J. Account. Public Policy xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

J. Account. Public Policy

journal homepage: www.elsevier.com/locate/jaccpubpol

The effect of IAS/IFRS adoption on earnings management (smoothing): A closer look at competing explanations ☆

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A B S T R A C T

Prior research provides mixed evidence on whether the transition to IAS/IFRS deters or contributes to greater earnings management (smoothing). The dominant explanation for the conflicting results is self-selection. Early voluntary adopters had incentives to increase the transparency of their reporting in order to attract outside capital, while those firms that waited until IFRS adoption became mandatory in EU countries lacked incentives for transparent reporting leading to increases in earnings management (smoothing) after IFRS adoption. We maintain that the IFRS standards that went into effect in 2005 provide greater flexibility of accounting choices because of vague criteria, overt and covert options, and subjective estimates. This greater flexibility coupled with the lack of clear guidance on how to implement these new standards has led to greater earnings management (smoothing). Consistent with this view, we find an increase in earnings management (smoothing) from pre-2005 to post-2005 for firms in countries that allowed early IAS/IFRS adoption, as well as for firms in countries that did not allow early IFRS adoption. We find no evidence of changes in incentives that can explain these results.

☆ Vedran Capkun gratefully acknowledges financial support from HEC Paris and Foundation HEC, Investissements d'Avenir (ANR-11-IDEX-0003/Labex Ecodec/ANR-11-LABX-0047). Vedran Capkun is a member of the CNRS unit GREGHEC, UMR 2959.
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http://dx.doi.org/10.1016/j.jaccpubpol.2016.04.002
0278-4254/

Please cite this article in press as: Capkun, V., et al. The effect of IAS/IFRS adoption on earnings management (smoothing): A closer look at competing explanations. J. Account. Public Policy (2016), http://dx.doi.org/10.1016/j.jaccpubpol.2016.04.002

1. Introduction

Prior research provides mixed evidence on whether the transition to IAS/IFRS deters, or contributes to, greater earnings management (earnings smoothing). Barth et al. (2008) find a decrease in earnings management (smoothing) following firms' *voluntary* early adoption of IAS/IFRS over the 1994–2003 period. Ahmed et al. (2013) and Christensen et al. (2015) find that earnings management (smoothing) has increased following the 2005 *mandatory* IAS/IFRS adoption in the European Union (EU). The dominant explanation offered by Ahmed et al. (2013)[1] for these conflicting results is self-selection of firms that voluntarily adopt IAS/IFRS rather than the effects of IFRS standards, per se. Early adopters of IFRS had incentives to increase the transparency of their reporting in order to attract outside capital, and, therefore, earnings management (smoothing) went down after *voluntary* IFRS adoption, while those firms that waited until IFRS reporting became mandatory in EU countries lacked incentives for transparent reporting leading to increases in earnings management (smoothing) after *mandatory* IFRS adoption.

In this paper we offer another explanation for the conflicting findings. We show that IAS/IFRS standards changed substantially from the pre-2005 early voluntary adoption period to the post-2005 mandatory adoption period. In effect, the IAS/IFRS standards used in testing for earnings management (smoothing) consequences of early voluntary adoption are quite different from the revised IAS/IFRS standards used to test the effects of mandatory adoption. Following the 2002 EU decision to make IFRS reporting mandatory, more than one third of the existing standards at that time (14 out of 34 IAS standards) were revised and six new standards (IFRS) were introduced, all of which became effective in 2005. While some of the revised standards may have limited the opportunity to manage (smooth) earnings by reducing the number of allowed alternative accounting treatments, Nobes (2006) maintains that the post-2005 IFRS standards provide firms with greater flexibility of accounting choices because of vague criteria, overt and covert options, and subjective estimates that are allowed under these principle-based standards. Consistent with the claims by Nobes (2006), we document dissenting opinions from ten IASB board members on eight modifications to existing IAS or newly introduced IFRS standards, all arguing that 2005 changes in IFRS increase flexibility and lack clear implementation guidance. We hypothesize that this greater flexibility coupled with the lack of clear guidance on how to implement these new standards has led to greater earnings management (smoothing).

To test our hypothesis and to add to our understanding of the conflicting findings presented in prior studies, we analyze a sample of 3853 firms from 29 countries that transitioned to IAS/IFRS between 1994 and 2009. We break this broad sample down into three distinct groups: *Early Adopters* (firms that voluntarily chose to adopt IAS/IFRS before 2004), *Late Adopters* (firms that chose to delay adoption of IAS/IFRS until 2005 or 2006 in countries where early adoption was possible), and *Mandatory Adopters* (firms domiciled in EU countries that did not allow early adoption prior to the mandatory IFRS adoption date of 2005). By conducting over time and cross-sectional comparisons of these distinctly different samples around the 2005 mandatory adoption of IFRS, we are able to control for differences in incentives, which is another explanation for the conflicting findings in the prior research.

We find an increase in earnings management (smoothing) after 2005 for *Early Adopters* as well as for *Late Adopters* and *Mandatory Adopters*. Moreover, we find no differences in earnings management (smoothing) proxies between *Early Adopters* and *Late Adopters* in the post-2005 IAS/IFRS reporting regime. The fact that *Early Adopters,* firms with arguably high ex-ante incentives to improve their reporting and that were already reporting under (old) IAS/IFRS standards, exhibit an increase in earnings management (smoothing) after transitioning to the 2005 version of IFRS provides strong evidence that 2005 changes to IAS/IFRS increased firms' flexibility of accounting choices and this, couple with the lack of implementation guidance, has contributed to greater earnings management (smoothing). This interpretation is supported by the same pattern of increased earnings management (smoothing) that we observe for *Mandatory Adopters,* firms with no choice of adopting IAS/IFRS early.

Additional analyses of firm characteristics hypothesized to be related to firms' incentives for transparent reporting provide further support for our claim that differences in the flexibility of different

[1] Christensen et al. (2015) are more agnostic and recognize that they are unable to distinguish between these explanations (self-selection or effect of IFRS).

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versions of IFRS standards dominate incentives as the explanation for the differences between the Ahmed et al. (2013) and Christensen et al. (2015) findings and the Barth et al. (2008) findings. We examine a variety of firm characteristics, which prior research has shown to be related to firms' incentives to adopt IAS/IFRS standards early. We find no change in any of these characteristics from before 2005 to after 2005 for either *Early Adopters* or *Late Adopters*. Thus, the change in earnings management (smoothing) behavior observed for these two samples from the pre- versus post-2005 IFRS regimes is unlikely due to changes in these firms' incentives.

In supplemental tests, we find that after deleting firms for which IFRS adoption most likely mechanically increased earnings smoothing properties, we continue to find strong evidence of increases in earnings smoothing following the 2005 adoption of IFRS across all three groups of firms. We also find that firms from countries with less (more) local GAAP flexibility exhibit greater (less) evidence of increases in earnings smoothing following mandatory adoption of IFRS standards in 2005. Finally, we find that firms exhibit an increase in earnings management (smoothing) regardless of whether their home countries changed (improved) enforcement concurrent with IFRS adoption (see Christensen et al., 2013).

Our paper contributes to the literature on the consequences of IFRS adoption by demonstrating the importance of flexibility of accounting standards as a key driver of firms' earnings management (smoothing) behavior. Prior research generally points to the importance of firms' reporting incentives (e.g., Ball et al., 2000, 2003; Leuz, 2003; Burgstahler et al., 2006; Hail et al., 2010), the role of legal institutions (Leuz et al., 2003; Hail et al., 2010), and enforcement mechanisms (Daske et al., 2008; Christensen et al., 2013) as key factors in determining levels of earnings management following IFRS adoption. As a complement to past literature, our study suggests that financial reporting standards that permit greater latitude and flexibility in measurements and application can lead to an increase in earnings management even after controlling for firms' incentives to adopt high quality financial reporting standards (e.g., *Early Adopters*).

The remainder of this paper is organized as follows. In the next section, we describe the process of IAS/IFRS adoption in the European Union. Section 3 provides an overview of the prior literature and hypothesis development. Section 4 presents our research design and variable measurements. Section 5 explains how we identified the various subsamples and provides descriptive statistics. Section 6 presents our main findings. Section 7 provides robustness checks and additional tests. Section 8 concludes and provides some suggestions for future research.

2. The EU adoption of IAS/IFRS

Between 1970 and 1999, the European Commission (EC) sought to harmonize accounting standards in Europe by means of Directives[2] aimed at making financial statements increasingly comparable in terms of format and general recording and measurement rules. However, the harmonization process proved to be slow because the speed of transforming EC directives into national laws varied between member states (Roberts et al., 2002). This prompted a change of strategy in the mid-nineties. The Commission came to the conclusion that the adoption of a common set of high quality accounting standards throughout Europe would put European firms on a more equal footing with US firms, especially with respect to companies' access to external capital. In June 2000, the European Commission proposed that adoption of IAS/IFRS be compulsory for listed companies in Europe by 2005.[3] This proposal was approved by the EU Council of Ministers in June 2002 and by the European Parliament in September 2002.

In spite of the decision to adopt IAS/IFRS in 2005, all European countries did not evolve at the same pace. Some countries decided to anticipate the mandatory adoption of IAS/IFRS in 2005 by allowing listed firms to use either domestic GAAP or IAS/IFRS, which was the case for Germany and Austria among others. Other countries, like France, Spain and the UK, decided to not allow early adoption

[2] A Directive is an instrument that is directly binding following the adoption by the Council of Ministers (since 1994, together with the Parliament). It requires Member States to enact into national law the provisions of the Directive within a given time frame (Roberts et al., 2002).

[3] Commission of the European Communities, Communication from the Commission to the Council and the European Parliament "EU Financial Reporting Strategy: The Way Forward", 06/13/2000.

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of IAS/IFRS. Consequently, we differentiate three groups of firms important for our analysis, depending on when they adopted IAS/IFRS:

(1) *Early Adopters*—These are firms from EU countries (and other countries throughout the world)[4] that allowed early adoption of IAS/IFRS. These firms voluntarily adopted IAS/IFRS standards prior to the EU mandatory adoption date of 2005. These firms reported under local GAAP until their adoption of the old version of IAS/IFRS (sometime between 1994 and 2004), under old IAS/IFRS until 2005, and under the new IAS/IFRS after 2005, when the new version of IAS/IFRS took effect.
(2) *Late Adopters*—These are firms from countries that allowed early adoption of IAS/IFRS standards before 2005, but chose to wait to adopt IAS/IFRS standards beginning in 2005. *Late Adopters* reported under local GAAP until 2005, and under the new IAS/IFRS post-2005.
(3) *Mandatory Adopters*—These are firms domiciled in countries that did not permit early adoption of IAS/IFRS standards prior to 2005. *Mandatory Adopters* reported under local GAAP until 2005 and under the new IAS/IFRS post-2005.

3. Prior literature and hypotheses development

3.1. Review of prior literature

Prior studies analyze various subgroups of firms identified above to investigate whether IAS/IFRS adoption deters earnings management (smoothing). A key feature that differentiates our study from the earlier studies is that we analyze all three subgroups and we analyze earnings management (smoothing) behavior in three distinctly different accounting regimes—local domestic GAAP, old (pre-2005) IAS/IFRS and new (post-2005) IAS/IFRS. The prior studies analyze only subsets of these three groups of firms or accounting regimes.

Barth et al. (2008) use a sample of 327 *Early Adopter* firms from 21 countries to investigate whether early adoption of International Accounting Standards (IAS/IFRS) improves accounting quality by deterring earnings management. Their treatment sample *voluntarily* adopted IAS/IFRS in the 1994–2003 periods, and their control sample consists of firms from the same countries that elected to continue using local domestic GAAP.[5] Thus, their analysis is subject to a possible self-selection bias due to incentives that firms had to early adopt IAS/IFRS.

A critical maintained hypothesis that undergirds the Barth et al. analysis is that adoption of IAS/IFRS constrains firms' accounting choices including discretionary accruals. Citing theoretical work by Ewert and Wagenhofer (2005), which shows that applying accounting standards that limit management's discretion should result in higher variability in accounting earnings, Barth et al. (2008) predict that firms that adopt IAS/IFRS will exhibit more volatile earnings (less smoothing) than firms applying domestic standards. If adoption of IAS/IFRS standards deters earnings management, they also predict Early Adopter firms will exhibit a lower (higher) frequency of small positive earnings (large negative earnings) in the post-adoption period relative to the pre-adoption period and relative to Non-IAS Control Firms. Consistent with their predictions, Barth et al. (2008) find that early IAS/IFRS-adopting firms exhibit less earnings smoothing, higher frequency of large losses and slightly lower (but insignificant) frequency of small positive earnings in the post-adoption period relative to the pre-adoption (local GAAP) period, but they find no significant over-time changes for the Non-IAS Control Firms. Based on these findings, Barth et al. (2008) conclude that IAS/IFRS adoption deters earnings management (smoothing).

Two subsequent studies, by Ahmed et al. (2013) and Christensen et al. (2015), argue that the Barth et al. (2008) findings can be explained by firms' incentives to voluntarily adopt IFRS. These studies argue that application of principles-based accounting standards, like IFRS, involves considerable judgment and many measurements used in IFRS accounting are, to a large extent, based on managers'

[4] Because we seek to reconcile the conflicting findings in Barth et al. (2008) and Ahmed et al. (2013) studies, we include firms in our samples from non-EU countries to maintain comparability with the samples used in these two studies. Results are qualitatively unchanged when we eliminate firms from non-EU countries.

[5] Note that the *Non-IAS Control* firms in Barth et al. (2008) comprise a subset of the *Late Adopter* sample in our analysis.

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private information (e.g., valuation model estimates of fair value rather than observed market prices). This leaves managers with substantial discretion when applying IFRS. Whether this discretion is used to opportunistically manage earnings or to convey managers' private information about the future prospects of the firm depends on management's incentives (Burgstahler et al., 2006; Daske et al., 2013). In other words, voluntary (early) IFRS adoption is an endogenous choice and assessing the earnings management consequences of IFRS adoption is likely to depend on firms' incentives to credibly commit to greater financial reporting transparency.

Christensen et al. (2015) argue that firms' orientation to external versus internal financing affects their incentives to adopt IAS/IFRS early and to be more transparent (less earnings management) in their reporting. Early adoption of IFRS and a commitment to greater transparency reflects a trade-off for managers of losing their informational advantage over parties external to the firm versus the benefits from being able to attract external financing to exploit growth opportunities. These arguments lead Christensen et al. to predict that firms with greater insider orientation will be less likely to adopt IFRS early. Consistent with this prediction, they find that firms that delayed adoption (resisters) have more bank ownership (where information asymmetries are resolved through private channels), higher long-term leverage, issue equity less often, and have a higher proportion of shares that are closely held. They also find that firms that delayed IAS/IFRS adoption have lower analyst following, suggesting these firms face less demand for transparent information from the capital markets.

Christensen et al. (2015), analyze a sample of 310 German firms that adopted IAS/IFRS from 1998 to 2005. They compare earnings management (smoothing) metrics of *Early Adopters* (pre-2005) to *Late Adopters* (2005). They find a decrease in earnings management for the *Early Adopters,* but a modest increase in earnings management (smoothing) for those firms that waited until IFRS became mandatory in Germany. They attribute these differences in results to *Early Adopters* incentives to adopt IAS/IFRS in order to improve their earnings quality. They conclude that incentives play a greater role than do IAS/IFRS standards, per se, in explaining the observed differences in firms' smoothing behavior following IFRS adoption.

Ahmed et al. (2013) compare earnings management (smoothing) metrics for a sample of 1631 *Late* and *Mandatory Adopter* firms from 21 countries that adopted IAS/IFRS standards for the first time in 2005 to firms from non-IFRS countries (largely firms from the US). They find that firms that adopted IAS/IFRS standards in 2005 exhibit greater earnings smoothing and lower frequency of large negative earnings relative to the benchmark control firms in the post-adoption period, consistent with greater earnings management (smoothing).[6] Interestingly, they find that both IFRS adopters and benchmark control firms exhibit a significantly *lower* likelihood of reporting small positive earnings in the post-adoption period relative to the pre-adoption period, which is inconsistent with greater earnings management. However, the difference between treatment and control samples is not significant suggesting that the decreased incidence of small positive earnings in the post–adoption period is more likely due to general economic trends than to newly-adopted accounting standards.

Like Christensen et al. (2015), Ahmed et al. (2013) argue that the difference in their findings relative to the Barth et al. (2008) findings is due to the self-selection bias in the Barth et al. (2008) study, as only firms with an external orientation had incentives to adopt IAS/IFRS standards early and to commit to greater transparency (lower earnings management), while the firms that delayed adoption until 2005 did not have strong incentives for transparent reporting. But the incentives explanation would seem to carry little force when seeking to reconcile the findings of Barth et al. (2008) and Ahmed et al. (2013) because a majority of firms in the Ahmed et al. (2013) sample (75%)[7] come from countries where firms did not have a choice to adopt IAS/IFRS early as a credible way of signaling their commitment to greater transparency (our *Mandatory Adopter* sample).

Ahmed et al. (2013) also acknowledge two additional limitations of their analysis. First, their inference that IFRS adoption resulted in greater earnings management (smoothing) is conditional on the presumption that the change in accounting quality measures is driven principally by changes in managerial discretion or exercise of judgment rather than by changes in properties of accounting numbers

[6] On a sample of German firms, Paananen and Lin (2009) find similar results.

[7] Note that Ahmed et al. (2013) do not separate the *Late Adopters* and *Mandatory Adopters* in their analysis, which makes it difficult to assess the role of incentives in explaining differences in earnings management tendencies.

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that mechanically result from the adoption of new IFRS standards. For example, IAS 38 on Intangible Assets results in the capitalization and subsequent amortization of certain R&D expenditures that were previously expensed as incurred under most local GAAP standards. This could lead to a mechanical increase in earnings smoothing, which is a possible competing explanation for the findings in Ahmed et al. (2013). Second, the tests in Ahmed et al. are based on only two years of data following the 2005 adoption of IFRS. It is conceivable that over a longer period the effects documented in their study may not persist as implementation guidance and preparer familiarity with IFRS standards increases and/or there are improvements in enforcement of IFRS standards. We address these potential competing explanations for the results in our subsequent analyses (Section 7).

In addition to the above studies, prior empirical research analyzes other aspects of IFRS transition. Brüggemann et al. (2013) review this literature and find there is a lack of evidence on the positive effects on transparency or comparability of financial statements, while there is ample evidence of positive capital market effects of the IAS/IFRS adoption. For example, Cameran et al. (2014) analyze private Italian firms that adopted IFRS and find results consistent with a decrease in reporting quality, while Doukakis (2014) finds no change in real earnings management following the mandatory adoption of IAS/IFRS in Europe. On the other hand, Horton et al. (2013) find a decrease in analyst forecast errors after the adoption of IAS/IFRS, consistent with an improvement in information environment cased by the change in accounting standards.

3.2. Evolution of IAS/IFRS standards and hypothesis development

In this paper, we posit that changes in IAS/IFRS standards (specifically, greater discretion and flexibility of the 2005 version of IFRS standards and lack of guidance in implementing those standards) can explain the conflicting findings between the Barth et al. (2008), Ahmed et al. (2013) and Christensen et al. (2015) studies. International Accounting Standards (IASs) were issued by the International Accounting Standards Committee (IASC) from 1973 to 2000. The International Accounting Standards Board (IASB) replaced the IASC in April 2001. Since then, the IASB has amended many IASs and has replaced some others with International Financial Reporting Standards (IFRSs), and has adopted or proposed a number of new IFRSs on topics not covered by earlier IAS standards. From this standard setting activity of the IASC/IASB, it is possible to identify two distinct reporting regimes before and after 2005.

Major changes in the standards occurred in 2005. When it became clear that the EU would likely adopt IAS/IFRS, the IASB published a draft "Improvements to IFRS", issued May 2002. Following this draft, after a period of comments (due process), 14 out of 34 IAS (in force as of 2002) were revised or improved in December 2003. In addition, IAS 32 and 39 were amended in 2004. All these changes became effective for the 2005 fiscal year. In addition, six new IFRS were issued between 2002 and 2005, of which five IFRS were in force as of beginning of 2005 (see Appendix A for a list of revised and amended IAS standards and new IFRS standards).

Some of the resulting set of 2005 standards (labeled 'new IAS/IFRS' in this paper) contain fewer options than in the previous version (Nobes, 2006). The 'old IAS' standards (before 2005) usually indicated a 'benchmark treatment' and an 'allowed alternative'. Many of these options were removed in the new IAS/IFRS standards that took effect in 2005. However, new IAS/IFRS leave more room for covert options, subjective estimation and interpretation than previous IAS standards. For instance, Nobes (2006) details 18 overt options and 21 covert options and numerous vague criteria.[8] We maintain that the overt and covert options and vague criteria result in greater flexibility of accounting choices that allow greater earnings management (smoothing). Principles-based IFRS standards include many words

[8] Examples of covert options or vague criteria (in italics) include recognition of deferred tax asset on loss carryforward only if future taxable profit is *probable;* recognition of deferred tax liability (along with charge to tax expense) on unremitted profits of foreign subsidiaries only if *dividends are probable in the foreseeable future;* lease classification and accounting treatment based on *substantially all the risks and rewards* being transferred to the lessee with no numerical criteria; identification of impairment of an asset based on a mixture of criteria including *expected future cash flows;* recognition of a loss provision and contingent liability based on subjective assessment of *probability of future outflow of resources*; capitalization of development costs when all of various *vague criteria* are met; and amortization of intangible asset only *if useful life is assessed as finite*.

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like 'probable' and 'material', which can be interpreted differently by different firms facing similar economic circumstances. For instance, Doupnik and Richter (2003) suggest that German accountants interpret the word 'probable' more conservatively than UK accountants. In addition, the new standards rely on estimations: Nobes (2006) and Cole et al. (2012) mention no less than 12 cases were estimates are relied on heavily in the revised standards. In Appendix A, we indicate for each standard that changed significantly in 2005 if overt options, covert options, vague criteria or estimates are used by the revised standards. Overall, this analysis suggests that new (2005) IAS/IFRS exhibit a high level of flexibility that can lead to greater earnings management (smoothing).

New IAS/IFRS also introduced broader use of fair value measurements in selected accounts relative to the domestic GAAP of many countries (Schipper, 2005; Paananen and Lin, 2009; Ball et al., 2015).[9] For example, IAS 16 (*Property, Plant and Equipment*) and IAS 40 (*Investment Property*) allow firms to periodically revalue selected long-lived assets and property held for investment at fair value, with direct consequences for depreciation expenses and earnings, while IAS 39 (*Financial Instruments*) increases the use of fair value compared to local GAAP standards. Because market prices from active markets are not readily available for most fixed assets and many types of financial instruments (e.g., securitized loans or receivables), firms are allowed greater discretion through the use of mark-to-model measurements. Ball (2006) argues that when capital markets are illiquid, managers exercise greater discretion over fair value measurements. When fair values are estimated using valuation models, managers can influence the estimations through their choices of models and parameters, thus opening the door to greater earnings management. This same concern carries over to IFRS asset impairment tests (IAS 36, *Impairment of Assets*) and goodwill impairment tests (IAS 38, *Intangible Assets*).

The inherent greater flexibility of new IFRS standards coupled with the lack of implementation guidance was a recurring source of concern leading to opposition to adoption of some of these standards from within the IASB. Some of the IASB board members issued dissenting opinions when the new/revised standards were adopted.[10] Of the revised and new IAS/IFRS standards that were enforced in 2004–2006, ten carry dissenting opinions. In eight cases, dissenting board members point to the lack of implementation guidance for the standard or inconsistencies with other standards leading to possible greater managerial discretion and greater earnings management. For example, IAS 36, *Impairment of Assets,* was issued with a dissenting opinion pointing out the need to "[to provide more guidance] to determine the recoverable amount of goodwill" (DO4, IAS 36). Two board members warned that IFRS 3, *Business Combinations,* "puts its faith in a potentially unreliable impairment test." Standards related to financial instruments (IAS 32 and IAS 39) were subject to a number of strong dissenting opinions. Some board members argued that IAS 39, as issued in 2005, provides "an opportunity for entities to manage reported profit or loss" by selecting unobservable inputs for fair value measurements (DO 13). In Appendix B we present the full list of the dissenting opinions for IAS/IFRS standards issued during the critical 2003-2005 period.

To summarize, most changes in 2005 introduced more covert and over options to IAS/IFRS, leading to greater flexibility of 2005 IAS/IFRS standards. But even those changes to IAS/IFRS that reduced the number of options available increased flexibility of 2005 IAS/IFRS standards. According to the dissenting opinions of IASB board members, those same changes reduced clarity, lead to higher reliance on estimates, and lacked implementation guidance. This de facto allowed greater flexibility in application of the standards affected (also see Nobes, 2006). Consistent with this argument, Kim et al. (2012) find

[9] IFRS standards that rely in some way on fair value measurements include: IAS 16 (Property, Plant and Equipment), IAS 32 (Financial Instruments: Presentation), IAS 36 (Impairment of Assets), IAS 37 (Provisions, Contingent Liabilities and Contingent Assets), IAS 38 (Intangible Assets) IAS 39 (Financial Instruments), IAS 40 (Investment Property), IAS 41 (Agriculture), IFRS 2 (share-based Payment), IFRS 3 (Business Combinations), IFRS 4 (Insurance Contracts), IFRS 5 (Non-current Assets Held for Sale and Discontinued Operations),, IFRS 7 (Financial Instruments: Disclosure), IFRS 9 (Financial Instruments: Classification and Measurement), and IFRS 13 (Fair Value Measurement).

[10] As part of the due process, "IASB members who propose to dissent from publication of an exposure draft or IAS/IFRS standard make their intentions known during the poll at the IASB meeting. Dissenting opinions are prepared by the IASB member concerned in collaboration with the staff. In exposure drafts, dissenting opinions are presented as alternative views. Dissenting opinions and alternative views are incorporated in the pre-ballot and ballot drafts for the other IASB members to see before balloting." (Due process handbook for IASB, art 83.)

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an increase in audit fees following the 2005 IAS/IFRS adoption, and attribute the increase in fees to the increased complexity of IAS/IFRS.

The above discussion leads us to predict that the inherent flexibility of 2005 IAS/IFRS standards coupled with the general lack of guidance on how to implement these new standards leads to greater earnings management (smoothing) following the 2005 adoption of IFRS across all three sub-samples of firms. Specifically, we expect *Early Adopters'* transition from the early version of IAS/IFRS to the new (2005) version of IAS/IFRS to be associated with an increase in earnings management (smoothing). Similarly, we expect *Late Adopters'* and *Mandatory Adopters'* transition from local GAAP to new (2005) version of IFRS to be associated with an increase in earnings management (smoothing). For the two samples that had a choice of whether or not to adopt IAS/IFRS early, *Early Adopters* and *Late Adopters*, we do *not* expect to observe differences in earnings management (smoothing) metrics of firms between these two groups in the post-2005 period. Findings consistent with these predictions would suggest that changes in IAS/IFRS standards that allow greater managerial discretion (flexibility) lead to greater earnings management (smoothing), and would also suggest this explanation dominates the self-selection (incentives) explanation for the conflicting findings in prior research.

4. Research design

4.1. Sample partitions

We partition our sample into *Early Adopters*, *Late Adopters* and *Mandatory Adopters* of IAS/IFRS as outlined in Section 2. *Early Adopters* transitioned to IAS/IFRS at various points from 1993 to 2004 in countries where this was allowed. This period corresponds to the period covered in the Barth et al. (2008) study. *Late Adopters* transitioned to IAS/IFRS from 2005 to 2009 in countries where early adoption was allowed, but these firms opted to wait until 2005 or later to adopt IFRS standards.[11] *Mandatory Adopters* are firms from countries where early adoption was not allowed. Consequently, all firms in these countries had to adopt IAS/IFRS in 2005 or later.[12] The adoption periods for the *Late Adopters* and *Mandatory Adopters* correspond to the period covered in the Ahmed et al. (2013) study.

For *Early Adopters*, we compute earnings management metrics over three periods: local GAAP (from 1996 to the actual adoption of IAS/IFRS), "old" IAS/IFRS (from the actual adoption of IAS/IFRS to 2004), and new-IAS/IFRS (from 2005 and beyond). We run the test from local GAAP to "old" IAS/IFRS simply to confirm the findings in Barth et al. (2008). For *Late* and *Mandatory Adopters*, we distinguish the pre-IAS/IFRS period (pre-2005) and the post IAS/IFRS period (from 2005 and after). Thus, we have a total of seven sub-samples of firm-years delineated as follows:

(1) *Early Adopter* firm-years prior to adoption of "old" (pre-2005) versions of IAS/IFRS. In this period, sample firms were using domestic GAAP.
(2) *Early Adopter* firm-years after adoption of old (pre-2005) versions of IAS/IFRS but before "new" IFRS (2005). These are post-adoption observations for the old versions of IAS/IFRS.
(3) *Early Adopter* firm-years after new (2005) IAS/IFRS. These are post-new (2005) IAS/IFRS adoption observations.

[11] Because some EU countries allowed financial institutions to transition to IFRS for several years after 2005, adoption of new IFRS standards can occur after 2005. In addition, firms listed on the AIM (Alternative Investment Market) in the UK had to adopt IFRS in 2007. For a more complete overview of IFRS adoption rules by EU countries see http://ec.europa.eu/internal_market/accounting/docs/ias-use-of-options_en.pdf.

[12] All EU listed companies have been required to prepare their consolidated accounts under IFRS/IAS for financial years starting on or after January 1 2005. As a result, listed companies with year-ends different from 31 December, the "2005" transition might have occurred during fiscal 2006. This applies for both *Late Adopter* and *Mandatory Adopter* firms. Restricting our sample to the 2005–2006 mandatory transition to IAS/IFRS in Europe (see Daske et al., 2008; Beuselinck et al., 2008; Capkun et al., 2010) yields qualitatively similar results.

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(4) *Late Adopter* firms prior to the time these firms adopted new (2005) IFRS. These are firm-years when firms were using local domestic GAAP that are domiciled in countries that allowed voluntary adoption of IAS/IFRS before 2005, but these firms chose to delay adoption. These firm-years are considered *Non-IAS Control* observations for purposes of conducting cross-sectional comparisons with *Early Adopter* firms around the transition to old (pre-2005) versions of IAS/IFRS.
(5) *Late Adopter* firm-years after the time these firms adopted new (2005) IFRS. These are post-new IFRS adoption observations.
(6) *Mandatory Adopter* firm-years before the adoption of new (2005) IFRS from countries that did not allow early adoption of IFRS. Firms were using local domestic GAAP during these years.
(7) *Mandatory Adopter* firm-years after the adoption of new (2005) IFRS from countries that did not allow early adoption of IFRS. Firms were using new (2005) IAS/IFRS during this period.

As in Barth et al. (2008), we exclude the change in earnings for the year that firms first use IFRS for two reasons. First, the change in earnings for the year of transition to IFRS would represent the difference between earnings under IFRS and earnings under local GAAP. Second, prior research has shown that firms use the local GAAP-to-IAS/IFRS reconciliations as a tool to manage earnings (Capkun et al., 2010).

When comparing smoothing measures for various subsamples, we pool all sample years for the relevant contrast. To test for significant differences in each of our earnings smoothing metrics, we use a bootstrapping approach based on the actual distribution of the data (see Barth et al., 2008). When testing for changes or differences in smoothing metrics, we randomly select, with replacement, observations from each subsample being tested to create representative samples that are equal in size to our actual samples and then compute each earnings management (smoothing) metric explained below. We then calculate the difference between various subsamples. Note that the differences can be over time (pre versus post-adoption) or across our various adoption subsamples while holding the time frame constant (e.g., *Early Adopter* vs. *Late Adopter* samples). We repeat this procedure 1000 times to obtain the referent empirical distribution of differences between subsamples, and we use this empirical distribution to determine the significance of the observed difference.

4.2. Measures of earnings management (smoothing)

In testing the effects of IAS/IFRS adoption on smoothing-based measures of earnings management, researchers face a critical design choice in whether to use firm-specific time-series data or cross-sectional estimation pooling observations across firms for the particular comparison being tested. To facilitate comparison with prior work and to better highlight the mechanical effect that IAS/IFRS adoption can have on results, we adopt the pooled estimation models as in Barth et al. (2008), Ahmed et al. (2013) and Christensen et al. (2015).

To test for changes in earnings management (smoothing), we use five measures that are common to the three studies that we draw upon (Barth et al., 2008; Christensen et al., 2015; Ahmed et al., 2013): (1) the volatility of year-to-year changes in net income after controlling for other determinants of income changes; (2) the volatility of net income scaled by the volatility of cash flows, both adjusted for other determinants of change; (3) the contemporaneous correlation between residual cash flows and residual accruals; (4) the likelihood of reporting small positive earnings; and (5) the likelihood of reporting large negative earnings.[13]

The earnings variability metric is the variance of the residuals from the following regression of the change in net income on variables identified in prior research that explain earnings changes (Ashbaugh, 2001; Pagano et al., 2002; Lang et al., 2003, 2006; Tarca, 2004):

$$\Delta NI_{it} = \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} + \alpha_7 CF_{it} + \alpha_8 AUD_{it} + \alpha_9 NUMEX_{it} + \alpha_{10} XLIST_{it} + \alpha_{11} CLOSE_{it} + \sum_t Year_t + \epsilon_{it} \quad (1)$$

[13] We elect not to test for differences in value relevance of earnings and equity book values as in Barth et al. (2008) because this metric to be highly unstable and sensitive to alternative winsorization rules.

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where:

SIZE = the natural logarithm of end of year market value of equity;
GROWTH = percentage change in sales;
EISSUE = percentage change in common equity;
LEV = end of year total liabilities divided by end of year equity book value;
DISSUE = percentage change in total liabilities;
TURN = sales divided by end of year total assets;
CF = annual net cash flow from operating activities divided by end of year totals assets;
AUD = an indicator variable that equals one if the firm's auditor is PwC, KPMG, Arthur Andersen, E&Y or D&T, and zero otherwise;
NUMEX = the number of exchanges on which the firm's stock is listed;
XLIST = an indicator variable that equals one if the firms is listed on any U.S. exchange and WorldScope indicates that the U.S. exchange is not the firm's primary exchange;
YEAR = Year Dummies.

Eq. (1) is estimated including country and industry fixed effects as are Eqs. (2)–(4) below. Contrary to Barth et al. (2008), we also include Year fixed effects to control for economy-wide shocks in Eqs. (1)–(4).[14] We denote the individual firm-year level residuals (ε_{it}) from Eq. (1) as ΔNI^{*}_{it} to distinguish it from the residuals in later equations. The residual variance from Eq. (1) is denoted $\sigma^2(\Delta NI^{*})$ and is used in our subsequent tests. For each of the subsamples of *Early Adopters*, *Late Adopters* and *Mandatory Adopters* described above, we use earnings change data for up to 4 years of data (three year-to-year changes in earnings, excluding the transition year). Smaller (larger) variances are consistent with greater (less) earnings smoothing.

The second earnings smoothing metric is based on the mean ratio of the variance of the change in residual net income to the variance of the change in residual operating cash flows, $\sigma^2(\Delta NI^{*})/\sigma^2(\Delta CF^{*})$. We once again compute this metric for each of our seven sub-samples. If firms use accruals to manage (smooth) earnings, the variability of the change in residual net income scaled by the variability of change in residual operating cash flows should be lower. The variability of the change in residual operating cash flows is estimated in the following equation, analogous to Eq. (1), but with ΔCF as the dependent variable:

$$\begin{aligned}\Delta CF_{it} = {} & \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} \\ & + \alpha_7 CF_{it} + \alpha_8 AUD_{it} + \alpha_9 NUMEX_{it} + \alpha_{10} XLIST_{it} + \alpha_{11} CLOSE_{it} + \sum_t Year_t + \epsilon_{it} \end{aligned} \quad (2)$$

The individual firm-year level residuals from this equation are denoted ΔCF^{*}_{it}.

The third earnings smoothing metric is based on Spearman contemporaneous correlations between accruals and operating cash flows. As with the previous two variability metrics, we compare the correlations of the residuals from the following two equations where the level of operating cash flows (*CF*) and total accruals (ACC) are regressed on the same control variables in Eq. (1) excluding CF:

$$\begin{aligned} CF_{it} = {} & \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} \\ & + \alpha_7 CF_{it} + \alpha_8 AUD_{it} + \alpha_9 NUMEX_{it} + \alpha_{10} XLIST_{it} + \alpha_{11} CLOSE_{it} + \sum_t Year_t + \epsilon_{it} \end{aligned} \quad (3)$$

$$\begin{aligned} \mathrm{ACC}_{it} = {} & \alpha_0 + \alpha_1 SIZE_{it} + \alpha_2 GROWTH_{it} + \alpha_3 EISSUE_{it} + \alpha_4 LEV_{it} + \alpha_5 DISSUE_{it} + \alpha_6 TURN_{it} \\ & + \alpha_7 CF_{it} + \alpha_8 AUD_{it} + \alpha_9 NUMEX_{it} + \alpha_{10} XLIST_{it} + \alpha_{11} CLOSE_{it} + \sum_t Year_t + \epsilon_{it} \end{aligned} \quad (4)$$

[14] Including Year fixed effects controls for over time changes in macro-economic conditions that could impact earnings smoothing metrics, which could cloud the interpretation of our results. Not including Year fixed effects does not change any of our inferences.

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Eqs. (3) and (4) are estimated separately for each sub-sample.[15] The individual firm-year level residuals from Eq. (3) and (4) are denoted CF^*_{it} and ACC^*_{it}, respectively, and tests for whether mandatory adoption of IAS/IFRS affects earnings smoothing is based on a comparison of the contemporaneous correlation $[\rho(CF^*_{it}, ACC^*_{it})]$ of these variables for our seven sub-samples. Dechow (1994) and Ball and Shivakumar (2006) argue that one role of accruals is to smooth out the transitory fluctuations in operating cash flow. Thus, stronger (weaker) negative contemporaneous correlation between CF^*_{it} and ACC^*_{it} is consistent with greater (less) smoothing.

We use two other non-smoothing measures of earnings management. Consistent with Barth et al. (2008) and Ahmed et al. (2013), we use the frequency of small positive net income as evidence of upward earnings management. We expect a higher (lower) frequency of small positive net income after firms adopt IAS/IFRS if IAS/IFRS adoption increases (decreases) earnings management. More precisely, we estimate the following model:

$$\begin{aligned}IFRS(0,1)_{it} = {} & \alpha_0 + \alpha_1 SPOS_{it} + \alpha_2 SIZE_{it} + \alpha_3 GROWTH_{it} + \alpha_4 EISSUE_{it} + \alpha_5 LEV_{it} + \alpha_6 DISSUE_{it} + \alpha_7 TURN_{it} \\ & + \alpha_8 CF_{it} + \alpha_9 AUD_{it} + \alpha_{10} NUMEX_{it} + \alpha_{11} XLIST_{it} + \alpha_{12} CLOSE_{it} + \sum_t Year_t + \epsilon_{it} \end{aligned} \quad (5)$$

IFRS(0,1) in Eq. (5) is a binary variable coded one if the firm uses IAS/IFRS (post-adoption period) and zero in the pre-IAS/IFRS period or for non-IAS firms (reporting under local GAAP). Similar to Lang et al. (2003) and Barth et al. (2008), we define small positive earnings as those observations where net income scaled by total assets falls between 0 and 0.01. A positive (negative) coefficient on *SPOS* indicates that IAS/IFRS firms manage earnings toward small positive amounts more (less) frequently than do non-IAS/IFRS firms. Similar to Barth et al. (2008), we base our inferences on the coefficient on *SPOS* from Eq. (5) rather than directly comparing the IAS/IFRS and non-IAS/IFRS firms' percentages of small positive earnings because the SPOS coefficient reflects the effect of controls for factors not attributable to the financial reporting system that could impact the raw frequencies for IAS/IFRS and non-IAS/IFRS firms.

Following Barth et al. (2008), we measure timely loss recognition as the coefficient on large negative net income, *LNEG*, in the regressions given by Eq. (6) (Lang et al., 2003, 2006). In order to identify any change in the likelihood of posting a large loss, we estimate the following equation:

$$\begin{aligned}IFRS(0,1)_{it} = {} & \alpha_0 + \alpha_1 LNEG_{it} + \alpha_2 SIZE_{it} + \alpha_3 GROWTH_{it} + \alpha_4 EISSUE_{it} + \alpha_5 LEV_{it} + \alpha_6 DISSUE_{it} + \alpha_7 TURN_{it} \\ & + \alpha_8 CF_{it} + \alpha_9 AUD_{it} + \alpha_{10} NUMEX_{it} + \alpha_{11} XLIST_{it} + \alpha_{12} CLOSE_{it} + \sum_t Year_t + \epsilon_{it} \end{aligned} \quad (6)$$

LNEG equals one when net income scaled by average total assets is less than −0.20 and equals zero otherwise. A negative (positive) coefficient on *LNEG* indicates that IAS/IFRS firms recognize large losses less (more) frequently than Non-IAS/IFRS firms. Less (more) frequent large losses would be consistent with more (less) earnings management because firms are recognizing asset impairments in a less (more) timely fashion under IAS/IFRS compared to non-IAS/IFRS.

When comparing IAS/IFRS firms in the post-adoption and pre-adoption periods, IFRS(0,1) is coded zero in the pre-adoption period and one in the post-adoption period. A negative (positive) coefficient on *LNEG* is consistent with IAS/IFRS firms recognizing large losses less (more) frequently in the post-adoption period than they do in the pre-adoption period.

4.3. Empirical predictions

To test whether adoption of IAS/IFRS affects earnings management (smoothing), we analyze our smoothing metrics for *Early*, *Late* and *Mandatory Adoption* samples over time (inter-temporal tests) and between these samples at different points in time (cross-sectional tests) as outlined in Fig. 1. Our goal is to sort out whether changes in firms' observed earnings smoothing behavior are due to

[15] Pooling observations across sub-samples being compared yields weaker but qualitatively similar results, However, because the transition to IAS/IFRS yields significant changes in the *level* of cash flow and accruals (see Capkun et al., 2010), we deem it more appropriate to estimate Eqs. (3) and (4) within sub-sample.

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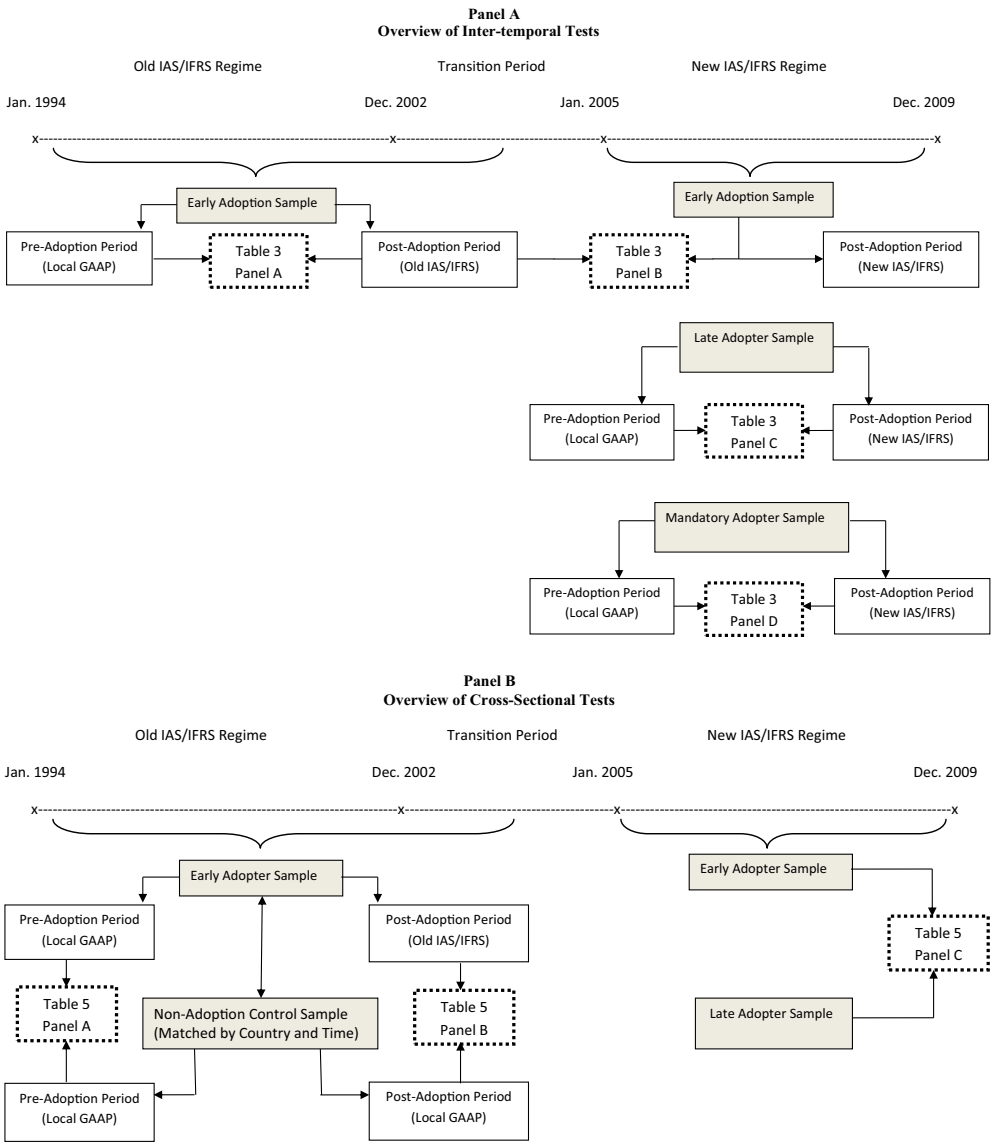

Fig. 1. Panel A. Overview of inter-temporal tests. Panel B. Overview of cross-sectional tests.

differences in incentives to report transparently or due to changes in standards (i.e, moving from local GAAP to IFRS). By using combination of inter-temporal and cross-sectional tests, we are essentially using a difference-in-differences design, which is robust to competing explanations for results (see Cook and Campbell, 1976).

4.3.1. Inter-temporal test predictions

Using the seven subsamples identified in Section 4.1, we begin our investigation with a series of inter-temporal tests that are summarized in Fig. 1, Panel A. Following the predictions in Barth et al. (2008), for the sample of *Early Adopters*, we expect less earnings management after old IAS adoption

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relative to the pre-adoption period when these firms were using local GAAP. Thus, we expect the following relations to hold:

$$\sigma^2(\Delta NI^*_{post}) > \sigma^2(\Delta NI^*_{pre}) \tag{7a}$$

$$\sigma^2(\Delta NI^*_{post})/\sigma^2(\Delta CF^*_{post}) > \sigma^2(\Delta NI^*_{pre})/\sigma^2(\Delta CF^*_{pre}) \tag{8a}$$

$$\rho(CF^*, ACC^* \mid post) > \rho(CF^*, ACC^* \mid pre) \tag{9a}$$

$$\alpha_1(SPOS) < 0 \tag{10a}$$

$$\alpha_1(LNEG) > 0 \tag{11a}$$

Note that Eq. (9a) implies that the *magnitude* of the negative correlation between accruals and cash flows is expected to be smaller (less negative) in the post-IAS/IFRS adoption period relative to the pre-IAS/IFRS adoption period.

If the new IAS/IFRS standards that went into effect in 2005 offered firms greater flexibility to manage (smooth) earnings, and this dominated any incentive effects, we would expect *Early Adopters* of IAS/IFRS to exhibit greater earnings management (smoothing) under the new IAS/IFRS (in the post-2005 period) than under old IAS/IFRS (in the pre-2005 period).[16] Following the same arguments, we would expect both *Late Adopters* and *Mandatory Adopters* to also exhibit greater earnings management (smoothing) after transition from local GAAP to new (2005) IFRS. Thus, we make the following empirical predictions for *Early Adopter, Late Adopter,* and *Mandatory Adopter* transition to the new IAS/IFRS:

$$\sigma^2(\Delta NI^*_{post}) < \sigma^2(\Delta NI^*_{pre}) \tag{7b}$$

$$\sigma^2(\Delta NI^*_{post})/\sigma^2(\Delta CF^*_{post}) < \sigma^2(\Delta NI^*_{pre})/\sigma^2(\Delta CF^*_{pre}) \tag{8b}$$

$$\rho(CF^*, ACC^* \mid post) < \rho(CF^*, ACC^* \mid pre) \tag{9b}$$

$$\alpha_1(SPOS) > 0 \tag{10b}$$

$$\alpha_1(LNEG) < 0 \tag{11b}$$

For the inter-temporal tests outlined above, each set of firms is used as its own control. Thus, country and industry composition are held constant. Factors that can vary include:

- Accounting regime
  - Local GAAP to old IAS/IFRS
  - Old IAS/IFRS to new (2005) IAS/IFRS
  - Local GAAP to new (2005) IAS/IFRS
- Incentives (if they change over time for a particular group of firms).[17]

To address the possibility that incentives may change over time and, therefore, contribute to changes in earnings management (smoothing) behavior, we conduct over-time tests on the following firm characteristics that Christensen et al. (2015) find to be related to firms' incentives to delay adoption of IAS/IFRS standards: (1) percentage of shares that are closely held; (2) long-term leverage; (3) frequency of equity issuance; and (4) analyst following. As discussed above, these variables are designed to capture firms' orientation to internal versus external financing and the demand from

[16] Because we have only three years of post-2005 earnings change years (2006–2008), in our initial test we restrict the pre-adoption period to three years as well (2002–2004).

[17] One might also expect that differences in macro-economic conditions over time could explain differences in these metrics. But recall that Year fixed effects were included in the baseline regression models used to compute the residual earnings, cash flows and accruals. Therefore, over time differences in macro-economic conditions are controlled for in these baseline models.

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capital markets for transparent reporting. We conduct these over-time tests on the *Early Adopter* and *Late Adopter* samples because these are the two samples that faced choices as to when to adopt old IAS/IFRS standards, and therefore, where incentives could affect earnings management tendencies.

4.3.2. Cross-sectional tests

The cross-sectional tests that we conduct are summarized in Fig. 1, Panel B. In cross-sectional tests, we match control and treatment firms based on country, thus controlling for the effects of regulatory environment, legal institutions, and enforcement mechanisms on firms' earnings management (smoothing) behavior. These cross-sectional contrasts will allow us to more clearly identify the effects of incentives versus accounting standards, per se, on firms' earnings management (smoothing) behavior as we explain below.

We first compare earnings management metrics for the *Early Adopter* sample to a matched (by year, country and firm size) sample of *Late Adopters* (Control Sample) during years when both sets of firms used local GAAP (before *Early Adopters* adopted old IAS/IFRS). For this test, we expect to find no differences in earnings management (smoothing) measures across the two samples.

Next, we compare the earnings management (smoothing) metrics of the *Early Adopters* after they adopted old IAS/IFRS (but before 2005) to a sample of matched (by country and firm size) *Late Adopters* reporting under local GAAPs (Control Sample). *Late Adopters* observations are aligned on the year in which the matched *Early Adopter* firms adopted the old IAS/IFRS standards. Based on the findings in Barth et al. (2008), we expect to find evidence of less earnings management (smoothing) for the *Early Adopter* firms compared to the control sample of *Late Adopters*.

Finally, we compare the *Early Adopter* firms to the matched *Late Adopter* firms in the post-2005 period when both sets of firms are reporting under the new IAS/IFRS (2005) regime. If the differences in earnings management (smoothing) tendencies documented in previous research are due to self-selection of firms into these two reporting groups, then we should observe differences in smoothing metrics, small positive earnings and large losses across these two samples in the new (post 2005) IAS/IFRS reporting regime.[18] On the other hand, if changes in earnings management (smoothing) behavior are primarily due to the nature of the standards, per se, then we should observe no differences across these two sub-samples of firms under the new IAS/IFRS (post-2005) reporting regime where data are drawn from the same time period (macro-economic conditions are held constant across samples), firms' accounting choices are from the same set of standards, and country-specific institutional factors and enforcement mechanisms are held constant via matching.

5. Sample construction and summary statistics

To construct a sample of firms that adopted IAS/IFRS in the 1994–2009 periods, we use the Worldscope database. To reduce adoption misclassification errors (see Daske et al., 2008), we use a stricter definition of transition to IAS/IFRS than used in some prior studies, choosing firms adopting either "International standards" or "IFRS" (codes 2 and 23 respectively). Table 1 shows the distribution of the sample of 3853 firms (20,278 firm-year observations) across the sampled 29 countries, adoption years (1994–2009), and industries. As described previously, the total sample is split into three distinct subsamples:

- *Early Adopter Sample*
- *Late Adopter Sample*
- *Mandatory Adopter Sample*

For the *Early Adopters* (as in Barth et al., 2008), we use firm-year observations starting four years prior to the first year of transition to IAS/IFRS. For the *Late* and the *Mandatory Adopter* samples we use change data starting three years before the year of transition to IFRS in order to balance the number of observations in the pre-adoption period compared to the post-adoption period, which for the

[18] This prediction is based on the assumption that there is no uniform change in incentives driven by internal versus external financing orientation for the firms in these two sample from the pre to post-2005 period. We provide evidence on this in Table 4.

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Table 1
Sample.

Country	Early		Late		Mandatory		Total	
	Firms	Obs.	Firms	Obs.	Firms	Obs.	Firms	Obs.
Panel A – Distribution of firms and observations by country								
Austria	33	182	20	82			53	264
Belgium	22	131	69	412			91	543
Switzerland	53	434	42	344			95	778
China	90	690	16	47			106	737
Czech Republic	7	45	10	48			17	93
Germany	170	1107	225	1465			395	2572
Denmark	12	100	90	625			102	725
Estonia	1	3					1	3
Finland	10	79	98	724			108	803
Greece	4	21	91	198			95	219
Hong Kong	10	78	22	116			32	194
Luxembourg	5	28	9	26			14	54
Portugal	4	22	37	248			41	270
Russia	8	34	8	19			16	53
Singapore	6	45	3	18			9	63
Turkey	62	264	11	38			73	302
South Africa	11	96	179	1376			190	1472
Spain					111	294	111	294
France					429	1992	429	1992
United Kingdom					1216	5803	1216	5803
Hungary					7	32	7	32
Ireland					33	179	33	179
Iceland					4	8	4	8
Italy					203	857	203	857
Netherlands					83	425	83	425
Norway					91	434	91	434
Poland					88	320	88	320
Slovenia					4	14	4	14
Sweden					146	775	146	775
Total	508	3359	930	5786	2415	11,133	3853	20,278

Year	Early		Late		Mandatory		Total	
	Firms	Obs.	Firms	Obs.	Firms	Obs.	Firms	Obs.
Panel B – Distribution of firms and observations by transition year								
1994	5	56					5	56
1995	7	62					7	62
1996	14	131					14	131
1997	29	225					29	225
1998	34	275					34	275
1999	53	429					53	429
2000	60	408					60	408
2001	52	358					52	358
2002	66	382					66	382
2003	81	454					81	454
2004	107	579					107	579
2005			659	4062	1306	6142	1965	10,204
2006			217	1456	523	2693	740	4149
2007			37	173	261	969	298	1142
2008			16	88	325	1329	341	1417
2009			1	7			1	7
Total	508	3359	930	5786	2415	11,133	3853	20,278

(*continued on next page*)

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Table 1 (*continued*)

Industry	Early		Late		Mandatory		Total	
	Firms	Obs.	Firms	Obs.	Firms	Obs.	Firms	Obs.
Panel C – Distribution of firms and observations by industry								
Agriculture, Forestry	3	18	8	53	18	91	29	162
Mining	11	73	20	150	92	370	123	593
Construction	9	56	30	164	81	383	120	603
Manufacturing	249	1767	360	2359	762	3565	1371	7691
Transportation, Com.	66	468	76	473	209	901	351	1842
Wholesale trade	27	191	73	435	127	625	227	1251
Retail trade	16	91	43	311	126	629	185	1031
Finance, Insurance	68	387	191	1078	462	2081	721	3546
Services	57	295	126	749	535	2484	718	3528
Public administration	2	13	3	14	3	4	8	31
Total	508	3359	930	5786	2415	11,133	3853	20,278

The sample consists of 3853 firms from 29 countries (20,278 firm-year observations) that transitioned to IAS/IFRS in the 1994–2007 periods. *Early Adopters* are firms had a choice between early and late transition and chose to transition to IAS/IFRS in the 1994–2004 periods. *Late Adopters* are firms that had a choice between early and late transition and chose to transition to IAS/IFRS in the 2005–2009. *Mandatory Adopters* are firms that had no choice between early and late transition and had to adopt IAS/IFRS between 2005 and 2009. Transition Year is the year of adoption of IAS/IFRS. Industry is the SIC industry division level classification. All data were collected from Worldscope and Datastream databases.

majority of our sample are years 2006–2008. For the subsample of *Early Adopters* we use post-old IAS/IFRS data through 2004,[19] while for the other two subsamples we use all available data through 2008 to maximize the number of post-new IAS/IFRS adoption observations.[20] We use the SIC division structure to classify firms into industries.

Our sample of *Early Adopters* is comparable to the treatment sample in Barth et al. (2008) and consists of 508 firms (3359 firm-year observations) from 17 countries. Similar to Barth et al. (2008), the most represented countries in the sample are Germany, China and Switzerland, with most firms belonging to the manufacturing industry group.

The sample of *Late Adopters* consists of 930 firms (5786 firm-year observations) that adopted IAS/IFRS from 2005 to 2009.[21] Most of firms in *Late Adopter* sample come from Germany, South Africa and Finland. In the *Late Adopter* sample, most firms belong to manufacturing industries, followed by finance, insurance, real estate and services. In our cross-sample tests (Table 5), we seek to match *Early Adopter* firms with non-adoption firms from the same country and with similar size. Thus, we select non-IAS Control firms from this sample of *Late Adopter* firms.

The sample of *Mandatory Adopters* consists of 2415 EU firms (11,133 firm-year observations) that adopted IAS/IFRS in the 2005–2008 period. As shown in Table 1, twelve countries in the EU did not allow early adoption of IAS/IFRS, forcing all firms in this sample to adopt IAS/IFRS for the fiscal year beginning in calendar 2005 (with some firms being allowed to transition after 2005). Most firms in this subsample come from the UK, France and Italy. As is the case for *Late Adopters,* most *Mandatory Adopter* firms belong to manufacturing industries, followed by finance, insurance, real estate and services.

In Table 2 we provide descriptive statistics for the full sample and our three main sub-samples. All independent variables are winsorized at the 1% and 99% level.[22] For each sub-sample, we tabulate variables of interest and control variables under local GAAP, old IAS/IFRS (pre-2005), and new IAS/IFRS (2005 and after). Compared to *Early Adopters* and consistent with Barth et al. (2008), *Late Adopters* are smaller in

[19] Barth et al. (2008) end their sampling period in 2003. Exclusion of 2004 has no material effect on our findings.

[20] Including all observations starting with 1990 for all three subsamples or including post-2003 observations in the sample of early adopters does not change our results qualitatively.

[21] Adoption years beyond 2005 are included in our sample for two reasons. First, in countries outside the EU/EEA (outside the European Commission jurisdiction, e.g., China or South Africa) firms were allowed to transition to IAS/IFRS after 2005. Second, in EU/EEA countries firms had to adopt IAS/IFRS in the fiscal year beginning in calendar 2005 which allowed for the possibility of firms' first IAS/IFRS fiscal year ending in 2006.

[22] Barth et al. (2008) winsorize their variables at the 5% and 95% level. We replicate our findings winsorizing at the top and bottom 5% and the results are qualitatively similar.

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size, exhibit less growth, are less likely to be cross-listed in the US, and are listed on a smaller number of exchanges. All these characteristics are consistent with *Early Adopter* firms adopting IAS/IFRS to increase their credibility and visibility with a wider range of investors as argued in Christensen et al. (2015).

6. Results

Our main findings are presented in Tables 3–5. Table 3 presents results of our inter-temporal tests for changes in earnings management (smoothing) under different accounting standard regimes for the *Early Adopter*, *Late Adopter* and *Mandatory Adopter* samples. Table 4 presents tests for over time and across sample differences in variables designed to capture differences in firms' incentives to early adopt or delay adoption of IAS/IFRS. We conduct three comparisons for *Early Adopters* and *Late Adopters*, the two samples where firms had a choice as to when to adopt IAS/IFRS standards. Table 5 presents cross-sectional (between sample) tests of differences in earnings management (smoothing) metrics for the *Early Adopter* and *Late Adopter* samples while holding time period (macro-economic conditions), regulatory environment, legal institutions, and enforcement mechanisms constant across the two samples (by matching on year and country). Sample sizes vary across these tables depending on whether we use matched (treatment vs. control) sample design or whether we use a balanced design (i.e., holding the number of years in the pre-adoption and post-adoption period constant). In some panels, we relax these restrictions and use all available data for firms from a particular subsample or sub-period.

6.1. Inter-temporal test results

In Panel A of Table 3, we compare earnings management (smoothing) metrics for *Early Adopters* before and after the adoption of old IAS/IFRS for all available observations before adoption and all observations through 2004 after adoption. Consistent with the evidence reported by Barth et al. (2008, Table 5), for the smoothing metrics we find evidence of statistically significant and economically meaningful less smoothing as revealed by greater $\sigma^2(\Delta NI^*)$ in the post-IAS/IFRS adoption versus the pre-adoption period (0.021212 vs. 0.007474, a 183% increase) and greater $\sigma^2(\Delta NI^*)/\sigma^2(\Delta CF^*)$ (3.653456 vs. 1.154923 a 216% increase). Also consistent with less smoothing, the contemporaneous correlation between residual cash flows and accruals [$\rho(CF^*,\mathrm{ACC}^*)$] is less negative (weaker) in the post-adoption period (−0.433452) relative to the pre-adoption period (−0.539558).[23] Consistent with more transparent reporting, we find a significantly higher incidence of large negative earnings in the post-adoption period relative to the pre-adoption period [α_1(Large Negative) = 0.190759], which suggests that following adoption of the pre-2005 version of IAS/IFRS firms increased timely loss recognition. Like Barth et al. (2008), we find no significant difference in the incidence of small positive earnings across the two accounting regimes [α_1(Small Positive) = 0.031727]. Overall, our findings are comparable and even somewhat stronger than the findings in Barth et al. (2008). We find evidence that *Early Adopters* exhibit less earnings management (smoothing) after adoption of old IAS/IFRS standards relative to before adoption when they used local GAAP.[24]

Panel B of Table 3 compares earnings management (smoothing) metrics under "old" versus "new" IAS/IFRS standards for the *Early Adopter* sample. The analysis of this sample is a key difference between our study and the Ahmed et al. (2013) study that allows us to draw cleaner inferences about whether incentives or standards are a primary driver of the changes in earnings management

[23] Note that Barth et al. (2008) do not find a statistically significant change in correlation of residual cash flows with accruals. We believe this difference in results between Barth et al. (2008) and our study is due to the choice of pooling of observations from the pre- and post-IAS/IFRS periods. When we compute CF^* and ACC^* residuals from pooled observations, we find no significant change in contemporaneous correlation between CF^* and ACC^*, consistent with Barth et al. (2008).

[24] The careful reader will note substantive differences in the numerical values of some of the smoothing metrics in our study compared to the Barth et al. study. The main factor contributing to these differences is that we winsorize variables at the 1% and 99% – tile values while Barth et al. winsorize at the 5% and 95% – tile values. We believe it is prudent to winsorize fewer observations when the metrics of interest are concerned with volatility measures. Our results are qualitatively unchanged when we winsorize at the 5% and 95%-tile values. Note that Lang et al. (2006) winsorize their data at the 1% level and report magnitudes of their metrics that are comparable to those reported in our paper.

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Table 2
Descriptive statistics.

Variable	All			Local GAAP			Old IAS/IFRS			New IAS/IFRS		
	N	Mean	S.D.	*N*	Mean	S.D.	*N*	Mean	S.D.	*N*	Mean	S.D.
Panel A – All adopters												
ΔNI	20,278	0.011	0.169	11,375	0.021	0.202	1222	0.007	0.151	7681	−0.004	0.107
ΔCF	20,278	0.012	0.112	11,375	0.016	0.127	1222	0.009	0.094	7681	0.005	0.090
SIZE	20,278	19.326	2.145	11,375	18.830	2.091	1222	19.882	1.843	7681	19.972	2.075
GROWTH	20,278	0.215	0.631	11,375	0.242	0.717	1222	0.162	0.349	7681	0.184	0.518
EISSUE	20,278	0.114	0.352	11,375	0.140	0.364	1222	0.096	0.232	7681	0.079	0.348
LEV	20,278	2.737	5.495	11,375	2.391	4.938	1222	3.788	7.652	7681	3.082	5.817
DISSUE	20,278	0.242	0.739	11,375	0.250	0.770	1222	0.147	0.384	7681	0.244	0.735
TURN	20,278	0.974	0.757	11,375	1.041	0.786	1222	0.866	0.699	7681	0.891	0.709
CF	20,278	0.051	0.135	11,375	0.044	0.158	1222	0.066	0.088	7681	0.060	0.101
ACC	20,278	−0.045	0.123	11,375	−0.056	0.135	1222	−0.061	0.144	7681	−0.027	0.097
AUD	20,278	0.700	0.458	11,375	0.683	0.465	1222	0.643	0.479	7681	0.733	0.442
NUMEX	20,278	1.310	0.874	11,375	1.286	0.835	1222	1.675	1.359	7681	1.286	0.818
XLIST	20,278	0.007	0.083	11,375	0.007	0.086	1222	0.007	0.086	7681	0.006	0.079
CLOSE	20,278	0.448	0.260	11,375	0.443	0.255	1222	0.532	0.240	7681	0.443	0.267
Panel B – Early Adopters												
ΔNI	3359	0.004	0.118	878	0.000	0.089	1222	0.007	0.151	1259	0.003	0.098
ΔCF	3359	0.006	0.093	878	0.004	0.092	1222	0.009	0.094	1259	0.005	0.091
SIZE	3359	19.990	1.907	878	19.766	1.747	1222	19.882	1.843	1259	20.251	2.042
GROWTH	3359	0.163	0.392	878	0.106	0.352	1222	0.162	0.349	1259	0.202	0.450
EISSUE	3359	0.098	0.311	878	0.043	0.245	1222	0.096	0.232	1259	0.139	0.401
LEV	3359	3.105	5.950	878	2.569	2.988	1222	3.788	7.652	1259	2.815	5.541
DISSUE	3359	0.166	0.443	878	0.108	0.390	1222	0.147	0.384	1259	0.225	0.518
TURN	3359	0.943	0.664	878	1.051	0.631	1222	0.866	0.699	1259	0.942	0.642
CF	3359	0.067	0.092	878	0.072	0.088	1222	0.066	0.088	1259	0.066	0.098
ACC	3359	−0.047	0.118	878	−0.054	0.098	1222	−0.061	0.144	1259	−0.029	0.098
AUD	3359	0.702	0.458	878	0.822	0.382	1222	0.643	0.479	1259	0.674	0.469
NUMEX	3359	1.669	1.299	878	1.834	1.410	1222	1.675	1.359	1259	1.549	1.138
XLIST	3359	0.011	0.104	878	0.018	0.134	1222	0.007	0.086	1259	0.010	0.097
CLOSE	3359	0.517	0.245	878	0.510	0.233	1222	0.532	0.240	1259	0.508	0.257

Variable	All			Local GAAP			New IAS/IFRS		
	N	Mean	S.D.	*N*	Mean	S.D.	*N*	Mean	S.D.
Panel C – Late Adopters									
ΔNI	5786	0.006	0.115	3989	0.010	0.120	1797	−0.004	0.103
ΔCF	5786	0.010	0.096	3989	0.012	0.098	1797	0.003	0.091
SIZE	5786	19.176	1.901	3989	18.950	1.861	1797	19.676	1.892
GROWTH	5786	0.156	0.400	3989	0.147	0.379	1797	0.176	0.443
EISSUE	5786	0.095	0.317	3989	0.105	0.338	1797	0.072	0.262
LEV	5786	3.052	6.143	3989	2.958	6.087	1797	3.260	6.262
DISSUE	5786	0.208	0.644	3989	0.175	0.552	1797	0.279	0.808
TURN	5786	1.047	0.767	3989	1.091	0.760	1797	0.949	0.773
CF	5786	0.072	0.099	3989	0.076	0.098	1797	0.065	0.101
ACC	5786	−0.038	0.102	3989	−0.045	0.102	1797	−0.022	0.100
AUD	5786	0.735	0.442	3989	0.737	0.440	1797	0.729	0.445
NUMEX	5786	1.381	0.832	3989	1.403	0.889	1797	1.334	0.688
XLIST	5786	0.003	0.051	3989	0.004	0.059	1797	0.001	0.024
CLOSE	5786	0.510	0.254	3989	0.511	0.250	1797	0.509	0.264
Panel D – Mandatory adopters									
ΔNI	11,133	0.015	0.202	6508	0.030	0.247	4625	−0.006	0.111
ΔCF	11,133	0.014	0.125	6508	0.020	0.145	4625	0.006	0.089
SIZE	11,133	19.203	2.291	6508	18.630	2.223	4625	20.010	2.137
GROWTH	11,133	0.262	0.769	6508	0.319	0.883	4625	0.182	0.560
EISSUE	11,133	0.129	0.380	6508	0.175	0.387	4625	0.065	0.360
LEV	11,133	2.462	4.955	6508	2.019	4.286	4625	3.085	5.709
DISSUE	11,133	0.282	0.847	6508	0.315	0.905	4625	0.235	0.755

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Table 2 (*continued*)

Variable	All			Local GAAP			New IAS/IFRS		
	N	Mean	S.D.	*N*	Mean	S.D.	*N*	Mean	S.D.
TURN	11,133	0.945	0.775	6508	1.009	0.819	4625	0.855	0.698
CF	11,133	0.035	0.159	6508	0.020	0.188	4625	0.056	0.102
ACC	11,133	−0.048	0.134	6508	−0.062	0.154	4625	−0.028	0.095
AUD	11,133	0.681	0.466	6508	0.631	0.482	4625	0.751	0.432
NUMEX	11,133	1.164	0.678	6508	1.141	0.630	4625	1.197	0.739
XLIST	11,133	0.008	0.090	6508	0.008	0.092	4625	0.008	0.087
CLOSE	11,133	0.395	0.255	6508	0.392	0.250	4625	0.399	0.262

It presents descriptive statistics for the independent variables used in the analysis. Panel A reports summary statistics for all adopters of IAS/IFRS, both old (pre-2005) and new (2005 and after) IAS/IFRS, Panel B for *Early Adopters*, Panel C for *Late Adopters* and Panel D for *Mandatory Adopters*. ΔNI is the change in Net Income scaled by Total Assets, ΔCF is the change in operating cash flow scaled by Total Assets, *SIZE* is the natural logarithm of end of year market value of equity; *GROWTH* is percentage change in sales; *EISSUE* is percentage change in common equity; *LEV* is end of year total liabilities divided by end of year equity book value; *DISSUE* is percentage change in total liabilities; *TURN* is sales divided by end of year total assets; *CF* is annual net cash flow from operating activities divided by end of year totals assets; *AUD* is an indicator variable that equals one if the firm's auditor is PwC, KPMG, Arthur Andersen, E&Y or D&T, and zero otherwise; *NUMEX* is the number of exchanges on which the firm's stock is listed; *XLIST* is an indicator variable that equals one if the firms is listed on any U.S. exchange and WorldScope indicates that the U.S. exchange is not the firm's primary exchange. CLOSE is the proportion of closely held shares. All data are from Worldscope and Datastream databases.

(smoothing) that we document. If incentives explain why these firms exhibit less earnings management after adopting IAS/IFRS standards, then we should observe no differences in earnings management metrics for this sample under old versus new IAS/IFRS standards. On the other hand, if greater flexibility of the new IAS/IFRS standards and lack of guidance on how to implement the new standards contributes to greater earnings management (smoothing), then we should observe *Early Adopter* firms exhibiting greater earnings management (smoothing) in the post-2005 IAS/IFRS regime compared to the old IAS/IFRS regime. We test these competing hypotheses by using data throughout the old IAS/IFRS regime from 1994 to 2004.[25]

Consistent with the flexibility of the new IAS/IFRS standards contributing to greater smoothing, Panel B of Table 3 shows a significant and economically meaningful decline in the $\sigma^2(\Delta NI^*)$ from the old IAS/IFRS regime to the new IAS/IFRS regime (0.021414 vs. 0.008875, a 58.6% decrease) and a decline in $\sigma^2(\Delta NI^*)/\sigma^2(\Delta CF^*)$ (3.707056 vs. 1.679465, a 54.7% decrease). We also find a significantly stronger negative correlation between CF^* and ACC^* in the new (post-2005) IAS/IFRS regime (−0.539316) compared to the pre-2005 IAS/IFRS regime (−0.433452). Consistent with greater earnings management (less timely loss recognition), we find a significantly lower frequency of large losses in the post-2005 period (new IAS/IFRS standards) compared to the pre-2005 period (old IAS/IFRS standards) for the *Early Adopter* sample (α_1(Large Negative) = −0.089275). Contrary to our expectations, we find no statistically significant change in the incidence of small positive earnings after 2005 compared to before 2005. Overall, the results are consistent with greater earnings management (smoothing) for *Early Adopter* firms after the new (2005) IAS/IFRS standards went into effect.

Next, we test if the transition from local GAAP to new (2005) IAS/IFRS standards by *Late Adopters* contributes to more earnings management (smoothing). These results reported in Panel C of Table 3 are quite strong and consistent across all five measures of earnings management (smoothing). After the transition to IFRS, *Late Adopters* exhibit a significant decrease in the $\sigma^2(\Delta NI^*)$ (0.020741 vs. 0.009766, a 52.9% decrease), a significant decrease in $\sigma^2(\Delta NI^*)/\sigma^2(\Delta CF^*)$ (2.346689 vs. 1.761589 a 24.9% decrease) and significantly stronger negative correlation between CF^* and ACC^* (−0.457481 vs. −0.365035). We also observe a significantly higher (lower) frequency of small positive (large negative) earnings after transition to IAS/IFRS, which is consistent with greater upward earnings management and less timely loss recognition after adoption of new (2005) IAS/IFRS standards.

[25] As a robustness check, we run the same analysis with data from the three years (2002–2004) immediately before the new (2005) IAS/IFRS standards went into effect. This yields qualitatively unchanged results.

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Table 3
Transition to IAS/IFRS – Inter-temporal tests.

Early Adopters	Local GAAP 0	Old IAS/IFRS 1
Panel A – Early Adopters Transition from Local GAAP to OLD IAS/IFRS		
Number of observations	878	1222
Variability of ΔNI^*	0.007474	0.021212[a,**]
Variability of ΔNI^* over ΔCF^*	1.154923	3.653456[**]
Correlation of ACC* and CF^*	−0.539558	−0.433452[**]
α_1 (small positive)	0.031727	
α_1 (large negative)	0.190759[**]	
Early Adopters	Old IAS/IFRS (1994–2004) 0	New IAS/IFRS (2006–2008) 1
Panel B – Early Adopters transition from OLD IAS/IFRS to NEW IAS/IFRS		
Number of observations	1222	1259
Variability of ΔNI^*	0.021414[a]	0.008875[**]
Variability of ΔNI^* over ΔCF^*	3.707056	1.679465[**]
Correlation of ACC* and CF^*	−0.433452	−0.539316[**]
α_1 (small positive)	−0.000076	
α_1 (large negative)	−0.089275[**]	
Late Adopters	Local GAAP 0	New IAS/IFRS 1
Panel C – Late Adopters transition from Local GAAP to New IAS/IFRS		
Number of observations	2104	1797
Variability of ΔNI^*	0.020741	0.009766[**]
Variability of ΔNI^* over ΔCF^*	2.346689	1.761589[**]
Correlation of ACC* and CF^*	−0.365035	−0.457481[**]
α_1 (small positive)	0.086291[**]	
α_1 (large negative)	−0.098857[**]	
Mandatory adopters	Local GAAP 0	New IAS/IFRS 1
Panel D – Mandatory adopters transition from local GAAP to New IAS/IFRS		
Number of observations	6508	4625
Variability of ΔNI^*	0.059260	0.011822[**]
Variability of ΔNI^* over ΔCF^*	3.020911	1.740708[**]
Correlation of ACC* and CF^*	−0.177743	−0.454191[**]
α_1 (small positive)	0.035412[*]	
α_1 (large negative)	−0.067097[**]	

The sample consists of all *Early Adopters* observations (firms that had a choice between early and late transition and chose to transition to IAS/IFRS in the 1994–2004 period), *Late Adopters* observations (firms that had a choice between early and late transition and chose to transition to IAS/IFRS in 2005–2009) and *Mandatory Adopters* (firms that transitioned to IAS/IFRS in 2005–2009, in those countries where early transition was prohibited). Variability of ΔNI^* and ΔCF^* are the variance of residuals from a regression of the ΔNI and ΔCF respectively on the control variables from Table 2 and industry and country indicator variables. Variability of ΔNI^* over ΔCF^* is the ratio of the variability of ΔNI^* divided by variability of ΔCF^*. Correlation of ACC* and CF^* is the Spearman correlation between the residuals from the ACC and CF regressions. α_1 (small positive) and α_1 (large negative) are the coefficients on the indicator variables representing small positive earnings (net income scaled by total assets from 0 to 0.01) and large negative earnings (net income scaled by total assets <−0.20) from regression models (5) and (6) respectively. A positive (negative) coefficient on Small Positive (Large Negative) is consistent with greater earnings management under the new (2005) IAS/IFRS group compared to the control group (Local GAAP and old IAS/IFRS observations respectively). All data are from Worldscope and Datastream databases.

[***] Indicates that the difference is significantly different from zero at the 1%.

[**] Indicates that the difference is significantly different from zero at the 5% level.

[*] Indicates that the difference is significantly different from zero at the 10% level.

[a] The differences in point estimates of various metrics for the same subset of observations in Panels A and B is due to the pooled set of raw data used for the estimation regression from which the residual are determined being different across these two panels. In Panel A, observations taken from the old IAS/IFRS standard regime are pooled with observations taken from the local GAAP regime, while in Panel B observations from the old IAS/IFRS regime are pooled with observations from the new IAS/IFRS regime. Because the regression estimates of these two specifications will differ, the residuals will differ.

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Table 4
Inter-temporal and cross-sectional comparison of *Early Adopters* and *Late Adopters* Incentives.

	Early Adopters over time					*Late Adopters* over time			*Late Adopters* v *Early Adopters*	
	Local GAAP (1)	Old IAS/IFRS (2)	New IAS/IFRS (3)	(2)–(1)	(3)–(2)	Local GAAP (4)	New IAS/IFRS (5)	(5)–(4)	(4)–(2)	(5)–(3)
CLOSE	0.527	0.531	0.490	ns	ns	0.587	0.554	ns	+**	+**
LTLEV	0.211	0.231	0.241	ns	ns	0.260	0.271	ns	+**	+***
EISSUEIND	0.132	0.239	0.127	ns	ns	0.108	0.094	ns	−***	−**
ANALYST	1.403	1.349	1.247	ns	ns	1.168	1.229	ns	−***	−**

The sample consists of all *Early Adopter* observations that are firms that had a choice between early and late transition and chose to transition to IAS/IFRS in the 1994–2004 period. *Late Adopter* observations are firms that had a choice between early and late transition and chose to transition to IAS/IFRS in 2005–2009. All values are medians of each variable three years before the IAS/IFRS adoption for the local GAAP subsample, three year following the adoption of old IAS/IFRS for the old IAS/IFRS subsample, and from 2006 to 2008 for the new IAS/IFRS subsample. CLOSE is the proportion of closely held shares. LTLEV is long-term debt divided by the sum of long-term debt and market value of equity. EISSUEIND is an indicator variable that takes the value one if the firm issued equity and zero otherwise. ANALYST is the natural logarithm of the number of analysts providing I/B/E/S with a forecast. The expected sign of the difference (Late–Early) is indicated to the left.
* Indicates significance at the 10% levels and ns is not significant (one sided).
*** indicates significance at the 1% level and ns is not significant (one sided).
** indicates significance at the 5% level and ns is not significant (one sided).

Panel D of Table 3 presents results for the *Mandatory Adopter* sample, which are firms from countries that did not allow early adoption of IFRS. This is an interesting sample to consider because these firms did not have a choice of adopting IAS/IFRS early. Thus, it is unlikely that incentives (or lack thereof) account for any differences in earnings management tendencies of this sample before versus after adoption. The results in Panel D of Table 3 are quite strong and display a consistent pattern. Like the *Late Adopter* sample, these firms exhibit significantly greater smoothing behavior across all three smoothing metrics, greater upward earnings management (greater incidence of small positive earnings), and a smaller frequency of large losses (less timely loss recognition) in the post-IAS/IFRS adoption period compared to when these firms were following local GAAP.

6.2. Distinguishing between changes in incentives and changes in standards as explanations for changes in earnings management (smoothing)

Taken together, the results in Table 3 suggest that *Early Adopters* exhibit less earnings management (smoothing) after transition to old IAS/IFRS standards, while these same firms along with *Late Adopters* and *Mandatory Adopters* exhibit more earnings management (smoothing) after transitioning to new (2005) IAS/IFRS standards. There are two competing interpretations of these results. As argued by Ahmed et al. (2013) and Christensen et al. (2015), the findings may reflect a self-selection effect (in other words *Early Adoption* firms had incentives to "signal" their quality by opting for early adoption of IAS/IFRS). Alternatively, the findings may be due to the differences between "old" and "new" IAS/IFRS standards. Given the significant changes in IAS/IFRS enforced in 2005 and the lack of implementation guidance under the new standards, we maintain that new IAS/IFRS permitted greater opportunity for earnings management (smoothing) than did the old IAS/IFRS standards or local GAAP standards. Thus, we posit that the changes in flexibility of new versus old IAS/IFRS standards and the lack of guidance in applying the new IFRS standards is the primary explanation for the differences in earnings management (smoothing) exhibited by *Early* versus *Late* and *Mandatory Adopters*. Our results support this position. The inter-temporal tests for the *Late Adopter* sample (Panel C of Table 3) and the *Mandatory Adopter* sample (Panel D of Table 3) show evidence of increased earnings management (smoothing), the same general pattern as we observe for the *Early Adopter* sample (Panel B of Table 3). What is common across Panels B, C and D of Table 3 is the shift to the new IAS/IFRS regime.

Please cite this article in press as: Capkun, V., et al. The effect of IAS/IFRS adoption on earnings management (smoothing): A closer look at competing explanations. J. Account. Public Policy (2016), http://dx.doi.org/10.1016/j.jaccpubpol.2016.04.002

Table 5
Transition to IAS/IFRS – cross-sectional tests.

	Control sample (Late Adopters) 0	Early Adopters 1
Panel A – Local GAAP regime for both samples		
Number of observations	528	528
Variability of ΔNI^*	0.026342	0.031157
Variability of ΔNI^* over ΔCF^*	2.133186	2.384131
Correlation of ACC* and CF^*	−0.576232	−0.541276
α_1 (small positive)	−0.003792	
α_1 (large negative)	0.061310	
	Control sample (Late Adopters) 0	Early Adopters 1
Panel B – Old IAS/IFRS regime for Early Adopters and local GAAP regime for Late Adopters		
Number of observations	993	993
Variability of ΔNI^*	0.021217	0.020241
Variability of ΔNI^* over ΔCF^*	2.370491	2.856428**
Correlation of ACC* and CF^*	−0.448323	−0.323227**
α_1 (small positive)	0.061343	
α_1 (large negative)	0.091279**	
	Control sample (Late Adopters) 0	Early Adopters 1
Panel C – New IAS/IFRS regime for both samples		
Number of observations	1797	1259
Variability of ΔNI^*	0.009502	0.008766
Variability of ΔNI^* over ΔCF^*	1.751992	1.646153
Correlation of ACC* and CF^*	−0.457481	−0.539316**
α_1 (small positive)	0.014951	
α_1 (large negative)	0.013129	

The sample consists of *Early Adopters* (firms that had a choice between early and late transition and chose to transition to IAS/IFRS in the 1994–2004 period) with a matched *Late Adopter* (a firm that opted to adopt IAS/IFRS in or after 2005) matched on country and size. Variability of ΔNI^* and ΔCF^* are the variance of residuals from a regression of the ΔNI and ΔCF respectively on the control variables from Table 2 and industry and country indicator variables. Variability of ΔNI^* over ΔCF^* is the ratio of the variability of ΔNI^* divided by variability of ΔCF^*. Correlation of ACC* and CF^* is the Spearman correlation between the residuals from the ACC and CF regressions. α_1 (small positive) and α_1 (large negative) are the coefficients on the indicator variables representing small positive earnings (net income scaled by total assets from 0 to 0.01) and large negative earnings (net income scaled by total assets <−0.20) from regression models (5) and (6) respectively. In Panels B and C, a negative (positive) coefficient on Small Positive (Large Negative) is consistent with less earnings management under old IAS/IFRS standards compared to local GAAP. All data are from Worldscope and Datastream databases.

* Indicate the difference is significantly different from zero at the 10% (one-sided).

** Indicate the difference is significantly different from zero at the 5% level (one-sided).

Changes in incentives is unlikely to be a competing explanation for the *Mandatory Adopters* results because the firms in this sample did not have a choice as to which set of accounting standards they could use. Moreover, change in incentives is an unlikely explanation for the results for *Early Adopters* and *Late Adopters* combined, since both subsamples exhibit the same direction of change in earnings management (smoothing) after their respective adoption of new IAS/IFRS standards. To provide further support for the validity of this claim, in the next section we analyze over time changes and cross-sample differences in variables designed to capture firms' incentives to early adopt or delay adoption of IAS/IFRS standards.

6.2.1. Tests for inter-temporal and cross-sample differences in incentives

Christensen et al. (2015) argue differences in insider orientation may explain the willingness of firms to voluntarily adopt IAS/IFRS in countries in which early adoption was possible. They argue that the more insider-oriented the firm, the less likely the firm is to early adopt IAS/IFRS. We use the following characteristics to capture this insider orientation (see Christensen et al., 2015): the

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percentage of closely held shares (CLOSE), long term leverage (LTLEV), frequency of equity issuance (EISSUEIND), and analyst following (ANALYST).[26,27]

The above variables capture the firm incentives to manage earnings. Change in these variable in the *Early Adopter,* and *Late Adopter* samples over time could potentially explain the change in earnings management we observe in Table 3. To test for this competing explanation we test if the percentage of closely held shares, long term leverage, frequency of equity issuance, and analyst following changed for *Early Adopters* as they transitioned from Local GAAP to old IAS/IFRS, and then finally to the new (2005) IAS/IFRS. We also test if these variables changed for *Late Adopters* as they transitioned from Local GAAP to the new (2005) IAS/IFRS.

Table 4 presents relevant comparisons of the incentive variables. Over time, we find no significant *changes* in incentives for the *Early Adopter* sample from the local GAAP period to the old IAS/IFRS period or from the old IAS/IFRS period to the new IAS/IFRS period. Likewise, we find no significant *changes* in the incentive variables from the local GAAP period to the new IAS/IFRS period for the *Late Adopter* sample. In other words, we find no change in firm incentive characteristics that would explain the change in earnings management (smoothing) observed in Table 3 from the local GAAP to old IAS/IFRS regime or from old IAS/IFRS to new IAS/IFRS regimes for either sample. However, consistent with Christensen et al. (2015), in the last two columns of Table 4 we find that *Late Adopters* exhibit a higher percentage of closely held shares, higher long-term leverage, less equity offerings, and smaller analyst following compared to *Early Adopters* and these difference hold for both the local GAAP and new IAS/IFRS regimes. Thus, while incentives may have played a role in firms' initial decision to early adopt IAS/IFRS standards, changes in incentives do not offer a viable explanation for the over-time differences in earnings management (smoothing) behavior documented in Table 3 for *Early Adopter* and *Late Adopter* firms.

6.3. Cross-sectional test results

Table 5 presents results of our cross-sectional tests where we compare *Early Adopters* to a matched sample of *Late Adopters*, during the local GAAP period, old IAS/IFRS period, and new IAS/IFRS period. For each *Early Adopter* firm, we identify a match firm in the *Late Adopter* sample from the same country and whose equity market value is closest to the *Early Adopter* in the year preceding the old IAS/IFRS adoption.[28] Note that because firms are matched on calendar time and country, macroeconomic events and regulatory, legal and enforcement mechanisms are held constant across the two samples. Similar to Barth et al. (2008), we (1) excluded for our potential match all firms from industries without at least one IAS/IFRS adopter and (2) only include firm-years for which the *Early Adopter* and its matched *Late Adopters* both have data for our primary variables of interest and all control variables. This procedure generates 528 pairs of observations before *Early Adopters* actually adopted old IAS/IFRS standards; and 993 pairs of observations after *Early Adopters* adopted old IAS/IFRS. Panel A of Table 5 presents earnings management (smoothing) metrics for *Early* and matched *Late Adopters* before *Early Adopters* adopted (old) IAS/IFRS. Consistent with Barth et al. (2008), we observe no significant difference in smoothing metrics or frequencies of small positive or large negative earnings between *Early Adopters* and matched *Late Adopters* for the period when both sets of firms were reporting under local GAAP standards.

Panel B of Table 5 compares earnings management (smoothing) metrics for *Early* and matched *Late Adopters* in the period after *Early Adopters* adopted old IAS/IFRS standards. Note that in this panel we restrict our sample period to 1996–2004, i.e. no firm-year observations after 2004 are included. Thus, Panel B compares earnings management (smoothing) under local GAAP for the *Late Adopters* to the "old" version of IAS/IFRS for the *Early Adopters*. For testing differences in the frequency of Small Positive and Large Negative earnings, *Late Adopter* (local GAAP) firm-year observations are coded zero and *Early Adopter* (old IAS/IFRS) firm-year observations are coded one. Thus, a negative (positive) coeffi-

[26] In addition to these four variables, Christensen et al. (2015) also examine bank ownership. However, unlike for German companies, this variable is not readily available for many firms in our sample.

[27] Other variable may drive incentives to manage earnings, such as whether a firm is cross listed or it has a big 4 auditor. Unfortunately these variables are not available as dynamic (over time) in our database, but only as static data. That said, it is unlikely that for a large number of firms these variables changed over time.

[28] Once a *Late Adopter* firm is selected as a match, it is not considered as a potential match for other *Early Adopters*.

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cient for Small Positive (Large Negative) is consistent with less earnings management by *Early Adopter* firms that were using old IAS/IFRS standards during this time frame compared to *Late Adopters* that were using local GAAP standards after controlling for other factors that can affect firms' propensity to report small positive (large negative) earnings.

The significantly higher $\sigma^2(\Delta NI^*)/\sigma^2(\Delta CF^*)$ (2.856428 vs. 2.370491) and the significantly less negative $\rho(CF^*, ACC^*)$ (−0.323227 vs. −0.448323) for the *Early Adopters* shown in Panel B of Table 5 is consistent with less smoothing under old IAS/IFRS standards compared to local GAAP standards for *Late Adopter* firms. Likewise, the positive coefficient on LNEG (0.091279) is also consistent with less earnings management under IAS/IFRS standards than local GAAP standards. We find no significant differences across the two samples for $\sigma^2(\Delta NI^*)$ or for frequency of small positive earnings. Overall, the findings in Panel B of Table 5 are consistent with the findings of Barth et al. (2008, Table 3). Three of the five earnings management (smoothing) metrics show that *Early (voluntary) Adopters* of old IAS/IFRS standards exhibit less earnings management (smoothing) than country and size-matched firms that follow local GAAP.

In Panel C of Table 5 we compare *Early Adopters* to *Late Adopters* in the post-2005 period (2006–2008).[29] Again, if incentives contribute to differences in earnings management behavior of these two groups, then we would expect to find greater earnings management for the *Late Adopter* sample compared to the *Early Adopter* sample. However, if it is the flexibility of the standards and the lack of implementation guidance that contributes to greater earnings management (smoothing), then we expect to observe no difference between the *Early* and *Late Adopter* samples under the new (2005) IAS/IFRS reporting regime. Panel C of Table 5 shows, with one exception, no differences in earnings management (smoothing) metrics across the two samples. The one exception is the stronger negative correlation between ACC^* and CF^* for the *Early Adopter* sample compared to the *Late Adopter* sample, which is opposite of what one would expect under the incentives explanation. Overall, the evidence reported in Table 5 suggests that flexibility in applying new IAS/IFRS standards and/or the lack of implementation guidance have contributed to greater earnings management (smoothing) in the post-2005 IAS/IFRS reporting regime, and that the different findings in the Barth et al. (2008) versus Ahmed et al. (2013) and Christensen et al. (2015) studies is due more to differences in flexibility of "old" versus "new" IAS/IFRS standards than to firms' incentives to early adopt or delay adoption of IAS/IFRS standards.

7. Additional tests and robustness checks

7.1. Mechanical impact of IFRS adoption

In this paper, we put forward arguments and show evidence consistent with changes in IAS/IFRS standards increasing flexibility available to managers, which results in the transition to the new (2005) version of IFRS increasing earnings smoothing and earnings management. An alternative explanation is that the change from local GAAP to new (2005) IAS/IFRS standards *mechanically* produces smoother earnings. Under this view, the increase in earnings smoothing that we observe for the *Late Adopter* and *Mandatory Adopter* samples might not be due to the flexibility available under the new (2005) IFRS. To address this possibility we run two tests for subsamples of *Late Adopters* and *Mandatory Adopters*. In the first test, we exclude R&D intensive industries from our sample, as the accounting treatment of R&D under IFRS (IAS 38) could mechanically induce smoother earnings when compared to local GAAP standards.[30] We use the definition of R&D intensive industries from Lev et al. (2007), and exclude from our sample firms belonging to industries with primary two-digit SIC codes equal to 28 (Chemicals and Pharmaceutics), 34 (Fabricated Metal), 35 (Machinery and Computer Hardware), 36

[29] We also compare *Early Adopters* to *Mandatory Adopters* under the new (2005) IFRS regime. In general, these results are consistent with those for the comparison between *Early Adopters* and *Late Adopters*—we find no significant differences in smoothing metrics between the two groups. The only exceptions are the results for incidence of small positive and large negative earnings. Because these tests lack crucial country controls (*Early Adopters* and *Mandatory Adopters* come from different countries), we elect not to tabulate these results here. The results are available from the authors upon request.

[30] If certain criteria are met, under IAS38, the development costs have to be capitalized. If local GAAP prescribes a full expensing of development costs, the implementation of IAS38 may result in a smoother string of earnings.

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(Electrical and Electronics), 37 (Transportation Vehicles), 38 (Scientific Instruments), or 73 (Business Services). The results of these tests are presented in Panel A of Table 6. Panel A1 of Table 6 reports tests of changes in our earnings management metrics for the sample of *Late Adopters,* and Panel A2 shows the same changes for the sample of *Mandatory Adopters*. Compared to Panels C and D of Table 3, our results are qualitatively unchanged.

In the second test, we take into account the possibility of standards other than IAS38 mechanically inducing earnings smoothing. We rely on the list of 21 important accounting rules (areas) identified by Bae et al. (2008). For each these rules and for each country, Bae et al. (2008) identify the discrepancy between Local GAAP and IAS/IFRS treatment. For each standard, we evaluate the most likely effect on smoothing when a firm switches from Local GAAP to IFRS: ten standards out of 21 have no clear implications in terms of smoothing, seven standards are likely to lead to greater smoothing under IFRS compared to local GAAP and four standards are likely to reduce smoothing properties. For each country, we construct a mechanical smoothing index related to IFRS adoption by subtracting the number of standards that imply less smoothing from the number of standards that imply more smoothing under IFRS.[31] Appendix C describes in detail our methodology for this analysis. We then exclude from our sample firms from countries where adoption of IFRS is likely to lead to mechanically smoother earnings. We tabulate our results in panel B of Table 6. Panel B1 of Table 6 reports tests of differences in our earnings management metrics for the sample of *Late Adopters,* and Panel B2 shows the same differences for the sample of *Mandatory Adopters*. Again, compared to our main tests tabulated in panels C and D of Table 3, our results are qualitatively unchanged. In summary, controlling for the mechanical effects of IFRS adoption on earnings smoothing properties does not substantively change any of our results reported earlier.

7.2. Differences in local GAAP flexibility

Local domestic GAAP standards are not all alike and differ in terms of flexibility they offer to managers to manage (smooth) earnings. If our assumption that changes in standards are the main driver of changes in earnings management (smoothing) behavior, we should observe greater changes in earnings management (smoothing) in countries where the adoption of new IAS/IFRS resulted in more significant changes (increases) in flexibility. To test this proposition, we create a proxy for flexibility of local GAAP standards. We use the absence measure from Ding et al. (2007) that equals one when a local GAAP is silent about a measurement issue regulated by old IAS/IFRS. Ding et al. (2007) code 111 potential differences between local GAAP and old IAS/IFRS. We use these coded difference scores to create an absence measurement score for each country in our sample. We assume that the flexibility of local domestic standards is positively associated with the absence measurement score. If firms have higher flexibility under local GAAP, then we predict the transition to new IFRS is less likely to result in significant increases in smoothing relative to what existed under local GAAP. Thus, we expect these firms will exhibit less (or no) increase in smoothing when transitioning from local GAAP to new IFRS.

Under the maintained hypothesis that new IAS/IFRS standards allow for more flexibility than the old version of IAS/IFRS, we posit that firms from countries with a low (high) absence measurement scores are more (less) likely to exhibit increases in earnings management (smoothing) after adoption of 2005 IFRS. For instance, UK has an absence measurement score of zero (UK GAAP was similar in many respects to the old version of IAS/IFRS). If new IAS/IFRS allow for more flexibility than the old version of IAS, we expect that UK managers will have more discretion (greater opportunity) to manage (smooth) earnings under new IAS/IFRS than under UK GAAP. By contrast, Russia has an absence measurement score of 30 (relatively high difference between Russian GAAP and IFRS). Accordingly, we predict that Russian firms will exhibit little (if any) change in earnings management (smoothing) following adoption of new IAS/IFRS. Thus, we expect the change in smoothing to be greater for firms from countries with a low absence measurement scores than for countries with a high absence measurement scores.

[31] This effect is computed by comparing Local GAAP and the old version of IAS/IFRS as Bae et al. (2008) use the Local GAAP to IFRS differences as of 2001. We assume that the ranking of the difference is constant if we compare Local GAAP and new IAS/IFRS rules.

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Table 6
Exclusion of mechanical effects of IFRS adoption.

Panel A1: Late Adopters	Local GAAP 0	New IAS/IFRS 1
Panel A – Exclusion of R&D intensive industries		
Number of observations	1479	1274
Variability of ΔNI^*	0.016021	0.007034**
Variability of ΔNI^* over ΔCF^*	2.425633	1.447135**
Correlation of ACC* and CF^*	−0.477411	−0.505008
$\alpha 1$ (Small Positive)	0.091443**	
$\alpha 1$ (Large Negative)	−0.059036**	
Panel A2: Mandatory adopters	**Local GAAP 0**	**New IAS/IFRS 1**
Number of observations	4422	3246
Variability of ΔNI^*	0.036814	0.008856**
Variability of ΔNI^* over ΔCF^*	2.684105	1.660236**
Correlation of ACC* and CF^*	−0.262089	−0.515656**
$\alpha 1$ (small positive)	0.032716*	
$\alpha 1$ (large negative)	−0.047956**	
Panel B1: Late Adopters	**Local GAAP 0**	**New IAS/IFRS 1**
Panel B – Exclusion of countries in which IFRS induce more smoothing than in Local GAAP		
Number of observations	1457	1170
Variability of ΔNI^*	0.027853	0.012356**
Variability of ΔNI^* over ΔCF^*	2.970794	2.228425**
Correlation of ACC* and CF^*	−0.296310	−0.469946**
$\alpha 1$ (small positive)	0.094270*	
$\alpha 1$ (large negative)	−0.158044**	
Panel B2: Mandatory adopters	**Local GAAP 0**	**New IAS/IFRS 1**
Number of observations	5501	3608
Variability of ΔNI^*	0.066594	0.013419**
Variability of ΔNI^* over ΔCF^*	2.965244	1.723670**
Correlation of ACC* and CF^*	−0.143557	−0.440208**
$\alpha 1$ (small positive)	0.050861**	
$\alpha 1$ (large negative)	−0.045596**	

The sample consists *Late Adopters* observations (firms that had a choice between early and late transition and chose to transition to IAS/IFRS in 2005–2009) and *Mandatory Adopters* (firms that transitioned to IAS/IFRS in 2005–2009, in those countries where early transition was prohibited). In Panel A, observations from R&D intensive industries (see Lev et al., 2007) are excluded. More precisely, excluded are firms with a 2-digit SIC code equal 28 (Chemicals and Pharmaceutics), 34 (Fabricated Metal), 35 (Machinery and Computer Hardware), 36 (Electrical and Electronics), 37 (Transportation Vehicles), 38 (Scientific Instruments), or 73 (Business Services). Panel A1 shows results for *Late Adopters*, while Panel A2 shows results for *Mandatory Adopters*. In Panel B, observations from countries where IFRS introduces more smoothing are excluded. More precisely, excluded are firms from China, Denmark, Hungary, Finland, France, The Czech Republic, Greece, Turkey, Luxembourg, and Hong Kong. Panel B1 shows results for *Late Adopters*, while Panel B2 shows results for *Mandatory Adopters*. Variability of ΔNI^* and ΔCF^* are the variance of residuals from a regression of the ΔNI and ΔCF respectively on the control variables from Table 2 and industry and country indicator variables. Variability of ΔNI^* over ΔCF^* is the ratio of the variability of ΔNI^* divided by variability of ΔCF^*. Correlation of ACC* and CF^* is the Spearman correlation between the residuals from the ACC and CF regressions. α_1 (small positive) and α_1 (large negative) are the coefficients on the indicator variables representing small positive earnings (net income scaled by total assets from 0 to 0.01) and large negative earnings (net income scaled by total assets <−0.20) from regression models (5) and (6) respectively. A positive (negative) coefficient on Small Positive (Large Negative) is consistent with greater earnings management under new (2005) IAS/IFRS standards compared to local GAAP. All data are from Worldscope and Datastream databases.

* Indicate the difference is significantly different from zero at the 10% level (one-sided).
** Indicate the difference is significantly different from zero at the 5% level (one-sided).

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Table 7
Analysis of the effect of the flexibility of Local GAAP relative to the flexibility of New IFRS.

	High Absence			Low Absence			High – Low
	Local GAAP	New IAS/ IFRS	Difference	Local GAAP	New IAS/ IFRS	Difference	Diff-in-Diff
Panel A: Late Adopters							
Number of observations	549	610		1555	1187		
Variability of ΔNI^*	0.011744	0.005379	−0.006365	0.023923	0.012021	−0.011902	0.005537
Variability of ΔNI^* over ΔCF^*	1.547050	1.226617	−0.320433	2.576930	1.956991	−0.619939	0.299506
Correlation of ACC* and CF^*	−0.532579	−0.463853	0.068726	−0.355887	−0.384413	−0.028525	0.097251
$\alpha 1$ (small positive)	0.152369**			0.038642			0.113727
$\alpha 1$ (large negative)	0.002404			−0.130086**			0.132491**
Panel B: Mandatory adopters							
Number of observations	1491	1732		5017	2893		
Variability of ΔNI^*	0.024655	0.006649	−0.018005	0.069537	0.014906	−0.054631	0.036625
Variability of ΔNI^* over ΔCF^*	2.245588	1.328110	−0.917479	3.135228	1.899079	−1.236149	0.318671
Correlation of ACC* and CF^*	−0.517835	−0.544909	−0.027075	−0.181980	−0.255049	−0.073069	0.045994
$\alpha 1$ (small positive)	−0.013508			0.054517**			−0.068025*
$\alpha 1$ (large negative)	−0.173623**			−0.030587**			−0.143036**

The sample consists *Late Adopters* observations (firms that had a choice between early and late transition and chose to transition to IAS/IFRS in 2005–2009) and *Mandatory Adopters* (firms that transitioned to IAS/IFRS in 2005–2009, in those countries where early transition was prohibited). High Absence countries are those with an above the median difference (absence score from Ding et al., 2007) between Local GAAP and IFRS. Low Absence countries are those with a below the median difference between Local GAAP and IFRS. High Absence sample consists of firms from France, Austria, China, The Czech Republic, Denmark, Estonia, Greece, Hungary, Iceland, Italy, Luxembourg, Poland, Portugal, Russia, Slovenia, Switzerland, and Turkey, while Low Absence sample consists of firms from Belgium, Germany, Finland, Hong Kong, Singapore, South Africa, Spain, United Kingdom, Ireland, Netherlands, Norway, and Sweden. Panels A and B show the difference in change in metrics between High Absence and Low Absence countries for *Late Adopters* and *Mandatory Adopters,* respectively. Variability of ΔNI^* and ΔCF^* are the variance of residuals from a regression of the ΔNI and ΔCF respectively on the control variables from Table 2 and industry and country indicator variables. Variability of ΔNI^* over ΔCF^* is the ratio of the variability of ΔNI^* divided by variability of ΔCF^*. Correlation of ACC* and CF^* is the Spearman correlation between the residuals from the ACC and *CF* regressions. α_1 (small positive) and α_1 (large negative) are the coefficients on the indicator variables representing small positive earnings (net income scaled by total assets from 0 to 0.01) and large negative earnings (net income scaled by total assets <−0.20) from regression models (5) and (6) respectively. A positive (negative) coefficient on Small Positive (Large Negative) is consistent with greater earnings management under new (2005) IAS/IFRS standards compared to local GAAP. All data are from Worldscope and Datastream databases.

* Indicate the difference is significantly different from zero at the 10% level (one-sided).
** Indicate the difference is significantly different from zero at the 5% level (one-sided).

We partition our *Late Adopter* and *Mandatory Adopter* samples, respectively, into *High Absence* and *Low Absence* subsamples based on the median absence score and then we compute the differences in earnings management (smoothing) metrics under local GAAP versus new (2005) IAS/IFRS standards for these *High Absence* and *Low Absence* subgroups. The last column of Table 7 reports the differences between *High Absence* and *Low Absence* local-GAAP-to-IFRS differences (difference in differences analysis). As noted above, we expect the *change* in smoothing from local GAAP to new IFRS to be greater for countries with low absence measurement scores. Panels A of Table 7 presents results for the *Late Adopter* sample, and Panel B presents results for *Mandatory Adopter* sample, respectively. In general, our findings are consistent with a greater increase in earnings smoothing for the *Low Absence* subsample versus *High Absence* subsample for both *Late Adopters* and *Mandatory Adopters* and in three of the six tests, the differences are statistically significant. The results for differences in small positive (large negative) earnings are mixed.

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Table 8
Effects of change in enforcement concurrent with IFRS adoption.

Panel A1: Late Adopters	Local GAAP 0	New IAS/IFRS 1
Panel A: No change in enforcement countries		
Number of observations	1303	1116
Variability of ΔNI^*	0.014946	0.007603**
Variability of ΔNI^* over ΔCF^*	2.234227	1.664811**
Correlation of ACC* and CF^*	−0.425228	−0.496170**
$\alpha 1$ (Small Positive)	0.058176	
$\alpha 1$ (Large Negative)	−0.066600*	
Panel A2: Mandatory adopters	Local GAAP 0	New IAS/IFRS 1
Number of observations	1995	2468
Variability of ΔNI^*	0.014979	0.005681**
Variability of ΔNI^* over ΔCF^*	1.894008	1.519922**
Correlation of ACC* and CF^*	−0.405766	−0.527951**
$\alpha 1$ (Small Positive)	−0.011068	
$\alpha 1$ (Large Negative)	−0.152723**	
Panel B1: Late Adopters	Local GAAP 0	New IAS/IFRS 1
Panel B: Change in enforcement countries		
Number of observations	801	681
Variability of ΔNI^*	0.037322	0.014712**
Variability of ΔNI^* over ΔCF^*	3.298513	1.927657**
Correlation of ACC* and CF^*	−0.293865	−0.399644**
$\alpha 1$ (small positive)	0.125948**	
$\alpha 1$ (large negative)	−0.118001**	
Panel B2: Mandatory adopters	Local GAAP 0	New IAS/IFRS 1
Number of observations	4513	2157
Variability of ΔNI^*	0.090154	0.020956**
Variability of ΔNI^* over ΔCF^*	3.442834	1.975380**
Correlation of ACC* and CF^*	−0.103843	−0.379198**
$\alpha 1$ (Small Positive)	0.065713**	
$\alpha 1$ (Large Negative)	−0.029608**	

The sample consists *Late Adopters* observations (firms that had a choice between early and late transition and chose to transition to IAS/IFRS in 2005–2009) and *Mandatory Adopters* (firms that transitioned to IAS/IFRS in 2005–2009, in those countries where early transition was prohibited). Panel A shows results using observations from countries without a change in enforcement concurrent with IFRS adoption (see Christensen et al., 2013). More precisely, excluded are firms from Finland, Germany, Iceland, the Netherlands, Norway, and the UK. Panel A1 shows results for *Late Adopters,* while Panel A2 shows results for *Mandatory Adopters.* Panel B shows results using observations from countries with a change in enforcement concurrent with IFRS adoption. Panel B1 shows results for *Late Adopters,* while Panel B2 shows results for *Mandatory Adopters.* Variability of ΔNI^* and ΔCF^* are the variance of residuals from a regression of the ΔNI and ΔCF respectively on the control variables from Table 2 and industry and country indicator variables. Variability of ΔNI^* over ΔCF^* is the ratio of the variability of ΔNI^* divided by variability of ΔCF^*. Correlation of ACC* and CF^* is the Spearman correlation between the residuals from the ACC and CF regressions. α_1 (small positive) and α_1 (large negative) are the coefficients on the indicator variables representing small positive earnings (net income scaled by total assets from 0 to 0.01) and large negative earnings (net income scaled by total assets <−0.20) from regression models (5) and (6) respectively. A positive (negative) coefficient on Small Positive (Large Negative) is consistent with greater earnings management under new (2005) IAS/IFRS standards compared to local GAAP. All data are from Worldscope and Datastream databases.

* Indicate the difference is significantly different from zero at the 10% level (one-sided).
** Indicate the difference is significantly different from zero at the 5% level (one-sided).

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7.3. Changes in enforcement concurrent with IFRS adoption

Concurrent with the 2005 adoption of IFRS, six European countries changed (improved) enforcement of their accounting standards (see Christensen et al., 2013). This allows us to test for the impact of increases in enforcement on our results, which Ahmed et al. (2013) acknowledge may attenuate their findings. In those countries where enforcement of accounting standards was not improved, we expect to find an increase in earnings management (smoothing), given that weaker enforcement is likely to give rise to greater flexibility in the application of IFRS accounting standards. In those countries where enforcement of accounting standards was improved (Finland, Germany, Iceland, The Netherlands, Norway, and the UK), however, it is less clear whether earnings management (smoothing) will increase as a consequence of increased flexibility of the new IFRS accounting standards. Finding that improving enforcement eliminates the impact of increased standards flexibility on earnings management (smoothing) behavior would imply that, given time, countries could adapt, and that any increase in earnings management (smoothing) we observe would be short-term in nature.

The results of these tests are presented in Table 8. In Panels A1 and B1 we show results for *Late Adopters,* and in Panels A2 and B2 we show results for *Mandatory Adopters.* Both in countries without concurrent improvement in enforcement (Panel A), and in countries where enforcement improved (Panel B), earnings management (smoothing) increased following the transition to IFRS. This evidence is consistent with earnings management (smoothing) increasing in spite of enforcement improvements, implying that the increase in earnings management (smoothing) after mandatory IFRS adoption is likely to be long-term in nature and may not be curbed by more rigorous enforcement.

8. Conclusion

In this study we analyze firms' transition to old (pre-2005) and new (2005) versions of IAS/IFRS standards and what effect this has had on earnings management (smoothing) behavior. Past research on this issue has yielded conflicting results. The Barth et al. (2008) study suggests that *Early Adopters* of IAS standards exhibit decreased earnings management (smoothing) after voluntary adoption. Our results are consistent with this finding. We find that firms that voluntarily adopted old (pre-2005) versions of IAS/IFRS exhibit less earnings management (smoothing) than they did under local GAAP. Christensen et al. (2015) and Ahmed et al. (2013) find that *Late Adopters* and *Mandatory Adopters* exhibit an increase in earnings management (smoothing) following the adoption of new (2005) version of IAS/IFRS and they attribute the difference in their findings relative to the Barth et al. (2008) findings to differences in firms incentives to adopt early or delay adoption rather than to standards, per se. We find no evidence that the Barth et al. (2008) results are due to the self-selection of *Early Adopters*, i.e. by these firms' incentives to adopt IAS early, as argued by Ahmed et al. (2013) and Christensen et al. (2015). We offer another explanation for the differences between the Barth et al. (2008) and Ahmed et al. (2013) and Christensen et al. (2015) results.

We find an increase in earnings management (smoothing) from pre-2005 to post-2005 for (1) *Early Adopters* transitioning from old IAS/IFRS to new IAS/IFRS, (2) *Late Adopters* transitioning from local GAAP to new IAS/IFRS and (3) *Mandatory Adopters* transitioning from local GAAP to new IAS/IFRS. We attribute this change in earnings management (smoothing) behavior across all three groups to the temporal changes in IAS/IFRS standards that allowed firms greater flexibility in selecting accounting treatments and greater discretion in earnings measurement in ways that lead to greater earnings management (smoothing). We find no significant changes in firm characteristics associated with incentives for transparent reporting that would explain this change in earnings management (smoothing) behavior.

Our study complements prior empirical studies that point to a limited role of IAS/IFRS standards, per se, in shaping observed reporting quality. Prior research tends to emphasize the importance of firms' reporting incentives, institutional factors (e.g., Ball et al., 2000, 2003; Leuz, 2003; Burgstahler et al., 2006) and enforcement mechanisms (Daske et al., 2008; Christensen et al., 2013) as the primary determinants of accounting quality. Our study sheds new light on the role that accounting standards,

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per se, has on accounting quality. Specifically, we show that many of the IAS/IFRS standards that went into effect in 2005, which have been broadly criticized for lack of implementation guidance and for permitting greater flexibility in application, have contributed to greater earnings management (smoothing). More recently, the IASB has sought to provide greater implementation guidance through a series of International Financial Reporting Interpretations Committee (IFRIC) Interpretations. It has also tried to promote greater consistency in earnings measurement through a number of joint projects with the FASB, most notably projects on revenue recognition and accounting for financial instruments. A fruitful area for future research is to investigate whether these initiatives will dampen earnings management (smoothing) going forward.

Appendix A. List of changes to IAS and new IFRSs introduced in 2003–2005 time frame changes made on 12/18/2003 and enforced on 1/1/2005

This table provides a list of the major changes in IAS/IFRS enforced in 2005. The last column indicates if the revised standard includes an overt option (O), a covert option (C) or an estimate (E) according to Nobes (2006).

IAS/IFRS	Adopted	Enforced	Change	Options
IAS 1 Presentation of Financial Statements	12/18/2003	01/01/2005	Policies regarding changes in accounting estimates and errors transferred to IAS 8	O, C
IAS 2 Inventories	12/18/2003	01/01/2005	Prohibition of LIFO	O
IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors	12/18/2003	01/01/2005	cf. IAS 1	C, E
IAS 10 Events after the Balance Sheet Date	12/18/2003	01/01/2005	Limited clarification of the previous version of the standard	
IAS 15 Information Reflecting the Effects of Changing Prices	12/18/2003	01/01/2005	(Withdrawn)	
IAS 16 Property, Plant and Equipment	12/18/2003	01/01/2005	Costs of dismantlement, removal, or restoration are included in capitalized amounts	O, E
	12/18/2003	01/01/2005	Fair value revaluation only if this is reliably measurable	
	12/18/2003	01/01/2005	Depreciation must start when the asset is available for use and continues regardless if the asset is idle or not	

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Appendix A (*continued*)

IAS/IFRS	Adopted	Enforced	Change	Options
IAS 17 Leases	12/18/2003	01/01/2005	Clarify the classification of a lease of land and buildings and to eliminate accounting alternatives for initial direct costs in the financial statements of lessors	C
IAS 21 The Effects of Changes in Foreign Exchange Rates	12/18/2003	01/01/2005	Removal of a limited option to capitalize exchange rate differences resulting from severe devaluation or depreciation of a currency against which there is no means of hedging	C
IAS 24 Related Party Disclosures	12/18/2003	01/01/2005	Requires disclosure of compensation to key management employees and expands the definition of "related party" by adding joint ventures, etc.	
IAS 27 Consolidated and Separate Financial Statements	12/18/2003	01/01/2005	Minority interests are now presented within the equity as a separate line item	O, C
IAS 28 Investments in Associates	12/18/2003	01/01/2005	Investors must not only consider the carrying amount of the investment but also other long-term interests in the associate when recognizing its share of losses of the associate	O, C
IAS 31 Interests in Joint Ventures	12/18/2003	01/01/2005	Investors must disclose the method used to recognize its interest in jointly controlled entities (proportional consolidation or the equity method)	O, C
IAS 33 Earnings per Share	12/18/2003	01/01/2005	Limited revision to provide additional guidance and illustrative examples on selected complex matters	
IAS 40 Investment Property	12/18/2003	01/01/2005	Defining the concept "investment property" and impose a consistent use of the fair value or the cost model	O, C

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Appendix A (*continued*)

IAS/IFRS	Adopted	Enforced	Change	Options
Changes at other dates				
IAS 36 Impairment of assets	3/31/2004	04/01/2004	Requires measurement of recoverable amount of intangible assets with an indefinite useful life on an annual basis (including goodwill and intangible assets not yet available for use) Requires the use of cash flow projections based on reasonable and supportable management assumptions (best estimate)	C, E
IAS 38 Intangible assets	3/31/2004	04/01/2004	The assumption that all assets' useful life is finite is removed. Intangible assets with infinite useful life should not be amortized	O, C
IAS 39 Financial instruments	12/17/2003	01/01/2005	Offers new possibilities to use hedge accounting, Full Fair Value	O, C
Amendments to IAS 39 Financial instruments	June 2005	01/01/2006	Fair value option (amendment June 2005)	O, C
New IFRS introduced				
IFRS 1 First Time adoption	June 2003	01/01/2004	Defines how to set up the first comparative set of financial statements	O, C, E
IFRS 2 Share based payment	February 2004	01/01/2005	Defines share-based payment, recognition and valuation issues	E
IFRS 3 Business combination	03/31/2004	04/01/2004	Defines accounting methods for business combinations	C, E
IFRS 4 Insurance contracts	03/31/2004	01/01/2005	Defines accounting policies for insurance contracts	
IFRS 5 Non-current Assets Held for Sale and Discontinued Operations	03/31/2004	01/01/2005	Defines how to present and to record assets held for sales and discontinued operations	C
IFRS 6 Exploration for and evaluation of mineral resources	12/10/2004	01/01/2005		

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Appendix B. List of dissenting opinions by IASB board members

IAS/IFRS	Dissenting opinion from	Reason for dissenting opinion	Quotation (emphasis added)
IAS 27 Consolidated and Separate Financial Statements	T. Yamada	Does not agree with the inclusion of minority interests in the Equity	
IAS 39 Financial instruments (Presentation)	J. Leisenring	The standard is not always consistent with IAS 39	
IAS 36 Impairment of assets	J. Leisenring G. Whittington A. Cope	Lack of rigor of the standard	DO4: a much *more rigorous effort must be made to determine the recoverable amount of goodwill*, however measured, than the Board's revised impairment test
IAS 38 Intangible assets	G. Whittington	Inconsistency with other standards	DO1: Standard because it does not explicitly require the probability recognition criterion in paragraph 21(a) to be applied to intangible assets acquired in a business combination

(*continued on next page*)

Appendix B (*continued*)

IAS/IFRS	Dissenting opinion from	Reason for dissenting opinion	Quotation (emphasis added)
IAS 39 Financial instruments (measurement and recognition)	A. Cope J. Leisenring W. McGregor	The standard offers too many options	DO09: Mr Cope believes that increasing the number of choices in international standards is bad policy. The Board's decision *potentially creates major differences between entities choosing one option and those choosing the other*. This lack of comparability will adversely affect users' ability to make sound economic decisions DO13: Mr McGregor believes that the significant subjectivity involved in assessing whether a reduction in fair value represents an impairment (and thus should be recognized in

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Appendix B (*continued*)

IAS/IFRS	Dissenting opinion from	Reason for dissenting opinion	Quotation (emphasis added)
			profit or loss) or another decrease in value (and should be recognized directly in equity) will at best lead to a lack of comparability within an entity over time and between entities, and at worst *provide an opportunity for entities to manage reported profit or loss*
Amendment to IAS 39 Financial instruments	J. Smith		DO01: Mr Smith believes that some respondents' support for these Amendments and their willingness to accept IAS 39 is based more on the extent to which the Amendments *reduce recognition of ineffectiveness, volatility of profit or*

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Appendix B (*continued*)

IAS/IFRS	Dissenting opinion from	Reason for dissenting opinion	Quotation (emphasis added)
			loss, and volatility of equity than on whether the Amendments reduce systems demands without undermining the fundamental accounting principles
Amendments to IAS 39 Financial instruments			DO2: Complex rules will also *inevitably lead to differing interpretations of the eligibility* criteria for the fair value option contained in the amendment
IFRS 3: Business combinations	G. Whittington T. Yamada		DO12: Professor Whittington is additionally concerned that in rejecting amortization, *IFRS 3 puts its faith in a potentially unreliable impairment test*

Appendix B (*continued*)

IAS/IFRS	Dissenting opinion from	Reason for dissenting opinion	Quotation (emphasis added)
			that cannot separate out subsequent internally generated goodwill and has other weaknesses that require attention
IFRS 4 Insurance contracts	M. Barth R. Garnett G. Gélard J. Leisenring J. Smith	Lack of consistency with prior standards, especially IAS 8 and IAS 32/39	DO3: "IFRS lacks specificities, as does IFRS 4, which allows the continuation of a variety of measurement bases for insurance and reinsurance contracts [...] *continuation of such practices may result in the inappropriate recognition of, or inappropriate failure to recognise, assets, liabilities, equity, income and expense*" DO9 Mr Smith also

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Appendix B (*continued*)

IAS/IFRS	Dissenting opinion from	Reason for dissenting opinion	Quotation (emphasis added)
			dissents from IFRS 4 because [...]this [standard] *permits the structuring of contractual provisions to avoid the requirements of those Standards, diminishing their effectiveness and adding considerable complexity in interpreting and applying them and IFRS 4*
IFRS 5 Non current assets held for sale	A. Cope H. Schmid	The standard fails (1) to identify the group of assets whose value will recovered mainly through sale rather than through operations, (2) to achieve convergence with SFAS 144, (3) relies too much on management decisions so as to classify assets as "held for sale"	DO10: (the proposed classification) is based on management decision that has not been fully carried out and *demands detailed (anti-abuse) rules to define classification* and to fix the time boundaries during which these assets can remain within the classification

Appendix B (*continued*)

IAS/IFRS	Dissenting opinion from	Reason for dissenting opinion	Quotation (emphasis added)
IFRS 6 Exploration for and evaluation of mineral resources	R. Garnett J.Leisenring W. McGregor J. Smith	These four Board members dissent because they would not permit entities the alternative of continuing their existing accounting treatment for exploration and evaluation assets	DO2 IFRS *allows the continuation of a variety of measurement bases* for these items and, because of the failure to consider the Framework, may result in the inappropriate recognition of assets DO3: Exception to IAS36 (Impairment of assets) for Mineral Resources assets could result in the exclusion of relevant information from the financial statements because of the *failure to recognize impairment losses on a timely basis* and the inclusion of unreliable information

(*continued on next page*)

Appendix B (*continued*)

IAS/IFRS	Dissenting opinion from	Reason for dissenting opinion	Quotation (emphasis added)
			because of the inclusion of assets that do not faithfully represent the transactions and other events that they purport to represent

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Appendix C. Assessment of local GAAP to IFRS differences and their impact on earnings smoothing

To assess the extent to which IAS/IFRS may mechanically lead to more or less smoothing than under local GAAP standards, we proceed as follows. We rely on Bae et al. (2008) to code the local GAAP to IFRS differences in terms of smoothing. The table below lists the 21 key standards identified by Bae et al. (2008) and their effect on smoothing.

For each standard, we identify the most likely effect on smoothing by switching from Local GAAP to IFRS. 10 standards out of 21 have no clear implications in terms of smoothing. For instance, the requirement of a statement of changes in equity is unlikely to imply any changes in smoothing.

We identify seven standards that are likely to lead to greater earnings smoothing properties under IFRS compared to local GAAP and four standards that have the opposite effect. For instance IAS 38 (item 17) is likely to lead to greater smoothing if local GAAP prescribes full expensing. IAS 19 (pension accounting, item 6) prescribes an actuarial approach for measuring pension expense that may lead to greater smoothing under IFRS if local GAAP does not follow such an approach. These two standards imply more smoothing under IFRS compared to Local GAAP. By contrast, if local standards do not have rules calling for impairment testing for long-term assets (item 13), it is likely that IFRS earnings will exhibit less smoothing than under local GAAP due to the increased volatility in earnings that results when large asset write-downs occur.

For each country, we construct a mechanical smoothing index related to IFRS adoption by subtracting the number of standards that imply less smoothing from the number of standards that imply more smoothing under IFRS.

1	IAS 1.7	Do not require a primary statement of changes in equity	No effect
2	IAS 12	Do not generally require deferred tax accounting	+ Smoothing
3	IAS 14	Require no or very limited segment reporting	No effect
4	IAS 17	Require no or very limited capitalization of leases	+ Smoothing
5	IAS 19	Do not have rules for accounting for employee benefit obligations (other than defined contribution plans in some cases)	+ Smoothing
6	IAS 19.52	Do not have rules for accounting for employee benefits other than pensions	+ Smoothing
7	IAS 2.36	Do not require disclosure of FIFO inventory cost when LIFO is used	No effect
8	IAS 22.56/38.99	Do not require impairment testing of goodwill or other intangibles with lives in excess of 20 years	– Smoothing
9	IAS 24	Have no or very limited disclosure requirements for related-party transactions	No effect
10	IAS 32.18/23	Do not require that companies account for their financial instruments based on substance over form	No effect
11	IAS 32.77	Do not require the disclosure of the fair value of financial assets and liabilities	No effect
12	IAS 35	Do not have rules outlining the treatment of discontinued operations	No effect
13	IAS 36	Do not have rules calling for impairment testing for long-term assets, or impairments are only recorded when deemed permanent	– Smoothing
14	IAS 37	Do not have specific rules dealing with provisions	+ Smoothing

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15	IAS 37.14	Permit establishing provision when there is no obligation	– Smoothing
16	IAS 37.45	Do not have rules calling for the discounting of provisions	+ Smoothing
17	IAS 38.42	Permit capitalization of research and development costs	+ Smoothing
18	IAS 38.51	Permit capitalization of some other internally generated intangibles (e.g., brands)	– Smoothing
19	IAS 7	Do not require a statement of cash flows	No effect
20	IAS 8.6	Permit a broader definition of extraordinary items	No effect
21	SIC 12	Do not require the consolidation of special purpose entities	No effect

Firms from countries with a mechanical smoothing index greater than 1 are excluded from the sample and the tests for changes in smoothing are rerun. These results are reported in Table 6, Panel B.

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Please cite this article in press as: Capkun, V., et al. The effect of IAS/IFRS adoption on earnings management (smoothing): A closer look at competing explanations. J. Account. Public Policy (2016), http://dx.doi.org/10.1016/j.jaccpubpol.2016.04.002