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Tax-induced fiscal year extension and earnings management

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Abstract

Purpose – The aim of this study is to examine three different responses to the Finnish 2005 tax reform that, among other things, reduced the corporate tax rate and hiked dividend taxation. Focus lies on the factors influencing the decision to change the fiscal year-end and whether earnings management is more prevalent when the decision is not taken.

Design/methodology/approach – This study uses the financial statement data of Finnish private firms and studies 350 fiscal year-end changing firms and 700 non-changing firms with logistic and linear regression analysis. Discretionary accruals are the proxy for earnings management.

Findings – The results suggest that firms seize the window of opportunity and extend fiscal years depending on the magnitude of the expected tax savings. Firms that do not change their fiscal year-end engage in more tax-induced earnings management. In terms of economic consequences, the earnings management approach is less economically significant.

Research limitations/implications – This study only examines a limited number of firms that change their fiscal year-end, hence, care has been exercised in generalising the findings.

Practical implications – The findings may be considered when structuring future tax reforms, particularly when considering transition rules relating to changes in fiscal year-ends. The study may also have implications beyond tax reforms since the evidence of opportunistic changes in the fiscal year-end can be informative for tax authorities, independent auditors and creditors.

Originality/value – This study contributes to the relatively scarce literature on private firm responses to tax policy changes by analysing both upward and downward earnings management, as well as changes in the fiscal year-end. This is in contrast to previous research that mainly focuses on listed firms and absolute earnings management or earnings management in one direction.

Keywords Tax reform, Earnings management, Finland, Fiscal year-end, Private firms, Tax planning

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1. Introduction

Over the last decade, the average statutory corporate income tax rate (CIT) has fallen significantly in several countries of the world due to numerous national tax reforms introducing changes in the CIT rate (Hemmelgarn and Teichmann, 2014). Researchers commonly perceive tax rate changes as strong incentives for earnings management. Several studies show that public firms managed their earnings in response to the US Tax Reform Act of 1986, and similar reforms (Dhaliwal and Wang, 1992; Manzon, 1992; Scholes et al., 1992; Guenther, 1994; Lopez et al., 1998; Calegari, 2000; and Roubi and Richardson, 1998). More recently, Watrin et al. (2012) and Lin et al. (2014) demonstrate that private firms are more eager to manage their earnings than public firms in these contexts. A general finding in these studies is that firms shift income from periods with a higher CIT rate to periods with a lower rate to reduce their overall tax burden. This behaviour is also reasonable since permanent economic gains are possible to obtain from such earnings management, in comparison to downward earnings management in the absence of a tax rate change[1]. Tax reforms, however, often introduce other changes than a CIT rate change. Consequently, not only CIT-induced earnings management may emerge. First, an incentive to change the fiscal year-end may arise, as Blasch and Weichenrieder (2007) exemplify. Examining a German tax reform and specific transitory rules, they provide evidence that public firms reduced their tax burden by aligning the fiscal year with the calendar year. Here, many corporations incurred additional costs to avoid tax costs and the firms that changed their fiscal year-end acted based on the amount of the expected tax savings. Second, incentives to increase dividend payments may emerge if the rules concerning dividend taxation are renewed. For instance, Kari et al. (2008) and Korkeamäki et al. (2010) show that firms pay out substantially larger amounts to their shareholders ahead of an upcoming hike in dividend taxation and a simultaneous decrease in the

CIT rate. Furthermore, some firms, in line with Kasanen et al. (1996), may also need to manage earnings upward to be able to pay out dividends at all. Such dividend-based earnings management creates a potentially conflicting incentive to the downward earnings management incentive that comes with a CIT rate cut.

To date, most accounting studies on tax reforms focus solely on CIT rate changes, especially by examining downward earnings management before tax rate cuts. However, no study explicitly investigates alternative responses to tax reforms, such as changes in the fiscal year-ends and dividend-based earnings management, or how these acts are related to CIT-induced earnings management. I aim to fill this research gap. Moreover, as the greater majority of the previous literature concentrates on listed firms in low book-tax conformity settings, I focus on non-listed firms in a high book-tax conformity setting where the tax-induced earnings management incentive is stronger. A motivation for this paper also comes from Hanlon and Heitzman (2010), who highlight a need for more research on the reporting behaviour of private firms.

Using the Finnish setting and the Finnish 2005 tax reform as a natural experiment, I explore how a change in tax legislation influences firm decisions. Primarily, this reform reduced the CIT rate and hiked the taxation of dividends. The transition rules also created a special tax incentive for some firms with a fiscal year ending in the latter parts of the 2004 calendar year. Namely, these firms could take advantage of the reduced CIT rate prematurely and save taxes by closing their 2004 books on the 2005 side. Firms not reacting in this manner, however, were taxed according to the old legislation. As such, the Finnish setting and this specific tax reform not only allow for an analysis of CIT-induced earnings management but also for a simultaneous analysis of conflicting incentives in the form of dividend-driven earnings management and adjustments of fiscal years. Previous research shows that firms' owners and management reacted in the anticipation of this

specific event by adjusting their dividend policies (Kari et al., 2008; Korkeamäki et al., 2010). However, these prior studies in economics and finance are lacking in the sense that they do not analyse alternative reactions and how various reactions are related. For instance, Kari et al. (2008) only focus on the reform announcement effects with respect to dividend distribution. My aim is to examine firms responding to the tax reform in different ways. First, I identify a sample of Finnish private firms that can potentially benefit from a change in the 2004 fiscal year-end. Second, I analyse financial statement data of firms that change their fiscal year-end and matched firms that do not. In the analyses, I focus on the factors influencing the decision to change the fiscal year-end and whether earnings management is a tax minimisation tool when the decision is not taken. I hypothesise that firms use earnings management either to shift income from high to low CIT rate periods or to increase the distributable funds. Furthermore, the predictions are that the magnitude of the expected tax savings is associated with the decision to extend the fiscal year and that minimal earnings management occurs among year-end changing firms. Consistent with these predictions, I find a significant relation between the probability of a change and the level of taxable profits and earnings management. Firms not extending their fiscal year engage in more earnings management and the direction depends on the availability of distributable earnings before the hike in dividend taxation. Altogether, I find the firm-level economic benefits to be larger for firms that extend the fiscal year.

This study's first contribution is the investigation of the still rather unexplored decision to extend the fiscal year around a corporate tax reform and its connection with the opportunistic management of earnings. Thus, my study adds to the understanding about tax minimisation tools. Second, I contribute to previous studies on downward earnings management in response to changes in the CIT rate by studying less-researched private and non-listed firms in a high book-tax conformity

setting. In addition, I analyse the conflicting dividend-driven incentive to manage earnings upwards. Third, I also contribute to the research area examining firm reasons to change the fiscal year-end by recognising these opportunistic changes in practice. Moreover, the results of my study may also have an impact on legislators in the design of future tax reforms and may potentially be informative for independent auditors and creditors. Based on this study, the identification of likely tax avoiders should also be simplified in future reforms that allow fiscal year-end adjustments and the findings should help tax authorities allocate their resources in the future.

The following section describes the Finnish context and the tax reform and develops hypotheses. The third section describes the sample collection and research methods. The subsequent section reports the empirical findings and the last section concludes.

2. The Finnish context and the 2005 tax reform

I examine fiscal year extensions and earnings management in Finnish private firms around the 2005 tax reform. In general, this setting is characterised by strong book-tax conformity, which means that firms record events in a very similar fashion in both the tax returns and the official financial statements[2]. Based on this, Niskanen and Keloharju (2000) recognise that Finnish public firms manage earnings downwards to avoid income taxes and find that firms simultaneously manage earnings cosmetically upwards to make stakeholders perceive profits as larger. Similarly, Coppens and Peek (2006) show that private firms are more likely to manage earnings due to tax reasons when book-tax conformity is strong. Another characteristic of Finland is the bank-dominated environment for private firms, where only a small number of banks operate. These banks are able to monitor the performance of firms rather closely, which may result in the fact that firms use trade credit in their short and intermediate term funding (Niskanen and Niskanen, 2006).

For the purpose of earnings management, high levels of accounts receivable and payable may potentially provide good camouflage. Finnish tax laws also provide opportunities for earnings management in the form of depreciation reserves and depreciation adjustments. Furthermore, the Finnish accounting regulations that apply for private firms are less detailed and consequently more flexible than International Financial Reporting Standards that apply for public firms. For example, the accounting rules allowed research expenditures and start-up costs to be recognised as an asset before 2005[3]. Although this may be a sign of lower quality accounting standards, Finland's rating on accounting standards in La Porta et al. (1998) is 77, which is the third highest in the sample after Sweden and Singapore.

With respect to fiscal years, very few Finnish public firms have a fiscal year that deviates from the calendar year, while the number of private firms with fiscal year-ends other than December is quite high. For instance, new firms usually start their business in non-January months and then stick to uneven fiscal years. Meanwhile, a Finnish firm's taxation year is equal to the calendar year. If the fiscal year is not equal to the calendar year, the taxation year will be the fiscal year(s) that end(s) during the calendar year. Furthermore, The Finnish Accounting Act states that the fiscal year of a firm is to be 12 months. However, the fiscal year may be shorter or longer (maximum 18 months) in certain contexts, such as when the business is started or when the end of the fiscal year is changed. Adjusting the fiscal year-end may come at a high cost for large listed firms (Blasch and Weichenrieder, 2007). Smaller private firms may, however, change their fiscal year-end with significantly lower stakes involved. Moreover, private limited liability firms in Finland may change their fiscal year simply through a notification to the Finnish Patent and Registration Office[4]. Additional costs will, for instance, include administrational and audit costs.

As of 1 January 2005, the Finnish CIT rate was reduced from 29 per cent to 26 per cent and a regime with a partial double taxation of dividends (partial relief) gradually replaced the previous system of full dividend imputation. In a nutshell, this resulted in a lower CIT level and a hiked taxation of dividends to the owners in the form of extra taxes on dividends. The CIT rate cut created a strong incentive for firms to manage their earnings downwards before 2005. With high book-tax conformity, firms could generate a lower taxable income while the tax rate was high by shifting income forward to a lower tax rate period. An alternative view is to identify a conflicting incentive for firm-owners to manage earnings upwards before the reform to be able to distribute higher dividends while the dividend tax was lower[5]. The previous system of dividend taxation was repealed gradually with 57 per cent of dividends taxable in the adjustment year of 2005. As of 2006, 70 per cent of dividends became taxable. Thus, the conflicting incentive to increase earnings should be visible in the 2003 and 2004 financial statements, as this would allow for larger dividends to be paid and taxed in 2004 and 2005. However, another argument is that retained earnings could be used for this purpose and that the superior incentive was to decrease earnings in 2004 based on the taxation at the firm-level.

The lower CIT rate became applicable to all fiscal years ending in the 2005 calendar year. Interestingly, the transition rules allowed firms to benefit from postponing the end of the 2004 fiscal year into 2005. Namely, the lower CIT rate became applicable one period earlier for firms extending their fiscal year than for firms that did not. Fiscal year-end adjustments could not, however, yield any advantages with respect to dividend taxes, since dividends are taxed according to the regulation when they are distributed. Figure 1 summarises the incentives around the tax reform for three different firms. Non-Changer 1 and Non-Changer 2 do not adjust their fiscal year-ends and may minimise taxes by shifting income from high to low CIT rate periods. Additionally,

the owners of these firms benefit if they pay out larger dividends before the partial relief system is fully in place. In contrast, the Changer postpones the end of the 2004 fiscal year into 2005 and may benefit from a premature use of the lowered tax rate. The tax reform was passed in June 2004 based on a government proposal in November 2003. Hence, managers and owners had time to decide on a response strategy for their firm.

[FIGURE 1 HERE]

2.1 Research hypotheses

Shackelford and Shevlin (2001) note that tax minimisation strategies often involve decisions where firms weigh the tax incentives to lower taxable income against the financial reporting incentives to increase book income. However, such balancing is avoided if a change in the fiscal year-end directly results in lower taxes due to certain transition rules. Nonetheless, firms must still consider the costs of a fiscal year extension in relation to the benefits in terms of lower taxes, according to the Scholes and Wolfson (1992) framework. These costs may include both direct and indirect costs, such as the decision costs arising from the notification fee to the authorities as well as other administrational costs. However, in a small private firm context, these costs remain rather low. In any case, the tax planning in the form of a fiscal year extension will not be effective if the tax savings are even lower. Consistent with this and in a public firm context, Blasch and Weichenrieder (2007) mainly find the expected tax savings to affect the decision to change the fiscal year-end around a tax reform. To achieve tax savings from a fiscal year extension, firms must have positive expected taxable profits in the last year with the higher CIT rate. As such, it subsequently follows that firms with large expected taxable profits will benefit more from extending the fiscal year than firms with small expected taxable profits, which leads to the first hypothesis:

H1: The greater the expected taxable profits are in the last period with the higher tax rate, the more likely the firm is to extend its fiscal year above 12 months.

Furthermore, I focus on the earnings management aspects in response to tax reforms. Prior studies (e.g., Guenther, 1994; Calegari, 2000) find that firms engage in downward earnings management in the last period with the higher CIT rate to defer income to period(s) with a lower tax rate. In the context of this study, I only expect the incentive to manage earnings downwards in 2004 to apply for the firms with an unadjusted fiscal year (e.g., Non-Changer 1 in Figure 1). Since firms that decide to extend their fiscal year (e.g., Changer in Figure 1) have an alternative reform response, I do not expect them to engage in earnings management to the same extent. Furthermore, the simultaneous hike in dividend taxation included in the tax reform could motivate some firms to manage earnings upwards, which is consistent with Kasanen et al. (1996), to be able to pay out dividends before the higher dividend tax is fully implemented. For firms having a large pool of retained earnings (hereafter High RE firms), however, the incentive to manage earnings upwards is naturally weaker because the distributable funds can be used to pay out dividends. Hence, I expect High RE firms to employ earnings management to achieve a lower taxable income and declare the following hypothesis:

H2: Firms that extend their 2004 fiscal year engage in less downward earnings management in the period(s) prior to the reduction in the tax rate than High RE firms who remain with an unextended fiscal year.

However, I develop an alternative hypothesis regarding firms with a small pool of retained earnings (hereafter Low RE firms). I expect these firms to have an alternative incentive to manage earnings upwards to be able to pay dividends before the hiked dividend taxation rules become

effective. This is in line with Kari et al. (2008), who find that firms increased their dividend pay-outs before this reform. In the context of public firms, Korkeamäki et al. (2010) also show that firms adjusted their dividend policies around the specific Finnish 2005 tax reform, as dividends from these firms also became partially double-taxed. Furthermore, Kasanen et al. (1996) note a tendency among Finnish listed firms to pay out dividends from current earnings and that firms employ upward earnings management to meet dividend contracts. Additionally, Kinnunen et al. (2000) provide evidence that Finnish firms issuing new shares engage in earnings management to reinforce the buffer of retained earnings available for future dividends. With reference to the 2005 tax reform, Low RE firms could use a combination of retained earnings and upward earnings management to distribute dividends. Based on this background, I formulate an alternative hypothesis involving Low RE firms:

H3: Firms that extend their 2004 fiscal year engage in less upward earnings management in the period(s) prior to the reduction in the tax rate than Low RE firms who remain with an unextended fiscal year.

As with the second hypothesis (H2), I do not expect fiscal year-end changing firms to engage in significant earnings management around the reform.

3. Methodology

3.1 Sample selection and data collection

Following a number of accounting studies that investigate Finnish private firms (e.g., Sundgren, 2007; Niemi and Sundgren, 2012; Steijvers and Niskanen, 2014; Höglund and Sundvik, 2016), I retrieve financial statement data from the Voitto+ database of Suomen Asiakastieto Oy, a Finnish firm offering information services for the use of corporate management, risk management, and

sales and marketing. All Finnish limited liability firms have to file their accounts at the Trade Register and this database includes all filed financial statements. Regarding data around the Finnish 2005 tax reform, the database includes information on firm age, industry, auditing, fiscal years, and the yearly financial statements of approximately 100,000 (mainly limited) Finnish firms for differing time-series lengths, ranging from one to five years. To begin with, I create a sample of unconsolidated Finnish private limited liability firms, with a 12-month fiscal year during 2001-2003, that change their fiscal year-end due to tax reasons. Since the CIT rate does not apply for the partnerships and individuals in the Voitto+ database, I exclude such firms. Furthermore, I only include firms with the fiscal year ending month ranging from July to December in 2003, since other fiscal year-ends are not extendable into 2005 based on the 18-month restriction. The minimum value of the total assets of a firm is set to 10 TEUR, to exclude the very smallest of firms. Another reason for this restriction is that the database rounds financial statement numbers to the nearest thousand, which have a large percentage impact for the very smallest of firms. Furthermore, I require complete financial statement data from 2002 to 2006. I also ensure that these firms are not linked to mergers and acquisitions or bankruptcy restructurings, in accordance with Du and Zhang (2013) who list general reasons for fiscal year adjustments. In total, I extract a final set of 350 firms with available data subject to the restrictions. These firms (hereafter Changers) do not have a fiscal year-end in 2004 at all because they extend the 2004 fiscal year into 2005. Table 1 demonstrates that the industry composition of the Changers is similar to that of the database population.

[TABLE 1 HERE]

Next, I match the Changers with firms not changing the year-end (hereafter Non-Changers). The pool of possible matches is equal to all Non-Changers in two sub-pools, one comprising firms with

retained earnings close to zero (Low RE) and the other with high retained earnings firms (High RE). Low RE firms have retained earnings that amount to less than 10 per cent of total assets while High RE firms have retained earnings above that number. I compile matches from each sub-pool based on the industry, fiscal year-end in 2003 and the shortest Euclidean distance between the Changers' and Non-Changers' sales and total assets. Then, I introduce a dummy variable (*CHANGE*), which is set to 1 for the Changers, and 0 for the High RE and Low RE firms. In terms of fiscal year-end months in the sample, most firms (79 per cent) have a fiscal year that equals the calendar year in 2003. For the Changers, January is the preferred new ending month (48 per cent of the firms).

3.2 Measuring earnings management

I use total discretionary accruals (*TDACC*) as the proxy of earnings management. Initially, I calculate total accruals (*TACC*) with the balance sheet approach using the following expression[6]:

$$TACC = \Delta Receivables + \Delta Inventories - \Delta Payables - Depreciation \qquad (1)$$

where Δ*Receivables* is the change in accounts receivable, Δ*Inventories* is the change in stocks, Δ*Payables* is the change in accounts payable; and *Depreciation* is the depreciation and amortisation expense. Next, I separate *TDACC* from *TACC* with the methodology of Callao and Jarne (2010) by utilising an estimation period that includes no comprehensive and strong earnings management incentive such as a corporate tax reform, in this case the years 2006-2009[7]. I estimate the industry specific coefficients with the cross-sectional Jones model augmented with return on assets following Kothari et al. (2005):

$$\frac{TACC}{LagTA} = \beta_1 \left(\frac{1}{LagTA}\right) + \beta_2 \left(\frac{\Delta REV}{LagTA}\right) + \beta_3 \left(\frac{PPE}{LagTA}\right) + \beta_4 (ROA) + \varepsilon \qquad (2)$$

where *LagTA* is lagged total assets and a deflator to avoid problems with heteroscedasticity; ΔREV is the change in sales; *PPE* is the total property, plant, and equipment; and *ROA* is the return on assets simply calculated as net income divided by total assets. The industries are the two-digit industry groups, requiring a minimum of 20 observations per industry. The estimation sample firms are subject to the same size criterion as the firms of analysis. Having estimated the coefficients for the estimation period, I apply the values obtained on the firm-years of analysis, namely the years around the corporate tax reform (two years before and one year after) and estimate *TDACC* as the residual.

3.3 Strategy of analysis

In order to analyse the decision to extend the fiscal year, I analyse and compare the sample of Changers with the Non-Changers (High RE and Low RE firms). First, I examine the decision to postpone the 2004 fiscal year-end until 2005 by estimating the following logistic regression model for the 2004 fiscal period regarding the probability that a firm is a fiscal year-end changer[8]:

$$Prob\big(CHANGE_{i,t}\big) = \frac{1}{1 + e^{-Z}},$$

$where\ Z = \alpha_0 + \alpha_1\ (PROFIT) + \alpha_2\ (TDACC) + \alpha_3\ (SIZE) + \alpha_4\ (DEBT) +$

$\alpha_5\ (GROWTH) + \alpha_6\ (LOSS) + \ \alpha_7\ (AGE) + \alpha_8\ (BIG4) + Industry + \varepsilon$ \hfill (3)

The variables *PROFIT* and *TDACC* are the independent variables of prime interest. *PROFIT* is taxable profits scaled by total assets for a firm. Alternatively, I use a *PROFIT_POS* variable, which equals positive taxable profits, since I expect firms with larger positive profits to be more likely to extend the fiscal year than firms with smaller profits based on the expected tax savings. I expect negative (positive) *TDACC* for High RE firms (Low RE firms) before the effective year of the tax

reform. However, I do not expect the Changers to have levels of *TDACC* differing from zero in the period immediately prior to the event. With respect to the control variables, I include a variable controlling for firm size (*SIZE*) in the form of the natural logarithm of total assets to surrogate for various omitted variables. Feng (2013) also notes that firms with even and uneven fiscal year ends differ in size. Additionally, smaller firms are less opportunistic tax planners, according to Scholes et al. (1992). Furthermore, I include a variable controlling for leverage (*DEBT*) due to a proposed debt association with earnings management (DeFond and Jiambalvo, 1994). Since Kothari et al. (2005) show that *TDACC* estimated with the Jones model correlate with firm performance, I add a control variable for sales growth (*GROWTH*) and a dummy variable indicating a year with negative net income (*LOSS*) to the model. In addition, I include a control variable for firm age (*AGE*) because older firms tend to be more stable and have lower operating volatility, which can be associated with the level of *TDACC* (Hribar and Nichols, 2007). Since a high quality audit may constrain earnings management in high tax conformity countries (Van Tendeloo and Vanstraelen, 2008), I also add a dummy variable indicating a *BIG4*-auditor. Finally, I include two-digit industry fixed effects.

To examine H2 and H3 in more depth and to observe the particular earnings management behaviour around the corporate tax reform, I follow the methodology of DeFond and Subramanyam (1998), Carcello et al. (2011) and Carver et al. (2011) and apply the following OLS model:

$$TDACC = \beta_0 + \beta_1(CHANGE) + \beta_2(DUM\_P - 1, P1) + \beta_3(DUM\_P1) + \beta_4(DUM\_P - 1, P1 * CHANGE) + \beta_5(DUM\_P1 * CHANGE) + \beta_6(SIZE) + \beta_7(DEBT) + \beta_8(GROWTH) + \beta_9(LOSS) + \beta_{10}(BIG4) + \beta_{11}(AGE) + Industry + \varepsilon \tag{4}$$

The model measures the changes in signed *TDACC* over three periods (two periods before the tax reform (P−2), the last period before the tax reform (P−1), and the first period after the tax reform (P1)). First, I run a simple model without control variables that resembles univariate tests of levels and changes in *TDACC*. In this model, I include three dummies in the form of *CHANGE*, *DUM_P−1*, *P1* and *DUM_P1*. The *DUM_P−1*, *P1* variable equals 1 for the last period before and the first period with the new CIT rate, whereas *DUM_P1* equals 1 only for the first period with the new CIT rate. Furthermore, I include and interact *CHANGE* with the two time dummies to observe the different levels and changes in *TDACC* between the two groups of Changers and Non-Changers. Table 2 shows how combining parameter estimates generates actual accrual levels and changes for the two groups of firms and differences between the groups. As a sign of downward earnings management before the reduction in the CIT rate, I expect the value of *TDACC* to decrease from the level two periods before (P−2) to the last period before (P−1) the tax rate change for the High RE firms. Likewise, I also expect the level in P−1 to be significantly negative. As previous literature commonly only includes one dummy variable to capture the sign of earnings management one year prior to an event, this setup allows for the analysis of the informative change between periods. Second, I run the full model to view the levels and changes under the influence of control variables. White heteroskedacticity-consistent standard errors and a covariance matrix are applied for all regressions. I also control for outliers by winsorizing continuous variables at the 1 per cent level from both tails, including the estimated proxy for earnings management. The analyses provide qualitatively similar results for both winsorized and original variables. Hereafter, I report results based on winsorized data.

[TABLE 2 HERE]

3.4 Descriptive statistics

Table 3 presents the descriptive statistics of the different samples. The Low RE firms have a higher debt ratio, incur more losses and are less profitable than the firms in the other groups. The size variable differs only slightly between Changers and High RE, which is natural since total assets are one of the matching criteria. Meanwhile, the Low RE firms are significantly smaller than the Changers, albeit the difference in monetary terms is relatively low. The taxable profits are highest for the Changers[9]. Moreover, *TACC* and *TDACC* are significantly negative or income-decreasing regarding the High RE firms, whereas *TDACC* is positive or income-increasing for the Low RE firms. In line with Kari et al. (2008), I also note that the Changers paid larger dividends in 2004 (9.9 per cent of total assets) than in 2003 when the mean dividends equalled 8.8 per cent of total assets (untabulated).

[TABLE 3 HERE]

Table 4 presents the correlation matrix for the variables of importance for the sample of Changers. Although there are a number of significant correlations, they are not very strong. This lowers the risk of bias due to strong correlations. I find the strongest correlations between *SIZE* and *AGE* (0.364) and *SIZE* and *BIG4* (0.325), which is rational since larger firms are often older and more likely to hire large auditors. The *PROFIT* variable exhibits a plausible significant positive correlation with *GROWTH*, indicating that growing firms are more profitable. Meanwhile, *PROFIT* has stronger negative correlations with *SIZE*, *DEBT*, and *AGE*. This finding is reasonable and predicted in the sense that larger and older firms are less profitable while high leverage typically indicates poor performance. Consistent with Feng (2013), there is a negative correlation between SIZE and LOSS. Furthermore, to diagnose for multicollinearity, I observe the level of the

variance inflation factors (VIFs), which are all below 5.0. These low VIFs indicate that multicollinearity is not a major concern.

[TABLE 4 HERE]

4. Results

4.1 Primary results

Table 5 presents the estimation results of the logistic regression model for the pooled group of Changers and High RE firms in Panel A and for the Changers and Low RE firms in Panel B[10]. The coefficient on *PROFIT* is consistently positive and significant, as expected. This suggests that a higher taxable profit positively affects the likelihood of fiscal year extension. The signs on the *PROFIT_POS* variable are also positive with larger coefficients, which indicate that observing the positive profits in isolation strengthens the relationship[11]. I interpret the coefficient of 2.094 on *PROFIT_POS* in Model 2 in Panel A as follows, when the lower and upper quartile values for *PROFIT_POS* in the sample are 0.05 and 0.28. The interquartile change in the independent variable leads to an increase in the log-odds ratio from −0.24 to 0.23. Equivalently, this change is a change in the probability of fiscal year extension from 0.44 to 0.56, which represents a 26 per cent increase in the probability that a firm changes its fiscal year-end, holding other variables fixed. This result is not surprising, since I expect firms who decide to extend the fiscal year into 2005 to have large positive taxable profits in the extended year. An analysis of the interquartile range for *PROFIT_POS* in Model 2 in Panel B from the lower to the upper quartile suggests a 31 per cent increase in the probability that a firm belongs to the group of Changers. In other words, a higher expected profit leads to a higher probability of fiscal year extension. Thus, I find supporting

evidence for the first hypothesis (H1) in that the expected euro magnitude of the tax savings affects the decision.

The sign of the other variable of prime interest, *TDACC*, is positive and the coefficient is significant at a level of 1 per cent in all model variations in Panel A of Table 5. With the Model 2 coefficient of 3.577, I interpret the interquartile change (−0.082 to 0.013) as a 23 per cent increase in the probability that a firm postpones its fiscal year-end to the other side of the calendar year, holding other variables constant. Therefore, I attribute less downward earnings management to the Changers, and more downward earnings management to the High RE firms. This supports the second hypothesis (H2). In contrast to the High RE firms in Panel A, however, I expect the Low RE firms in Panel B to have positive and income-increasing *TDACC* before the cut in the CIT rate due to the changes in dividend taxation. I also observe a consistently negative and significant sign on the *TDACC* coefficient, which indicates that the Changers engage in less upward earnings management than the Low RE firms. This is consistent with the third hypothesis (H3). However, the coefficients are lower than in the High RE case.

Out of the control variables in the logistic regression results in Table 5, the coefficient on the *DEBT* variable is the only one that is consistently significant at the 1 per cent level. By comparing the models, the results are robust to the exclusion of the control variables. With control variables, the Pseudo R^2 is higher than in Blasch and Weichenrieder (2007). On average, the models correctly predict the decision to change the fiscal year-end in 70 per cent of cases. I also run the logistic regression using 2003 (P−2) data and with this setup, the *PROFIT* and *PROFIT_POS* coefficients are no longer significant.

[TABLE 5 HERE]

Table 6 presents the OLS regression results highlighting the tax-induced earnings management. The parameter combinations of Model 1 in Panel B (see Table 2 for interpretation) indicate that the High RE firms act according to the incentive to engage in downward earnings management in the last periods before the CIT rate reduction. For example, I interpret the *DUM_P*−1, *P*1 coefficient (−0.040, t = −6.42, and p-value 0.000) as the change in *TDACC* between the periods before the tax reform. In the last period with the higher tax rate (P−1), High RE firms engage in significantly downward earnings management (−0.051, t = −4.72, and p-value 0.000). This figure is also viewable in Table 3, which supports the validity of the model. Although the level is slightly negative in the first period with the lowered tax rate (P1), at the 1 per cent level of significance the change between the two periods is positive (0.050), which is a sign of possible accrual reversals. Meanwhile, the Changers do not engage in statistically significant earnings management between the first two periods or in the last period with the higher rate. These results also hold under the influence of control variables in Model 2. The difference between the groups is also statistically significant for the change P−2 to P−1, the level P−1, and the change P−1 to P1. Taken together, these results support the second hypothesis (H2) together with the results presented in Table 5. *PROFIT* and *LOSS* are the only statistically significant control variables. I note the adjusted R^2 to increase to 0.048 with Model 2, although it is still rather low. However, since the model includes several binary variables and that the aim is not to fully explain the determinants of earnings management around the event, a smaller figure is acceptable. In addition, the explanatory power is similar to other audit quality studies applying the same methodology (e.g., Carcello et al., 2011 and Carver et al., 2011). The adjusted R^2 of the models also increases with an unsigned dependent variable (untabulated) and with Model 3 and Model 4.

For the Changers and Low RE firms in Table 6, I only find weak evidence that Low RE firms engage in upward earnings management before a cut in the CIT rate. However, with respect to the Model 3 combinations in Panel B, the Low RE firms have on average positive *TDACC* in the two periods prior to the effective period of the tax reform. This is the most evident regarding the level in P−2 (0.079, t = 7.14, and p-value 0.000), whereas the evidence becomes weaker in P−1 (0.055, t = 2.14, and p-value 0.032). This level of significance does not hold with control variables in Model 4. However, the statistically significant difference between the Changers and the Low RE firms in P−2 in Model 3 (−0.103, t = −6.99, and p-value 0.000) holds in Model 4 (−0.089, t = −6.32, and p-value 0.000). This result also reflects the logistic regression results and is consistent with the third hypothesis (H3), with reference to the period two years prior to the effective year of the tax reform (P−2).

[TABLE 6 HERE]

In summary, my primary results reveal that the Changers have larger taxable profits than the Non-Changers and that the latter group engages in earnings management as a preparation for the CIT reform. While High RE firms engage in income-decreasing earnings management before the reform - in order to shift earnings to a lower tax rate period - Low RE firms, on the other hand, engage in income-increasing earnings management to be able to distribute dividends before the upcoming hike in dividend taxation. As the dividend taxation was tightened gradually in 2005 and in 2006, the empirical evidence attributes most of the income-increasing behaviour to the 2003 financial statements. All in all, my results suggest that the decision of changing the fiscal year-end is taken by some firms when the transition rules allow such behaviour and that the expected taxable profit influences the decision. Second, the results suggest that earnings management is in broader use among firms not changing the fiscal year.

In terms of economic significance, the negative *TDACC* in P−1 are on average 0.136 for the High RE firms in Table 6 (Model 2). Given the sample mean of total assets (2,066 TEUR), combined with a three per cent cut in the tax rate, this equals approximately 8.4 TEUR in tax savings, assuming that all the estimated *TDACC* are shifted from a high- to a low-tax year. Although it may seem very small, the tax savings can, for instance, be translated into 10 per cent of the average tax expense of these firms. I compare these tax savings with the tax savings of the Changers, that without fiscal year extension would have had their 12-month adjusted taxable profits (on average 392 TEUR) taxed at the old rate of 29 per cent instead of the new rate of 26 per cent. Discarding firms with negative taxable income, the fiscal year extension results in a tax saving of 12.6 TEUR. Disregarding the direct and indirect costs associated with a fiscal year-end change other than the small handling fee, the Changers benefit more from their tax planning in comparison to the firms engaging in downward earnings management.

4.2 Robustness analysis

I check the robustness of the results with various robustness tests. First, as a firm's decision to extend its fiscal year can be endogenous, I check for the impact of an omitted variable that correlates both with *TDACC* and the variable of interest. Following Larcker and Rusticus (2010), based on Frank (2000), I calculate the Impact Threshold for a Confounding Variable (ITCV), to estimate how strong a confounding effect would have to be to bias my results. A larger ITCV corresponds to a robust regression result, and I evaluate the threshold by calculating the impact on each control variable in my models. According to my analysis, I find it implausible that an omitted variable exists that would bias the results[12].

Second, I estimate current discretionary accruals (*CDACC*) as an alternative and more short-term earnings management proxy, since some studies criticise aggregated accrual models in general (Kothari et al. 2005). Initially, I calculate current accruals as in Equation (1), without the long-term accrual of *DEP*. Then, I estimate the industry-specific coefficients by excluding the *PPE* variable from the model. With the final measure of *CDACC*, I am able to replicate the results in Table 5 and Table 6 and the findings remain robust.

Third, I acknowledge that one potential explanation for the evidence supporting H1 in Panel B of Table 5 is relatively unprofitable firms among the Low RE firms, based on the assumption that profitability is correlated over time and that firms belong to the Low RE group because they are loss making or weakly profitable. I alleviate these concerns by composing alternative samples of firms from a pool of Non-Changers[13]. For every Changer, I randomly match a Non-Changer to analyse whether Changers exhibit a better profitability than Non-Changers. Panel A of Table 7 reports the logistic regression results that follow the same structure as Table 5 for six samples. I only observe positive coefficients on the *PROFIT* variable, which provides support for the finding that Changers show higher profits than Non-Changers. Based on the weaker results with this setup, I note that attribute-based matching is appropriate in this context.

Finally, I perform three robustness tests by analysing various sub-samples. Firstly, I set the lower limit of total assets to 100 TEUR to further exclude small firms. This setup drops five per cent of the sample firms and does not affect the regression results in any remarkable way. Model 1 and Model 4 in Panel B of Table 7 reports the logistic regression results. Secondly, I exclude all firms with a non-December fiscal year-end in 2003 to obtain a more homogenous sample. Model 2 and Model 5 in Panel B of Table 7 reports that the Table 4 results hold with this sub-sample. Thirdly, I compose a sub-sample of Changers with January as the new ending month and matched Non-

Changers. These Changers have a higher mean of *PROFIT* (0.318) than Changers with other new ending months (0.206) and in Model 3 and Model 6 in Panel B of Table 7, I also find a strengthened relationship between *CHANGE* and *PROFIT* within this sub-sample. In other words, the expected euro magnitude of the tax savings more largely affects the decision of these firms and they are particularly suspect of extending the fiscal year for opportunistic purposes.

[TABLE 7 HERE]

5. Conclusions

I find that private firms extend their fiscal year due to tax saving reasons generated by the Finnish 2005 tax reform that, among other things, cut the corporate tax rate. By so doing, these firms took advantage of the lowered tax rate prematurely. I provide evidence that the expected taxable profit in the last period with the higher tax rate influences the decision to postpone the fiscal year-end. For firms not adjusting their fiscal year, I note alternative responses in the form of dividend and corporate tax-induced earnings management. My study extends the accounting literature on tax reforms, where earlier work primarily considers downward earnings management in response to tax rate cuts. In terms of economic consequences, I document that the earnings management approach is less economically significant than the decision to change the fiscal year-end. For instance, deferring earnings to periods with a lower tax rate via earnings management is only making up two thirds of the monetary benefits that the fiscal year extension generated with respect to theoretical tax savings. Furthermore, I recognise that the costs of changing the fiscal year-end or engaging in earnings management are rather low among the small firms in the sample. However, the possibility of tax audits should also be recognised in this context.

In 2014, Finland further reduced the corporate tax rate and a number of firms prepared to extend their fiscal years[14]. However, a restriction was retroactively implemented declaring that firms who extend their fiscal year after the day that the government passed the reduction are taxed according to the higher tax rate even for the extended fiscal year. Back in 2005, this kind of rule was never implemented. Based on the empirical evidence in this study, the 2014 restriction for fiscal year extending firms was purposive and I provide support for the restriction from the perspective of the legislator. However, I stress that such a restriction should be announced well in advance, to prevent the negative impact of pointless changes in fiscal year-ends. This insight may be relevant for policy makers in the planning of future reforms since several jurisdictions do not restrict fiscal year-ends in this context, with the Swedish 2013 tax rate cut of 4.3 per cent as a recent example. Furthermore, the earnings management elements of this study are also worthy of attention when structuring future tax reforms in other jurisdictions with a high level of book-tax conformity and in future research. The study may also have implications beyond tax reforms since it provides evidence of opportunistic changes in the fiscal year-end, which can be informative for tax authorities, independent auditors and creditors. For example, these changes may potentially be red flags for aggressive reporting behaviour in other instances.

My first contribution is the investigation of the still rather unexplored decision to extend the fiscal year around a tax reform and its connection with tax-induced earnings management. Second, my study differs from and complements studies examining downward earnings management before a tax rate cut by focusing on two different earnings management responses to a tax reform and private non-listed firms in a high book-tax conformity setting. Finally, I extend the relatively scarce literature on reasons for changes in the fiscal year-end by analysing this tax reason.

One main limitation of my study is that additional firm-years are not included in the sample, because of data restrictions. Moreover, I use somewhat debated aggregate accrual measures, in the absence of a perfect measure of tax-induced earnings management. Finally, I urge future research to consider the transition rules on changes in the fiscal year-end or with respect to other tax planning possibilities around tax reforms in other jurisdictions.

Notes

[1] Tax-minimisation via downward accrual-based earnings management in general situations without CIT rate changes, as exemplified by Coppens and Peek (2005), will only result in future earnings management in the opposite direction and later on, higher taxes. The reason for this fate is the reversal nature of accruals.

[2] Finland is commonly characterised as a country with high book-tax conformity (e.g., Van Tendeloo and Vanstraelen, 2008 and Steijvers and Niskanen, 2014).

[3] Sundgren (2007) discusses the Finnish accounting regulation in more detail.

[4] The fiscal year-end change is subject to a small handling fee of 85 EUR, or 380 EUR if the articles of association need to be changed.

[5] The Finnish institutional environment does not constrain current dividends by current revenue levels. In other words, Finnish private firms may pay dividends to the owners and cash bonuses to the managers out of retained earnings without meeting the zero or any other earnings benchmark in the current period. With very low retained earnings, firms could be motivated to increase current earnings to pay out larger dividends with a combination of earnings management and retained earnings.

[6] I use the balance sheet approach since statements of cash flows are not available for the Finnish private sample firms.

[7] The 2006-2009 period comprises several years, which should provide reliable estimates in line with Callao and Jarne (2010). However, the estimation period 2006-2009 also includes the financial crisis, which may cause noise to the estimates and potentially induce earnings management among small firms due to constrained loan availability. Therefore, I use shorter

alternative estimation periods (2001-2002 and 2006-2007) for robustness purposes. However, usage of these periods do not alter the main results of the study.

[8] Here, the main period of analysis for the sample of Changers equals the extended 2004 fiscal period (the fiscal period that ends in 2005). I also test adjacent periods in time.

[9] I adjust the taxable profits of the Changers to resemble a 12-month fiscal period.

[10]   Normal (tabulated) and conditional logistic regressions provide similar results. In addition, results based on unadjusted *PROFIT* and *PROFIT_POS* variables provide the same conclusions.

[11]   In (untabulated) analyses, I use a *PROFIT_NEG* variable to observe the negative profits in isolation. The results suggest a negative influence on the likelihood to change the fiscal year-end when profitability is negative and no taxes are due.

[12]   For example, with β_2 (ΔP−2 to P−1 for High RE firms) in Table 6, the ITCV threshold value is 0.079 which implies that the correlations between TDACC and DUM_P−1, P1 with the unobserved confounding variable each need to be around 0.281 (0.0790.5) to render the β_2 coefficient insignificant. As it turns out, none of the control variables have an impact with a larger magnitude than the ITCV. The highest product of partial correlations is LOSS at 0.002. Thus, an unobserved confounding variable overturns the regression results only if it is much more highly correlated with the dependent variable and independent variable of interest than any of the existing control variables.

[13]   The total number firms in the pool of Non-Changers is 8,187. The firms in this pool exclude the High RE and Low RE firms, belong to the same industries as the Changers do and have total assets that lie within the minimum and maximum levels of the Changers' total assets. Due

to data limitations, the variables *AGE* and *BIG4* are not available for all of these firms and I therefore exclude these variables in the logistic regressions.

[14]   See Höglund and Sundvik (2016) for a study that focuses on the earnings management aspects of this reform.

Acknowledgements

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	2003 CIT % = 29	2004 CIT % = 29 / 26	2005 CIT % = 26	2006 CIT % = 26
Non-Changer 1	29 %	29 %	26 %	26 %
Non-Changer 2	29 %	29 %	29 %	26 %	26 %	26 %	26 %	26 %
Changer	29 %	26 %		26 %	26 %
Reform development	Government reform proposal in November	Final tax reform passed in June		
Dividend tax	Full imputation of dividends	Full imputation of dividends	Partial relief system: 57 % of dividends taxable	Partial relief system: 70 % of dividends taxable

Figure 1 Fiscal year-ends and corporate income tax (CIT) rates

Table 1 Sample industry distribution

Industry	Frequency	Sample Per cent	Voitto+ Per cent
Wholesale and retail trade	98	28.0 %	22.5 %
Professional, scientific and technical activities	65	18.6 %	15.1 %
Manufacturing	59	16.9 %	12.3 %
Construction	31	8.9 %	13.2 %
Transportation and storage	24	6.9 %	6.9 %
Real estate activities	16	4.6 %	11.0 %
Accommodation and food service activities	15	4.3 %	4.0 %
Human health and social work activities	13	3.7 %	3.2 %
Agriculture, forestry and fishing	10	2.9 %	2.3 %
Information and communication	6	1.7 %	3.6 %
Arts, entertainment and recreation	5	1.4 %	2.4 %
Administrative and support service activities	3	0.9 %	0.7 %
Mining and quarrying	3	0.9 %	0.3 %
Education	1	0.3 %	1.7 %
Other service activities	1	0.3 %	0.7 %
Total	350	100.0 %	100.0 %

Notes: This table reports the industry groups of the sample firms (Changers), together with the frequency and percentage of the sample population in each industry. The last column reports the corresponding industry distribution in the Voitto+ database, measured as the number of limited liability firms in a specific industry divided by the number of limited liability firms in all of the listed industries.

Table 2 Regression coefficient interpretation

Abbreviation	Description	Non-Changers	Changers	Difference
P -2	Level two periods prior to the cut	β_0	$\beta_0 + \beta_1$	β_1
ΔP -2 to P -1	Change from level P -2 to P -1	β_2	$\beta_2 + \beta_4$	β_4
P -1	Level one period prior to the cut	$\beta_0 + \beta_2$	$\beta_0 + \beta_1 + \beta_2 + \beta_4$	$\beta_1 + \beta_4$
ΔP -1 to P 1	Change from level P -1 to P 1	β_3	$\beta_3 + \beta_5$	β_5
P 1	Level one period after the cut	$\beta_0 + \beta_2 + \beta_3$	$\beta_0 + \beta_1 + \beta_2 + \beta_4 + \beta_3 + \beta_5$	$\beta_1 + \beta_4 + \beta_5$

Notes: This table reports how to calculate discretionary accrual levels and changes by combining parameter estimates from regression model (4), for different groups of firms.

Table 3 Descriptive statistics

Continuous variables	Changers (*n* = 350) Mean	Median	High RE (*n* = 350) Mean	Median	Low RE (*n* = 350) Mean	Median	Test of differences[a] (Changers – High RE) Mean		Median		(Changers – Low RE) Mean		Median	
AGE	3.153	3.091	3.295	3.219	3.139	3.091	-0.141	***	-0.128	***	0.014		0.000	
DEBT	0.513	0.510	0.314	0.285	0.731	0.796	0.199	***	0.225	***	-0.218	***	-0.287	***
GROWTH	0.148	0.056	0.068	0.016	0.405	0.055	0.080	**	0.040	***	-0.257	***	0.000	
PROFIT	0.260	0.194	0.164	0.142	0.131	0.057	0.096	***	0.052	***	0.129	***	0.137	***
RE	0.248	0.212	0.490	0.477	0.048	0.019	-0.241	***	-0.265	***	0.200	***	0.193	***
SIZE	6.591	6.505	6.629	6.503	6.496	6.389	-0.037		0.002		0.095	***	0.116	***
TACC	-0.015	-0.036	-0.069	-0.047	0.020	-0.016	0.054	***	0.011	***	-0.035	*	-0.020	**
TDACC	0.003	-0.014	-0.051	-0.032	0.055	0.037	0.053	***	0.018	***	-0.052	***	-0.051	***
Discrete variables	%		%		%		%				%			
BIG4 (=1)	28.0 %		31.8 %		36.6 %		-3.8 %	***			-8.6 %	**		
LOSS (=1)	8.0 %		9.5 %		18.6 %		-1.5 %				-10.6 %	***		

Notes: This table reports descriptive statistics regarding the fiscal year ending in 2003 for all variables in order to increase the comparability, except for *TACC* and *TDACC* that are presented regarding the last fiscal year with the higher CIT rate (2003 for Changers; 2004 for High/Low RE firms). *PROFIT* is presented regarding the fiscal year ending in 2004 for the High/Low RE firms and regarding the extended fiscal year (ending in 2005) for the Changers. Variable definitions are as follows: *AGE* = natural logarithm of firm age; *DEBT* = debt ratio measured as total debt divided by total assets; *GROWTH* = growth in sales; *PROFIT* = taxable profits divided by total assets; *RE* = retained earnings divided by total assets; *SIZE* = natural logarithm of total assets; *TACC* = total accruals; *TDACC* = total discretionary accruals; *BIG4* = 1 if the firm is audited by a BIG4-auditor (EY, Deloitte, KPMG or PwC) and 0 otherwise; and *LOSS* = 1 if the firm has negative net income and 0 otherwise.

[a] For the continuous variables, Paired-samples t-test (Wilcoxon test) of the differences in means (median). For discrete variables, Pearson's Chi-Square test. ***, **, and * represents significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively.

Table 4 Pearson correlation matrix

Variable	TDACC		PROFIT		SIZE		DEBT		GROWTH		LOSS		AGE	
TDACC	1.000													
PROFIT	-0.023		1.000											
SIZE	0.030		-0.269	***	1.000									
DEBT	0.049		-0.192	***	-0.031		1.000							
GROWTH	0.053		0.103	*	-0.002		0.092	*	1.000					
LOSS	0.121	**	0.065		-0.128	**	0.228	***	-0.088	*	1.000			
AGE	0.033		-0.159	***	0.364	***	-0.140	***	-0.106	**	-0.073		1.000	
BIG4	0.081		-0.101	*	0.325	***	-0.004		-0.039		0.027		0.157	***

Notes: This table reports Pearson correlations for the sample of Changers. Variable definitions are as follows: *TDACC* = total discretionary accruals; *PROFIT* = taxable profits divided by total assets; *SIZE* = natural logarithm of total assets; *DEBT* = debt ratio measured as total debt divided by total assets; *GROWTH* = growth in sales; *LOSS* = 1 if the firm has negative net income and 0 otherwise; *AGE* = natural logarithm of firm age; and *BIG4* = 1 if the firm is audited by a BIG4-auditor (EY, Deloitte, KPMG or PwC) and 0 otherwise. ***, **, and * represents significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively.

Table 5 Logistic regression results

Panel A Changers and High RE

Independent variables		Model 1 Coeff.		Model 2 Coeff.		Model 3 Coeff.		Model 4 Coeff.	
Intercept	α_0	-0.222	**	-0.352	***	-0.188		-0.639	
PROFIT	α_1	1.535	***			2.838	***		
PROFIT_POS	α_1			2.094	***			3.760	***
TDACC	α_2	3.575	***	3.577	***	4.657	***	4.673	***
SIZE	α_3					0.071		0.080	
DEBT	α_4					3.823	***	4.015	***
GROWTH	α_5					0.630	**	0.564	*
LOSS	α_6					-0.067		-0.105	
AGE	α_7					-0.588	**	-0.545	**
BIG4	α_8					-0.218		-0.217	
Industry		NO		NO		YES		YES	
n		700		700		700		700	
Pseudo R^2		0.055		0.066		0.204		0.221	

Panel B Changers and Low RE

Independent variables		Model 1 Coeff.		Model 2 Coeff.		Model 3 Coeff.		Model 4 Coeff.	
Intercept	α_0	-0.266	**	-0.376	***	1.639		1.196	
PROFIT	α_1	1.681	***			0.883	**		
PROFIT_POS	α_1			2.193	***			1.417	***
TDACC	α_2	-1.949	***	-1.992	***	-1.649	***	-1.711	***
SIZE	α_3					0.128	*	0.152	**
DEBT	α_4					-2.941	***	-2.807	***
GROWTH	α_5					0.086		0.050	
LOSS	α_6					0.481	*	0.494	*
AGE	α_7					-0.341		-0.322	
BIG4	α_8					-0.523	***	-0.529	***
Industry		NO		NO		YES		YES	
n		700		700		700		700	
Pseudo R^2		0.053		0.066		0.144		0.151	

Notes: This table reports the results of the logistic regressions that examine the probability that a firm is a fiscal year-end changer based on the following model: Prob(*CHANGE*)=$1/1+e^{-Z}$, where Z = α_0+α_1(*PROFIT* or
PROFIT_POS)+α_2(*TDACC*)+α_3(*SIZE*)+α_4(*DEBT*)+α_5(*GROWTH*)+α_6(*LOSS*)+α_7(*AGE*)+α_8(*BIG4*)+Industry+ε. Variable definitions are as follows: *CHANGE* = 1 if the firm belongs to the sample of Changers and 0 otherwise; *PROFIT* = taxable profits divided by total assets; *PROFIT_POS* = positive taxable profits divided by total assets; *TDACC* = total discretionary accruals; *SIZE* = natural logarithm of total assets; *DEBT* = debt ratio measured as total debt divided by total assets; *GROWTH* = growth in sales; *LOSS* = 1 if the firm has negative net income and 0 otherwise; *AGE* = natural logarithm of firm age; and *BIG4* = 1 if the firm is audited by a BIG4-auditor (EY, Deloitte, KPMG or PwC) and 0 otherwise. ***, **, and * represents significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively.

Table 6 OLS regression results

Panel A Regression results with signed *TDACC*

Independent variables		Changers and High RE				Changers and Low RE			
		Model 1		Model 2		Model 3		Model 4	
		Coeff.		*Coeff.*		*Coeff.*		*Coeff.*	
Intercept	β_0	-0.011	**	-0.097	***	0.079	***	0.006	
CHANGE	β_1	-0.013		-0.016		-0.103	***	-0.089	***
DUM_P−1, P1	β_2	-0.040	***	-0.040	***	-0.024	*	-0.015	
DUM_P1	β_3	0.050	***	0.050	***	-0.063	***	-0.059	***
DUM_P−1, P1*CHANGE	β_4	0.066	***	0.068	***	0.051	***	0.042	**
DUM_P1*CHANGE	β_5	-0.099	***	-0.099	***	0.014		-0.002	
PROFIT	β_6			0.009	***			0.010	***
SIZE	β_7			0.004				0.003	
DEBT	β_8			0.016				0.036	**
GROWTH	β_9			-0.005				0.044	***
LOSS	β_{10}			-0.022	*			-0.018	
AGE	β_{11}			0.009				-0.003	
BIG4	β_{12}			-0.003				-0.006	
Industry		NO		YES		NO		YES	
n		2,100		2,100		2,100		2,100	
Adj. R^2		0.019		0.048		0.052		0.110	

Panel B Signed *TDACC* levels and changes derived from OLS regression models

Period relative to tax reform[a]	Changers and High RE						Changers and Low RE					
	High RE		Changers		Diff.		Low RE		Changers		Diff.	
	Model 1		Model 1		Model 1		Model 3		Model 3		Model 3	
P−2	-0.011	**	-0.024		-0.013		0.079	***	-0.024		-0.103	***
ΔP−2 to P−1	-0.040	***	0.026		0.066	***	-0.024	*	0.026		0.051	***
P−1	-0.051	***	0.003		0.054	**	0.055	**	0.003		-0.052	
ΔP−1 to P1	0.050	***	-0.049	**	-0.099	***	-0.063	***	-0.049		0.014	
P1	-0.001		-0.046		-0.046		-0.009		-0.046		-0.038	
	Model 2		Model 2		Model 2		Model 4		Model 4		Model 4	
P−2	-0.097	***	-0.113	**	-0.016		0.006		-0.083		-0.089	***
ΔP−2 to P−1	-0.040	***	0.029		0.068	***	-0.015		0.027		0.042	**
P−1	-0.136	***	-0.084		0.052	**	-0.009		-0.055		-0.047	
ΔP−1 to P1	0.050	***	-0.048	**	-0.099	***	-0.059	***	-0.060	*	-0.002	
P1	-0.086	*	-0.133		-0.047		-0.068		-0.116		-0.048	

Notes: This table reports the results of the following OLS regression: *TDACC* = β_0+β_1(*CHANGE*)+β_2(*DUM_P−1,P1*)+β_3(*DUM_P1*)+β_4(*DUM_P−1,P1*CHANGE*)+β_5(*DUM_P1*CHANGE*)+ β_6(*PROFIT*)+β_7(*SIZE*)+ β_8(*DEBT*)+β_9(*GROWTH*)+β_{10}(*LOSS*)+ β_{11}(*AGE*)+β_{12}(*BIG4*)+Industry+ε. The model is first run without control variables (Model 1 and Model 3) and then with control variables (Model 2 and Model 4). Variable definitions are as follows: *TDACC* = total discretionary accruals; *CHANGE* = 1 if the firm belongs to the sample of Changers and 0 otherwise; *DUM_P−1, P1* = 1 for the last period before and the first period with the new CIT rate and 0 otherwise; *DUM_P1* = 1 for the first period with the new CIT rate and 0 otherwise; *PROFIT* = taxable profits divided by total assets; *SIZE* = natural logarithm of total assets; *DEBT* = debt ratio measured as total debt divided by total assets; *GROWTH* = growth in sales; *LOSS* = 1 if the firm has negative net income and 0 otherwise; *AGE* = natural logarithm of firm age; and *BIG4* = 1 if the firm is audited by a BIG4-auditor (EY, Deloitte, KPMG or PwC) and 0 otherwise. ***, **, and * represents significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively.

[a] P−2 and P−1 represents the fiscal years two and one period prior to the CIT rate change, respectively; P1 represent the first year subsequent to the CIT rate change event; and Δ represents the change between successive periods. For regression coefficient interpretation in Panel B, see Table 2.

Table 7 Robustness analyses

Panel A Alternative samples based on random matching

Independent variables		Model 1 Coeff.		Model 2 Coeff.		Model 3 Coeff.		Model 4 Coeff.		Model 5 Coeff.		Model 6 Coeff.	
Intercept	α_0	-3.341	***	-2.995	***	-4.241	***	-3.692	***	-3.386	***	-3.352	***
PROFIT	α_1	0.419	*	0.330	*	0.404	*	0.267		0.228		0.142	
TDACC	α_2	0.596	*	0.472		0.653	*	0.725	**	0.603	*	0.229	
SIZE	α_3	0.547	***	0.478	***	0.634	***	0.581	***	0.566	***	0.512	***
DEBT	α_4	1.089	***	1.177	***	1.732	***	1.251	***	1.020	***	1.444	***
GROWTH	α_5	0.999	***	1.091	***	1.148	***	0.888	***	0.691	***	0.888	***
LOSS	α_6	-0.365		-0.301		-0.299		-0.300		-0.468	*	-0.230	
Industry		YES		YES		YES		YES		YES		YES	
n		700		700		700		700		700		700	
Pseudo R^2		0.201		0.174		0.226		0.204		0.192		0.176	

Table 7 Robustness analyses (continued)

Panel B Alternative sub-samples based on firm size, old fiscal year-end month, and new fiscal year-end month

Independent variables		Changers and High RE					Changers and Low RE				
		Model 1		Model 2		Model 3	Model 4		Model 5		Model 6
		Coeff.		Coeff.		Coeff.	Coeff.		Coeff.		Coeff.
Intercept	α_0	-0.407		-0.848		-0.877	2.068	**	1.803	*	1.303
PROFIT	α_1	3.333	***	3.309	***	5.933 ***	0.827	*	1.052	**	1.499 **
TDACC	α_2	5.020	***	5.103	***	6.367 ***	-1.597	**	-1.284	*	-1.263
SIZE	α_3	0.096		0.111		-0.037	0.134	*	0.147	*	0.170
DEBT	α_4	4.059	***	4.116	***	4.600 ***	-3.141	***	-2.918	***	-3.607 ***
GROWTH	α_5	0.699	**	0.714	**	0.170	0.012		0.033		-0.178
LOSS	α_6	-0.089		-0.146		-0.069	0.448		0.522		0.189
AGE	α_7	-0.570	**	-0.506	*	-0.366	-0.358		-0.340		-0.250
BIG4	α_8	-0.248		-0.229		-0.108	-0.584	***	-0.725	***	-0.412
Industry		YES		YES		YES	YES		YES		YES
n		663		556		336	663		556		336
Pseudo R^2		0.217		0.219		0.275	0.153		0.149		0.211

Notes: This table reports the results of the logistic regressions that examine the probability that a firm is a fiscal year-end changer based on the following model: Prob($CHANGE$)=1/1+e$^-$ ^{Z}, where Z = α_0+α_1($PROFIT$)+ α_2($TDACC$)+α_3($SIZE$)+α_4($DEBT$)+α_5($GROWTH$)+α_6($LOSS$)+α_7(AGE)+α_8($BIG4$)+Industry+ε. Panel A reports results for six samples based on randomly matched Changers and Non-Changers. Here, variables AGE and $BIG4$ are omitted due to data limitations. Panel B reports results for a sample where the lower size limit is set to 100 TEUR (Model 1 and Model 4), a sample where the 2003 fiscal year-end is December (Model 2 and Model 5), and a sample where January is the new ending month for the Changers (Model 3 and Model 6). Variable definitions are as follows: $CHANGE$ = 1 if the firm belongs to the sample of Changers and 0 otherwise; $PROFIT$ = taxable profits divided by total assets; $TDACC$ = total discretionary accruals; $SIZE$ = natural logarithm of total assets; $DEBT$ = debt ratio measured as total debt divided by total assets; $GROWTH$ = growth in sales; $LOSS$ = 1 if the firm has negative net income and 0 otherwise; AGE = natural logarithm of firm age; and $BIG4$ = 1 if the firm is audited by a BIG4-auditor (EY, Deloitte, KPMG or PwC) and 0 otherwise. ***, **, and * represents significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively.