Does Aggressive Financial Reporting Accompany Aggressive Tax Reporting
(and Vice Versa)?

Mary Margaret Frank
Darden Graduate School of Business, University of Virginia

Luann J. Lynch
Darden Graduate School of Business, University of Virginia
The Wharton School, University of Pennsylvania

Sonja Olhoft Rego*
Tippie College of Business, University of Iowa

October 2004
(Previous Version: September 2004)

*Corresponding author:
Sonja Olhoft Rego, Tippie College of Business, University of Iowa, 108 PBB, Room W278, Iowa City, IA 52242-1000, (319) 335-0891, sonja-olhoft@uiowa.edu

We appreciate the comments of Dan Collins, Cristi Gleason, Bruce Johnson, Mort Pincus, Rick Tubbs, and workshop participants at the University of Iowa. We gratefully acknowledge the financial support provided by the University of Virginia Darden School Foundation, the Lloyd and Thelma Palmer Faculty Fellowship Fund, and the RSM McGladrey Institute of Accounting Education and Research. All authors are grateful to Thomson Financial for providing earnings forecast data, available through the Institutional Brokers Estimate System, as part of a broad academic program to encourage earnings expectations research.
Does Aggressive Financial Reporting Accompany Aggressive Tax Reporting
(and Vice Versa)?

ABSTRACT:

This study examines the relation between financial and tax reporting aggressiveness. Prior research has documented a growing gap between financial and taxable incomes since 1990. Over the same period, financial and tax regulators have documented an increase in tax shelter activity (aggressive tax reporting) and a concurrent increase in corporate accounting scandals (aggressive financial reporting). Consequently, this paper investigates whether the companies that engage in aggressive financial reporting are also the firms that engage in aggressive tax reporting. Our study is the first to predict and find that some firms tend to report aggressively for both book and tax purposes, while other firms tend to report more conservatively for both book and tax purposes.

We use a system of equations to model the endogenous relation between financial and tax reporting decisions. The analysis controls for earnings management and tax planning incentives, and for rule differences between GAAP and tax law. Our bivariate and multivariate results both indicate firms that engage in aggressive financial reporting also engage in aggressive tax reporting. These results are important to both financial and tax regulators, and other stakeholders, who have a vested interest in understanding the interaction of financial and tax reporting decisions.

Keywords: Earnings management; tax planning; book-tax differences; discretionary accruals.

Data Availability: The data used in this study are publicly available from the sources indicated.
I. INTRODUCTION

Prior accounting research examines the tradeoffs between financial and tax reporting decisions in a variety of circumstances, including inventory accounting (e.g., Hunt et al. 1996; Jenkins and Pincus 1998), stock-based compensation (e.g., Matsunaga et al. 1992; Balsam et al. 1997), income shifting from one time period to another (e.g., Guenther 1994; Maydew 1997), and capital structure decisions (e.g., Engel et al. 1999), among others. In these studies, firms prefer reporting higher book income to shareholders and lower taxable income to tax authorities. However, conformity between generally accepted accounting principles (GAAP) and tax law compels some firms to decide which measure of income is more important to manage, and sacrifice management efforts related to the other.

Several recent trends suggest that not all firms tradeoff financial and tax reporting decisions. In particular, differences between income computed for financial reporting purposes and income computed for tax reporting purposes grew substantially during the 1990s (U.S. Treasury 1999; Plesko 2000; Desai 2002; Manzon and Plesko 2002; Mills et al. 2002; Hanlon et al. 2003). Many observers interpret this growing gap as indicating an increase in aggressive tax reporting behavior (e.g., U.S. Treasury 1999; Desai 2002; Manzon and Plesko 2002). Consistent with this view, there has been a striking increase in corporate tax avoidance over the same time period (U.S. Treasury 1999; McKinnon and Harwood June 6, 2003; McKinnon January 14, 2004; McKinnon April 6, 2004; Browning September 23, 2004). In fact, Slemrod (2004) estimates that federal tax revenue for 1998 and 1999 were reduced by approximately $53 billion because of corporate tax evasion and the use of abusive tax shelters.1

---

1 Slemrod references other studies that have estimated the loss of federal tax revenue from corporate tax evasion at $37.5 billion in 1998 and from abusive tax shelters at between $10 and $18 billion in 1999. These estimates do not include other “nonabusive” tax planning behavior such as the use of municipal bonds.
On the other hand, increasing differences between book and taxable incomes may reflect increased earnings management rather than increased tax planning (Mills and Newberry 2001; Hanlon 2003; Joos et al. 2003; Phillips et al. 2003; Phillips et al. 2004). In fact, as tax shelter activity increased during the 1990s, there was a concurrent increase in corporate accounting scandals and a resulting skepticism about the effectiveness of corporate governance mechanisms employed by even the largest U.S. corporations.\footnote{For example, the Securities and Exchange Commission (SEC) has recently investigated accounting fraud at large firms such as Adelphia, AOL Time Warner, Bristol-Myers Squibb, Computer Associates, Enron, Global Crossing, HealthSouth, Lucent Technologies, Parmalat, Quest Communications, Sunbeam, Tyco, Waste Management, Worldcom, and Xerox.} Similarly, corporate managers increasingly view tax departments as profit centers, responsible for not only increasing cash flows through aggressive tax reporting, but also for managing earnings on the financial statements through the management of estimated tax expense (Dhaliwal et al. 2004; Slemrod 2004).

The growing book-tax gap, along with parallel increases in corporate accounting scandals and tax shelter activity suggest that not all firms tradeoff financial and tax reporting decisions. Instead, areas of nonconformity between GAAP and tax rules offer some firms the opportunity to exploit nonconforming rules to simultaneously manage book income upward and taxable income downward. The recent spate of corporate accounting scandals and tax shelter activity suggests that some firms tend to engage in aggressive reporting in general, which affects their book and taxable incomes at the same time. Thus, we examine whether firms that are aggressive for financial reporting purposes are also aggressive for tax reporting purposes, and vice versa.

For purposes of our paper, we define ‘aggressive tax reporting’ as downward manipulation of taxable income through tax planning activities that may or may not be considered fraudulent tax evasion, and we define ‘aggressive financial reporting’ as upward earnings management that may or may not be within the confines of GAAP.\footnote{Our definition of financial reporting aggressiveness excludes firms who manage income downward to either signal private information to the market, to create a smooth stream of annual or quarterly earnings, or to create reserves for the future.} Thus, our definitions of aggressive financial and tax
reporting include common planning techniques such as: setting up operations in low-tax countries and using tax-advantaged lease arrangements for tax planning purposes, and accelerating revenue recognition and deferring expense recognition within the confines of GAAP for financial reporting purposes. In addition, our definitions of aggressive financial and tax reporting also include more aggressive planning techniques such as: income shifting between foreign locations and the use of abusive tax shelters for tax planning purposes, and the inappropriate capitalization of ordinary expenses and abuse of reserve accounts for financial reporting purposes.

While most prior research considers financial and tax reporting decisions as exogenous choices, we model financial and tax reporting decisions as endogenously related.\(^4\) Specifically, we develop a system of equations to examine the endogenous relation between financial and tax reporting aggressiveness. Using a sample of 5,641 firms (28,076 firm-years) from 1991 to 2003, we find consistent evidence that firms with more aggressive financial reporting also have more aggressive tax reporting; we find less consistent evidence that firms with more aggressive tax reporting also have more aggressive financial reporting. Our bivariate and multivariate analyses find a positive relation between our proxies for financial and tax reporting aggressiveness, even after controlling for earnings management and tax planning incentives, and for differences between GAAP and tax rules. The positive relation suggests that not all firms tradeoff financial and tax reporting decisions. Instead, we conclude that in a broad sample, some firms exhibit aggressive reporting in general, while other firms exhibit more conservative reporting in general. Our results contrast those of Erickson et al. (2004), who find that a small sample of firms cited by the SEC for future. The existence of downward earnings management in our sample of firm-year observations would bias against finding our predicted results.

\(^4\) Shackelford and Shevlin (2001) note, “a second problem facing some studies is that the outcomes of choices are examined with the choice being treated as exogenous….” (p. 327) An exception is Hunt et al. (1996), which uses a system of equations to model three choice variables that are endogenously related.
financial fraud were willing to pay more federal income taxes in order to report higher book income.

Our study contributes to the literature in several ways. First, our results shed light on the increase in book-tax differences during the 1990s. While some research focuses on increased tax shelter activity as a predominant cause of this increase, our results suggest that firms’ financial and tax reporting decisions go hand-in-hand, and that aggressiveness on both sets of books has contributed to the increasing book-tax gap. Second, while prior research suggests firms tradeoff financial and tax reporting objectives, our results are consistent with some firms having a general tendency for aggressive reporting for both financial and tax reporting purposes. To our knowledge, our study is the first to document this general simultaneous relation. Finally, our study should be of interest to regulators (such as the Securities and Exchange Commission (SEC) and the Internal Revenue Service (IRS)) and other corporate stakeholders that have a vested interest in understanding that aggressive financial reporting typically accompanies aggressive tax reporting.

The remainder of the paper is organized as follows. Section 2 provides background and develops hypotheses. Section 3 discusses the sample selection and research design. Section 4 presents results of empirical analyses, and Section 5 concludes.

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

Figure 1 presents a 2x2 matrix to facilitate our discussion of the relation between financial and tax reporting aggressiveness. The two dimensions are (1) whether managerial efforts are focused on managing book income or managing taxable income, and (2) whether these management efforts are in areas of conformity or nonconformity between GAAP and tax laws. Prior research
generally focuses on just one of the four cells; few studies cross over between two or more cells. We will now classify and discuss the prior literature and our own study in the context of Figure 1.

In areas where GAAP and tax law conform (i.e., the upper half of the matrix), efforts to increase book income (or decrease taxable income) have the same directional effect on taxable income (book income). Consequently, firms must decide whether it is more important to manage book income upward or taxable income downward. Using a small set of firms cited by the SEC for financial fraud, Erickson et al. (2004) find that some firms are willing to pay more taxes to report higher book income. Few other studies have examined efforts to manage book income while explicitly considering the resulting tax consequences of such efforts.

In contrast, a relatively large literature exists on whether firms tradeoff financial and tax reporting decisions (see Shackelford and Shevlin (2001) for a summary). While these studies suggest that some firms manage book income while other firms manage taxable income, they are unable to provide evidence on the extent to which firms exploit areas of nonconformity between GAAP and tax laws to manage both book and taxable incomes simultaneously. Our study sheds light on this issue.

In areas of nonconformity between GAAP and tax laws (i.e., the bottom half of the matrix), a decrease in taxable income or an increase in book income (or both) produces an increase in a firm’s book-tax differences. Most academic studies that examine the recent increase in book-tax differences focus on tax planning as the explanation (e.g., Desai, 2002; Manzon and Plesko, 2002; Desai and Dharmapala, 2004), although some studies do acknowledge that earnings management can create book-tax differences as well. In particular, Desai (2002) finds that the increase in book-tax differences is consistent with an increase in tax shelter activity in the late 1990s, but is also partially due to an increase in depreciable assets, foreign operations, employee stock options, and
earnings management activity. However, none of these studies examine the relation between financial and tax reporting decisions.

Other accounting research considers earnings management a substantial source of book-tax differences. In particular, Mills and Newberry (2001), Joos et al. (2003), Phillips et al. (2003), and Phillips et al. (2004) examine whether earnings management through non-conforming accruals (i.e., accruals that increase book income without affecting taxable income) causes firms to report relatively higher deferred tax expense. But none of these studies examine the relation between financial and tax reporting decisions either.5

In a paper closely related to ours, Plesko (2003) estimates the extent the tax system reflects discretionary actions taken for financial reporting purposes. In Figure 1, his paper sits at the center of the matrix, along with our study, since it considers the impact of financial reporting discretion on the tax reporting system, through both conforming and nonconforming transactions. Using U.S. tax return and financial statement data, Plesko estimates “discretionary book accruals” and “discretionary tax accruals” and computes the correlations between the two measures across industries, tax status, and sign of discretionary accrual. He concludes that “the degree to which tax reporting is affected by discretionary financial activities varies significantly by industry, profitability, and by the sign of the discretionary accruals measured under the tax system.” (p. 3)

Our study differs from Plesko (2003) in multiple dimensions. In general, we attempt to model the relation between financial and tax reporting decisions, while Plesko (2003) does not. In particular, we use a system of equations to model the endogenous relation between financial and tax reporting decisions, whereas Plesko simply examines the correlations between “discretionary book

5 In country-level analysis using OLS regressions, Haw et al. (2004) examine the impact of country-level factors on earnings management behavior and find a positive relation between country-level earnings management and tax compliance. However, the relation between earnings management and tax compliance is not the focus of their study. Furthermore, results in Wysocki’s (2004) discussion of Haw et al. (2004) suggest that earnings management and tax compliance decisions may be made simultaneously and that results in Haw et al. (2004) may not hold if this simultaneity is taken into account.
accruals” and “discretionary tax accruals” as independent variables. Furthermore, we estimate the aggressiveness of financial and tax reporting using well-established methodologies, while Plesko uses a ‘Jones-type’ model to estimate “discretionary tax accruals” (i.e., the residual from a model of total tax accruals). The difficulty with Plesko’s approach is the appropriate model specification for estimating “discretionary tax accruals”. Absent a reliable model of total tax accruals, “discretionary tax accruals” will contain substantial measurement error, such that the proxy may or may not reflect the intended construct.

Hypothesis Development

Most firms prefer reporting higher book income to shareholders and lower taxable income to tax authorities. Conformity between GAAP and tax law, as well as scrutiny by the IRS and other regulators, can limit the extent to which firms simultaneously manage book income upward and taxable income downward. However, areas of nonconformity between GAAP and tax law provide the opportunity for firms to do both simultaneously. Prior literature provides little insight into whether financial (tax) reporting aggressiveness results in more or less aggressive tax (financial) reporting. We see three possible ways that financial and tax reporting decisions can be related.

First, in areas where GAAP and tax rules conform, actions to increase book income also increase taxable income, while actions to decrease taxable income also decrease book income. So it is possible that firms decide which measure of income is most important to manage, and sacrifice management efforts related to the other. If so, we expect either a negative or no relation between financial and tax reporting aggressiveness, since more aggressive financial reporting would not be associated with aggressive tax reporting (and vice versa).6

6 If a firm decides to manage book income upward via accruals with conformity between financial and tax accounting, the firm would have higher discretionary accruals (our proxy for aggressive financial reporting), but the same amount of permanent book-tax differences (our proxy for aggressive tax reporting). Thus, we would predict no correlation between our two variables of interest. In contrast, if a firm decides to manage taxable income downward via accruals with conformity between financial and tax accounting, the firm would have greater permanent book-tax differences but lower discretionary accruals. Thus, we would predict a negative correlation between our two variables of interest.
Second, large differences between book and taxable incomes may be seen as suspicious by the IRS (e.g., Mills 1998) or as a signal of lower earnings quality by other external constituents (e.g., Hanlon 2005; Joos et al. 2003). Thus, even in areas where GAAP and tax rules do not conform, firms’ decisions to manage income aggressively on one set of books may result in a conscious decision to be less aggressive on the other set of books. If so, we expect either a negative or no relation between financial and tax reporting aggressiveness, since more aggressive financial reporting would not be associated with aggressive tax reporting (and vice versa).7

Finally, and of primary interest in this study, a tendency to be aggressive in managing income on one set of books may reflect an overall tendency for aggressive reporting. Thus, some firms may exploit areas of nonconformity between GAAP and tax rules so that reporting aggressiveness makes its way into both the financial and tax books at the same time, and consequently, these firms simultaneously report higher book income and lower taxable income. If so, we expect a positive relation between financial and tax reporting aggressiveness.8

III. SAMPLE SELECTION AND RESEARCH DESIGN

Data Sources and Sample Selection

Table 1 describes the sample selection process. We start with all firm-year observations from Compustat’s annual industrial file for 1991 through 2003 (19,899 firms; 180,906 firm-years). We eliminate observations associated with a subsidiary or foreign incorporated unit (2,278 firms;)

---

7 If a firm decides to manage book income upward via accruals that allow nonconformity between financial and tax accounting, the firm may choose to also report higher taxable income to avoid the scrutiny of financial and tax regulators. In this case, the firm would have higher discretionary accruals, and most likely, the same amount of permanent book-tax differences. Thus, we would predict no correlation between our variables of interest. In contrast, if a firm decides to manage taxable income downward via accruals that allow nonconformity between financial and tax accounting, the firm may choose to also report lower book income to avoid the scrutiny of financial and tax regulators. In this case, the firm would have greater permanent book-tax differences and lower discretionary accruals. Thus, we would predict a negative correlation between our variables of interest.

8 If a firm decides to simultaneously manage book income upward and taxable income downward through nonconforming accruals, the firm would have higher discretionary accruals and greater permanent book-tax differences. Thus, we would predict a positive relation between our two variables of interest.
20,255 firm-years), observations with book value of equity less than or equal to zero (3,096 firms; 58,943 firms), and observations in regulated industries such as utilities (SIC code 49) and financial services (SIC codes 60-69) (3,415 firms; 24,066 firm-years).9 We then eliminate observations with insufficient data to compute our measures of discretionary accruals (1,525 firms; 17,330 firm-years) and book-tax differences (153 firms; 2,808 firm-years). Finally, we eliminate observations lacking analyst forecast data on I/B/E/S (438 firms; 2,844 firm-years), which reduces our sample size to 5,641 firms (28,076 firm-years).

INSERT TABLE 1 HERE

**Research Design**

We hypothesize that some firms possess an overall tendency to engage in aggressive reporting, which simultaneously affects the financial and tax reporting systems of these firms. Figure 2 illustrates the hypothesized endogenous relationships between a firm’s overall reporting aggressiveness, and the extent of financial and tax reporting aggressiveness. Essentially, Figure 2 shows that the amount of overall reporting aggressiveness directly affects the amount of financial and tax reporting aggressiveness, such that firms with higher (lower) overall reporting aggressiveness should have more (less) aggressive financial and tax reporting. In addition, other variables moderate the amount of financial and tax reporting aggressiveness, including incentives to manage earnings, incentives to tax plan, and prior years’ reporting aggressiveness.

INSERT FIGURE 2 HERE

If these hypothesized relationships exist across firms, then financial reporting aggressiveness is endogenously related to tax reporting aggressiveness. Consequently, examining the relation between financial and tax reporting aggressiveness using ordinary least squares (OLS) estimation

9 The elimination of regulated industries is consistent with Hanlon et al. (2003) and Phillips et al. (2003) and reflects that fact that firms in regulated industries may have different reporting incentives than firms in other industries. In addition, Compustat has only limited tax data for financial institutions.
would result in biased and inconsistent estimated coefficients. Untabulated results of the Hausman
test for endogeneity indicates that our proxies for financial and tax reporting aggressiveness are
indeed endogenously related. Thus, to account for the endogeneity of financial and tax reporting
decisions, we use two-stage least squares (2SLS) to estimate the following general system of
equations:

\[
\text{Tax reporting aggressiveness} = f(\text{financial reporting aggressiveness, earnings management incentives, other control variables}) \quad (1)
\]

\[
\text{Financial reporting aggressiveness} = f(\text{tax reporting aggressiveness, tax planning incentives, other control variables}) \quad (2)
\]

We control for earnings management incentives in equation (1) in case our proxy for tax reporting aggressiveness reflects any earnings management activities. Similarly, we control for tax planning incentives in equation (2) in case our proxy for financial reporting aggressiveness reflects any tax planning activities. Finally, we include other control variables in both equations, to account for known variation in our dependent variables that is not related to financial and/or tax reporting aggressiveness.

**Measuring ‘tax reporting aggressiveness’**

Prior research measures corporate tax planning effectiveness with current and total effective tax rates (e.g., Stickney and McGee 1982; Gupta and Newberry 1992; Callihan 1994; Gupta and Newberry 1997; Mills, et al. 1998; Phillips 2003; Rego 2003), which are generally computed as the ratio of current or total income tax expense to pre-tax book income. While permanent book-tax differences account for the variation in total effective tax rates, total book-tax differences account for the variation in current effective tax rates. Thus, the use of current effective tax rates as a measure of tax planning effectiveness presumes that the firm engages in tax planning activities that create both temporary and permanent book-tax differences, while the use of total effective tax rates
presumes that the firm engages in tax planning activities that primarily create permanent book-tax differences.

Given the recent increase in the book-tax gap, we prefer to use a direct measure of book-tax differences that reflects tax planning activities, as our proxy for tax planning aggressiveness. Both temporary and permanent book-tax differences can reflect earnings management and tax planning activities, as well as rule differences between GAAP and tax law. However, prior research argues that temporary differences reflect substantial amounts of earnings management activities (e.g., Joos et al. 2003; Phillips et al. 2003; Phillips et al. 2004; Hanlon 2005). In contrast, permanent differences are typically created by tax planning activities or rule differences between GAAP and tax law, and less frequently reflect earnings management activities. Therefore, we use permanent book-tax differences (PERMDIFF) as our proxy for tax planning aggressiveness, and we control for earnings management incentives and rule differences between GAAP and tax law in our regression analysis to control for the extent these items contaminate our dependent variable.

To calculate permanent book-tax differences, we first calculate the total difference between book and taxable incomes following Hanlon et al. (2003):

\[ BTDIFF_{jt} = BI_{jt} - TI_{jt} \]  

Where:

\[ 10 \text{ Earnings management activities occasionally create permanent book-tax differences. In particular, firms that manage book income through income tax expense accruals can create permanent differences. For example, firms can adjust their tax cushion, adjust the amount of permanently reinvested earnings, and/or adjust their valuation allowance account to manage earnings, which could then result in a permanent book-tax difference (see Krull 2004 or Dhaliwal et al. 2004 for further discussion of these topics). While we do not feel that these items reflect a significant portion of a typical firm’s permanent book-tax differences, we acknowledge that we must control for these items in our multivariate regression analysis.} \]

\[ 11 \text{ We acknowledge that PERMDIFF is not a perfect proxy for tax reporting aggressiveness, since it also reflects certain earnings management activities and rule differences between GAAP and tax law. In addition, PERMDIFF does not reflect the most basic form of tax planning: the deferral of income recognition and the acceleration of expense recognition (i.e., tax planning through temporary book-tax differences). However, differences in foreign statutory tax rates, state taxes, tax credits, and tax shelter activities involving flow-through entities account for a significant portion of firms’ permanent differences, and these items are related to tax planning activities. Nonetheless, to correct for PERMDIFF’s shortcomings, our research design controls for earnings management incentives and rule differences between GAAP and tax law in order to remove these items from the dependent variable in our regression analysis.} \]
\[ BTDIFF_{jt} = \text{Pre-tax book income less taxable income for firm } j \text{ in year } t, \]
\[ BI_{jt} = \text{Pre-tax book income (Compustat # 170) less income attributable to minority interest (Compustat # 49) for firm } j \text{ in year } t, \]
\[ TI_{jt} = \text{Taxable income for firm } j \text{ in year } t = \left\{ \left[ \text{CFTE}_{jt} + \text{CFOR}_{jt} \right] / \text{STR}_{jt} \right\} - \Delta \text{NOL}_{jt}, \]
\[ \text{CFTE}_{jt} = \text{Current federal tax expense for firm } j \text{ in year } t \text{ (Compustat # 63),} \]
\[ \text{CFOR}_{jt} = \text{Current foreign tax expense for firm } j \text{ in year } t \text{ (Compustat # 64),} \]
\[ \text{STR}_{jt} = \text{Statutory tax rate for firm } j \text{ in year } t, \text{ and} \]
\[ \Delta \text{NOL}_{jt} = \text{Change in net operating loss carryforward (Compustat #52) from year } t-1 \text{ to year } t \text{ for firm } j. \]

We then rewrite equation (3) to separate \( BTDIFF \) into its temporary and permanent components:

\[ \text{TEMPDIFF}_{jt} + \text{PERMDIFF}_{jt} = BI_{jt} - TI_{jt} \quad (4) \]

Where \( \text{TEMPDIFF}_{jt} \) is deferred tax expense (Compustat #50) divided by the statutory tax rate, and \( \text{PERMDIFF}_{jt} \) is \( BTDIFF_{jt} \) less \( \text{TEMPDIFF}_{jt} \).

**Measuring ‘financial reporting aggressiveness’**

We use performance-adjusted discretionary accruals (\( DACC \)) as our proxy for financial reporting aggressiveness.\(^{14}\) We calculate performance-adjusted discretionary accruals as follows, where our calculation of discretionary accruals is based on the modified-Jones model (Dechow et al. 1995), and our performance matching is based on Francis et al. (2003).

First, we compute modified-Jones model abnormal accruals by estimating the following regression by 2-digit SIC code and year using all firms on \( \text{Compustat} \), where all variables are scaled by beginning of year total assets (\( \text{Compustat} \# 6) :

\[ TACC_{jt} = \alpha_0 + \alpha_1 \left( \Delta \text{REV}_{jt} - \Delta \text{AR}_{jt} \right) + \alpha_2 \text{PPE}_{jt} + \epsilon_{jt} \quad (5) \]

and:

\[ TACC_{jt} = \text{Total accruals} = EBEI_{jt} - \left( \text{CFO}_{jt} - \text{EIDO}_{jt} \right) \text{ for firm } j \text{ in year } t, \]

---

\(^{12}\) If current federal tax expense (#63) is missing on \( \text{Compustat} \), then we set the value of \( \text{CFTE} \) to: total tax expense (#16) – current foreign tax expense (#64) – current state tax expense (#173) – deferred tax expense (#50). If current foreign tax expense (#64) is missing on \( \text{Compustat} \), then we set the value of \( \text{CFOR} \) to 0. If current state tax expense (#173) is missing on \( \text{Compustat} \), then we set the value of \( \text{CSTE} \) to 0.

\(^{13}\) If net operating loss carryforward (#52) is missing on \( \text{Compustat} \), then we set the value of \( \Delta \text{NOL} \) to 0.

\(^{14}\) Kothari et al. (2002) document that performance-adjusted measures of discretionary accruals more accurately identify earnings management activities compared to non-performance adjusted measures of discretionary accruals.
EBEI_{jt} = \text{Earnings before extraordinary items from the statement of cash flow (Compustat \#123) for firm } j \text{ in year } t, \\
CFO_{jt} = \text{Cash flow from operations (Compustat \#308) for firm } j \text{ in year } t, \\
EIDO_{jt} = \text{Extraordinary items and discontinued operations from the statement of cash flow (Compustat \#124) for firm } j \text{ in year } t, \\
\Delta REV_{jt} = \text{Change in sales (Compustat \#12) from year } t-1 \text{ to year } t \text{ for firm } j, \\
\Delta AR_{jt} = \text{Change in accounts receivable (Compustat \#302) from year } t-1 \text{ to year } t \text{ for firm } j, \text{ and} \\
PPE_{jt} = \text{Gross property, plant, and equipment (Compustat \#7) for firm } j \text{ in year } t.

For each firm-year observation in our sample, we use the industry- and fiscal-year specific parameter estimates to compute normal accruals (i.e., \( NACC_{jt} = TACC_{jt} - (\alpha_0 + \alpha_1 (\Delta REV_{jt} - \Delta AR_{jt}) + \alpha_2 PPE_{jt}) \)), and compute abnormal accruals as total accruals less normal accruals (i.e., \( AACC_{jt} = TACC_{jt} - NACC_{jt} \)).

Second, we match each firm-year’s abnormal accrual measure based on industry membership and the prior year’s firm performance. Specifically, we partition our sample into deciles by ranking firms (within 2-digit SIC industries) by the prior year’s return on assets (\( ROA_{jt} \)), defined as net income before extraordinary items (Compustat \#18) divided by beginning of year total assets (Compustat \#6). We compute performance-adjusted discretionary accruals (\( DACC_{jt} \)) as the difference between firm \( j \)'s abnormal accrual measure and the median measure for its industry \( ROA_{jt-1} \) decile, where the median calculation excludes firm \( j \).

System of Equations

We use two-stage least squares (2SLS) to estimate the following system of equations, where all variables are scaled by beginning of year assets (Compustat \#6) except \( MTB_{jt}, INCR\_EPS_{jt} \), \( POS\_AFE_{jt}, NUM\_ANS_{jt}, DEBT_{jt}, POS\_PTI_{jt}, NOL\_DUMM_{jt}, FOR\_OPER_{jt}, \) and \( NEG\_NI_{jt} \):

\[
\text{PERMDIFF}_{jt} = \alpha_0 + \alpha_1 \text{DACC}_{jt} + \alpha_2 \text{MTB}_{jt} + \alpha_3 \text{INCR\_EPS}_{jt} + \alpha_4 \text{POS\_AFE}_{jt} \\
+ \alpha_5 \text{NUM\_ANS}_{jt} + \alpha_6 \text{DEBT}_{jt} + \alpha_7 \text{INTANG}_{jt} + \alpha_8 \text{UNCON}_{jt} \\
+ \alpha_9 \text{MI}_{jt} + \alpha_{10} \text{CSTE}_{jt} + \alpha_{11} \text{LAGBTDIFF}_{jt} + \alpha \text{INDUS}_{jt} + \alpha \text{YEAR}_{jt} + \epsilon_{jt}
\]

\[
\text{DACC}_{jt} = \gamma_0 + \gamma_1 \text{PERMDIFF}_{jt} + \gamma_2 \text{SALES}_{jt} + \gamma_3 \text{POS\_PTI}_{jt-1} + \gamma_4 \text{NOL\_DUMM}_{jt} \\
+ \gamma_5 \text{FOR\_OPER}_{jt} + \gamma_6 \text{NOA}_{jt-1} + \gamma_7 \text{NEG\_NI}_{jt} + \gamma \text{INDUS}_{jt} + \gamma \text{YEAR}_{jt} + \nu_{jt}
\]
and:

\[
MTB_{jt-1} = \left\{ \frac{\text{Stock price (Compustat #199)} \times \text{common shares outstanding (Compustat #25)}}{} \right\} / \text{book value of equity (Compustat #60)} \text{ for firm } j \text{ in year } t-1,
\]

\[
INCR\_EPS_{jt} = \text{Number of consecutive years that firm } j \text{ experienced a positive change in earnings per share (Compustat #53) over the five years preceding year } t,
\]

\[
POS\_AFE_{jt} = \text{Number of consecutive years that firm } j \text{ met or beat the mean analyst forecast over the five years preceding year } t,
\]

\[
NUM\_ANS_{jt} = \text{Number of analysts following firm } j \text{ in year } t,
\]

\[
DEBT_{jt} = \text{Long-term debt (Compustat #9) / total assets (Compustat #6) for firm } j \text{ in year } t,
\]

\[
INTANG_{jt} = \text{Goodwill and other intangibles (Compustat #33) for firm } j \text{ in year } t,^{15}
\]

\[
UNCON_{jt} = \text{Income (loss) reported under the equity method (Compustat #55) for firm } j \text{ in year } t,
\]

\[
MI_{jt} = \text{Income (loss) attributable to minority interest (Compustat #49) for firm } j \text{ in year } t,^{17}
\]

\[
CSTE_{jt} = \text{Current state income tax expense (Compustat #173) for firm } j \text{ in year } t,^{18}
\]

\[
LAGBTDIFF_{jt} = \text{BTDIFF for firm } j \text{ in year } t-1,
\]

\[
\Delta SALES_{jt} = \text{The change in net sales (Compustat #12) from year } t-1 \text{ to year } t \text{ for firm } j,
\]

\[
POS\_PTI_{jt} = 1 \text{ if pretax income (Compustat #170) is greater than } 0 \text{ for firm } j \text{ in year } t; 0 \text{ otherwise,}
\]

\[
NOL\_DUMM_{jt} = 1 \text{ if NOL carryforwards (Compustat #52) are greater than } 0 \text{ for firm } j \text{ in year } t; 0 \text{ otherwise},^{19}
\]

\[
FOR\_OPER_{jt} = 1 \text{ if pre-tax income from foreign operations (Compustat #273) is non-zero for firm } j \text{ in year } t; \text{ zero otherwise,}^{20}
\]

\[
NOA_{jt-1} = \text{Net operating assets (total shareholders’ equity Compustat #216, less cash and marketable securities Compustat #1, plus total debt Compustat #181) for firm } j \text{ in year } t-1, \text{ scaled by net sales (Compustat #12) in year } t-2,
\]

\[
NEG\_NI_{jt} = 1 \text{ if firm } j \text{ had net income (Compustat #172) less than } 0 \text{ in years } t-1 \text{ and } t-2; \text{ zero otherwise,
}\]

\[
INDUS_{jt} = \text{Two-digit SIC industry indicator variables,}
\]

\[
YEAR_{jt} = \text{Fiscal year indicator variables, and}
\]

\[
PERMDIFF_{jt} \text{ and } DACC_{jt} \text{ are defined above.}
\]

We are primarily interested in the coefficients on \(DACC_{jt}\) in equation (6) and \(PERMDIFF_{jt}\) in equation (7). Significantly positive coefficients would be consistent with some firms engaging in aggressive reporting in general (i.e., firms with aggressive financial reporting also have aggressive tax reporting, and vice versa), while other firms engage in more conservative reporting in general.

---

15 If goodwill and other intangibles (# 33) is missing on Compustat, we set the value for \(INTANG\) to 0. If #33 = C, we set the value of \(INTANG\) to data item #204.

16 If income from unconsolidated entities (#55) is missing on Compustat, we set the value for \(UNCON\) to 0.

17 If income attributable to minority interests (#49) is missing on Compustat, we set the value for \(MI\) to 0.

18 If current state tax expense (#173) is missing on Compustat, we set the value for \(CSTE\) to 0.

19 If net operating loss carryforwards (#52) is missing on Compustat, we set the value for \(NOL\_DUMM\) to 0.

20 If foreign source income (#273) is missing on Compustat, we set the value for \(FOR\_OPER\) to 0.
(i.e., firms with less aggressive financial reporting also have less aggressive tax reporting, and vice versa). Significantly negative coefficients or insignificant coefficients would be consistent with firms either managing income on one set of books in areas of *conformity* between GAAP and tax rules while forgoing income management on the other set of books, or firms managing income on one set of books in areas of *nonconformity* between GAAP and tax rules while forgoing income management on the other set of books due to the potential scrutiny of book-tax differences by financial or tax regulators.

**Independent variables for the PERMDIFF equation**

We want to control for transactions reflected in PERMDIFF that are not considered tax planning activities. In particular, we need to control for earnings management incentives that may cause a firm to manage earnings in ways that create permanent book-tax differences (e.g., adjustment of a firm’s tax cushion), and we need to control for rule differences between GAAP and tax law.

We control for earnings management incentives in various ways. Prior research has demonstrated that the market penalizes: (1) high-growth firms that miss the mean analyst forecast (Skinner and Sloan 2002), (2) firms that experience an earnings decrease after a string of consecutive earnings increases (Barth et al. 1999), and (3) firms that miss the mean analyst forecast after consecutively meeting or beating mean forecasts (Bartov et al. 2002; Kasznik and McNichols 2002). Thus, these firms have capital market incentives to manage earnings to meet or beat these earnings targets. To control for these capital market incentives to manage earnings, we include in our PERMDIFF equation: (1) the market-to-book ratio (MTB) as a proxy for growth, (2) a variable that indicates how many consecutive years the firm has reported an earnings increase over the prior five years (INCR_EPS), and (3) a variable that indicates how many consecutive years the firm has met or beat the mean analyst forecast over the prior five years (POS_AFE).
Firms with higher analyst following may be under more pressure to meet or beat the mean analyst forecast, compared to firms with lower analyst following (Kasznik 1999). Thus, we include the number of analysts following the firm ($NUM_{\text{ANS}}$) in our $PERMDIFF$ equation as a proxy for pressure to meet or beat analyst forecasts. We also include a firm’s debt-to-asset ratio ($DEBT$) in the $PERMDIFF$ equation, since prior research has shown that firms with relatively higher levels of debt have incentives to manage earnings to avoid violating debt covenants (DeAngelo et al. 1994; Defond and Jiambalvo 1994; Becker et al. 1998; Frankel et al. 2002; Klein 2002).

We also control for rule differences between GAAP and tax law in our $PERMDIFF$ regression. Differences in the accounting for goodwill and other intangibles can create either permanent or temporary differences, which are typically unrelated to tax planning activities. We include a proxy for goodwill and other intangible assets ($INTANG$) to control for these differences. Goodwill and other intangible assets cause permanent differences in at least two cases. First, goodwill created prior to 1993 was not tax-deductible but did generate amortization expense for book purposes. Second, in tax-free acquisitions, there is no goodwill recorded for tax purposes, whereas firms following the purchase method of accounting for book purposes record goodwill. Since amortization reduces book income but not taxable income in these cases, larger values of goodwill and other intangibles should lead to more negative permanent differences. Thus, we expect a negative relation between $PERMDIFF$ and $INTANG$.

Subsidiary income is consolidated for tax reporting purposes only if ownership is greater than 80%, but is consolidated for financial reporting purposes if ownership is greater than 50%. In addition, firms follow the equity method of accounting for financial reporting purposes when ownership is greater than 20% and less than 50%. Thus, we include a measure of the income or loss reported under the equity method ($UNCON$) to control for subsidiary income reflected for financial but not tax reporting purposes. We expect that $UNCON$ will be positively related to $PERMDIFF$. 
Furthermore, while taxable income includes income and loss attributable to minority interests, book income does not. Thus, we include a measure of the income or loss attributable to minority interests \((MI)\) to control for this permanent difference. We expect that \(MI\) will be negatively related to \(PERMDIFF\), since income attributable to minority interests will cause a negative permanent difference.

Our measure of book income is not reduced by current state tax expense, whereas as our measure of taxable income is reduced by such expense. Thus, we include a measure of current state tax expense \((CSTE)\) in our \(PERMDIFF\) equation, to control for this difference. We expect that \(CSTE\) will be positively related to \(PERMDIFF\). We include the lagged value of total book-tax differences \((LAGBTDIFF)\) in our \(PERMDIFF\) equation to control for the extent that book-tax differences are ‘sticky’, such that firms with large book-tax differences in prior years continue to have large book-tax differences in future years. Finally, we include controls for 2-digit SIC industry classification \((INDUS)\) and fiscal year \((YEAR)\).

**Independent variables for the DACC equation**

We want to control for transactions reflected in \(DACC\) that are not considered earnings management activities. In particular, we need to control for tax planning incentives that may cause a firm to manage taxable income in ways that create discretionary accruals (e.g., optimally reporting foreign income in low-tax jurisdictions), and we need to control for rule differences between GAAP and tax law.

Similar to Manzon and Plesko (2002), we control for tax planning incentives in various ways. Manzon and Plesko argue that growing firms, profitable firms, and firms without NOL carryforwards may engage in more tax planning activities that lead to differences between book and taxable incomes. Consistent with those authors, we include the following tax planning incentives in our \(DACC\) equation: the change in net sales \((\Delta SALES)\) as a proxy for firm growth, an indicator
variable equal to one if the firm reports positive pre-tax book income in the current tax year \((POS_{PTI})\), and an indicator variable equal to one if the firm has net operating loss carryforwards \((NOL_{DUMM})\).\(^{21}\)

The existence of foreign operations can create opportunities and incentives for firms to engage in aggressive tax planning activities. Prior research concludes that multinational corporations commonly reduce their worldwide tax burden by locating operations in low-tax countries (e.g., Grubert and Mutti 1991; Harris et al. 1993; Hines and Rice 1994). Thus, we include a proxy for the extent of foreign operations in our \(DACC\) equation to control for a firm’s opportunity and incentive to engage in aggressive tax reporting through its foreign operations. In particular, we use an indicator variable \((FOR_{OPER})\) equal to one if the firm has non-zero pre-tax income from foreign operations.

In our \(DACC\) equation, we also control for the possibility that a firm’s ability to manage earnings in the current year can be constrained by prior years’ earnings management activities. Barton and Simko (2002) predict that a firm’s ability to manage earnings upward in the current year decreases with the extent that the firm’s balance sheet overstates net assets relative to a neutral application of GAAP (i.e., with the extent that the firm’s balance sheet already reflects upward earnings management). Thus, we include net operating assets at the beginning of the year \((NOA_{t-1})\) as a measure of the extent that a firm is able to manage earnings in the current year. Finally, we include an indicator variable \((NEG_{NI})\) that equals one when a firm reported negative net income in each of the two prior years (i.e., in years \(t-1\) and \(t-2\)). This variable controls for the fact that loss firms are valued differently by the market than profitable firms and thus may face different tax planning and earnings management incentives compared to more profitable firms (Hayn 1995; Collins et al. 1999).

\(^{21}\)Our use of \(POS_{PTI}\) and \(NOL_{DUMM}\) together can be thought of as a proxy for the firm’s marginal tax rate.
Descriptive Statistics

Table 2 provides descriptive statistics for our unwinsorized sample of data, including the 1st and 99th percentiles that provide the basis for winsorization of each variable. The mean (median) firm in our sample reports negative (zero) PERMDIFF and DACC during the 1991 – 2003 period. The negative mean PERMDIFF indicates that on average, firms reported permanent differences that increased taxable income relative to book income, and thus the average sample firm-year does not exhibit aggressive tax reporting.\(^{22}\) (However, the median firm reported near-zero permanent book-tax differences.)

PLACE TABLE 2 HERE

The mean (median) market-to-book ratio for our sample is 3.71 (2.25), and the typical firm-year had just one consecutive year of earnings increases and one consecutive year of meeting and/or beating the mean analyst forecast during the prior 5 years. The average (median) number of analysts following firms in our sample is 6.39 (4.00). In addition, the average (median) debt-to-assets ratio over the study period is just 20% (12%). Thus, the typical sample firm does not exhibit pervasive incentives to manage earnings.

Income reported under the equity method, income attributable to minority interest, and current state tax expense all hover close to zero for most of the firm-years in our sample. However, the mean (median) growth in sales is fairly high at 19% (10%). While 71% of the firm-years in our

\(^{22}\) The mean negative PERMDIFF is consistent with a bias in the tax expense numbers as reported by Compustat. In particular, firms that issue nonqualified stock options can deduct the bargain element (i.e., the difference between fair market value and exercise price on the exercise date) as compensation expense for tax purposes; however, most firms do not recognize any corresponding expense for book purposes. APB No. 25 (Accounting for Stock Issued to Employees) does not require companies to classify this difference between financial and tax accounting rules as a book-tax difference. Instead, the tax benefits associated with nonqualified stock option compensation are recorded as a direct increase to additional paid-in capital. Thus, current tax expense as reported in a firm’s income tax footnote and by Compustat are overstated, which results in overstated estimated taxable income, understated total book-tax differences, and understated permanent differences (i.e., PERMDIFF) in our paper (see Hanlon and Shevlin (2002) for more extensive discussion of this topic). We believe our understated permanent book-tax differences only bias against finding our predicted results. Nonetheless, we intend to control for stock option compensation in future versions of the paper.
sample reported positive pre-tax income (i.e., $POS_{PTI} = 1$), 28% of the firm-years reported net operating loss carryforwards on Compustat (i.e., $NOL_{DUMM} = 1$). In addition, 28% of the firm-years reported non-zero foreign pre-tax income (i.e., $FOR_{OPER} = 1$) during our sample period. Finally, just 17% of the firm-years reported negative net income in each of the two prior years (i.e., $NEG_{NI} = 1$). Thus, the typical sample firm was profitable, with significant sales growth, zero net operating loss carryforwards, and no foreign operations.

IV. RESULTS

Correlation Analysis

Table 3 Panel A provides both Pearson and Spearman correlations between $PERMDIFF$, $DACC$, and independent variables capturing earnings management incentives. The Pearson and Spearman correlations are relatively consistent in Panel A, except for the correlations between $PERMDIFF$ and $MTB$, between $PERMDIFF$ and $DEBT$, and between $DACC$ and $MTB$. These three sets of variables produce significant Pearson and Spearman correlations; however, the signs of the Pearson and Spearman correlations differ. Importantly, the Pearson (Spearman) correlation between $PERMDIFF$ and $DACC$ is 0.13 (0.14) and highly significant, consistent with firms with aggressive financial reporting also engaging in aggressive tax reporting, and vice versa. The other correlations between $PERMDIFF$ and variables capturing firms’ incentives to manage earnings indicate that $PERMDIFF$ may reflect some earnings management activity, since firm-years with more consecutive earnings increases and more consecutive years of meeting or beating the mean analyst forecast, and firm-years with greater analyst following have more positive permanent book-tax differences.

PLACE TABLE 3 HERE
Table 3 Panel B provides both Pearson and Spearman correlations between $DACC$, $PERMDIFF$, and independent variables capturing tax planning incentives. All Pearson and Spearman correlations are consistent with each other in Panel B. The correlations between $DACC$ and variables capturing firms’ incentives to tax plan indicate that firm-years with higher amounts of discretionary accruals are profitable, with higher sales growth, and no net operating loss carryforwards. In contrast, there is no relation between $DACC$ and the extent of foreign operations.

System of Equations

Table 4 presents the results of estimating the system of equations. Our system models financial and tax reporting aggressiveness as functions of earnings management and tax planning incentives and other control variables, and accounts for the endogenous relation between $PERMDIFF$ and $DACC$. Panel A reports the results of our regression of $PERMDIFF$ on $DACC$, earnings management incentives, and other control variables. Our primary interest in Panel A is on the $DACC$ coefficient, which is positive and significant ($t$-statistic = 13.86). The positive coefficient suggests firms that are aggressive for financial reporting purposes also tend to be aggressive for tax reporting purposes.

We find significantly positive relations between $PERMDIFF$ and the following incentives to manage earnings: $INCR_EPS$, $POS_AFE$, and $NUM_ANS$, which suggests that $PERMDIFF$ may reflect some earnings management activities. In contrast, we find a significantly negative relation between $PERMDIFF$ and $MTB$, consistent with high-growth firms having less aggressive tax reporting. The relations between $PERMDIFF$ and our other control variables are mostly as expected. Notably, firms with large book-tax differences last year continue to have large permanent differences in the current year. Thus, our system of equations controls for any permanent book-tax
differences that persist through time (and consequently, our dependent variable \textit{PERMDIFF} should reflect only current tax reporting aggressiveness).

Panel B reports the results of our regression of \textit{DACC} on \textit{PERMDIFF}, tax planning incentives, and other control variables. Our primary interest in Panel B is on the \textit{PERMDIFF} coefficient, which is positive and significant (t-statistic = 5.98). Consistent with the results in Panel A, the positive coefficient on \textit{PERMDIFF} suggests firms that are aggressive for tax reporting purposes also tend to be aggressive for financial reporting purposes. Most of the coefficients on our control variables are not significant. However, we do find that firms with greater sales growth and firms that reported negative net income in each of the two prior years have larger discretionary accruals. Overall, the explanatory power of our \textit{DACC} regression is low, with an adjusted R-squared of 0.01.

**Sensitivity Analyses**

We performed several additional analyses to evaluate the sensitivity of our results to the inclusion of multiple observations of individual firms in our pooled, cross-sectional regressions, which can cause autocorrelated error terms, understated standard deviations, and consequently, inflated t-statistics. First, we estimated our system of equations with firm fixed effects. Our main results were unaffected (i.e., the coefficients on \textit{DACC} in the \textit{PERMDIFF} equation and on \textit{PERMDIFF} in the \textit{DACC} equation were still significantly positive). Second, we estimated our system of equations on an annual basis, and computed average coefficients and t-statistics for our entire sample period (results untabulated) based on methodology in Fama and MacBeth (1973).\footnote{The validity of our Fama-MacBeth annual regression analysis is suspect, since that methodology requires the dependent variable to be independent through time. While \textit{DACC} is likely independent through time, we doubt that \textit{PERMDIFF} is independent through time. Thus, we do not view the Fama-MacBeth analysis as fully adequate for our model specification. Nonetheless, we compute Fama-MacBeth t-statistics as: \[\frac{\text{mean of estimated coefficients}}{\text{standard error of estimated coefficients} \times \sqrt{n}}\].}

We found a significantly positive estimated coefficient on \textit{DACC} in the \textit{PERMDIFF} equation.
(Fama-MacBeth t-statistic of 4.62), but an insignificant and positive coefficient on \textit{PERMDIFF} in the \textit{DACC} equation (Fama-MacBeth t-statistic of 0.49).

The insignificant Fama-MacBeth t-statistic for \textit{PERMDIFF} in the \textit{DACC} equation prompted us to further investigate the annual regression results. Table 5 presents the coefficients on \textit{DACC} in the \textit{PERMDIFF} equation and the coefficients on \textit{PERMDIFF} in the \textit{DACC} equation for annual 2SLS regressions from 1991 – 2003. The table shows positive coefficients on \textit{DACC} in the \textit{PERMDIFF} equation for all but two years (2001 and 2003) of our sample period, consistent with firms with aggressive financial reporting also engaging in aggressive tax reporting until the economic downturn in 2001.\textsuperscript{24}

However, the coefficients on \textit{PERMDIFF} in the \textit{DACC} equation are either insignificant or significantly negative from 1991 – 1998. Then, we find significantly positive coefficients on \textit{PERMDIFF} for 1999, 2000, and 2001. Fiscal years 1999 and 2000 are generally viewed as the height of the bull market and aggressive tax shelter activity in the United States, prior to the economic downturn in 2001 and passage of the Sarbanes-Oxley Act in 2002. Thus, we interpret the annual regression results in Table 5 in the following manner: first, it appears firms with aggressive financial reporting also engaged in aggressive tax reporting throughout our sample period. In addition, during fiscal years 1999 - 2001, it appears firms with aggressive tax reporting also engaged in aggressive financial reporting. We conclude that while aggressive financial and tax reporting do not always go hand-in-hand, during the height of the bull market and aggressive tax shelter activity in the United States, some firms did exhibit a tendency for overall reporting aggressiveness that culminated in simultaneously aggressive financial and tax reporting behaviors.

\textsuperscript{24} The economic downturn in 2001 generated net operating loss carryforwards for many corporations, reducing their need to engage in aggressive tax reporting behaviors.
V. CONCLUDING REMARKS

Prior research has documented a growing gap between financial and taxable incomes since 1990. Over the same period, financial and tax regulators have documented an increase in tax shelter activity (aggressive tax reporting), and a concurrent increase in corporate accounting scandals (aggressive financial reporting). Consequently, this paper investigates whether the companies that engage in aggressive financial reporting are also the firms that engage in aggressive tax reporting. Prior accounting research examines the tradeoffs between financial and tax reporting, such that firms choose to manage income on one set of books, while forgoing management of the other. Our paper is the first to predict and find that some firms tend to report aggressively for both book and tax purposes, while other firms tend to report more conservatively for both book and tax purposes. These results should be important to regulators such as the SEC and IRS, and other stakeholders who have a vested interest in understanding the interaction of financial and tax reporting decisions.

We intend to expand our empirical analysis in future versions of the paper. In particular, we intend to perform our multivariate analysis by 2-digit SIC code, to determine whether our results are common across all industries, or whether they are clustered in certain industries. In addition, we intend to investigate the impact that corporate governance mechanisms have on aggressive financial and tax reporting. In particular, we intend to add corporate governance variables to our system of equations to determine if stronger corporate governance mitigates aggressive financial and/or tax reporting behaviors.
REFERENCES


Hanlon, M., 2003, What can we infer about a firm’s taxable income from its financial statements?, *National Tax Journal* 56(4), pp.831-863.


Joos, P., J. Pratt, and S. Young, 2003, Using deferred taxes to infer the quality of accruals, working paper, Massachusetts Institute of Technology, Boston, MA.


### FIGURE 1

<table>
<thead>
<tr>
<th>GAAP &amp; tax rules characterized by:</th>
<th>Focus efforts on managing:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Book income</strong></td>
</tr>
<tr>
<td><strong>Conformity</strong></td>
<td>Erickson et al. (2004)</td>
</tr>
<tr>
<td></td>
<td>Matsunaga et al. 1992</td>
</tr>
<tr>
<td></td>
<td>Guenther 1994</td>
</tr>
<tr>
<td></td>
<td>Maydew 1997</td>
</tr>
<tr>
<td></td>
<td>Engel et al. 1999</td>
</tr>
<tr>
<td></td>
<td>See Shackelford &amp; Shevlin</td>
</tr>
<tr>
<td></td>
<td>(2001) for others</td>
</tr>
<tr>
<td><strong>Nonconformity</strong></td>
<td>Mills and Newberry (2001)</td>
</tr>
<tr>
<td></td>
<td>Joos et al. (2002)</td>
</tr>
<tr>
<td></td>
<td>Phillips et al. (2003)</td>
</tr>
<tr>
<td></td>
<td>Phillips et al. (2004)</td>
</tr>
<tr>
<td></td>
<td>Plesko (2003)</td>
</tr>
<tr>
<td></td>
<td>Frank et al. (2004)</td>
</tr>
<tr>
<td></td>
<td>Mills (1998)</td>
</tr>
<tr>
<td></td>
<td>Desai (2002)</td>
</tr>
<tr>
<td></td>
<td>Manzon &amp; Plesko (2002)</td>
</tr>
<tr>
<td></td>
<td>Desai &amp; Dharmapala (2004)</td>
</tr>
</tbody>
</table>

### FIGURE 2

- **Overall Reporting Aggressiveness**
  - Correlation between FRA and TRA likely depends on a firm’s opportunity set
- **Financial Reporting Aggressiveness**
- **Earnings management incentives; extent of prior years’ aggressiveness**
- **Tax Reporting Aggressiveness**
- **Tax planning incentives; extent of prior years’ aggressiveness**
### TABLE 1
Sample Selection

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Number of firm-years</th>
<th>Number of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compustat firms from calendar year 1991-2003</td>
<td>180,906</td>
<td>19,899</td>
</tr>
<tr>
<td>Less:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations associated with subsidiary or foreign incorporated units</td>
<td>(20,255)</td>
<td>(2,278)</td>
</tr>
<tr>
<td>Observations with book value less than or equal to zero</td>
<td>(58,943)</td>
<td>(3,096)</td>
</tr>
<tr>
<td>Observations in regulated industries (SIC codes 49, 60-69)</td>
<td>(24,066)</td>
<td>(3,415)</td>
</tr>
<tr>
<td>Observations with insufficient data to estimate discretionary accrual measure</td>
<td>(17,330)</td>
<td>(1,525)</td>
</tr>
<tr>
<td>Observations with insufficient data to estimate measure of book-tax difference</td>
<td>(2,808)</td>
<td>(153)</td>
</tr>
<tr>
<td>Observations lacking analyst forecast data</td>
<td>(2,844)</td>
<td>(438)</td>
</tr>
<tr>
<td>Observations with all independent variables</td>
<td>28,083</td>
<td>5,644</td>
</tr>
</tbody>
</table>
TABLE 2
Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Firm-years</th>
<th>Mean</th>
<th>Std Dev</th>
<th>25th Percentile</th>
<th>Median</th>
<th>75th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERMDIFF</td>
<td>28,083</td>
<td>-0.05</td>
<td>0.42</td>
<td>-0.02</td>
<td>0.00</td>
<td>0.02</td>
</tr>
<tr>
<td>DACC</td>
<td>28,083</td>
<td>-0.01</td>
<td>0.79</td>
<td>-0.07</td>
<td>-0.00</td>
<td>0.06</td>
</tr>
<tr>
<td>MTB</td>
<td>28,083</td>
<td>3.71</td>
<td>45.34</td>
<td>1.38</td>
<td>2.25</td>
<td>3.84</td>
</tr>
<tr>
<td>INCR_EPS</td>
<td>28,083</td>
<td>0.99</td>
<td>1.21</td>
<td>0.00</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td>POS_AFE</td>
<td>28,083</td>
<td>1.25</td>
<td>1.50</td>
<td>0.00</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td>NUM_ANS</td>
<td>28,083</td>
<td>6.39</td>
<td>6.68</td>
<td>2.00</td>
<td>4.00</td>
<td>8.00</td>
</tr>
<tr>
<td>DEBT</td>
<td>28,083</td>
<td>0.20</td>
<td>0.29</td>
<td>0.00</td>
<td>0.12</td>
<td>0.30</td>
</tr>
<tr>
<td>INTANG</td>
<td>28,083</td>
<td>0.14</td>
<td>1.12</td>
<td>0.00</td>
<td>0.03</td>
<td>0.16</td>
</tr>
<tr>
<td>UNCON</td>
<td>28,083</td>
<td>0.00</td>
<td>0.09</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>MI</td>
<td>28,083</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CSTE</td>
<td>28,083</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>LAGBTDIFF</td>
<td>28,083</td>
<td>-0.02</td>
<td>0.34</td>
<td>-0.03</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>∆SALES</td>
<td>28,083</td>
<td>0.19</td>
<td>0.52</td>
<td>-0.00</td>
<td>0.10</td>
<td>0.28</td>
</tr>
<tr>
<td>POS_PTI</td>
<td>28,083</td>
<td>0.71</td>
<td>0.45</td>
<td>0.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>NOL_DUMM</td>
<td>28,083</td>
<td>0.28</td>
<td>0.45</td>
<td>0.00</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>FOR_OPER</td>
<td>28,083</td>
<td>0.28</td>
<td>0.45</td>
<td>0.00</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>NOA_{t-1}</td>
<td>28,083</td>
<td>0.16</td>
<td>0.18</td>
<td>0.02</td>
<td>0.14</td>
<td>0.28</td>
</tr>
<tr>
<td>NEG NI</td>
<td>28,083</td>
<td>0.17</td>
<td>0.38</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Variable definitions:

- \( PERMDIFF_{jt} = (\text{BTDIFF}_{jt} - \text{TEMPDIFF}_{jt}) / \text{beginning of year assets (Compustat #6)} \) for firm \( j \) in year \( t \)
- \( BTDIFF_{jt} = \frac{\text{\{pretax book income (Compustat #170) - minority interest (Compustat #49)\} - \{[(\text{current federal tax expense (Compustat #63)} + \text{current foreign tax expense (Compustat #64))} / STR\} - \text{change in net operating loss carryforwards (Compustat #52)}\}}{\text{for firm } j \text{ in year } t} \)
- \( STR = \text{Statutory tax rate: 34% in 1991 and 1992; 35% in 1993 – 2003} \)
- \( TEMPDIFF_{jt} = \frac{\text{\{deferred tax expense / 35\}}}{\text{beginning of year assets (Compustat #6)}} \) for firm \( j \) in year \( t \)
- \( DACC_{jt} = \text{performance-adjusted modified Jones model discretionary accruals firm } j \text{ in year } t \)
- \( MTB_{jt} = \frac{\text{\{stock price (Compustat #199) * common shares outstanding (Compustat #25)}\}}{\text{book value of equity (Compustat #60)}} \) for firm \( j \) in year \( t-1 \)
- \( INCR\_EPS_{jt} = \text{number of consecutive years that firm } j \text{ experienced a positive change in net income (Compustat #172) over the five years preceding year } t \)
- \( POS\_AFE_{jt} = \text{number of consecutive years that firm } j \text{ met or beat the mean analyst forecast over the five years preceding year } t \)
- \( NUM\_ANS_{jt} = \text{number of analysts following firm } j \text{ in year } t \)
- \( DEBT_{jt} = \frac{\text{\{long-term debt (Compustat #9)\}}}{\text{beginning of year assets (Compustat #6)}} \) for firm \( j \) in year \( t \)
- \( INTANG_{jt} = \text{goodwill and other intangibles (Compustat #33) / beginning of year assets (Compustat #6)} \) for firm \( j \) in year \( t \)
- \( UNCON_{jt} = \text{income (loss) reported under the equity method (Compustat #49) / beginning of year assets (Compustat #6)} \) for firm \( j \) in year \( t \)
- \( MI_{jt} = \text{current state income tax expense (Compustat #173) / beginning of year assets (Compustat #6)} \) for firm \( j \) in year \( t \)
- \( LAGBTDIFF_{jt} = \frac{\text{\{BTDIFF\}}}{\text{beginning of year assets (Compustat #6)}} \) for firm \( j \) in year \( t-1 \)
- \( ∆SALES_{jt} = \frac{\text{\{the change in net sales (Compustat #12) from year } t-1 \text{ to year } t\}}{\text{beginning of year assets (Compustat #6)}} \) for firm \( j \) in year \( t \)
- \( POS\_PTI_{jt} = \text{1 if pretax income (Compustat #170) is greater than 0 for firm } j \text{ in year } t; 0 \text{ otherwise} \)
- \( NOL\_DUMM_{jt} = \text{1 if NOL carryforwards (Compustat #52) are greater than 0 for firm } j \text{ in year } t, 0 \text{ otherwise} \)
- \( FOR\_OPER_{jt} = \text{1 if pre-tax income from foreign operations (Compustat #273) is not equal to 0 for firm } j \text{ in year } t \)
- \( NOA_{jt} = \text{net operating assets (total shareholders' equity (Compustat #216), less cash and marketable securities (Compustat #1), plus total debt (Compustat #181)) for firm } j \text{ in year } t-1, \text{ scaled by net sales (Compustat #12) in year } t-1, \text{ and year } t-2, \text{ and year } t-2; \text{ zero otherwise} \)
- \( NEG\_NI_{jt} = \text{1 if firm } j \text{ had net income (Compustat #172) less than zero in years } t-1 \text{ and } t-2; \text{ zero otherwise} \)
### TABLE 3
Pearson (upper right) and Spearman (lower left) correlation coefficients

**Panel A: Correlations between dependent variable measuring tax reporting aggressiveness and independent variables capturing earnings management incentives**

<table>
<thead>
<tr>
<th></th>
<th>PERMDIFF</th>
<th>DACC</th>
<th>MTB</th>
<th>INCR_EPS</th>
<th>POS_AFE</th>
<th>NUM_ANS</th>
<th>DEBT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERMDIFF</td>
<td>0.13***</td>
<td>-0.22***</td>
<td></td>
<td>0.09***</td>
<td>0.09***</td>
<td>0.10***</td>
<td>0.04***</td>
</tr>
<tr>
<td>DACC</td>
<td>0.14***</td>
<td></td>
<td>-0.02***</td>
<td>0.01*</td>
<td>-0.01*</td>
<td>-0.01***</td>
<td>0.01**</td>
</tr>
<tr>
<td>MTB</td>
<td>0.08***</td>
<td>0.02***</td>
<td></td>
<td>0.04***</td>
<td>0.06***</td>
<td>0.18***</td>
<td>-0.02***</td>
</tr>
<tr>
<td>INCR_EPS</td>
<td>0.13***</td>
<td>0.03***</td>
<td>0.13***</td>
<td></td>
<td>0.13***</td>
<td>0.02***</td>
<td>0.01</td>
</tr>
<tr>
<td>POS_AFE</td>
<td>0.13***</td>
<td>-0.01</td>
<td>0.13***</td>
<td>0.14***</td>
<td></td>
<td>0.21***</td>
<td>-0.03***</td>
</tr>
<tr>
<td>NUM_ANS</td>
<td>0.15***</td>
<td>-0.03***</td>
<td>0.31***</td>
<td>0.05***</td>
<td>0.25***</td>
<td></td>
<td>0.06***</td>
</tr>
<tr>
<td>DEBT</td>
<td>-0.06***</td>
<td>0.04***</td>
<td>-0.14***</td>
<td>0.00</td>
<td>-0.03***</td>
<td>0.14***</td>
<td></td>
</tr>
</tbody>
</table>

***, **, * Significant at p-value < 0.01, p < 0.05, and p < 0.10, respectively, using a two-tailed test.

**Variable definitions:**

- **PERMDIFF**<sub>j</sub> = \( \frac{(BTDIFF_{jt} - TEMPDIFF_{jt})}{\text{beginning of year assets (Compustat \#6)}} \) for firm \( j \) in year \( t \)
- **BTDIFF**<sub>j</sub> = \([\text{pretax book income (Compustat \#170)} - \text{minority interest (Compustat \#49)}] - \left(\frac{[(\text{current federal tax expense (Compustat \#63)} + \text{current foreign tax expense (Compustat \#64)})}{\text{STR}}\right) - \text{change in net operating loss carryforwards (Compustat \#52)}\) for firm \( j \) in year \( t \)
- **STR** = Statutory tax rate: 34% in 1991 and 1992; 35% in 1993 – 2003
- **TEMPDIFF**<sub>j</sub> = \([\text{Deferred tax expense / 35%}] / \text{beginning of year assets (Compustat \#6)}\) for firm \( j \) in year \( t \)
- **DACC**<sub>j</sub> = Performance-adjusted modified Jones model discretionary accruals for firm \( j \) in year \( t \)
- **MTB<sub>j</sub>** = \( \left(\frac{\text{stock price (Compustat \#199)} * \text{common shares outstanding (Compustat \#25)}}{\text{book value of equity (Compustat \#60)}}\right) \) for firm \( j \) in year \( t \)
- **INCR_EPS**<sub>j</sub> = \( \text{Number of consecutive years that firm \( j \) experienced a positive change in net income (Compustat \#172)} \) over the five years preceding year \( t \)
- **POS_AFE**<sub>j</sub> = \( \text{Number of consecutive years that firm \( j \) met or beat the mean analyst forecast over the five years preceding year \( t \)}\)
- **NUM_ANS**<sub>j</sub> = \( \text{Number of analysts following firm \( j \)}\)
- **DEBT**<sub>j</sub> = \( \left(\frac{\text{long-term debt (Compustat \#9)}}{\text{beginning of year assets (Compustat \#6)}}\right) \) for firm \( j \) in year \( t \)

**Panel B: Correlations between dependent variable measuring financial reporting aggressiveness and independent variables capturing tax planning incentives**

<table>
<thead>
<tr>
<th></th>
<th>DACC</th>
<th>PERMDIFF</th>
<th>ΔSALES</th>
<th>POS_PTI</th>
<th>NOL_DUMM</th>
<th>FOR_OPER</th>
</tr>
</thead>
<tbody>
<tr>
<td>DACC</td>
<td>0.13***</td>
<td>0.07***</td>
<td>0.06***</td>
<td>-0.01*</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>PERMDIFF</td>
<td>0.14***</td>
<td></td>
<td>0.48***</td>
<td>-0.15***</td>
<td>0.15***</td>
<td></td>
</tr>
<tr>
<td>ΔSALES</td>
<td>0.07***</td>
<td>0.23***</td>
<td></td>
<td>0.21***</td>
<td>-0.06***</td>
<td>-0.05***</td>
</tr>
<tr>
<td>POS_PTI</td>
<td>0.13***</td>
<td>0.60***</td>
<td>0.31***</td>
<td></td>
<td>-0.24***</td>
<td>0.22***</td>
</tr>
<tr>
<td>NOL_DUMM</td>
<td>-0.02***</td>
<td>-0.18***</td>
<td>-0.09***</td>
<td>-0.24***</td>
<td>0.03***</td>
<td></td>
</tr>
<tr>
<td>FOR_OPER</td>
<td>0.00</td>
<td>0.17***</td>
<td>-0.04***</td>
<td>0.22***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***, **, * Significant at p-value < 0.01, p < 0.05, and p < 0.10, respectively, using a two-tailed test.

**Variable definitions:**

- **DACC**<sub>j</sub> = Performance-adjusted modified Jones model discretionary accruals for firm \( j \) in year \( t \)
- **PERMDIFF**<sub>j</sub> = \( \frac{(BTDIFF_{jt} - TEMPDIFF_{jt})}{\text{beginning of year assets (Compustat \#6)}} \) for firm \( j \) in year \( t \)
- **BTDIFF**<sub>j</sub> = \([\text{pretax book income (Compustat \#170)} - \text{minority interest (Compustat \#49)}] - \left(\frac{[(\text{current federal tax expense (Compustat \#63)} + \text{current foreign tax expense (Compustat \#64)})}{\text{STR}}\right) - \text{change in net operating loss carryforwards (Compustat \#52)}\) for firm \( j \) in year \( t \)
- **STR** = Statutory tax rate: 34% in 1991 and 1992; 35% in 1993 – 2003
- **TEMPDIFF**<sub>j</sub> = \([\text{Deferred tax expense / 35%}] / \text{beginning of year assets (Compustat \#6)}\) for firm \( j \) in year \( t \)
- **ΔSALES**<sub>j</sub> = \( \text{Change in net sales (Compustat \#12)} \) from year \( t-1 \) to year \( t \) / \( \text{beginning of year assets (Compustat \#6)} \) for firm \( j \) in year \( t \)
- **POS_PTI** = \( 1 \text{ if pretax income (Compustat \#170)} \) is greater than 0 for firm \( j \) in year \( t \); 0 otherwise
- **NOL_DUMM**<sub>j</sub> = \( 1 \text{ if NOL carryforwards (Compustat \#52)} \) are greater than 0 for firm \( j \) in year \( t \); 0 otherwise
- **FOR_OPER**<sub>j</sub> = \( 1 \text{ if pre-tax income from foreign operations (Compustat \#273)} \) is not equal to 0 for firm \( j \) in year \( t \)
TABLE 4  
Pooled, Cross-Sectional Two-Stage Least Squares Regressions

Panel A: Dependent variable PERMDIFF(a)

\[
\text{PERMDIFF}_{jt} = \alpha_0 + \alpha_1 \text{DACC}_{jt} + \alpha_2 \text{MTB}_{jt-1} + \alpha_3 \text{INCR_EPS}_{jt} + \alpha_4 \text{POS_AFE}_{jt} + \alpha_5 \text{NUM_ANS}_{jt} + \alpha_6 \text{DEBT}_{jt} + \alpha_7 \text{INTANG}_{jt} + \alpha_8 \text{UNCON}_{jt} + \alpha_9 \text{MI}_{jt} + \alpha_{10} \text{CSTE}_{jt} + \alpha_{11} \text{LAGBTDIFF}_{jt} + \alpha \text{INDUS}_{jt} + \alpha \text{YEAR}_{jt} + \epsilon_{jt}
\]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td>-0.062</td>
<td>-3.83</td>
</tr>
<tr>
<td>DACC</td>
<td>?</td>
<td>0.710</td>
<td>13.86</td>
</tr>
<tr>
<td>MTB</td>
<td></td>
<td>-0.008</td>
<td>-10.95</td>
</tr>
<tr>
<td>INCR_EPS</td>
<td></td>
<td>0.004</td>
<td>1.86</td>
</tr>
<tr>
<td>POS_AFE</td>
<td></td>
<td>0.011</td>
<td>5.59</td>
</tr>
<tr>
<td>NUM_ANS</td>
<td></td>
<td>0.004</td>
<td>8.40</td>
</tr>
<tr>
<td>DEBT</td>
<td></td>
<td>0.006</td>
<td>0.39</td>
</tr>
<tr>
<td>INTANG</td>
<td>-</td>
<td>-0.043</td>
<td>-2.90</td>
</tr>
<tr>
<td>UNCON</td>
<td>+</td>
<td>1.130</td>
<td>1.67</td>
</tr>
<tr>
<td>MI</td>
<td>-</td>
<td>0.588</td>
<td>0.47</td>
</tr>
<tr>
<td>CSTE</td>
<td>+</td>
<td>3.705</td>
<td>7.02</td>
</tr>
<tr>
<td>LAGBTDIFF</td>
<td>+</td>
<td>0.240</td>
<td>17.78</td>
</tr>
<tr>
<td>Adj R²</td>
<td></td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>28,083</td>
<td></td>
</tr>
</tbody>
</table>

*** Significant at p-value < 0.01 using a 2-tailed test  
**  Significant at p-value < 0.05 using a 2-tailed test  
*    Significant at p-value < 0.10 using a 2-tailed test

(a) Coefficients on yearly and industry dummies not reported

Variable definitions:

\[\text{PERMDIFF}_{jt} = \frac{(\text{BTDIFF}_{jt} - \text{TEMPDIFF}_{jt})}{\text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t}\]

\[\text{BTDIFF}_{jt} = \frac{[\text{Pretax book income (Compustat #170) – minority interest (Compustat #49)}] - \{[\text{current federal tax expense (Compustat #63) + current foreign tax expense (Compustat #64)}] / \text{STR}\} - \text{change in net operating loss carryforward (Compustat #52)} \text{ for firm } j \text{ in year } t}{\text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t}\]

\[\text{STR} = \text{Statutory tax rate: 34% in 1991 and 1992; 35% in 1993 – 2003}\]

\[\text{TEMPDIFF}_{jt} = \frac{[\text{Deferred tax expense / 35%}] / \text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t}{\text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t}\]

\[\text{DACC}_{jt} = \text{Performance-adjusted modified Jones model discretionary accruals firm } j \text{ in year } t\]

\[\text{MTB}_{jt} = \frac{[\text{Stock price (Compustat #199) * common shares outstanding (Compustat #251)] / \text{book value of equity (Compustat #60)} \text{ for firm } j \text{ in year } t}{\text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t-1}\]

\[\text{INCR_EPS}_{jt} = \text{Number of consecutive years that firm } j \text{ experienced a positive change in net income (Compustat #172) over the five years preceding year } t\]

\[\text{POS_AFE}_{jt} = \text{Number of consecutive years that firm } j \text{ met or beat the mean analyst forecast over the five years preceding year } t\]

\[\text{NUM_ANS}_{jt} = \text{Number of analysts following firm } j\]

\[\text{DEBT}_{jt} = \frac{\text{Long-term debt (Compustat #9)} / \text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t}{\text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t}\]

\[\text{INTANG}_{jt} = \text{Goodwill and other intangibles (Compustat #33) / beginning of year assets (Compustat #6) for firm } j \text{ in year } t\]

\[\text{UNCON}_{jt} = \text{Income (loss) reported under the equity method (Compustat #55) / beginning of year assets (Compustat #6) for firm } j \text{ in year } t\]

\[\text{MI}_{jt} = \text{Income (loss) attributable to minority interest (Compustat #49) / beginning of year assets (Compustat #6) for firm } j \text{ in year } t\]

\[\text{CSTE}_{jt} = \frac{\text{Current state income tax expense (Compustat #173) / beginning of year assets (Compustat #6) for firm } j \text{ in year } t}{\text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t-1}\]

\[\text{LAGBTDIFF}_{jt} = \frac{\text{BTDIFF}}{\text{beginning of year assets (Compustat #6) for firm } j \text{ in year } t-1}\]
TABLE 4 (continued)
Pooled, Cross-Sectional Two-Stage Least Squares Regressions

Panel B: Dependent variable $DACC^{(a)}$

$$DACC_{jt} = \gamma_0 + \gamma_1 \text{PERMDIFF}_{jt} + \gamma_2 \Delta \text{SALES}_{jt} + \gamma_3 \text{POS}_\text{PTI}_{jt} + \gamma_4 \text{NOL}_\text{DUMM}_{jt}$$
$$+ \gamma_5 \text{FOR}_\text{OPER}_{jt} + \gamma_6 \text{NOA}_{jt-1} + \gamma_7 \text{NEG}_\text{NI}_{jt} + \gamma_8 \text{INDUS}_{jt} + \gamma_9 \text{YEAR}_{jt} + \nu_{jt}$$

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td>-0.029</td>
<td>-1.04</td>
</tr>
<tr>
<td>PERMDIFF</td>
<td></td>
<td>0.462</td>
<td>5.98 ***</td>
</tr>
<tr>
<td>$\Delta \text{SALES}$</td>
<td></td>
<td>0.107</td>
<td>10.57 ***</td>
</tr>
<tr>
<td>POS_\text{PTI}</td>
<td></td>
<td>0.004</td>
<td>0.24</td>
</tr>
<tr>
<td>NOL_DUMM</td>
<td></td>
<td>0.005</td>
<td>0.26</td>
</tr>
<tr>
<td>$\text{FOR}_\text{OPER}$</td>
<td></td>
<td>-0.006</td>
<td>-0.66</td>
</tr>
<tr>
<td>NOA</td>
<td></td>
<td>0.043</td>
<td>1.46</td>
</tr>
<tr>
<td>NEG_\text{NI}</td>
<td></td>
<td>0.105</td>
<td>6.49 ***</td>
</tr>
<tr>
<td>Adj R$^2$</td>
<td></td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>28,083</td>
<td></td>
</tr>
</tbody>
</table>

*** Significant at p-value < 0.01 using a 2-tailed test
** Significant at p-value < 0.05 using a 2-tailed test
* Significant at p-value < 0.10 using a 2-tailed test

$^{(a)}$ Coefficients on yearly and industry dummies not reported

Variable definitions:

$DACC_{jt}$ = Performance-adjusted modified Jones model discretionary accruals firm $j$ in year $t$

$\text{PERMDIFF}_{jt}$ = $(\text{BTDIFF}_{jt} \times \text{TEMPDIFF}_{jt}) / \text{beginning of year assets}$ (Compustat #6) for firm $j$ in year $t$

$\text{BTDIFF}_{jt}$ = [Pretax book income (Compustat #170) – minority interest (Compustat #49)] – \[\{(current federal tax expense (Compustat #63) + current foreign tax expense (Compustat #64)) / \text{STR})\} – \text{change in net operating loss carryforward (Compustat #52)} for firm $j$ in year $t$


$\text{TEMPDIFF}_{jt}$ = (Deferred tax expense / 35%) / beginning of year assets (Compustat #6) for firm $j$ in year $t$

$\Delta \text{SALES}_{jt}$ = The change in net sales (Compustat #12) from year $t-1$ to year $t$ / beginning of year assets (Compustat #6) for firm $j$ in year $t$

$\text{POS}_\text{PTI}_{jt}$ = 1 if pretax income (Compustat #170) is greater than 0 for firm $j$ in year $t$; 0 otherwise

$\text{NOL}_\text{DUMM}_{jt}$ = 1 if NOL carryforwards (Compustat #52) are greater than 0 for firm $j$ in year $t$; 0 otherwise

$\text{FOR}_\text{OPER}_{jt}$ = Pre-tax income from foreign operations (Compustat #273) / beginning of year assets (Compustat #6) for firm $j$ in year $t$

$\text{NOA}_{jt-1}$ = Net operating assets (total shareholders’ equity Compustat #216, less cash and marketable securities Compustat #1, plus total debt Compustat #181) for firm $j$ in year $t-1$, scaled by net sales (Compustat #12) in year $t-2$.

$\text{NEG}_\text{NI}_{jt}$ = 1 if firm $j$ had net income (Compustat #172) less than zero in years $t-1$ and $t-2$; zero otherwise.
### TABLE 5
Annual Two-Stage Least Squares Regressions

\[
\text{PERMDIFF}_{jt} = \alpha_0 + \alpha_1 \text{DACC}_{jt} + \alpha_2 \text{MTB}_{jt-1} + \alpha_3 \text{INCR\_EPS}_{jt} + \alpha_4 \text{POS\_AFE}_{jt} \\
+ \alpha_5 \text{NUM\_ANS}_{jt} + \alpha_6 \text{DEBT}_{jt} + \alpha_7 \text{INTANG}_{jt} + \alpha_8 \text{UNCON}_{jt} \\
+ \alpha_9 \text{MI}_{jt} + \alpha_{10} \text{CSTE}_{jt} + \alpha_{11} \text{LAGBTDIFF}_{jt} + \alpha \text{INDUS}_{jt} + \alpha \text{YEAR}_{jt} + \varepsilon_{jt}
\]

\[
\text{DACC}_{jt} = \gamma_0 + \gamma_1 \text{PERMDIFF}_{jt} + \gamma_2 \Delta\text{SALES}_{jt} + \gamma_3 \text{POS\_PTI}_{jt} + \gamma_4 \text{NOL\_DUMM}_{jt} \\
+ \gamma_5 \text{FOR\_OPER}_{jt} + \gamma_6 \text{NOA}_{jt-1} + \gamma_7 \text{NEG\_NI}_{jt} + \gamma \text{INDUS}_{jt} + \gamma \text{YEAR}_{jt} + \nu_{jt}
\]

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>t-Stat</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>t-Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>1,419</td>
<td>+</td>
<td>1.2864</td>
<td>6.13***</td>
<td>+</td>
<td>0.0166</td>
<td>0.12</td>
</tr>
<tr>
<td>1992</td>
<td>1,508</td>
<td>+</td>
<td>1.3908</td>
<td>7.75***</td>
<td>+</td>
<td>-0.1431</td>
<td>-1.29</td>
</tr>
<tr>
<td>1993</td>
<td>1,717</td>
<td>+</td>
<td>1.5407</td>
<td>9.40***</td>
<td>+</td>
<td>0.1526</td>
<td>1.93</td>
</tr>
<tr>
<td>1994</td>
<td>1,929</td>
<td>+</td>
<td>1.8466</td>
<td>9.90***</td>
<td>+</td>
<td>-0.3509</td>
<td>-1.71</td>
</tr>
<tr>
<td>1995</td>
<td>2,136</td>
<td>+</td>
<td>1.1830</td>
<td>9.67***</td>
<td>+</td>
<td>-0.0901</td>
<td>-1.03</td>
</tr>
<tr>
<td>1996</td>
<td>2,410</td>
<td>+</td>
<td>1.4788</td>
<td>11.09***</td>
<td>+</td>
<td>0.0026</td>
<td>0.05</td>
</tr>
<tr>
<td>1997</td>
<td>2,649</td>
<td>+</td>
<td>1.6743</td>
<td>12.66***</td>
<td>+</td>
<td>-0.2295</td>
<td>-2.18</td>
</tr>
<tr>
<td>1998</td>
<td>2,641</td>
<td>+</td>
<td>0.0125</td>
<td>1.04</td>
<td>+</td>
<td>0.0743</td>
<td>0.20</td>
</tr>
<tr>
<td>1999</td>
<td>2,557</td>
<td>+</td>
<td>0.7745</td>
<td>5.40***</td>
<td>+</td>
<td>0.3322</td>
<td>5.98***</td>
</tr>
<tr>
<td>2000</td>
<td>2,507</td>
<td>+</td>
<td>0.1702</td>
<td>2.48**</td>
<td>+</td>
<td>0.8476</td>
<td>8.31***</td>
</tr>
<tr>
<td>2001</td>
<td>2,367</td>
<td>+</td>
<td>-0.0874</td>
<td>-3.04</td>
<td>+</td>
<td>0.8887</td>
<td>2.87**</td>
</tr>
<tr>
<td>2002</td>
<td>2,188</td>
<td>+</td>
<td>0.5019</td>
<td>5.78***</td>
<td>+</td>
<td>0.8325</td>
<td>1.22</td>
</tr>
<tr>
<td>2003</td>
<td>2,055</td>
<td>+</td>
<td>-0.0019</td>
<td>-0.12</td>
<td>+</td>
<td>-1.2929</td>
<td>-0.83</td>
</tr>
</tbody>
</table>

*** Significant at p-value < 0.01 using a 2-tailed test
**  Significant at p-value < 0.05 using a 2-tailed test
*   Significant at p-value < 0.10 using a 2-tailed test