially because they provide firm-year-specific predictions of abnormal accruals. Consequently, these models tend to be most appropriate for studying the influence of firm-specific characteristics or firm-specific events on abnormal accruals.

This analysis also shows that our findings remain also after controlling for industry factors such as cross-industry differences in the same SEE, indicating that international differences in industry composition do not drive the cross-country variation in models' performance.

In addition to the SEE described in this section, prior studies find that the discretionary accruals estimates of abnormal accruals measurement models are associated with several omitted variables, such as the percentage growth in sales, the operating cash flow, and asset intensity (Young, 1999; McNichols, 2000). In this section, we do not address this issue, but refer to Young (1999) for an analysis of these sources.

These performance measures are related. If the accruals models solely predict normal accruals, the model with the highest predictive accuracy is also the model that detects earnings management the best (Thomas and Zhang, 2000). We find that the incidence

of Type I errors in the sample under examination is generally low and similar across countries, leading us to focus on predictive accuracy and Type II errors.

Note that including lagged measures of sales growth would also not help to explain the effect on current accruals of past catch-up investments because such measures do not sufficiently capture the cross-sectional variation in the speed with which firms adjust their inventories after experiencing a shock to growth.

In addition, estimation error could result from working capital being nonlinearly related to sales. For instance, a firm experiencing substantial sales growth acceleration may encounter serious difficulties in the collection of its receivables. This could result in a disproportional increase in bad debt provisions and a lower-than-expected increase in net receivables.

One accruals model under study includes ‘forward-looking’ explanatory variables. Specifically, the DD model includes next year's cash flow from operations. This ‘forward-looking’ variable may capture some of the effect of timely recognition, making the DD model potentially less susceptible to the influence of variations in earnings timeliness. Nonetheless, the static way in which timely recognition of future changes in cash flows is captured in the model is unlikely to provide an effective control for earnings timeliness.

This requirement ensures that for each manipulated firm-year observation there are other non-manipulated observations available from the same firm (see earnings management detection test in this section).

We choose not to trim the explanatory variables to save observations in countries with small sample sizes.

In order to avoid unrealistic allocations of manipulated accruals, the amount of manipulated accruals that we allocate to a particular account is always bounded at 50% of the accounts' total size.

We randomly select 10 firms from the total set of firms with one manipulation year in order to assure that the cross-country variation in the power of the earnings management detection regression (Equation (5)) depends only on the power of the examined accruals model and does not depend on cross-country differences in the size of the samples used to estimate the estimation regression.

We expect that both country and industry characteristics change over time. Therefore, we would ideally estimate country–period as well as industry–period effects. Unfortunately, we do not have sufficient degrees of freedom to implement this approach. Because the primary focus of our study is country differences in accruals models' performance, we choose to estimate country–period effects, thus allowing for the possibility that country characteristics change over time. The fact that we cannot control for changes in industry characteristics over time is a limitation of our study. In a sensitivity analysis, we have replaced country–period effects with country effects (one variable at a time to preserve degrees of freedom) and find that the coefficients on country effects are generally consistent with the coefficients on country–period effects.

Related to this, we consider the use of a fixed effects regression to separate country from industry effects preferable to using country and industry averages of the explanatory variables. This is because country-level and industry-level means are potentially noisy measures of country and industry effects, given that both measures also depend on the distribution of industries across countries. As a consequence, when using means instead of fixed effects, the country and industry variables that we include in the regressions may be correlated and coefficient estimates may become imprecise. As a robustness check, we have rerun the analyses after replacing the fixed effects with country–period and industry means. We find that our conclusions remain unchanged if we use means rather than a fixed effects approach.

Thomson Financial indicates that Worldscope has (close to) full coverage of the publicly listed firms that are domiciled in the nine countries under examination. Hence, the cross-country variation in sample size can be largely explained by country differences in capital market size. We acknowledge that the stringent requirement of having three firm-year observations available for each firm that is included in our sample may introduce a bias in our sample towards mature firms.

Our selection of explanatory variables in Panel B follows the discussion in Section 3. Untabulated tests show that, if included in the Panel B regression, trade openness and competition intensity are not significantly associated with accounting practices or sample size. Further, economy size is negatively associated with earnings timeliness but not significantly associated with accruals intensity or earnings smoothing. Finally, IFRS is not significantly associated with sales growth persistence or sample size.

Both models (2) and (3) include period indicator variables to ensure that the coefficients on the country–period measures are not affected by general (global) time trends.

We find that the incidence of Type I errors in the total sample is generally below the required 5% and relatively similar across the nine countries. These results are therefore not reported in Table 7.

The results of the expense manipulation detection analysis are available from the authors upon request.

Kothari et al. (2005) find that the use of discretionary accruals that are adjusted for a performance-matched firm's discretionary accruals yields fewer Type I errors in earnings management detection. We test how performance-matching affects the Type II errors of the three accruals models under study. First, we create 20 equal sized groups of firm-year observations according to return on assets. Second, we adjust all discretionary accruals in a performance group for the group average. The results of this analysis (not tabulated) indicate that performance-matching has no significant effect on the relationship between SEEs and Type II errors. The results of this analysis are available from the authors upon request.

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