An Unintended Consequence of Book-Tax Conformity: A Loss of Earnings Informativeness

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Abstract: Increasing the degree of conformity between accounting earnings and taxable income has been put forth as a way of curtailing both earnings management and aggressive tax planning. We find, however, that increasing book-tax conformity has an unintended capital market consequence; namely, it results in accounting earnings that are less informative than they would be otherwise. Our inquiry exploits a unique sample of firms first studied by Guenther et al. (1997) that were required to change from the cash method to the accrual method for tax purposes, thereby increasing their book-tax conformity. We examine the capital market consequences of this increased conformity and find that the increase in book-tax conformity resulted in a decrease in the informativeness of the firms' accounting earnings. To our knowledge this is a unique result in that it is a case of a tax law change that has an adverse consequence on the informativeness of accounting earnings.

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Abstract: Increasing the degree of conformity between accounting earnings and taxable income has been put forth as a way of curtailing both earnings management and aggressive tax planning. We find, however, that increasing book-tax conformity has an unintended capital market consequence; namely, it results in accounting earnings that are less informative than they would be otherwise. Our inquiry exploits a unique sample of firms first studied by Guenther et al. (1997) that were required to change from the cash method to the accrual method for tax purposes, thereby increasing their book-tax conformity. We examine the capital market consequences of this increased conformity and find that the increase in book-tax conformity resulted in a decrease in the informativeness of the firms' accounting earnings. To our knowledge this is a unique result in that it is a case of a tax law change that has an adverse consequence on the informativeness of accounting earnings.

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1. Introduction

How taxes affect financial reporting has been the subject of extensive research (see Shackelford and Shevlin (2001) for a review). The vast majority of the extant research focuses on how firms respond to trade-offs between financial reporting objectives and tax planning objectives. To date, there is ample empirical evidence that tax planning objectives can affect firms' financial reporting decisions and vice versa. However, the extant research typically stops at the firm level. Little is known about whether tax-induced changes to financial reporting decisions affect the capital markets (though capital markets effects are often assumed). In particular, there is little evidence whether the informativeness of firms' financial accounting earnings is affected when firms' change their financial reporting in response to tax incentives. Moreover, should an effect on earnings informativeness exist, there is some debate among researchers about whether to expect an increase or decrease in informativeness.

This paper provides empirical evidence that tax-induced changes in financial reporting behavior can have adverse effects on the informativeness of financial accounting earnings, even absent actual changes to the financial accounting rules. Specifically, we find that when the links between financial reporting and tax become stronger (i.e., stronger book-tax conformity) this has an adverse effect on the informational role of accounting earnings. As such, this paper documents an unintended consequence of corporate taxation: a loss of earnings informativeness that is exacerbated the greater is the conformity between earnings and taxable income.

Our tests exploit a natural experiment first examined by Guenther, Maydew, and Nutter (1997) in which a set of publicly traded firms were required to switch for tax purposes from the cash method of accounting to the accrual method thereby increasing the level of conformity

between book and taxable incomes. Before they were forced to switch, these firms faced relatively low levels of book-tax conformity because they used the accrual method for financial reporting purposes but the cash method for tax purposes. Guenther et al. (1997) find that after the required change firms deferred more income for financial reporting purposes because of the increased trade-off between financial accounting and tax. In other words, once the two incomes were more closely aligned, the firms reported lower financial accounting earnings, all else constant, in order to save (defer) tax dollars.

This setting has two desirable attributes for studying the effects of taxation on the informativeness of accounting earnings. First, the change in book-tax conformity came about because of a change in the tax law, not a change in accounting standards. In other settings that one could examine, the variation in book-tax conformity comes about because of variation in accounting standards (e.g., a country moves from basing their financial accounting on the tax code to adopting international accounting standards). While useful for addressing different questions, those settings do not lend themselves to isolating the effects of change in book-tax conformity on the informativeness of accounting earnings, since accounting standards are varying at the same time. The second advantage of this setting is that the change only affected a subset of firms. This allows us to control for potential time period effects by comparing the change in earnings informativeness before and after the change in conformity with the earnings informativeness of firms that were unaffected by the change.

We call firms that were forced to convert from the cash method to the accrual method for tax purposes (thereby increasing their book-tax conformity) "converting firms." To control for possible time-period effects we compare the earnings informativeness of converting firms before and after the required conversion to that of a 'matched' set of firms from the same industries that did not face

increased conformity (hereafter, accrual basis firms).[1] We then employ a difference-in-differences approach comparing the converting firms before and after the change to the accrual basis firms. Following a long literature dating back to Ball and Brown (1968), we examine the relation between returns and earnings. Specifically, we measure the informativeness of earnings by examining long-window earnings response coefficients from regressions of returns on earnings changes and regressions of returns on both earnings levels and changes. The evidence is consistent with earnings becoming less informative to the market for the converting firms and this decrease being significantly different from the observed change in the accrual basis sample. Specifically, the long window earnings response coefficient declines for the converting firms and significantly more so than for the accrual basis firms. These results are robust to different measures of earnings (earnings before extraordinary items and pre-tax earnings) and to the inclusion of other control variables in the returns - earnings regressions.

The effects of increasing conformity between accounting and tax have been the subject of much debate. Some studies suggest that increasing conformity can improve the informativeness of financial accounting earnings by constraining earnings management (Desai, 2005). In this line of thinking, when conformity is weak, managers are unconstrained by the rules of the other system and can act opportunistically by reporting low income to the tax authorities while also misleading shareholders. Similar conclusions have been reached by some policy makers, many of which also conclude that conformity would curtail what they consider to be aggressive tax planning (we discuss these further below). In contrast, there is some evidence that conformity does not improve the informativeness of accounting earnings and may even detract from it. For example, Guenther and Young (2000) find that accounting earnings tend to be less informative in countries where linkages between tax and accounting are strong. As Guenther and Young (2000, p. 55) posit "If tax

[1] We discuss possible control samples in detail later.

and financial accounting income must conform, financial accounting information may differ from underlying economic activities because firms attempt to minimize taxable income." Our results are consistent with Guenther and Young's reasoning.

One reason that cross-country studies have not focused on the effects of conformity is that it is difficult to isolate the effects of conformity from the effects of variation in accounting standards (i.e., variation in accounting standards across countries induces variation in conformity). Using a sample that allows us to isolate the effect of conformity from other effects, we find that conformity leads to less informative accounting earnings. Moreover, we find that conformity has an adverse effect on the informativeness of accounting earnings even when conformity is achieved via a change in the rules for estimating taxable income, leaving accounting standards unchanged.

To put some structure on the discussion, we present a simple model adapted from Holthausen and Verrecchia (1988) and Kothari (2001). The basic result from this model is that noise in a signal reduces the price reaction to the signal. In our model, we show that downward bias and noise in reported earnings can affect the earnings response coefficient. We argue that noise in earnings could increase with conformity because of managers' inability (due to the tax cost of doing so) to convey private information useful to external stakeholders through earnings. If managers are constrained in relaying this private information via earnings, noise in earnings will increase, reducing the earnings response coefficient. Conversely, if book-tax conformity causes firms to report more accurately, as its proponents suggest, then noise will decrease and the earnings response coefficient will increase. Our empirical results are consistent with increased book-tax conformity increasing the amount of noise in earnings, reducing its informativeness.

The paper proceeds as follows. In the next section we review the prior literature, with particular attention to the sample, tests, and findings of Guenther et al. (1997). In section 3 we

develop our hypotheses. In section 4 we discuss our sample, variable measurement, and empirical tests. Section 5 presents our results and section 6 concludes.

2. Prior Literature

2.1 Increased Book-Tax Conformity Affects Financial Reporting Decisions

Guenther et al. (1997) show that when the conformity between taxable income and financial accounting income is made stronger, the tax incentive to defer taxable income can lead to deferral of financial accounting income (i.e., tax-induced conservatism).[2] Guenther et al. (1997) identify a set of publicly traded firms that, prior to the Tax Reform Act of 1986 (TRA 86), were allowed to use the cash method of accounting (other than for purchases and sales of inventory items) for tax purposes and the accrual method of accounting for financial reporting purposes. As a result, for these firms the year-end acceleration of financial statement income imposed no tax costs as long as cash collections were not also accelerated. In addition, by deferring (accelerating) cash collections (payments) firms could defer taxable income without affecting book income. TRA 86 required large corporations (sales in excess of $5 million) to use the accrual accounting method for tax purposes, strengthening the degree of book-tax conformity for these firms.

Using both univariate and multivariate analysis, Guenther et al. (1997) report results consistent with their hypotheses that converting firms recognized greater income before TRA 86 and that they decreased the level of revenue recognized relative to the accrual basis firms after TRA 86. More specifically, prior to TRA 86 the converting firms had significantly higher ratios of accounts receivable to accounts payable and sales to expenses, indicating that the converting firms accrued revenues and deferred expenses to a greater degree than did the accrual basis firms.

[2] In the nomenclature of Beaver and Ryan (2005), this type of conservatism is unconditional conservatism, not the conditional conservatism as measured by Basu (1997).

Guenther et al. (1997) also find that the converting firms reduced these same ratios to a greater extent than the accrual basis firms after TRA 86, indicative of a greater decrease in the acceleration of income and deferral of expenses as a result of the tax costs of these actions constraining this behavior. The authors conduct robustness checks for self-selection (because the group of converting firms chose to use the cash method of accounting for tax purposes prior to TRA 86), profitability, and growth and report that these factors had no adverse effect on the results of their empirical tests. Overall, Guenther et al. (1997) conclude that increasing the extent of book-tax conformity led firms to alter their financial reporting, but do not conduct any tests regarding the informativeness of the earnings numbers after TRA 86.[3,4] We use the same sample of firms as Guenther et al. (1997) and examine the market's interpretation of the financial accounting earnings after the firms responded to the rule change.

2.2 Other Related Research

Additional motivation for our research question is provided by Hanlon et al. (2005). Using a large sample of U.S. firms, Hanlon et al. (2005) predict and find that financial accounting earnings provide more information to the market than estimated taxable income but that both income

[3] We also note two other cases where sub-samples of firms have been affected by an increase in conformity as a result of tax law changes in the U.S. One case was the implementation of the Alternative Minimum Tax in 1986, which required a link to book income in the calculation of the alternative tax (see Gramlich 1991, Dhaliwal and Wang 1992, Choi et al. 2001, and Dhaliwal 2001). Another example is the LIFO conformity rules. While much of the early evidence was mixed on the market reaction to a LIFO adoption, Kang (1993) and Hand (1993) provide plausible explanations for the observed negative reaction for LIFO adoptions: firms that adopt LIFO expect input prices to rise. However, to our knowledge there are no studies that examine the informativeness of earnings surrounding these two tax law changes. Testing for any change in earnings' informativeness of AMT firms is problematic because it is difficult to identify firms likely affected by the AMT Book Income Adjustment (AMTBIA) ex ante. In addition, because the income effect of being on LIFO must be disclosed in the firm's financial statements, the loss in informativeness because of conformity in this case is likely not comparable to other types of book-tax conformity requirements where disclosure of the low conformity outcome is not required..

[4] Watts (2003a, b) argues that there are four economic determinants of conservatism: contracting, litigation, regulation, and taxation. Watts (2003a) defines conservatism as "the cumulative financial effects represented in the balance sheet and to income or earnings cumulated since the firm began operation" (page 208). By tax-induced conservatism we are referring to unconditional conservatism in the overall reporting of income and balance sheet accounts that results because firms are trying to lower their taxes rather than conditional conservatism (i.e., more timely recognition of economic losses (Basu, 1997)).

measures provide incremental information to investors. Thus, if book and taxable incomes were conformed to one measure, the capital markets would suffer an information loss since both measures provide incremental information and one would be gone with conformity. The effect on the informativeness of earnings, however, is unclear. Because their setting does not involve a change in conformity, it cannot take into account the effect that conformity would have on reporting behavior (e.g., as documented in Guenther et al. 1997) and what effect this change, if any, would have on the informativeness of earnings. It is precisely the effects on reporting behavior that are at the center of the debate on book-tax conformity.[5]

Because the U.S. has not implemented a regime that closely links financial accounting and taxable income measures, large sample evidence is unavailable using U.S. data; however, several international studies have examined these issues. Ali and Hwang (2000) examine the relation between measures of informativeness of financial accounting data and several country specific factors, which include the degree to which tax rules influence financial accounting measurements, the involvement of a private sector body in the standard setting process, and whether the country has a bank-oriented or market-oriented financial system. Ali and Hwang (2000) find that the informativeness of earnings is lower when tax rules significantly influence financial accounting measurements. This result is consistent with tax laws being influenced by political, social, and economic objectives rather than the information needs of investors (Scholes et al, 2005; Manzon

[5] Note also that Hanlon et al. (2005) have to estimate taxable income from financial statement information (and this information is only disclosed and not recognized). This estimation raises concerns about measurement error in their taxable income variable, which could be contributing to their observed results. In contrast, our study examines financial accounting earnings for a set of firms where an increase in conformity was required, thus eliminating the need to estimate taxable income.

and Plesko, 2002). This evidence would lead to the prediction that if book and tax incomes are conformed in the U.S., there would be a loss of information in the capital markets.[6]

Similarly, Guenther and Young (2000) report evidence consistent with accounting earnings in the U.K. and the U.S. being more closely related to underlying economic activity than accounting earnings in France and Germany. They predict these results because of differences in legal systems and the demand for accounting information, differences in legal protection for external stakeholders, and differences in the degree of tax conformity in the different countries.[7] Hung (2001) reports evidence consistent with the use of accrual accounting (versus cash accounting) negatively affecting the informativeness of financial statements in countries with weak shareholder protection. Hung (2001) uses book-tax conformity as a control variable in her tests; however, book-tax conformity is not significant (inconsistent with Ali and Hwang, 2000).

Overall, some of the studies comparing countries with differing degrees of book-tax conformity find evidence consistent with high book-tax conforming countries having less informative earnings. However, using international data does not directly answer the question of what would happen in the U.S. because earnings informativeness is an endogenous function of market demands, political influences, and the incentives of involved parties that are specific to each

[6] In addition, Harris, Lang, and Moller (1994) examine the value relevance of German accounting measures over a period in which the German accounting rules were considered by many to be particularly deficient in the information disclosed to investors. The German system included a closer link between book and taxable incomes, and a greater emphasis on both detailed prescriptive regulations and the needs of debtholders. Harris et al. (1994) also examine an earnings number calculated by the German financial analyst society, which was meant to represent the "permanent earnings" of the companies. The study reports that the correlation between 18-month returns and annual earnings for German firms is generally similar to that in the U.S. They also report that the earnings number produced by the analysts has more explanatory power for returns relative to the reported earnings, thus providing an example of an alternative form of information acquisition that arises when financial accounting does not provide the type of information demanded by investors (i.e., analyst groups calculating alternative measures of earnings).

[7] Note that Guenther and Young (2000) do not isolate which of the three reasons they give for their prediction drives their results because the US and UK (France and Germany) are each classified the same on each dimension. In another study, Young and Guenther (2003) use the degree of book-tax conformity as one of two proxies for the informativeness of financial accounting in a country (low book-tax conformity, higher informativeness) and test whether capital flows into a country are decreasing with increased book-tax conformity. Their results are consistent with this prediction. Thus, another cost of book-tax conformity documented by Young and Guenther (2003) is decreased capital mobility.

country (Ball, Robin, and Wu, 2003). Thus, we examine the question directly using a unique set of U.S. firms at a time when their level of book-tax conformity increased as a result of a tax law change. We view our study as triangulating and extending the evidence in Hanlon et al. (2005) and the international studies described above.

We note that there have also been several recent studies regarding book-tax differences and earnings quality. Although not directly related, a discussion regarding how those studies relate to our predictions and findings is warranted. One example is Hanlon (2005), which presents results consistent with firms that have relatively large book-tax differences in a cross-section of firms also having lower earnings persistence. Thus, one may be tempted to conclude that eliminating book-tax differences by requiring conformity would improve earnings quality. However, to assume that eliminating all book-tax differences would increase earnings quality presumes that the majority of book-tax differences are driven by earnings management of book income on which firms could avoid paying taxes. As stated in Hanlon (2005) there are many reasons why firms can have book-tax differences—1) different rules governing the calculation of the incomes because the two measures are intended for different purposes, 2) firms being tax aggressive, 3) firms managing earnings, and 4) a combination of these factors. Because there are many reasons for the book-tax differences to exist (both prior to and after TRA 86) and because there was likely a behavioral response by firms after the required increase in conformity to attempt to manage financial accounting earnings downward (the market knew their conformity increased and lowering book income would reduce taxes and increase cash flows), this setting is different than that in Hanlon (2005) (which examined relatively large book-tax differences with no change in book-tax conformity).[8]

[8] See also Lev and Nissim (2004) for a closely related paper to Hanlon (2005). Also, see Mills and Newberry (2001) and Phillips, Pincus and Rego (2003) for other papers that relate book-tax differences and earnings quality.

2.3 The Current Policy Debate About Book-Tax Conformity

In addition to the evidence about the effect of taxes on the information in financial accounting earnings, our study also contributes to the policy debate about book-tax conformity. The difference between reported book and taxable incomes grew substantially in the 1990s according to estimates made by several governmental agencies and researchers (e.g., Plesko, 2000 and 2002; Treasury, 1999). While the reason for this divergence is not known with certainty, many argue that one or both of the income measures were being opportunistically reported by management. For example, Desai (2005) argues that because the system of dual reporting allows (indeed, requires) different computations of income for book and tax purposes, the quality of earnings reported to both the capital markets and tax authorities is reduced by opportunistic behavior by managers.[9]

In addition, Congress has held hearings on corporate tax shelters in which a number of witnesses testified in favor of increased book-tax conformity, including Charles Rossotti, the former Commissioner of the IRS,.[10] Furthermore, increased book-tax conformity was one of the alternatives considered by President Bush's Tax Reform Panel.[11] The Panel's report states that "The Panel also evaluated a proposal to tax large entities based on net income reported on financial statements instead of requiring a separate calculation of income for tax purposes. Although the Panel has decided not to include that proposal as part of the Simplified Income Tax Plan, the Panel recommends that it be studied further" (President's Advisory Panel on Federal Tax Reform, page 131).

[9] See also Desai's Testimony before the House Ways and Means Committee, May 9, 2006.
[10] Charles Rossotti, Testimony Before the Senate Committee on Finance, September 20, 2006.
[11] See also Harris (2005) and Graetz (2005).

3. Hypothesis Development

To provide structure for our hypotheses we present a simple model of the effect of noise in a signal on the price reaction to the signal. The model follows from Holthausen and Verrecchia (1988) and Kothari (2001) and the basic result is that noise in a signal reduces the price reaction to the signal. For example, noise in earnings reduces the earnings response coefficient - our measure of earnings informativeness. We define X_t as reported earnings, x_t as economic earnings in the absence of noise or bias (in Holthausen and Verrecchia, the private signal x_t received by managers is about the liquidating dividend). We label the difference between X_t and x_t as η_t. This difference, η_t, is composed of both noise (or garbling) and bias. In our setting of conformity, and given the results of Guenther et al. (1997), we expect downward bias (unconditional conservatism) in reported earnings. We model this by setting $\eta_t = f\, x_t + e_t$, where $f < 0$ determines the extent of the downward bias and e_t is the noise term, which has mean zero and variance σ_e.[12] Thus we can write reported earnings as

$$X_t = x_t + f\, x_t + e_t$$

$$= (1+f)\, x_t + e_t. \qquad (1)$$

Further assume (consistent with Kothari, 2001) that stock returns reflect economic earnings, $R_t = x_t$.[13] However, the firm's reported earnings are not x_t but rather X_t and we estimate

$$R_t = a + b\, X_t + u_t \qquad (2)$$

where b is the estimated ERC = $\text{cov}(R_t,X_t)/\text{var}(X_t)$. Substituting for R_t and X_t gives

$$b = \text{cov}(x_t,(1+f)x_t+e_t)/(\sigma_{(1+f)x}^2+ \sigma_e^2) \qquad (3)$$

Assuming x_t and e_t are uncorrelated,

[12] With reversals in accruals, and a steady state (i.e., non-growing) firm it is possible that reversal of prior noise offsets on average the introduction of new noise such that f = 0 and the expected mean of the noise term is zero. As shown below, mean zero noise reduces the estimated ERC.

[13] We could add a term for the "true" ERC $R_t = \beta\, x_t$ but this would just add unnecessary clutter and the main point remains. Alternatively, we assume the true ERC is normalized to 1.

$$b = ((1+f)cov(x_t,x_t))/((1+f)^2\ \sigma_x^2 + \sigma_e^2)$$

$$= ((1+f)\ \sigma_x^2)/((1+f)^2\ \sigma_x^2 + \sigma_e^2) \quad (4)$$

Equation (4) shows that the ERC, b, is influenced by both noise, e, and bias, f. Several possibilities emerge. In the absence of noise and bias, $b = \sigma_x^2/\sigma_x^2 = 1$ and b is an unbiased estimate. If there is no noise but $f < 0$ (simple downward bias), then b is simply biased upward by the scale factor $1/(1+f)$.[14] As in Holthausen and Verrecchia (1988), if there is no bias but there is noise ($f = 0$ and $\sigma_e^2 > 0$), then $b = \sigma_x^2/(\sigma_x^2 + \sigma_e^2)$ and b is biased downward. Finally, if there is both bias and noise ($f < 0$and $\sigma_e > 0$), then $b < 1$ if $([((1+f) - (1+f)^2)\ \sigma_x^2] < \sigma_e^2)$. To illustrate, if $f = -.10$, then b is downward biased if $.09\ \sigma_x^2 < \sigma_e^2$. Thus, the ERC is decreasing in the variance of noise, σ_e^2, but increasing the more downward bias there is in reported earnings ($f<0$).[15]

To put the above model more in context for our setting, consider that GAAP provides managers with considerable discretion in their choice of accounting procedures (Watts and Zimmerman, 1986, p. 215). Accruals can be used by management to convey private information useful to external stakeholders (Dechow, 1994), decreasing noise in the underlying cash flows and increasing the informativeness of earnings. However, accruals can also be used opportunistically, thus distorting the information provided by management, introducing noise into earnings, $\sigma_e^2 > 0$, and lowering the informativeness of reported earnings. We note that in tests comparing cash flows and accounting earnings, accounting earnings exhibit greater relative informativeness than cash flows (Dechow, 1994) in spite of this potential for earnings management.

[14] This result implies that if we were to observe an increase in the ERC such increase might simply reflect a scaling from unconditional conservatism rather than a reduction in noise (smaller σ_e^2) as predicted by Desai (2005).

[15] This model is naturally a stylized model and one could, if desired, develop a more complicated model to incorporate other features. Nonetheless, the model captures the two salient effects that a change in book-tax conformity can bring about: i) changes to reported earnings that increase the ERC (downward bias) and ii) changes to reported earnings that decrease the ERC (noise in earnings).

Hanlon et al. (2005) argue that conforming book income and taxable income would reduce the informativeness of earnings because managers would report earnings to minimize taxes rather than reporting earnings in a manner that conveys relevant and reliable information regarding firm performance through earnings ($f < 0$ and $\sigma_e^2 > 0$, such that b is biased downward). In contrast, proponents of book-tax conformity argue that in an unconformed system firms manage accounting earnings upward ($f > 0$ and $\sigma_e^2 > 0$) and that book-tax conformity would force them to stop ($f = 0$ and $\sigma_e^2 = 0$), resulting in more honest reporting which would, they argue, make earnings more (not less) informative.

In sum, the increased (unconditional) conservatism in reported earnings that Guenther et al. (1997) report as a consequence of increased book-tax conformity could have two possible effects depending on management's reporting both before and after the increase in conformity (TRA 86 in our setting). The increased conservatism that results from conformity could result from firms no longer managing earnings upward because of the tax costs of doing so (thus setting $f = 0$ and lowering noise in earnings, σ_e^2, increasing earnings informativeness) or it could arise from firms not being able to convey private information about performance because of the tax cost of doing so (thus decreasing f and increasing noise in earnings, σ_e^2, decreasing earnings informativeness). Although advocates on both sides of the debate argue strongly with regard to their predictions, the existing literature does not test these predictions. We directly test these predictions using the unique setting of firms required to switch from cash basis to accrual basis accounting for tax purposes after TRA 86. Our first hypothesis is as follows, stated in the alternative form:

> H1: *The informativeness of earnings decreases as firms are forced to increase their book-tax conformity.*

We also test a second hypothesis regarding the two groups of firms (converting and accrual) prior to TRA 86. Our main test is the test of H1, which examines whether earnings of

converting firms become less informative after the firms are required to use the accrual method of accounting for tax purposes (i.e, after their tax accounting becomes more conformed with financial accounting). We use the accrual basis firms as a control group because we conduct an interrupted time series test and there could have been macroeconomic effects that affected the earnings informativeness of *all* firms. Thus, if we did not use a control group for comparison we may mistakenly attribute an effect that happened to all firms to the increase in book-tax conformity. As a result, our main test is whether the informativeness of earnings for converting firms decreased more than for accrual firms. This is the strongest test because it is a difference-in-differences test. However, because the converting firms are less conformed prior to TRA 86 than accrual basis firms are prior to TRA 86, we also test whether the informativeness of earnings is different between the two groups of firms prior to TRA 86. In terms of the model, we predict that the earnings of the converting firms contain less noise prior to TRA 86, and are therefore more informative, than the earnings of the accrual firms (which have stronger book-tax conformity). Our second hypothesis is as follows, in the alternative form:

> H2: *Prior to the required increase in book-tax conformity*, *earnings of converting firms (those with low conformity) are more informative than are earnings of high-conformity firms.*

We have no ex ante prediction about whether the accrual basis firms' earnings will become more or less informative after TRA 86 relative to before but include these firms as a control sample in the event that all firms' earnings became more or less informative around TRA 86 due to some factor other than an increase in book-tax conformity. We also do not propose a formal hypothesis regarding the difference in informativeness in earnings between the two groups after TRA 86; however, our conjecture is that there is likely no difference between the

two groups because they now have an equal degree of conformity between tax and book accounting.

4. Sample, Descriptive Statistics, and Empirical Design

4.1 Sample

Our sample selection criteria are described in Table 1. We begin with the sample of 94 firms identified by Guenther et al. (1997) as using the cash method of accounting for tax purposes prior to TRA 86.[16] We delete observations with missing data for our tests, firms with fiscal year end changes, and firms which have 1985 sales of $5 million or less because firms with less than $5 million in sales were not required to change accounting methods under TRA 86.[17] We also require firms to have available data in at least both the years 1985 and 1988 to be retained in the sample.[18] Our final sample consists of 56 firms that used the cash method for tax purposes prior to TRA 86 and were then required to switch to the accrual for tax purposes. We refer to these firms as the "converting firms."[19]

We also gather a sample of control firms from the same four digit SIC codes that used the accrual method for tax purposes during the entire period of the study; referred to as the "accrual basis firms." We use this control sample for two reasons. First, this is the same control sample as used in Guenther et al. (1997). Second, this control sample provides a large number of firms to be

[16] Guenther et al. (1997) use a keyword search of financial statement tax footnotes on the NAARS file of the LEXIS/NEXIS data base for 1985 using the terms 'cash basis' and 'cash method'. They exclude firms in the commercial banking and savings and loan industries because these firms have special tax and financial accounting rules not applicable to the majority of firms.
[17] IRC §448.
[18] Consistent with Guenther et al. (1997), we exclude observations from the years 1986 (because of potential income shifting to or from this year) and 1987 (because TRA86 was phased in over that year). In sensitivity analysis, we examine the effect of excluding observations from 1988 because income shifting could have occurred involving this year as well (see section 5.3.f.).
[19] We note that Guenther et al. (1997)'s final sample in their paper consisted of only 66 firms. We have additional data requirements (the use of returns) and are using Compustat files ten years later and thus expect to have a smaller sample than Guenther et al. (1997).

used in our tests. We include firm-years with available data in the time period from 1981-1985 for the pre-TRA 86 period and firm-years with available data in the time period from 1988-1992 for the post-TRA 86 period. In total, we have 3,576 firm-years of data consisting of 450 converting firm-years and 3,126 accrual basis firm-years.

Ideally we would want to test the informativeness of the earnings of the cash basis firms that converted compared to what they would look like had they not converted. Of course this is not possible. The following table identifies the various samples of firms potentially available along with their method of tax accounting both pre-TRA 86 and post-TRA 86.

	Pre-TRA 86	Post-TRA 86
Converting Firms	Cash	Accrual
Accrual Method Firms	Accrual	Accrual
Cash Method Firms	Cash	Cash
Small Sales Firms	Cash/Accrual	Cash/Accrual

The converting firms are those that are the subject of our analysis – firms that experience a required increase in book-tax conformity. We use the accrual basis firms as the control sample in our main analysis – firms from the same industries as the converting firms that were accrual for tax purposes both before and after TRA 86 (these firms experienced no change in the required level of book-tax conformity). The third grouping, cash method firms, consists of those firms on the cash method of accounting for tax purposes both before and after TRA 86. Thus, these firms would be like our 'treatment' sample pre-TRA 86 but not subject to the increase in the conformity requirement (i.e., they must have sales less than $5 million). While this group would also make a useful control sample, we cannot obtain a reasonable size sample of cash method firms. Guenther

et al. (1997) conducted a thorough search of financial statements on the NAARs database and only found 94 firms in total that were on the cash basis method for tax accounting prior to TRA 86. Of course, this small number is likely not the population of firms that were on the cash basis but is the sample of firms that Guenther et al. (1997) could identify from searching the financial statements. Out of this sample of 94 firms for which we can still link to Compustat (91 firms) we find only 3 firms with sales less than or equal to $5 million in 1985. Thus the control sample of cash basis firms that did not convert would consist of at most 3 firms. This does not make for a plausible test. As a result, we utilize the accrual basis firms as our control group in our main analysis.

We also employ an alternative control sample of firms, labeled the Small Sales Firms in the above chart, and describe the results of using this sample in our sensitivity analysis below. These firms have sales less than $5 million and thus could have remained on the cash basis if they were on the cash basis prior to TRA 86. We cannot identify (any better than Guenther et al., 1997) which of these are cash or accrual basis either before or after but instead use the entire group as an alternative control for our interrupted time series tests.

4.2 Descriptive Statistics

Table 2 contains descriptive statistics for the sample. Our measure of earnings is the change in earnings before extraordinary items (ΔE, Compustat data #18) from year t-1 to year t, scaled by the market value of equity (*MVE*, data #199 * data #25) at the end of year t-1.[20] Our measure of returns (*R*) is the raw buy and hold 12 month return beginning the fourth month after the fiscal year end of t-1 and ending 3 months after the fiscal year-end of year t. *ASSETS* are the total assets of the firm at year-end (data #6), *SALES GROWTH* is defined as the percentage increase in current-year sales over the prior year sales (data #12), and *LEVERAGE* is defined as the long-term

[20] We also test earnings defined as pre-tax earnings and find similar results described below in section 5.4.

debt of the firm scaled by total assets (data (#9+#34)/#6). Return on assets (*ROA*) is defined as earnings before extraordinary items divided by average total assets (data #18/average data #6), earnings-to-price (*E/P*) is earnings before extraordinary items divided by market value of equity at year-end (data #18/*MVE*), and book-to-market (*B/M*) is defined as the book value of equity at year-end divided by *MVE* (data #60/*MVE*).

The data indicate that the converting firms tend to be smaller than the accrual firms both before and after TRA 86, whether measured by *MVE* or by *ASSETS*. There is no difference between the two groups' stock returns or change in earnings in either the pre-TRA 86 or post-TRA 86 periods. The converting firms exhibit higher sales growth, *E/P* and *M/B* (proxies for growth) pre-TRA but there is no discernable difference post-TRA. Converting firms also exhibit significantly higher leverage post-TRA but there is no difference pre-TRA – the leverage of converting firms increased. The tests of differences in *ROA* between the groups are mixed depending on whether significance tests are based on means or medians. Where variables changed pre/post-TRA (e.g., growth and leverage) we check in sensitivity analysis that these changes are not driving the observed results (see Section 5.3.c).

The fact that there are some differences between converting and accrual firms underscores the importance of utilizing a natural experiment with an interrupted time series design as opposed to a pure cross-sectional approach. If there had been no exogenous change in book-tax conformity and we had merely compared converting firms to accrual method firms, it would be difficult to isolate effects of book-tax conformity on reporting behavior given the other differences between the firms. With the 2 x 2 design in the current study, we are able to observe the same converting firms under two different book-tax conformity regimes, essentially giving us a within-firm test. To control for time-varying industry or macroeconomic effects we also compare the converting firms to a set of

accrual method firms that were not affected by the change in book-tax conformity in the same pre and post-time periods.

4.3 Empirical Design

We examine the difference-in-differences in the long-window earnings response coefficient between the converting and accrual basis firms. Following Francis et al. (2005) and others, we interpret the slope coefficient relating returns to earnings obtained from regressions of annual returns on annual earnings changes as a measure of the informativeness of earnings (we also estimate regressions of annual returns on annual earnings levels and changes).

The interpretation of the slope coefficient in a returns-earnings regression as a measure of the informativeness of earnings is common in the accounting literature. For example, Lev and Zarowin (1999) state "We use statistical associations between accounting data and capital market values (stock prices and returns) to assess the usefulness of financial information to investors" (page 354). "A different perspective on the informativeness of earnings is provided by the combined ERC (earnings response coefficient), defined as the sum of the slope coefficients of the level and change of earnings…A low slope coefficient suggests that reported earnings are not particularly informative to investors, perhaps because they are perceived as transitory or subject to managerial manipulation. In contrast, a high slope coefficient indicates that a large stock price change is associated with reported earnings..." (page 356).

Francis and Schipper (1999) describe different interpretations of earnings informativeness. Two of their interpretations are based on earnings informativeness as indicated by a statistical association between financial information and prices or returns. One of these (their interpretation number 3) measures whether investors actually use the information in earnings in setting prices. "This interpretation implies that value relevance is measured in terms of "news," implying that

value-relevant information changes stock prices because it causes investors to revise their expectations" (page 326). However, as they state, implementing this type of interpretation requires taking into account the linked concepts of timeliness and expectations formation. In our setting, we do not have a good expectations model for the converting or accrual basis firms. Analysts forecast coverage would be virtually nonexistent for all the firms in 1986, especially for the converting firms which are on average smaller firms.

Francis and Schipper's (1999) fourth interpretation (the one they use—long window association tests) of earnings informativeness is measured by the ability of financial statement information to capture or summarize information, regardless of source, that affects share values. This interpretation does not require that financial statements be the earliest source of information. This is the interpretation of informativeness that we use in our paper.

Thus, we interpret differences in the slope coefficients between our sub-samples of firms as providing evidence on differences in the noise or informativeness of accounting information. In our case, this difference, if any, is associated with each of the sub-sample's level of book-tax conformity.[21] We use the following difference-in-difference regression model:

$$R_t = \alpha + \beta_1 CONVERTING + \beta_2 POST_t + \beta_3 \Delta E_t + \beta_4 CONVERTING*\Delta E_t + \beta_5 POST*\Delta E_t +$$
$$\beta_6 CONVERTING*POST_t + \beta_7 CONVERTING*POST_t*\Delta E_t + \varepsilon \qquad (5)$$

where *CONVERTING* is an indicator variable set equal to 1 if the firm is a converting firm and zero if the firm is an accrual basis firm; *POST* is an indicator variable set equal to 1 if the year of the observation is post-TRA 86 (1988-1992) and zero if the observation is prior to TRA 86 (1981-1985); ΔE_t and R_t are as defined above. Using this specification we can investigate whether

[21] Francis et al. (2005) cite other papers that capture the informativeness of earnings using the coefficient relating returns to earnings (e.g., Teoh and Wong, 1993; Imhoff and Lobo, 1992; Warfield et al., 1995; Subramanyam and Wild, 1996; Fan and Wong, 2002; and Yeo et al., 2002).

converting firms' average ERC declined post-TRA 86 more so than the average ERC of the accrual firms. This approach controls for any differential in the post-TRA period for all firms attributable to other factors and for any differential in returns between the converting and accrual basis firms not attributable to earnings.

The coefficient on ΔE_t, β_3, represents the ERC for accrual firms prior to TRA 86 and consistent with prior ERC research, we predict a positive sign. The coefficient on *CONVERTING**ΔE_t, β_4, represents the incremental effect of being on the cash basis of accounting for tax purposes and should have a positive sign if converting firms prior to TRA 86 have reported earnings that are more informative than earnings of accrual basis firms prior to TRA 86. The significance of the β_4 coefficient is the relevant test of H2. The coefficient on *POST**ΔE_t, β_5, is the change in the ERC for the accrual basis firm post-TRA 86, which controls for any change in the return-earnings relation for all firms attributable to something other than the increase in book-tax conformity required by TRA 86. We have no prediction on the sign of this coefficient. The main coefficient of interest for H1 is the coefficient on *CONVERTING*POST*$_t$**ΔE_t, β_7. This coefficient represents the incremental ERC for a converting firm after TRA 86 relative to the ERC of a converting firm before TRA 86 and relative to the ERC of an accrual basis firm before and after TRA 86. Our predicted sign for this coefficient is negative—consistent with the informativeness of earnings declining for the converting firms from the pre- to post-TRA 86 period after controlling for any change in the ERC over the same time period for accrual basis firms.[22, 23]

[22] At first blush, estimating a Basu (1997) type regression may seem to be another plausible way to test our research question. A Basu (1997) regression tests whether accounting earnings are conservative, that is whether accounting earnings incorporate economic losses more quickly than economic profits, by testing the return response coefficient (under the assumption that returns reflect economic earnings) for loss firms (negative returns firms—economic losses) as compared to firms with positive returns. However, one must be careful because in our setting, while we predict that the cash firms become more unconditionally conservative (consistent with the findings in Guenther et al., 1997), we would <u>not</u> predict they become more conditionally conservative in the sense that they would recognize economic losses

We also estimate an alternative specification, which includes both changes and levels of earnings in the regression. This specification is as follows:

$$R_t = \alpha + \beta_1 CONVERTING + \beta_2 POST_t + \beta_3 E_t + \beta_4 \Delta E_t + \beta_5 CONVERTING*E_t +$$

$$\beta_6 CONVERTING*\Delta E_t + \beta_7 POST*E_t + \beta_8 POST*\Delta E_t + \beta_9 CONVERTING*POST_t +$$

$$\beta_{10} CONVERTING*POST_t*E_t + \beta_{11} CONVERTING*POST_t*\Delta E_t + \varepsilon \qquad (6)$$

where E_t is earnings before extraordinary items (Compustat data #18), scaled by the market value of equity (*MVE*, data #199 * data #25) in year t-1 and all other variables are as defined above. The combined ERCs, defined as the sum of the slope coefficients of the level and change of earnings, are the items of interest in this regression. Thus, the sum of the coefficients β_{10} and β_{11} is the main ERC of interest analogous to β_7 in equation (5). As with β_7 in equation (5), we predict the sum of β_{10} and β_{11} to be negative indicating that the informativeness of earnings declined after TRA 86 more for the converting firms than for the accrual basis firms. The sum of coefficients, β_5 and β_6, are analogous to β_4 in equation (5) and are the coefficients of interest for H2. We predict this sum

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more quickly. Rather the converting firms in our setting would become more conservative only in an effort to reduce tax liabilities and not to reflect a better measure of performance or to reduce the chance of a lawsuit. Thus, the prediction in a Basu (1997) type regression would be that of no difference between the converting and accrual basis firm-years and due to the small sample and resulting low power in our study, testing a null hypothesis prediction is not a strong test. (Indeed, when we estimate a Basu (1997) regression we find no difference between the cash and accrual basis firm-years but because of the low power of the tests we do not place much weight on these results.) We note that there are other studies that compare the timeliness of earnings across countries using a Basu (1997) type regression (e.g., Ball, Kothari, and Robin, 2000 and Ball, Robin, and Wu, 2003) and while appropriate in their setting, that type of analysis is not suitable for our research question for the reasons given above.

[23] We note that while Francis et al. (2005) call tests of R^2s an alternative measure of informativeness, they do not test the explained variability of the returns-earning relation. They cite problems comparing R^2s across samples (see also Gu, 2002 and Cramer, 1987) and the lack of a model that maps signal credibility into the explained variability of the earnings return relation. In addition, Lev and Zarowin (1999) explain that changes in R^2s might be driven by changes in the relative importance of nonaccounting information, with no change in the informativeness of earnings on a stand alone basis, whereas the "…declining slope coefficients indicate a deterioration in the value relevance of earnings to investors, irrespective of the effects of other information sources" (page 356). Thus, we rely on the slope coefficient and do not conduct tests on the R^2s.

to be significantly positive consistent with the converting firms having more informative earnings relative to the accrual firms prior to TRA 86.[24]

5. Empirical Results

5.1 Difference-in-Differences ERC Regression Test – Earnings Changes Specification

Table 3 presents the results of estimating regression equation (5). Recall that our first hypothesis is that the converting firms will have a greater decline in informativeness (as measured by ERCs) than accrual firms following TRA 86. The coefficient of interest for this hypothesis is β_7 (the coefficient on the variable $CONVERTING*POST_t*\Delta E_t$,). The results in Table 3 reveal that β_7 is negative and significant (p-value = 0.001, one-tailed test) indicating that the converting firms exhibit a decline in their ERC after TRA 86 that is significantly greater than the decline in the ERC for the accrual basis firms over the same period. Thus, the evidence is consistent with an increased level of book-tax conformity reducing the informativeness of earnings as predicted in our first hypothesis.

Our second hypothesis is that the converting firms have more informative earnings pre-TRA 86 than accrual firms pre-TRA 86. The main coefficient of interest for H2 is, β_4. Consistent with our hypothesis, the coefficient on $CONVERTING*\Delta E_t$, β_4, is significantly positive (p=0.001, one-tailed test) indicating that the converting firm-years exhibit a greater ERC relative to the accrual basis firm-years in the pre-TRA 86 period. This result is consistent with greater information

[24] Our analysis is predicated on efficient markets. When we say loss of information we mean a loss of information in earnings as a measure of economic performance for the period. What our tests examine is whether the increase in conformity for the converting firms results in accounting earnings which contain less information useful to the market. While an efficient market can and will get information from other sources, these other sources may be more costly and not equally available to everyone. In a conformed system, firms or analysts may disclose some type of pro-forma earnings measures to better approximate performance. However, it is important to consider how (or whether) this information dissemination would be regulated and whether everyone would have access to this alternative source of information.

content of earnings for firms allowed to use different accounting methods for book and tax (the converting firms) relative to firms where the income measures are conformed to a greater degree (the accrual basis firms). This result is also similar to the cross-country findings that the informativeness of earnings is greatest in countries with low degrees of book-tax conformity. However, the β_4 result could be caused by other differences between these two samples for reasons unrelated to the method of accounting used for tax which is why our primary hypothesis (H1) focuses on the difference-in-difference test, β_7.

We also note that the coefficient on the change in earnings, β_3, is significant and positive as expected, indicating that the ERC is positive for accrual firms prior to TRA 86. The coefficient on *POST*ΔE*, β_5, is designed to capture any broad changes in informativeness after TRA 86 and is marginally significant (p=0.09, two-tailed test) indicating that the ERC declined for the accrual basis firms post-TRA 86.

Panel B of Table 3 presents the separate sub-group coefficients and how these coefficients are derived from the difference-in-difference regression. Panel B Table 3 also reports tests of the coefficient differences between all four sub-groups of firm years. The first and third rows repeat the estimated coefficients, β_4 and β_5, from Panel A and the F statistic is the square of the t statistic from panel A and these results are discussed above. The second and fourth rows present new information. The second row compares converting firm years pre-TRA 86 to converting firm years post-TRA 86 and shows that there is a statistically significant decline in informativeness after these firms were required to increase their degree of book-tax conformity (difference in ERCs pre-to-post TRA 86 is -2.008, significant at 0.0001). The fourth row of Panel B reveals that there is no statistically significant difference between the ERCs of converting firms and accrual firms post-TRA 86. We did not present a formal hypothesis with regard to this comparison but our informal

prediction was that there would be no difference between these groups because they now have the same level of book-tax conformity. The results are consistent with this conjecture.

Overall our results are consistent with both of our hypothesis. The converting firms experienced a decline in the informativeness of earnings after their degree of book-tax conformity increased. This result is unlikely to be caused by factors other than the increase in book-tax conformity because this decline in informativeness is greater than the decline experienced by other firms in the same industries over the same time period. In addition, the firms on the cash basis method of accounting for tax purposes have more informative earnings before TRA 86 relative to accrual basis firms which also supports our conjecture that book-tax conformity reduces the informativeness of earnings. While this latter result could be caused by other factors that differ between the groups of firms (i.e., a self-selection problem), this concern is mitigated because we find that the decrease after TRA 86 is greater for the converting firms than the accrual firms and because these sub-groups of firms are not significantly different in terms of the informativeness of earnings after TRA 86 when their degree of book-tax conformity is the same. In sum, the inference from our results is that book-tax conformity and the resulting managerial response is costly in terms of a decline in informativeness of earnings.

5.2 Difference-in-Differences ERC Regression Test - Alternative Specification with Earnings Changes and Earnings Levels

Table 4 presents the results of estimating equation (6). The coefficients of interest are the sums of the coefficients on the level of and change in earnings. Analogous to the coefficient β_7 in equation (5), our main variable of interest for the difference-in-difference test of H1, is the sum of the coefficients β_{10} and β_{11}. The sum of these coefficients represents the incremental effect of being a converting firm after TRA 86 relative to being an accrual firm and relative to being a converting

firm prior to TRA 86. The sum of these coefficients is -1.35 and an F test reveals that the sum is significantly different from zero (p-value of 0.030) consistent with our first hypothesis. The coefficients of interest for our second hypothesis are β_5 and β_6. The data reveal that the sum of these two coefficients is 1.56 and an F test indicates that this sum is significantly different from zero with a p-value of 0.009.

In Panel B we present data analogous to Table 3, Panel B. In the first part of Panel B we show the separate sub-group ERCs and how each of these can be derived from the regression results in Panel A. In the second part of Panel B we present tests of differences between each of the four sub-groups. The results are very similar to those in Table 3 with the exception of the accrual firms no longer having a significant decline in the informativeness of earnings after TRA 86 indicating less of a need for the control group in this specification. However, the comparisons reveal, similar to Table 3, that converting firms have a higher ERC prior to TRA 86 than accrual firms (p-value = 0.009) and the converting firms have a significant decline in ERC after TRA 86 (p-value = 0.006). Also similar to Table 3 results, following TRA 86 there is no discernable difference (p-value = 0.192) between the converting firms and the accrual firms in terms of ERC as would be expected now that the level of conformity is the same for the two sub-groups.

Thus, as with the changes only specification, the results from this specification are consistent with both our hypotheses. The converting firms have more informative earnings than accrual firms prior to TRA 86 consistent with less book-tax conformity leading to more informative earnings. In addition, after the required increase in conformity the converting firms have a decline in informativeness and this decline is greater than the decline for accrual basis firms.

5.3 Additional Tests

5.3.a Are Changes in Persistence and Growth Driving the Decrease in the ERC?

It is well known that firms with more persistent earnings and firms with greater growth opportunities have higher ERCs (Collins and Kothari, 1989). While we estimate a differences-in-differences regression specification, it is possible that our converting firms had a decline in earnings persistence that is driving the observed decline in their ERCs. In addition, because our descriptive evidence shows that the converting firms are higher growth firms prior to TRA 86 than the accrual basis firms and that the converting firms have a greater decrease in sales growth after TRA 86, it could be that this change in growth (mean reversion) for the converting firms is driving the change in the ERC. We conduct several tests to investigate the effects of these potential omitted correlated variables.

First, we estimate earnings persistence for our firms using the following regression:

$$E_{t+1} = \alpha + \beta E_t + \varepsilon. \quad (7)$$

Specifically, to test the statistical difference between our converting firms and accrual basis firms both before and after TRA 86, we estimate the following regression:

$$E_{t+1} = \alpha + \beta_1 CONVERTING + \beta_2 POST_t + \beta_3 E_t + \beta_4 CONVERTING*E_t + \beta_5 POST*E_t + \beta_6 CONVERTING*POST_t + \beta_7 CONVERTING*POST_t*E_t + \varepsilon \quad (8)$$

where all variables are as defined previously.[25] We present the results in Table 5. We estimate the regression over all firm-years and test the difference in persistence for converting versus accrual basis firms both before and after TRA 86.

The regression results indicate that there is no significant difference in persistence between

[25] We have estimated the same regression with earnings scaled by average total assets (as in Sloan, 1996) and we obtain qualitatively identical results—all inferences are unchanged with respect to whether earnings persistence declines for the converting firms. For example, the coefficient β_7 (coefficient on the interaction representing the incremental difference in persistence from pre to post TRA 86 for converting firms as compared to accrual basis firms) is 0.081, with a p-value of 0.608.

the converting and accrual firms in the pre-TRA period, no significance difference in the change (decline) in persistence between the pre and post periods between the two samples, and no significant difference in persistence between the two samples in the post-TRA period. Further, the ERC results in Table 3 indicate that the results are driven by a large decline in the ERC of the converting firms with a much smaller decline in the ERC of the accrual firms. Thus for persistence to explain the results requires the converting firms to exhibit a larger decline than the accrual firms in persistence – this is not the case.

To test whether mean reversion in growth is driving our results, we use an alternative control sample – accrual method firms matched with the converting firms on the basis of average annual sales growth in the pre-TRA 86 years and industry (4-digit SIC code as before). In other words, we use a sub-set of the current control sample of accrual basis firms. The sub-set (matched firm by firm) is one that has average annual sales growth in the Pre TRA 86 years that is within 10 percent of the average annual sales growth of the firms in our converting sample. If there is a converting firm that does not have a firm in the accrual basis sample that is a close enough match in terms of *SALES GROWTH* (i.e., within +/- 10 percent), then we exclude those converting firms. As a result, for these tests our sample includes only 46 converting firms (374 firm-years) and 46 accrual basis firms (400 firm-years).

Using this new control set of firm-years, we re-estimate equation (5) and present the results (which are analogous to those in Table 3) in Table 6. Although the sample size is reduced and we are now matching on *SALES GROWTH* so that any mean reversion in growth that affects the ERC will do so similarly across the two firms, the results are very close to those presented in Table 3. The main coefficient of interest, β_7, is negative and significant (p-value of 0.001). This result is consistent with H1 – the informativeness of earnings decreased as the converting firms were forced

to increase conformity.

We also continue to find evidence consistent with H2, which predicts that the converting firms have more informative earnings relative to the accrual basis firms prior to the tax law change. The results in Table 6 reveal that the coefficient on *CONVERTING*ΔE*$_t$, β_4, is positive and significant indicating that the converting firms do indeed have a higher ERC relative to accrual basis firms prior to TRA 86, consistent with our second hypothesis. Thus, our results with respect to both our hypotheses hold after matching on pre-TRA 86 *SALES GROWTH*.

As another test of whether the results in Table 3 are affected by correlated omitted variables we estimate a regression that includes several additional control variables (for growth and other factors) in the regression, each interacted with the *ΔE* variable. The variables we include are 1) *SIZE* (measured as the natural log of total assets (data #6)), 2) *B/M* (book-to-market ratio) (data #60/ (data #199 * data #25)), 3) *ROA* (return on assets) (data #18/ the average of data #6 in years t and t-1), 4) *LEVERAGE* ((data #34 + data #9)/ data #6)), and 5) *SALES GROWTH* from year t-1 to year t ((data #12 in year t – data # 12 in year t-1)/data # 12 in year t-1).

In untabulated tests that include these additional control variables we find that the coefficient on 1) *SIZE* interacted with *ΔE* is significantly negative (p-value of <0.001), 2) *B/M* interacted with *ΔE* is insignificant (p-value of 0.444)[26], 3) *ROA* interacted with *ΔE* is marginally significantly positive (p-value of 0.068), 4) *LEVERAGE* interacted with ΔE is insignificantly different from zero (p-value of 0.962), and 5) *SALES GROWTH* interacted with *ΔE* is significantly positive (p-value of 0.044). With regard to the main variable of interest in the difference-in-differences specification (β_7 in equation (1)) we find that it remains significantly negative (p-value

[26] If *SALES GROWTH* interacted with *ΔE* is removed from the regression, the book to market interaction term becomes significantly negative indicating both proxy for growth.

of 0.002, one-tailed) as predicted. The remaining coefficients in the regression are of similar significance to the reported results in Table 3.

Thus, based on all the evidence in these robustness checks, our results do not appear to be driven by any potential differences between groups of firms such as persistence, growth, or size.

5.3.b. Alternative Control Sample

Because of the importance of controlling for macroeconomic events and the possibility that the accrual basis firms do not properly control for these events, we also conduct our main tests (difference-in-differences regression as specified in Table 3) on an alternative control sample of all 1,054 firms with sales less than $5 million in 1985 (labeled small sales firms) as described above. We then restrict the sample to observations in the same industries as our converting basis firms, which reduces the control sample to 425 observations from 1985. (We note that this sample only includes 19 of the 38 industries from our converting sample. As a result we keep only the firms in our converting sample that have firms in these 19 industries resulting in a sample of only 33 firms from the original converting sample.) We then restrict our new control sample to firms that have 1985 change in earnings data available, which results in 289 firms. We then eliminate observations not available in CRSP resulting in only 105 firms. Finally, we retain only firms with available data in 1985 and 1988 and end up with a sample of only 89 firms. Over the five years prior to TRA86 (1981-85) and the five years after (1988-92) these 89 firms provide an alternative control sample of 583 observations and a new converting sample of 33 firms and 263 observations, respectively. Thus, this alternative control sample yields a considerably smaller N than our original sample. However, we continue to estimate the same difference-in-difference regression as shown in Table 3.

The results using this alternative control sample are presented in Table 7. The coefficient on our main test variable, β_7, (*CONVERTING*POST*ΔE*) is -2.54 (p-value of 0.002). Thus,

converting firms have a greater decline in the ERC after TRA 86 than do the small-sales firms. The coefficient, β_4, is 2.48 and continues to be significantly positive (p-value of 0.001). Thus, the converting firms have a higher ERC prior to TRA 86 than the small sales firms.[27] We again present the ERC for each sub-group separately and the tests of ERC differences between each of the four sub-groups. The converting firms have a significant decline in ERC after these firms are required to increase their level of conformity (F statistic = 9.17, p-value of 0.003). Again we find that the converting firms and the small sales firms have no discernable difference in the informativeness of earnings after TRA 86 indicating that once the level of book-tax conformity is similar between the groups the difference in terms of informativeness of earnings is eliminated. In sum, the results of tests using the alternative control sample of firms with sales of less than $5 million are consistent with our prior results and with both of our hypotheses.

5.3.c. The Effect of Loss Firms

Our first hypothesis predicts and the main results show that greater book-tax conformity is associated with a loss of informativeness in reported financial accounting earnings. Because the tax incentives are to lower reported financial accounting income, increasing conformity could result in more reported financial accounting losses. Indeed, in the sub-samples of firm-years, 18 (20) percent of the converting (accrual) basis firm-years prior to TRA 86 report a loss, 30 (28) percent of the converting (accrual) basis firm-years after TRA 86 report a loss, indicating a greater increase in reported losses for the converting firms relative to the accrual basis firms.

This differential in rates of loss observations could affect the results. Hayn (1995) shows that the explanatory power and earnings response coefficients are lower for loss observations. To investigate the effect of loss firm observations on our study we re-estimate equation (1) after

[27] This difference suggests this alternative control sample likely contains mostly accrual firms as expected based on the very small number of cash basis firms identified by Guenther et al. (1997) in their search of financial statements.

excluding loss observations from the sample and find that the difference-in-differences interaction term coefficient, β_7 (the coefficient on the interaction of *CONVERTING*POST*ΔE*), is still negative and significant with a p-value of 0.024 (one-tailed). Thus, the results are not simply driven by converting firms adopting more conservative accounting and thus reporting more losses, which have lower ERCs, but also by ERCs for firms with positive earnings actually declining after conformity increases.[28]

5.3.d Alternative Definition of Earnings

Because the definition of earnings we use in our analysis, earnings before extraordinary items, is after the tax expense on the firm's income statement, we conduct a sensitivity tests using pre-tax earnings (data #170) in place of earnings before extraordinary items to make sure the accounting for income taxes before and after TRA 86 does not induce our results. Although there was no explicit change in the accounting standard regarding the accounting for income taxes during our sample period, firms' tax expense could have changed significantly because of tax law changes in TRA 86. Using the revised definition of earnings, our results are qualitatively unchanged. In the ERC difference-in-differences regression (Table 3) the coefficient on the main variable of interest, β_7, is negative and significant (p-value of 0.0012, one-tailed). Thus, the results are robust to the use of pre-tax earnings rather than earnings before extraordinary items.

5.3.e Controls for Income Shifting

Finally, because there is some evidence of firms shifting income into post-TRA 86 tax years in order to take advantage of lower tax rates (Guenther, 1994; Scholes, Wilson and Wolfson, 1992), we estimate the difference-in-differences regression by excluding data for the tax year 1988 to

[28] However, if one believes the greater incidence of losses for the converting firms is a result of the increase in book-tax conformity and the resulting change in incentives for firm management, then even if our results were due to the increase in loss observations for the converting-basis firm-years this would not be problematic but rather would further exemplify that a consequence of book-tax conformity is that there will be a lowering of earnings informativeness to market participants.

ensure that the results are not somehow driven by this income shifting. Again, we find results consistent with the results in Table 3, the coefficient on the difference-in-difference term, β_7, is negative and significant with a p-value of 0.0005, one-tailed. Overall, the main inferences of the analysis are unaffected by the inclusion of control variables, the use of pre-tax earnings as the main regressor, or by the exclusion of tax years to which income may have been shifted by firms in response to the lower tax rates implemented in TRA 86.

5.4 Discussion of Self-Selection

Because firms could choose to be either cash-basis or accrual-basis firms prior to TRA 86, the reasons why firms chose to be one or the other could affect how they respond to increased conformity and perhaps then affect our results (i.e., a self-selection issue). Guenther et al. (1997) conduct a test for the effects of self-selection using a two stage switching regression and find that their results are robust.

In our empirical tests we use a difference-in-differences approach to examine our research question. This means that, in effect, we are using the same converting firm as its own control (creating the first difference) while at the same time using a sample of accrual basis firm-years as a control for any macroeconomic effects occurring around TRA 86 that would have caused our results (the second difference). As a result, the reasons why the firm chose (or did not choose) the tax accounting method cannot be affecting our results because the firm acts as its own control. The only case in which the firm would not provide a good control for itself would be if the firm changed around the same time as TRA 86 and it changed in such a way to affect a factor that impacts earnings response coefficients. From our statistics (Table 2) we note that growth could be one of these characteristics. However, in the sensitivity analyses discussed above we conduct two separate tests to control for growth, 1) we match on pre TRA 86 sales growth, and 2) we include two

different proxies for growth (both the book-to-market ratio as in Collins and Kothari (1989) and sales growth) in the regression as control variables to control for their effect on the earnings response coefficient. Even after conducting the matched sample test and separately including growth controls, the main results are still significant. The converting firms have a significant decrease in their earnings response coefficient from the years prior to TRA 86 to the years after TRA 86 and this decrease is bigger than any decrease the accrual firms experienced over the same time period. In addition, as stated above, the result showing that the ERCs of the two groups of firms (converting and accrual basis firms) are not significantly different after TRA 86 should mitigate concerns over self-selection. The firms do not appear to be inherently different in terms of their return-earnings relation for reasons other than the level of conformity because once the degree of conformity is the same; their ERCs are the same as well.

6. Conclusions

This paper examines the effect of book-tax conformity on the informativeness of financial accounting earnings. Increasing the degree of conformity between accounting earnings and taxable income has been put forth as a way of curtailing both earnings management and aggressive tax planning. Our inquiry exploits a unique sample of firms first studied by Guenther et al. (1997) that were required to change from the cash method to the accrual method for tax purposes. Despite the fact that this was a change to the tax code, not to GAAP, Guenther et al. (1997) find that firms altered their financial accounting choices as a result of increased tax costs from accruing income.

We examine the capital market consequences of this increased conformity. We predict that earnings that are more closely linked to taxable income will contain more noise and thus will be less informative to market participants. We predict that increased conformity reduces the

informativeness of earnings because managers rather than reporting an earnings number that reflects their private information will report earnings to minimize taxes, thus introducing possible downward bias and noise.

We find evidence consistent with our predictions. Firms that were required to convert to the accrual basis method for tax purposes, which increased the level of conformity between tax and financial accounting reporting, experience a decline in long-window ERCs following TRA 86. In order to ensure that this decline was not caused by a macroeconomic event that affected all firms, not just those subject to the increased conformity requirement of TRA 86, we compare the decline in the ERC to the change in the ERC for a sample of industry-matched firms not subject to the conformity changes imposed by TRA 86. We find that the sample of firms required to switch to the accrual basis method for tax purposes had significantly greater declines in the long-window ERC over the same time period. Thus, the evidence indicates that increasing book-tax conformity tends to result in a degradation of the informativeness of financial reporting earnings. To our knowledge this is a unique result in that it is a case of a tax law change that has an adverse consequence on the informativeness of accounting earnings.

We view our results as triangulating prior studies on 1) book-tax conformity using estimated taxable income measures for large samples of U.S. data and 2) studies that investigate the effect of conformity across countries. Each type of research design has its strengths and weaknesses which is why it is important to examine the evidence from all the studies together. The strength of our study is that we use U.S. data after an actual required change in book-tax conformity. As a result, we overcome the main limitations of the prior work because we do not have to estimate taxable income and the legal and institutional characteristics are the same both before and after the change since the data are all from the U.S. A limitation of our study, however, is that we have only a small

set of firms for which this rule change applied and thus the results may not be generalizable to the entire population of U.S. firms if, for example, there is something different about these firms as compared to the remaining U.S. firms. However, based on the sum of the evidence from the studies of large samples of U.S. firms (e.g., Hanlon et al., 2005), the international studies (e.g., Guenther and Young, 2000; Ball, Kothari, and Robin, 2000) and our current paper, the results are consistent with higher levels of book-tax conformity being associated with less informative earnings.

Many proponents of increased book-tax conformity claim the easy fix for corporate financial misreporting is to eliminate or reduce the differences between book and taxable incomes. From the tax side, another set of proponents makes the same argument in terms of constraining aggressive tax reporting. In both cases the idea is that with stronger conformity firms will have less ability to simultaneously engage in aggressive tax reporting and aggressive financial reporting. While even this claim is debatable (see Hanlon and Shevlin 2005), our study provides evidence that the behavioral response to an increase in book-tax conformity will result in less informative earnings being reported to shareholders. A loss of information in earnings appears likely even if the tax law is changed to conform with GAAP (i.e., GAAP does not explicitly change) because that is exactly what occurred in the small sample of firms in this study.

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Table 1
Sample Selection

	Observations
Converting Sample	
List of converting firms from Guenther, Maydew, and Nutter (1997) sample	94
Less:	
Firms with missing lagged market value of equity and with fiscal year end change	7
Firms with Compustat data in only 1985 or 1988	18
Firms with missing earnings data for either year	2
Firms not on CRSP or with missing returns for either year	8
Firms that have no matching accrual basis firms in the same four digit sic code	3
Total Converting Sample - number of firms	56
Number of firm-years available for the sample of 56 firms for the years 1981-1985 and 1988-1992	450
Accrual Basis Sample	
Firm-years in the Compustat file matching four digit industries as the cash sample with 1985 sales > $5 million, and observations in both years 1985 and 1988, for years 1981-1985 and 1988-1992	4,162
Less:	
Firm-years with missing earnings or return data	586
Less Converting firm observations	450
Total Accrual Basis Sample - firm-years (377 firms)	3,126
Total Sample -- Converting and Accrual Firm-Year Observations	3,576

Notes: Converting sample includes the firms required to switch from the cash method of accounting for tax purposes to the accrual basis method following TRA 86. Guenther, Maydew, and Nutter (1997) provide evidence with these firms deferring more financial accounting income as a result of the increase in book-tax conformity after this change. The accrual basis sample includes firms in the same industries as the converting firms but were already on the accrual basis of accounting for tax purposes prior to TRA 86.

Table 2
Descriptive Statistics

Pre-TRA 1986	***Converting Sample (N=450)*** ***n=211***			***Accrual Basis Sample (N=3,126)*** ***n=1,475***			difference in mean p-value	difference in median p-value
	mean	st. dev.	median	mean	st. dev.	median		
R_t	0.213	0.608	0.035	0.159	0.572	0.062	(0.2072)	(0.4012)
ΔE_t	0.00002	0.099	0.011	0.001	0.163	0.006	(0.9083)	(0.2331)
E_t	0.055	0.103	0.066	0.035	0.171	0.066	(0.1034)	(0.5025)
MVE_t	137.651	174.253	68.540	659.471	1,791.409	87.120	(0.0001)	(0.0281)
MVE_{t-1}	130.638	190.462	65.247	612.556	1,642.174	80.840	(0.0001)	(0.0059)
$ASSETS_t$	163.739	232.343	81.298	803.317	1,904.721	108.761	(0.0001)	(0.0121)
$SALES\ GROWTH_t$	0.216	0.329	0.174	0.156	0.350	0.090	(0.0202)	(0.0001)
E/P_t	0.037	0.109	0.059	0.007	0.248	0.059	(0.0021)	(0.9257)
B/M_t	0.632	0.421	0.524	0.718	0.546	0.604	(0.0075)	(0.0313)
ROA_t	0.057	0.073	0.058	0.044	0.097	0.055	(0.0263)	(0.1669)
$LEVERAGE_t$	0.215	0.200	0.164	0.228	0.194	0.180	(0.3785)	(0.1870)
CFO_t	0.093	0.167	0.077	0.116	0.212	0.105	(0.1427)	(0.0281)
Post-TRA 1986	***n=239***			***n=1,651***			difference in mean p-value	difference in median p-value
	mean	st. dev.	median	mean	st. dev.	median		
R_t	0.101	0.532	0.001	0.142	0.520	0.074	(0.2498)	(0.1519)
	(0.0381)		(0.0989)	(0.3917)		(0.7645)		
ΔE_t	0.043	0.336	0.008	0.032	0.277	0.009	(0.6363)	(0.9790)
	(0.0737)		(0.9916)	(0.0002)		(0.0434)		
E_t	-0.042	0.270	0.055	-0.014	0.229	0.052	(0.0841)	(0.6615)
	(0.0000)		(0.0004)	(0.0000)		(0.0000)		
MVE_t	165.050	335.299	57.780	1,133.556	3,075.649	102.830	(0.0001)	(0.0001)
	(0.2867)		(0.3789)	(0.0000)		(0.0272)		
MVE_{t-1}	152.630	283.043	58.327	1,001.104	2,633.642	92.603	(0.0001)	(0.0001)
	(0.3406)		(0.9707)	(0.0000)		(0.0566)		
$ASSETS_t$	271.256	499.650	120.162	1,068.964	2,377.849	159.659	(0.0001)	(0.0117)
	(0.0044)		(0.0023)	(0.0006)		(0.0000)		
$SALES\ GROWTH_t$	0.075	0.221	0.063	0.095	0.274	0.074	(0.2175)	(0.3644)
	(0.0000)		(0.0000)	(0.0000)		(0.0000)		
E/P_t	-0.101	0.414	0.048	-0.065	0.379	0.046	(0.2003)	(0.5931)
	(0.0052)		(0.0025)	(0.0000)		(0.0000)		
B/M_t	0.791	0.691	0.651	0.749	0.674	0.609	(0.3640)	(0.1658)
	(0.0037)		(0.0065)	(0.1676)		(0.8527)		
ROA_t	0.008	0.104	0.026	0.019	0.109	0.034	(0.1489)	(0.0576)
	(0.0000)		(0.0000)	(0.0000)		(0.0000)		
$LEVERAGE_t$	0.286	0.235	0.240	0.231	0.201	0.189	(0.0008)	(0.0019)
	(0.0007)		(0.0015)	(0.6424)		(0.9546)		
CFO_t	0.128	0.269	0.123	0.114	0.247	0.099	(0.4349)	(0.1285)
	(0.1131)		(0.0124)	(0.8156)		(0.6330)		

Table 2 (continued)
Descriptive Statistics

Notes: This table contains descriptive statistics for the sample. Our measure of change in earnings (*ΔE*) is the change in earnings before extraordinary items (Compustat data #18) from year t-1 to year t, scaled by the market value of equity (*MVE*, data #199 * data #25) at the end of year t-1. Our measure of earnings levels is earnings before extraordinary items (Compustat data #18) in year t, scaled by the market value of equity (*MVE*, data #199 * data #25) at the end of year t-1. Our measure of returns (R) is the raw buy and hold 12 month return beginning in the fourth month after the fiscal year end of t-1 and ending 3 months after the fiscal year-end of year t. *ASSETS* are the total assets of the firm at year-end (data #6), *SALES GROWTH* is defined as the percentage increase in current-year sales over the prior year sales (data #12), and *LEVERAGE* is defined as the long-term debt of the firm scaled by total assets (data (#9+#34)/#6). Return on assets (*ROA*) is defined as earnings before extraordinary items dividend by average total assets (data #18/average data#6), earnings-to-price (*E/P*) is earnings before extraordinary items divided by market value of equity at year-end (data#18/*MVE*), and book-to-market (*B/M*) is defined as the book value of equity at year-end divided by MVE *(*data #60/*MVE)*. CFO is cash flows from operations computed following Collins and Hribrar (2002) as the change in current assets minus change in current liabilities minus change in cash plus change in short term debt minus depreciation (accruals = Δ data4 - Δdata5 - Δdata1 + Δdata34 - data14. *CFO* = net income (data18) – accruals)). *CFO* is then scaled by lagged market value of equity. P-values to the right of the table are for tests of means and medians between converting firms and accrual basis firms. The p-values included as rows in the Post-TRA 86 panel of the table (numbers in parentheses) are for tests of differences in the means and medians from Pre-TRA 86 to Post-TRA 86.

Table 3
Earnings Response Coefficient Tests – Earnings Changes Specification

Panel A: Difference-in-Differences Regression

$$R_t = \alpha + \beta_1 CONVERTING + \beta_2 POST + \beta_3 \Delta E_t + \beta_4 CONVERTING*\Delta E_t + \beta_5 POST*\Delta E_t + \beta_6 CONVERTING*POST + \beta_7 CONVERTING*POST*\Delta E_t + \varepsilon$$

		Predicted Sign	Coefficient	T-stat	p-value
Intercept	α		0.158	10.96	0.000
CONVERTING	β_1		0.054	1.47	0.143
POST	β_2		-0.032	-1.82	0.069
ΔE_t	β_3	+	0.763	5.75	0.001
*CONVERTING** ΔE_t	β_4	+	1.712	3.29	0.001
*POST** ΔE_t	β_5		-0.268	-1.70	0.090
*CONVERTING*POST*	β_6		-0.100	-1.98	0.048
*CONVERTING*POST** ΔE_t	β_7	-	-1.740	-3.25	0.001
N			3,576		
R squared			0.069		

Panel B: Separate Group Coefficients and Tests of Coefficient Differences

Separate group coefficients	N	β	Derivation from Panel A
Accrual basis firm-years pre-TRA 86	1,475	0.763	β_3
Converting firm-years pre-TRA 86	211	2.475	$\beta_3 + \beta_4$
Accrual basis firm years post-TRA 86	1,651	0.495	$\beta_3 + \beta_5$
Converting firm-years post-TRA 86	239	0.467	$\beta_3 + \beta_4 + \beta_5 + \beta_7$

Coefficient differences between groups	Relevant Coefficients	Difference	F statistic	p-value
Converting pre-TRA 86 vs Accrual pre-TRA 86	2.475 - 0.763	1.712	10.81	0.001
Converting post-TRA 86 vs Converting pre-TRA 86	0.467 - 2.475	-2.008	15.39	0.000
Accrual post-TRA 86 vs Accrual pre-TRA 86	0.495 - 0.763	-0.268	2.88	0.091
Converting post-TRA 86 vs Accrual post-TRA 86	0.467 - 0.495	-0.028	0.03	0.863

Notes: CONVERTING is an indicator variable set equal to one if the firm is a converting firm as defined in Table 1, and zero otherwise. *POST* is an indicator variable set equal to one for years 1988-1992 (post-TRA 86) and zero otherwise. The pre-TRA 86 period is 1981-1985. All other variables are as defined previously or interactions of previously defined terms. P-values are one tailed if we have a predicted sign and two-tailed where no sign is predicted. Standard errors are computed using Stata's robust command and specifying each firm as a cluster. This statistic is the Huber-White standard errors and fixing within cluster correlation because we have the same firm in the sample repeated times.

Table 4
Earnings Response Coefficient Tests – Alternative Specification:
Earnings Changes and Levels

$$R_t = \alpha + \beta_1 CONVERTING + \beta_2 POST_t + \beta_3 E_t + \beta_4 \Delta E_t + \beta_5 CONVERTING*E_t + \beta_6 CONVERTING*\Delta E_t + \beta_7 POST*E_t + \beta_8 POST*\Delta E_t + \beta_9 CONVERTING*POST_t + \beta_{10} CONVERTING*POST_t*E_t + \beta_{11} CONVERTING*POST_t*\Delta E_t + \varepsilon$$

Panel A: Difference-in-Differences Regression

			Predicted Sign	Coefficient	T-stat	p-value
Intercept	α			0.136	9.88	0.000
CONVERTING	β_1			0.046	0.91	0.362
POST	β_2			-0.001	-0.03	0.974
E_t	β_3	}	$\Sigma = +$	0.645	6.09	0.000
ΔE_t	β_4	}		0.452	3.50	0.000
*CONVERTING*Et*	β_5	}	$\Sigma = +$	-0.091	-0.14	0.889
*CONVERTING** ΔE_t	β_6	}		1.651	2.65	0.008
*POST** E_t	β_7			-0.227	-1.68	0.094
*POST** ΔE_t	β_8			-0.058	-0.37	0.712
*CONVERTING*POST*	β_9			-0.073	-1.23	0.219
*CONVERTING*POST** E_t	β_{10}	}	$\Sigma = -$	0.285	0.42	0.673
*CONVERTING*POST** ΔE_t	β_{11}	}		-1.635	-2.53	0.012
N				3,576		
R squared				0.098		

F tests:		Predicted sign	Sum of Coefficients	F-stat	p-value
$E + \Delta E$	$\beta_3 + \beta_4$	+	1.097	49.19	0.001
*CONVERTING*E + CONVERTING** ΔE	$\beta_5 + \beta_6$	+	1.560	6.95	0.009
*CONVERTING*POST*E + CONVERTING*POST** ΔE	$\beta_{10} + \beta_{11}$	-	-1.350	4.72	0.030

Table 4 (continued)
Earnings Response Coefficient Tests – Alternative Specification: Earnings Changes and Levels

Panel B: Separate Group Coefficients and Tests of Coefficient Differences

Separate group coefficients	N	β	Derivation from Panel A
Accrual basis firm-years pre-TRA 86	1,475	1.097	$\beta_3 + \beta_4$
Converting firm-years pre-TRA 86	211	2.657	$\beta_3 + \beta_4 + \beta_5 + \beta_6$
Accrual basis firm years post-TRA 86	1,651	0.812	$\beta_3 + \beta_4 + \beta_7 + \beta_8$
Converting firm-years post-TRA 86	239	1.022	$\beta_3 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8 + \beta_{10} + \beta_{11}$

Coefficient differences between groups	Relevant Coefficients	Difference	F statistic	p-value
Converting pre-TRA 86 vs Accrual pre-TRA 86	2.657 - 1.097	1.560	6.95	0.009
Converting post-TRA 86 vs Converting pre-TRA 86	1.022 - 2.657	-1.635	7.58	0.006
Accrual post-TRA 86 vs Accrual pre-TRA 86	0.812 - 1.097	-0.285	2.45	0.118
Converting post-TRA 86 vs Accrual post-TRA 86	1.022 - 0.812	0.210	1.71	0.192

Notes: All variables are defined as in Tables 2 and 3. Standard errors are computed using Stata's robust command and specifying each firm as a cluster. This statistic is the Huber-White standard errors and fixing within cluster correlation because we have the same firm in the sample repeated times.

Table 5
Earnings Persistence Tests

Panel A: Difference-in-Differences Regression

$$E_{t+1} = \alpha + \beta_1 CONVERTING + \beta_2 POST + \beta_3 E_t + \beta_4 CONVERTING*E_t + \beta_5 POST*E_t + \beta_6 CONVERTING*POST + \beta_7 CONVERTING*POST*E_t + \varepsilon$$

	Coefficient	T-stat	p-value
Intercept	0.013	2.780	0.006
CONVERTING	0.007	0.550	0.579
POST	0.001	0.110	0.914
E_t	0.654	11.620	0.000
*CONVERTING*E* $_t$	0.002	0.020	0.987
POST E* $_t$	-0.189	-2.520	0.012
*CONVERTING*POST*	-0.037	-2.160	0.031
*CONVERTING*POST* E* $_t$	0.091	0.570	0.571
N	3,477		
R squared	0.286		

Panel B: Separate Group Coefficients and Tests of Coefficient Differences

Separate group coefficients	N	β	Derivation from Panel A
Accrual basis firm-years pre-TRA 86	1,464	0.654	β_3
Converting firm-years pre-TRA 86	211	0.656	$\beta_3 + \beta_4$
Accrual basis firm years post-TRA 86	1,573	0.465	$\beta_3 + \beta_5$
Converting firm-years post-TRA 86	229	0.558	$\beta_3 + \beta_4 + \beta_5 + \beta_7$

Coefficient differences between groups	Relevant Coefficients	Difference	F statistic	p-value
Converting pre-TRA 86 vs Accrual pre-TRA 86	0.656-0.654	0.002	0.00	0.987
Converting post-TRA 86 vs Converting pre-TRA 86	0.558-0.656	-0.098	0.48	0.489
Accrual post-TRA 86 vs Accrual pre-TRA 86	0.465-0.654	-0.189	6.34	0.012
Converting post-TRA 86 vs Accrual post-TRA 86	0.558-0.465	0.093	0.44	0.508

Notes: This table reports tests of persistence in earnings, E_{t+1} is the dependent variable. All variables are defined as above. Standard errors are computed using Stata's robust command and specifying each firm as a cluster. This statistic is the Huber-White standard errors and fixing within cluster correlation because we have the same firm in the sample repeated times.

Table 6
Earnings Response Coefficient Tests – Earnings Changes Specification
Alternative Control Sample: Accrual Basis Firms Matched on Sales Growth Pre-TRA 86

Panel A: Difference-in-Differences Regression

$$R_t = a + \beta_1 CONVERTING + \beta_2 POST + \beta_3 \Delta E_t + \beta_4 CONVERTING*\Delta E_t + \beta_5 POST*\Delta E_t + \beta_6 CONVERTING*POST + \beta_7 CONVERTING*POST*\Delta E_t + \varepsilon$$

		Predicted Sign	Coefficient	T-stat	p-value
Intercept	α		0.228	5.19	0.000
CONVERTING	β_1		-0.028	-0.490	0.626
POST	β_2		-0.097	-2.040	0.044
ΔE_t	β_3	+	0.711	3.150	0.001
*CONVERTING** ΔE_t	β_4	+	1.649	2.970	0.002
*POST** ΔE_t	β_5		0.005	0.020	0.984
*CONVERTING*POST*	β_6		0.005	0.070	0.944
*CONVERTING*POST** ΔE_t	β_7	-	-1.960	-3.450	0.001
N			774		
R squared			0.115		

Panel B: Separate Group Coefficients and Tests of Coefficient Differences

Separate group coefficients	N	β	Derivation from Panel A
Accrual basis firm-years pre-TRA 86	181	0.711	β_3
Converting firm-years pre-TRA 86	185	2.360	$\beta_3 + \beta_4$
Accrual basis firm years post-TRA 86	219	0.716	$\beta_3 + \beta_5$
Converting firm-years post-TRA 86	189	0.405	$\beta_3 + \beta_4 + \beta_5 + \beta_7$

Coefficient differences between groups	Relevant Coefficients	Difference	F statistic	p-value
Converting pre-TRA 86 vs Accrual pre-TRA 86	2.360-0.711	1.649	9.93	0.002
Converting post-TRA 86 vs Converting pre-TRA 86	0.405-2.360	-1.955	14.85	0.000
Accrual post-TRA 86 vs Accrual pre-TRA 86	0.716-0.711	0.005	0.00	0.984
Converting post-TRA 86 vs Accrual post-TRA 86	0.405-0.716	-0.311	3.04	0.085

Notes: This table uses a matched sample approach in which accrual basis firms were matched with converting firms based on average annual *SALES GROWTH* in the pre-TRA 86 period. We restrict the sample to converting firms that have a *SALES GROWTH* match within +/- 10 percent. Thus, our sample of converting firms falls to 46 and we have 46 accrual basis firm matches. Total firm-years in the analysis is 774. All variables are defined as in Tables 2 and 3. Standard errors are computed using Stata's robust command and specifying each firm as a cluster. This statistic is the Huber-White standard errors and fixing within cluster correlation because we have the same firm in the sample repeated times.

Table 7
Earnings Response Coefficient Tests – Earnings Changes Specification
Alternative Control Sample: All firms with sales less than $5 million in 1985 with available data.

Panel A: Difference-in-Differences Regression

$$R_t = a + \beta_1 CONVERTING + \beta_2 POST + \beta_3 \Delta E_t + \beta_4 CONVERTING*\Delta E_t + \beta_5 POST*\Delta E_t + \beta_6 CONVERTING*POST + \beta_7 CONVERTING*POST*\Delta E_t + \varepsilon$$

		Predicted Sign	Coefficient	T-stat	p-value
Intercept			-0.006	-0.14	0.892
CONVERTING	β_1		0.206	3.44	0.001
POST	β_2		0.115	2.16	0.033
ΔE_t	β_3	+	0.123	1.74	0.084
*CONVERTING** ΔE_t	β_4	+	2.484	3.26	0.001
*POST** ΔE_t	β_5		0.200	1.55	0.124
*CONVERTING*POST*	β_6		-0.253	-3.24	0.002
*CONVERTING*POST** ΔE_t	β_7	-	-2.540	-3.24	0.002
N			846		
R squared			0.040		

Panel B: Separate Group Coefficients and Tests of Coefficient Differences

Separate group coefficients	N	β	Derivation from Panel A
Small sales firm-years pre-TRA 86	124	0.123	β_3
Converting firm-years pre-TRA 86	139	2.607	$\beta_3 + \beta_4$
Small sales firm-years post-TRA 86	267	0.324	$\beta_3 + \beta_5$
Converting firm-years post-TRA 86	316	0.267	$\beta_3 + \beta_4 + \beta_5 + \beta_7$

Coefficient differences between groups	Relevant Coefficients	Difference	F statistic	p-value
Converting pre-TRA 86 vs Small sales firms pre-TRA 86	2.607 - 0.123	2.484	10.65	0.001
Converting post-TRA 86 vs Converting pre-TRA 86	0.267 - 2.607	-2.340	9.17	0.003
Small sales firms post-TRA 86 vs Small sales firms pre-TRA 86	0.324 - 0.123	0.200	2.40	0.124
Converting post-TRA 86 vs Small sales firms post-TRA 86	0.267 - 0.324	-0.056	0.10	0.758

Notes: This table uses an alternative control sample consisting of firms with sales less than $5 million in 1985. Our sample in the analysis is 846 firm-years. All variables are as defined in Tables 2 and 3. Standard errors are computed using Stata's robust command and specifying each firm as a cluster. This statistic is the Huber-White standard errors and fixing within cluster correlation because we have the same firm in the sample repeated times.