2003

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Recommended Citation

Schrand, C. M., & Wong, M. (2003). Earnings Management Using the Valuation Allowance for Deferred Tax Assets Under SFAS No. 109. *Contemporary Accounting Research, 20* (3), 579-611. http://dx.doi.org/10.1506/480D-098U-607R-5D9W

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Abstract

Statement of Financial Accounting Standards No. 109 (SFAS No. 109) allows firms to use their discretion to set arbitrarily high valuation allowances against deferred tax assets. Firms can then later use these "hidden reserves" to manage earnings. Our evidence indicates that most banks do not record a valuation allowance to manage earnings, but rather to follow the guidelines of SFAS No. 109. However, if the bank is sufficiently well capitalized to absorb the current-period impact on capital, then the amount of the valuation allowance increases with a bank's capital. In later years, bank managers adjust the valuation allowance to smooth earnings. The magnitude of the discretionary adjustment increases with the deviation of unadjusted earnings from the forecast or historical earnings.

Keywords

banks, deferred taxes, discretion, earnings management

Disciplines

Accounting

Earnings Management Using the Valuation Allowance for Deferred Tax Assets under SFAS 109[*]

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January 2003

[*] We thank participants at the UCLA accounting workshop and the 1999 Summer Symposium on Accounting Research at HKUST for their comments and suggestions. We especially thank Gordon Richardson, the editor, and two anonymous referees, David Aboody, Gary Biddle, Kevin Chen, Peter Chen, Carla Hayn, Patricia Hughes, Greg Miller, Chul Park, and T.J. Wong. We also thank Steve Pilloff of the Federal Reserve Board for providing regulatory data and Lukas Nebehay for research assistance. We gratefully acknowledge the contribution of I/B/E/S International Inc. for providing earnings per share forecast data, available through the International Brokers Estimate System.

Earnings Management Using the Valuation Allowance for Deferred Tax Assets under SFAS 109

Abstract

SFAS 109 allows firms to use their discretion to set arbitrarily high valuation allowances against deferred tax assets. Firms can then later use these "hidden reserves" to manage earnings. Our evidence indicates that most banks do not record a valuation allowance to manage earnings, but rather to follow the guidelines of SFAS 109. However, if the bank is sufficiently well capitalized to absorb the current-period impact on capital, the amount of the valuation allowance increases with a bank's capital. In later years, bank managers adjust the valuation allowance to smooth earnings. The magnitude of the discretionary adjustment increases with the deviation of unadjusted earnings from the forecast or historical earnings.

1. Introduction

In this paper, we investigate whether banks manage earnings by setting a high valuation allowance associated with deferred tax assets (DTAs) and adjust the valuation allowance in subsequent periods. The Statement of Financial Accounting Standard No. 109 (SFAS 109) requires firms to create valuation allowances against deferred tax assets. In later years, adjustments to the allowance flow through income as part of the total income tax provision. In the debate over the new standard, analysts conjectured that when firms adopted SFAS 109, they could overestimate the valuation allowance and strategically write off the allowance to increase income in future years.[1]

Firms could "hide" the valuation allowance when they adopted SFAS 109 because the cumulative adjustment before the valuation allowance generally swamped the size of the valuation allowance. However, the valuation allowance was large enough to provide firms with the opportunity for future earnings manipulation. The mean valuation allowance of the sample banks is $0.09 per share ($0.37 for sample banks that reported nonzero valuation allowances) relative to total reported earnings per share of $1.99 on average.

Our analysis focuses on a sample of publicly traded bank holding companies (hereafter, banks). Banks have large deferred tax assets and, consequently, the potential for substantial valuation allowances. Also, banks have relatively homogeneous operating activities and exposure to macroeconomic conditions. These factors strengthen our model of the nondiscretionary adjustments to the valuation allowance.

Our analysis of banks' decisions at the adoption of SFAS 109 indicates that banks do not record a valuation allowance just to manage earnings. Of the 225 banks in our sample, 86 establish a valuation allowance. We find that banks' decisions to establish an allowance are

[1] For example, White et al. (1998) caution: "Given management discretion, the valuation allowance has become another factor used to evaluate the quality of earnings. ... *The important point is that changes in the valuation allowance often affect reported earnings and can be used to manage them.*" (pp. 444-445; emphasis theirs). Khalaf (1993) provides a quote from Robert Willens, a tax and accounting expert at Shearson Lehman Brothers, who states "[w]ith Statement 109, accounting rulemakers have created an incredible earnings management tool. This reserve is a mass with which you can do whatever you want."

related to the sources of DTAs and proxies for positive or negative evidence about the future realizability of the DTAs. This finding suggests that banks followed the guidelines of the accounting standard. However, if a bank sets an allowance and if the bank is sufficiently well capitalized to absorb the current-period earnings impact of a higher valuation allowance, then the amount of the allowance increases with a bank's capital. Thus, if the expected costs of violating regulatory capital requirements are low, banks that establish allowances tend to over-reserve.

After the adoption of SFAS 109, we find that banks reduce their valuation allowances (i.e., increase income) to offset the deviations of the banks' unadjusted earnings from the consensus analyst forecast and average historical earnings per share. When unadjusted earnings are below (above) the target, we observe that banks make income-increasing (decreasing) changes in the valuation allowance. The amount of the change in the valuation allowance is significantly associated with the magnitude of the deviation from the target. Our analysis is robust to controls for nondiscretionary determinants of adjustments to the valuation allowance.

Our results indicate that banks use the valuation allowance to smooth earnings toward the consensus forecast and historical earnings per share. These results are not consistent with those of Miller and Skinner (1998) who examine a sample of firms from multiple industries and find no evidence that firms use the allowance for earnings management. The homogeneity of our sample firms, which strengthens our model of the nondiscretionary adjustments to the valuation allowance, results in more powerful tests and may explain the conflict between our results and those of Miller and Skinner (1998). However, the focus on banks obviously reduces the generalizability of the results.

The paper is organized as follows. Section 2 discusses the sample selection criteria and provides descriptive statistics for the sample bank holding companies. Section 3 describes the tests of earnings management at SFAS 109 adoption and presents the results of these tests. Section 4 describes the tests of earnings management subsequent to adoption and presents the results of these tests. Section 5 concludes.

2. Sample and descriptive statistics

The sample is comprised of the 336 commercial banks in the 1993 Compustat Bank Annual file that have a December fiscal year-end. SFAS 109 was issued in February 1992 and became effective for fiscal years beginning after December 15, 1992. We collect data related to deferred tax assets from income tax footnotes in annual reports or Form 10-K filings. These data are available for 285 of the 336 banks. Financial statement data are from Compustat and the Federal Reserve Board's Y-9 database. Our final sample contains 235 banks with available hand-collected deferred tax data and non-missing Compustat data that adopted SFAS 109 in 1993. Nineteen of the 336 banks are money center banks (MCBs).[2]

Table 1 provides descriptive statistics on deferred taxes for the sample of 235 banks in the year the bank adopted SFAS 109. SFAS 109 proposes a balance sheet approach to the measurement of income taxes that replaces the income statement approach prescribed by APB 11. Under SFAS 109, firms are required to identify temporary differences, and operating loss and credit carryforwards. Firms are also required to measure the total deferred tax liabilities (DTLs) for taxable temporary differences and the total deferred tax assets (DTAs) for deductible temporary differences and carryforwards. Firms must reduce total DTAs by a valuation allowance if it is "more likely than not" that the DTAs will not be realized. Thus, the table presents descriptive statistics for gross DTAs and DTLs, and the valuation allowance. The table also shows the sources of DTAs, including DTAs related to deductible temporary differences, and operating and credit carryforwards.

Total deferred tax assets, excluding the portion attributable to available-for-sale (AFS) securities, range from $100 thousand to $3.8 billion. We exclude deferred tax assets on AFS securities from the definition of DTAs throughout the paper, including instances in which we use DTAs as scalers. Changes in DTAs associated with these securities do not affect reported tax

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[2] We identify money center banks from various sources including http://biz.yahoo.com/p/financ-bankmc.html, http://www.stockselector.com, Slovin, Sushka, and Polonchek (1999), Docking, Hirschey, and Jones (1997), History of the Eighties, Lessons for the Future (1997), and the FDIC Banking Review (1998).

expense or net income. Banks separately report DTAs related to AFS securities in the tax footnote, when material.

The average valuation allowance (VA) for deferred tax assets is $11.1 million, with 39.1% of the 235 adopters reporting a valuation allowance greater than zero. The single largest component of total DTAs is the tax effect of temporary differences between the book and tax bases of loans created by loan loss provisions (LLP). The related DTA is material (i.e., reported separately) for 97.4% of the sample banks and comprises an average of 61.3% of total DTAs. DTAs associated with net operating loss carryforwards (NOL) constitute 5.3% of total DTAs and are material for 23.4% of the sample banks. More than 20% of the sample banks also report material DTAs attributable to temporary differences related to other postretirement benefits (OPEB), deferred compensation (DEFCOMP), real estate assets acquired in foreclosure (REALE), and loan origination fees (LNFEE). However, these items generally represent smaller percentages of the total DTAs.

{INSERT TABLE 1 HERE.}

Results (not reported) show that money center banks (MCBs) are more likely to have valuation allowances than are non-MCBs; 60.0% report valuation allowances compared to 37.8% for non-MCBs. However, if the MCB does have an allowance, as a percent of total DTAs the average allowance is lower than that for retail banks (7.5% compared to 13.5%). Sources of DTAs also differ across MCBs and non-MCBs. MCBs are equally likely to have NOLs as a source of DTAs, but as a percent of DTAs, the average net operating loss carryforward is significantly lower for MCBs (1.4% compared to 5.6%). MCBs, relative to retail banks, also have more DTAs attributable to real estate assets acquired in foreclosure (43.8%) and other carryforwards (18.8%). MCBs are less likely to have DTAs generated by loan fees and, when reported, the amounts are significantly lower. The average ratio of DTLs to DTAs for MCBs is 91.9%, which is significantly higher than the average of 56.5% for non-MCBs. This pattern

suggests that DTLs might serve as a justification for MCBs to record a lower valuation allowance.

The differences between the components of DTAs for money center and retail banks suggest that our control variables for these components may not be adequate across both types of banks. Thus, we conduct separate analyses for retail and money center banks.

3. Tests of earnings management at the adoption date

The valuation allowance as an earnings management tool suggests that we can predict firm behavior both at the time the firm adopts SFAS 109 and after adoption. Firms that intend to use the valuation allowance to smooth or increase earnings in future periods will strategically overestimate the valuation allowance at adoption, subject to the constraints of other earnings management incentives discussed below.

Our analysis of earnings management at SFAS 109 adoption begins with a benchmark model that specifies the nondiscretionary factors we predict are associated with the valuation allowance (VA). In the absence of earnings management, two factors determine the extent to which deferred tax assets require a valuation allowance. These two factors are the sources of the temporary differences that create the deferred tax assets and the probability that the firm can realize the DTAs.

Our benchmark model includes the components of DTAs (referred to collectively as COMPONENTS) and proxies for the manager's assessment that future income will be sufficient to utilize the deferred tax assets (FUT_REAL):

$$VA = \alpha + \sum_j \lambda_j COMPONENTS + \sum_k \phi_k FUT\_REAL + \varepsilon \quad (1)$$

Although the valuation allowance is a contra-asset account, we present the valuation allowance and increases in it as positive amounts.

We extend the benchmark model that controls for the nondiscretionary portion of the valuation allowance to include proxies for earnings management incentives (EARNMGMT):

$$VA = \alpha + \sum_j \lambda_j COMPONENTS + \sum_k \phi_k FUT\_REAL + \sum_i \beta_i EARNMGMT + \varepsilon \quad (2)$$

A. Proxies for incentives to manage earnings

Firms face conflicting incentives to manage the valuation allowance when they adopt SFAS 109. At adoption firms can set high valuation allowances as a "hidden reserve" to use to manage earnings in future periods (Khalaf, 1993; Petree et al., 1995; and White et al., 1998). Later, the firm can write off the reserve, and the write-off will flow through income as a reduction to income tax expense. At adoption overstatement of the reserve is likely to go unnoticed, because the nondiscretionary effect of the change in accounting principles from APB 11 to SFAS 109 generally obscures the total effect of the valuation allowance.

When a firm adopts SFAS 109, its incentive to create hidden reserves for future earnings management is mitigated by the immediate negative effect of the valuation allowance on bank regulatory capital.[3] Low regulatory capital is costly. Banks that violate capital requirements incur both out-of-pocket and opportunity costs (Rose, 1996, and Moyer, 1990). For significantly undercapitalized banks, regulators can require recapitalization or they can force the institutions into conservatorship or receivorship. All banks that fail to meet minimum capital requirements must submit a comprehensive capital restoration plan to regulators, which is costly to prepare and implement. In addition, during the time that a bank is undercapitalized, its regulator can restrict dividends and management fees. The regulator can also exercise control over the bank's operations by placing limits on branching, expansion, and new services. Even for banks with capital above the minimum requirement, higher capital creates a competitive advantage. Well-

[3] In April 1993, bank regulatory agencies proposed a new Regulatory Accounting Principle for income taxes that is similar to SFAS 109. The new rule, approved in 1994, allows banks to include deferred tax assets, net of a valuation allowance, in the computation of regulatory capital, subject to the lesser of 10% of Tier 1 capital or the amount of the tax credit the bank expects to utilize during the coming year (American Banker, 1994).

capitalized institutions face fewer regulatory constraints on operations, enjoy more timely approval for expansion and growth from federal banking agencies, and pay lower FDIC insurance premiums.

Although all banks have incentives to create hidden reserves, the costs of creating the reserve are negatively associated with a bank's capital position. Thus, we predict a positive association between a bank's incentives to manage the valuation allowance and its capital adequacy. The proxy variable for a bank's capital adequacy is its Tier 1 capital ratio (TIER1CAP) (Compustat data item #337). Tier 1 capital is the most conservative amount of capital that regulators can use to determine capital adequacy. As of 1992 year end, the minimum required total capital ratio was 8%, of which at least 4% had to be Tier 1 capital. In addition, banks were required to maintain a Tier 1 leverage ratio of 3% (or higher for low-rated or high-growth banks).

Tier 1 capital comprises common stock, surplus, undivided profits, qualifying preferred stockholders' equity, minority interest in equity accounts of consolidated subsidiaries, and selected identifiable intangible assets, less goodwill, other nonqualifying intangibles, excess deferred tax assets, and 50% of investments in unconsolidated subsidiaries. Banks are allowed to include deferred tax assets in the computation of Tier 1 capital up to their projected annual income or 10% of Tier 1 capital, whichever is less (American Banker, 1993; American Banker, 1994. See Rose, 1996, for a detailed explanation.)

In equation (2), we estimate separately the coefficient on capital adequacy for well- and poorly capitalized banks. CAPABOVE equals the bank's Tier 1 capital ratio less the median size-adjusted industry Tier1 capital ratio if this difference is greater than zero, and zero otherwise. CAPBELOW equals the bank's Tier 1 capital ratio less the median size-adjusted industry Tier 1 capital ratio if this difference is less than zero, and zero otherwise. After partitioning the sample banks into five portfolios based on total book assets, we compute the median size-adjusted capital ratio. The coefficients on CAPABOVE and CAPBELOW measure the association between the valuation allowance and capital for relatively well- and relatively

poorly capitalized banks, respectively.[4] For both variables, our prediction of a positive association between capital and the valuation allowance remains; the two variables allow for a non-linearity in the positive relation.

We do not include proxies for a bank's incentives to manage current-period earnings at the adoption date of SFAS 109. We assume that, except to the extent that earnings influence capital, banks are not concerned about the impact of the accounting change on current-period earnings. The cumulative effect of accounting changes on earnings is a below-the-line item that is specifically excluded from some analyst forecasts (Abarbanell and Lehavy, 2000).

B. Components of the valuation allowance

Cross-sectional variation in the nondiscretionary portion of the valuation allowance can occur because of differences in the sources of total DTAs. For example, banks that establish a valuation allowance frequently report that an allowance is necessary because otherwise, net operating loss carryforwards, which are a source of DTAs, will expire unused. Thus, if there is a valuation allowance, its magnitude is related to the extent to which NOLs are a source of DTAs. More generally, the SFAS 109 criteria for recognizing a valuation allowance require that firms estimate the realizability of a DTA based on the timing of its reversal. *Ex ante*, we expect that differences in the reversal periods of the sources of DTAs will lead to variation in the valuation allowance.

Because of the potential differences in the relations between the specific components of DTAs and the valuation allowance, we include in the analysis separate variables for the sources of DTAs (COMPONENTS). We disaggregate the sources of DTAs into eight categories: net operating loss carryforwards (NOLs), other carryforwards such as alternative minimum tax credit

[4] An alternative specification is to partition the banks into the five capital adequacy categories that the FDIC created to implement the FDIC Improvement Act of 1991. However, the majority of our banks are considered "well capitalized" under their definitions and the remaining banks are considered "adequately" capitalized. Hence, partitioning the sample based on the FDIC definitions does not provide sufficient cross-sectional dispersion and reduces the power of the tests.

carryforwards (OTHERCF), book loan loss provisions (LLP), other postretirement benefits (OPEB), deferred compensation (DEFCOMP), nonaccrual interest (NACCINT), real estate assets acquired in foreclosure (REALE), and loan origination fees (LNFEE). We identify the eight components based on empirical evidence in Miller and Skinner (1998), discussions of significant sources of bank DTAs in Brezovec and Snow (1992) and Cocco et al. (1994), and our own analysis of frequently cited components, which we summarize in Table 1.[5]

We expect a positive relation between the valuation allowance and the proportion of DTAs that result from NOLs and other carryforwards. Net operating loss and tax credits carryforwards (NOLs) are a source of DTAs because a firm can offset current NOLs against future taxable income. Miller and Skinner (1998) confirm that a firm's NOLs are a major determinant of the valuation allowance (in both level and change regressions). Our review of the sample banks' financial statement footnotes also identifies carryforwards other than NOLs (OTHERCF). These carryforwards include items such as alternative minimum tax credit carryforwards as a significant source of DTAs for banks. As with NOLs, we predict a positive association between OTHERCF and the valuation allowance. For the other components of DTAs, we do not make sign predictions about the relation with DTAs; we include the variables only as controls. A positive coefficient on a component would indicate that it is difficult to justify realizability of the DTA, probably because the realization period is long. A negative coefficient would indicate that banks could more easily justify realizability.

C. Proxies for expectations about future income realizations

Because SFAS 109 requires firms to consider all positive and negative evidence about the realizability of DTAs when determining the valuation allowance, a small or no valuation allowance is justified only if positive evidence of strong core business profitability levels and

[5] Our sample banks also report other sources of DTAs including unrealized holding losses on investment securities available for sale, securities marked to market for tax purposes (IRC Section 475), asset valuation reserves, restructuring reserves, lease accounting differences, and others. However, reports of these sources are idiosyncratic.

trends outweighs the negative evidence. Firms can use historical earnings realizations as "positive" evidence that future earnings are (or are not) likely to be sufficient to realize the benefits of existing DTAs. Under SFAS 109, a manager should reduce (increase) the valuation allowance when the manager increases (decreases) his assessment of anticipated future earnings. Negative evidence that would suggest a large valuation allowance includes a history of losses, an expectation of reporting losses in the near future, or the existence of unsettled events that could adversely affect the profitability of the firm on a continuing basis.

We use two proxies to measure a firm's assessment of its future profitability. Our first proxy is its historical return on average assets (HROA), which we calculate as the mean ROA for year's t-2, t-1, and t. Our specification of this variable assumes that managers know, when they set the valuation allowance, what the ROA will be in period t. (Although this is a reasonable assumption, we also calculate this variable over t-3, t-2, and t-1. The results are robust to this specification.) Because higher historical income can justify a lower valuation allowance, we predict a negative association between HROA and VA.

Our second proxy for a firm's assessment of its future profitability is the bank's realized return on average assets in year t+1 (ROA_{t+1}). Similar to the prediction for HROA, we predict a negative association between ROA_{t+1} and VA. However, we are careful in interpreting the results related to this proxy. ROA_{t+1} represents the *ex post* realization of earnings as a proxy for the manager's assessment of future profitability. Thus, the prediction assumes perfect foresight. The prediction also assumes that the manager does not manipulate the valuation allowance during year t+1.

Two additional factors that can provide positive evidence on the likelihood of DTA realization are the availability of DTLs to offset reversals of DTAs in future periods, and the availability of taxable income in carryback years (Brezovec and Snow, 1992). Future reversals of temporary differences that created DTLs can offset future reversals of temporary differences that created DTAs. *Ceteris paribus*, banks with larger amounts of deferred tax liabilities might more easily be able to justify a lower valuation allowance by showing that they can realize the

benefits of DTAs when the DTLs reverse. Thus, we predict a negative relation between DTLs and the valuation allowance in equation (2).

We do not include a proxy for the availability of taxable income in carryback years in equation (2) because of data availability. Within the banking industry, the availability of DTLs and the availability of taxable income in carryback years are usually not as important as other evidence of future realizability, because the effects are too short-lived to justify the probable ("more likely than not") realization of DTAs related to loan loss provisions and postretirement benefit costs (Brezovec and Snow, 1992).

D. Results of adoption-date tests

Because the data are truncated, an ordinary least squares estimation of equation (2) will provide inconsistent estimates of the relation between the valuation allowance and the explanatory variables. In the full sample, 92 of the 235 sample-bank observations adopt a valuation allowance but 143 do not. For the non-adopters, we observe only that the valuation allowance is zero. We do not observe the disutility that the bank has for recording a valuation allowance. To correct for this data truncation, we estimate a system of two equations by using two-stage least squares. The model provides consistent estimates of the relations between the explanatory variables and the valuation allowance.

The first equation is a probit model of the binary choice to report a valuation allowance. The dependent variable equals one if the valuation allowance is greater than zero, and zero otherwise. We estimate this equation with 225 observations (of the 235 described in Table 1) that have available data to compute the historical return on assets (HROA). The second equation is a linear model in which the dependent variable equals the amount of the valuation allowance at the date of adoption of SFAS 109, scaled by DTAs. We estimate the linear equation by including only the observations with a nonzero valuation allowance at adoption. Of these 92 banks, 86 have data available to compute HROA. The independent variables in both equations include the components of DTAs, scaled by total DTAs. The variables also include proxies for

the future realizability of DTAs and CAPABOVE and CAPBELOW as proxies for earnings management incentives. Table 2 presents the results. The table shows the marginal effects of the regressors for the probit model and the coefficient estimates for the linear model. The p-values are based on corrected standard errors. We include the inverse mills ratio, derived from the probit model results, in the linear equation as a control for omitted variables related to the decision to establish a valuation allowance. The coefficient estimate on this variable is not significantly different from zero and therefore is not presented.[6]

{INSERT TABLE 2 HERE.}

We look first at the relation between the valuation allowance and the capital variables. The coefficient estimates on the capital variables provide evidence about banks' use of the valuation allowance for earnings management. We predict a positive relation between capital and the valuation allowance if banks use the valuation allowance to create hidden reserves. The costs of creating the "hidden" reserve are lower for banks with greater capital. The marginal effect of CAPBELOW is negative (p-value = 0.105) in the probit equation and the coefficient estimate is negative and significant in the linear equation.

These results do not suggest that the poorly capitalized banks create hidden reserves. One explanation for the negative association is that low capital correlates with the bank's ability to argue (i.e., provide positive evidence according to SFAS 109) that DTAs are likely to be realized in future periods. Hence, the bank is forced to report a valuation allowance.

For well-capitalized banks, however, the coefficient estimate on a bank's Tier 1 capital ratio is positive and significant in the linear equation. The marginal effect of capital on the

[6] See Maddala (1983) for a discussion of the use of two-stage models to address the type of data truncation problem that the valuation allowance creates. Another specification that will address the data truncation is a tobit model. A tobit model is a special case of the selection model that constrains the coefficients on the probit equation and the linear equation in the selection model to be the same.

likelihood that the bank will report a valuation allowance is not significantly different from zero for the relatively well-capitalized banks.[7]

The results for the control variables also suggest that the valuation allowance is not adopted primarily for the purpose of managing current-period earnings, but rather to follow the guidelines of SFAS 109. In the probit model, NOLs have a significant positive impact on the likelihood that a bank reports a valuation allowance. However, conditional on reporting a valuation allowance, as evidenced by the insignificant coefficient estimate of 0.0804, NOLs are not a significant determinant of the amount of the VA. We note that the expiration of NOLs and other carryforwards varies across firms. The variation reduces the power of this model to control for the effect of the components of DTAs on the nondiscretionary portion of the VA. However, we cannot control for this variation because banks do not consistently report the exact expiration dates of NOLs; some banks report only the latest expiration date and others report a range of dates. Other carryforwards (OTHERCF) also significantly increase the likelihood of an allowance (p-value = 0.029). If a bank reports a VA, its magnitude is negatively related to the magnitude of the other carryforwards.

As a percent of DTAs, loan loss provisions are consistently and negatively related to a bank's decision to establish a valuation allowance and to the amount of the allowance. The sign suggests that because the reversal period until a specific loan is written off for tax purposes is likely short, banks can more easily justify the future realizability of DTAs related to LLPs than they can DTAs related to other temporary differences. Thus, the bank can avoid establishing a valuation allowance. As a percent of DTAs, nonaccrual interest is positively, and loan fees are negatively, related to the conditional amount of the valuation allowance. However, neither DTA component is related to the decision to adopt an allowance.

[7] We also estimate the model after excluding money center banks (MCBs), whose operations are different from those of retail banks, from the sample. For the probit equation, the results are the same. For the linear equation, the results are similar except that the significance of the coefficient estimate on CAPABOVE is lower (p-value = 0.12). Thus, the phenomenon of creating hidden reserves appears to be most concentrated and statistically detectible in the large MCBs.

The proxies for the future realizability of deferred tax assets also explain cross-sectional variation in the valuation allowance. The model includes deferred tax liabilities as a percent of DTAs, and we predict that banks with more DTLs will be more able to justify not recording a valuation allowance. Approximately 85% of the sample has a ratio between zero and one. The remaining 15% of the sample observations have ratios that range between 1.02 and 6.61. Because of the skewness of this ratio, we include a second regressor in the model that allows for a nonlinear association between DTLs as a percent of DTAs and the valuation allowance. DTLvDTA is an interaction variable that equals DTLs as a percent of DTAs when deferred tax liabilities are greater than deferred tax assets, and equals zero otherwise. We predict that banks with a ratio greater than one (i.e., deferred tax liabilities are greater than deferred tax assets) will have greater justification for not recording a valuation allowance.

Table 2 reports that neither of the explanatory variables related to a bank's DTL position affects the likelihood that a bank will establish a valuation allowance. However, both affect the magnitude of the allowance in the linear model. The negative association between DTLs and the valuation allowance and the positive association between the interaction variable and the valuation allowance suggest that the ratio justifies a lower valuation allowance. However, the importance of this variable as a justification diminishes as it becomes significantly greater than one.

Like deferred tax liabilities, the variables HROA and ROA_{t+1} are proxies for evidence that banks can use to justify not recording a valuation allowance. Table 2 indicates that banks with greater historical ROA, which is positive evidence of realizability, are less likely to report a valuation allowance, and if they report one, they will report a lower VA.[8]

[8] We also estimate the model with the five-year historical EPS growth rate from the IBES background file (GROWTH) included as an additional explanatory variable. GROWTH represents a summary measure of the various proxies that measure positive and negative evidence of future income from Behn, Eaton, and Williams (1998). The coefficient on GROWTH is not significant. Including the growth rate in the model significantly reduces the number of observations from 225 to 124 in the probit equation, and there are only 40 firms that record valuation allowances greater than zero at the adoption date.

The results for ROA_{t+1} are not consistent with the results for HROA. Instead, they are influenced by a single "outlier" observation which we identify by using an OLS estimation of the linear equation. The median value of ROA_{t+1} is 0.0099 for the 86 observations with nonzero valuation allowances. The ROA_{t+1} for one bank is -0.21 and the second lowest value of ROA_{t+1} is -0.038. When we remove this observation, we see that the marginal effects of the regressors in the probit model are unchanged and the marginal effect of ROA_{t+1} remains insignificant. However, in the linear equation, the coefficient estimate on ROA_{t+1} is negative and significant (p-value = 0.08). Thus, like HROA, future ROA affects the magnitude of the valuation allowance, if the bank reports one.

Taken together, the results suggest that banks do not record a valuation allowance for the sole purpose of managing earnings. Only 86 of the 225 banks establish any valuation allowance. Their decision to establish a VA is related to the sources of DTAs and the proxies for the positive or negative evidence about the future realizability of the DTAs. However, if they do set an allowance and if the bank is sufficiently well capitalized to absorb the current-period earnings impact of a higher VA, then the amount of the allowance increases with the bank's capital.

The probit model correctly classifies 79.6% of the 225 observations (91.4% of the banks without a valuation allowance and 60.5% of the banks with a valuation allowance). A maximum likelihood estimation of the model produces results (not presented here) similar to the consistent (but not efficient) estimates from the two-stage least squares estimation procedure.

The results in Table 2 are robust to excluding from the sample ten banks that adopted SFAS 109 using the retroactive method rather than the cumulative effect method. Banks that chose the retroactive method may have had different earnings management incentives from the incentives of banks that chose the cumulative effect method.[9] The results are also robust to excluding from the sample 25 banks that had previously adopted SFAS 96. For the early

[9] The standard allowed a choice of two transition methods. An entity could restate prior years' results and adjust its retained earnings. Or, it could charge the cumulative effect of the change in the transition year as a change in accounting principles (reported below income from continuing operations). MCBs were more likely to use the retroactive method. Use of the retroactive method empirically is associated with both larger adjustments in absolute terms and as a percent of income before the cumulative effect of the adjustment.

adopters, the transition adjustment to SFAS 109 is likely to be lower than the adjustment that would be required for the banks that switched to SFAS 109 directly from APB 11.[10] The only exception is that the significance level for CAPBELOW falls (p-value = 0.12) in the probit equation. This decrease in significance is consistent with the correlation between the early adopters and MCBs. Results of the linear equation are unchanged.

4. Tests of earnings management after the adoption date

After a bank adopts SFAS 109, increasing (decreasing) the valuation allowance will decrease (increase) earnings through income tax expense. In this section, we analyze the association between changes in the valuation allowance and earnings management incentives. For the period subsequent to SFAS 109 adoption, we predict that banks will use their valuation allowance accounts to manage earnings. We consider two earnings targets, the consensus analyst forecast of earnings and historical earnings.

The importance of meeting or beating analyst expectations is well established in the financial press. Anecdotal discussions suggest that if a firm falls short of expectations, its stock price declines as investors reassess the expected future earnings that are impounded in the price. Recently, researchers have documented systematic evidence on the benefits and related managerial incentives of managing earnings toward analyst forecasts (see, for example, Robb, 1998; Degeorge, Patel, and Zeckhauser, 1999; Burgstahler and Eames, 1999; Bartov, Givoly, and Hayn, 2001; Kasznik and McNichols, 2001; Matsumoto, 2002; and Dhaliwal, Gleason, and Mills, 2002). The evidence suggests that managers attribute value to meeting forecasts, whether it is real or perceived.

{INSERT FIGURE 1 HERE.}

[10] SFAS 96 became effective for fiscal years beginning after December 15, 1988. However, the effective date was delayed, and eventually SFAS 109 superseded SFAS 96. Some firms adopted SFAS 96 early. Characteristics of these early adopters suggest that there was a selection bias in the banks that switched to SFAS 96 before they adopted SFAS 109. See Read and Bartsch (1992) for a detailed comparison of SFAS 109 with APB 11 and SFAS 96.

Figure 1 presents preliminary univariate evidence that changes in the valuation allowance correspond to the degree that the banks' unadjusted earnings deviate from the consensus analyst forecast. The figure shows the change in the valuation allowance on a per-share basis (ΔVA) for 14 partitions of the sample banks. We partition the banks by the deviation of reported earnings per share (EPS) before the change in the valuation allowance ("unadjusted" earnings). We draw our data from the mean consensus analyst forecast of EPS from IBES (DEVIBES). We discard observations for which the forecast is more than three months old. We choose 14 categories so that each category can contain observations with either positive or negative deviations from the consensus forecast and a reasonable number of observations per category. Categories 1 through 12 represent observations with DEVIBES < 0; categories 13 and 14 represent observations with DEVIBES 0.

We find a clear, increasing pattern in both the mean and median decrease (income-increasing change) in the valuation allowance across the rankings, which is most evident in the lowest four categories of banks. The chart below the figure shows that banks in the higher categories had the opportunity to decrease the allowance (increase income) by more than the per-share amount of the change in the valuation allowance. However, these banks that have a mean (and median) lagged valuation allowance that is greater than the average (median) decrease in the valuation allowance do not decrease their valuation allowance to zero and thus maximize reported income.

In addition to the incentives that banks have to increase earnings, they may also have incentives to use their discretion to decrease earnings in some periods. If a bank manages earnings to exceed a forecast, but not by too much, then this pattern is consistent with the claim that firms attempt to "manage" future forecasts so that they can continue to meet or beat them in future periods. For example, the SEC accused W.R. Grace of reducing earnings toward an internal, but publicized, earnings target (*Wall Street Journal*, April 7, 1999), to save up "extra"

profits from the current period against future periods when the firm came in below target. Thus, a firm with earnings substantially above a forecast may use its discretion to reduce earnings.

Prior studies of earnings management in the banking industry have considered historical earnings as a target rather than the consensus analyst forecast (e.g., Beatty, Chamberlain, and Magliolo, 1995; Collins, Shackelford, and Wahlen, 1995). Management may use its discretion to beat historical earnings or to reduce the time-series volatility of earnings (i.e., income smoothing). Banks have incentives to smooth earnings to reduce the risk of capital requirement violation. In addition, indirect evidence on the costs of earnings volatility suggests a positive relation between earnings volatility and the cost of debt (Collins, Rozeff, and Dhaliwal, 1981; Lys, 1984; Imhoff and Thomas, 1988; Bartov, 1993) and the cost of equity (Beaver, Kettler, and Scholes, 1970).[11]

In our empirical analysis, we allow for both one-sided earnings management, which we define as managing earnings up to meet or beat a target, and for two-sided earnings management, which includes managing earnings upwards when they are below the target and down when they are above the target. We include proxies for the two earnings management targets. We assume that banks manage earnings toward the IBES consensus forecast, and separately assume that they manage earnings toward average historical earnings. We also include proxy variables for these two incentives together in one regression. Doing so allows managers to trade off the costs and benefits of managing towards the consensus forecast and average historical earnings.

A. Empirical model and variable definitions

To test the significance of the relation between changes in the valuation allowance and earnings management incentives, we use a multiple regression analysis that controls for the nondiscretionary component of the change in the valuation allowance. In this analysis, we first control for changes in the components of DTAs (ΔCOMPONENTS) and changes in a bank's

[11] For a more complete discussion of this literature, see Minton and Schrand (1999).

assessment of the realizability of the DTAs (ΔFUT_REAL), which represent nondiscretionary sources of changes in the valuation allowance. We then include proxies for earnings management incentives. Because our analysis focuses on the management of earnings per share (EPS) toward the forecast and historical EPSs, we express all variables on a per-share basis. The regression model is:

$$\Delta VA = \alpha + \sum_j \lambda_j \Delta COMPONENTS + \sum_k \phi_k \Delta FUT\_REAL + \sum_i \beta_i EARNMGMT + \varepsilon \qquad (3)$$

We compute the change in the valuation allowance (ΔVA) and the changes in the DTA components on a per-share basis. In some cases, the sample banks made retroactive restatements of their valuation allowances due to a current-period acquisition. For these bank-year observations, we adjust the year t-1 valuation allowance that we use in the calculation of ΔVA for year t to the amount reported in the year t financial statements. Thus, in all cases, the ΔVA variable represents the impact of the valuation allowance changes on reported income. The proxies for ΔFUT_REAL are the change in deferred tax liabilities per share, the change in the three-year average historical EPS, and the change in one-year-ahead EPS.

We perform separate measurements of the association between changes in the valuation allowance and deviations from the target for all observations with unadjusted earnings below the forecast (BELOW_IBES) and above the forecast (ABOVE_IBES). Doing so allows us to differentiate one-sided earnings management from two-sided earnings management. Both of these proxies for earnings management incentives are a function of the deviation of the bank's unadjusted earnings from the consensus analyst forecast (DEVIBES). If the bank's unadjusted EPS is below the target (DEVIBES < 0), then BELOW_IBES equals the deviation; otherwise, BELOW_IBES equals zero. If the bank's unadjusted EPS is above the target (DEVIBES > 0), then ABOVE_IBES equals the deviation; otherwise, ABOVE_IBES equals zero. We define the proxies for the incentives to manage toward historical earnings (BELOW_HIST and

ABOVE_HIST) using the same method, which is based on the deviation of current-period earnings from the average historical EPS. We compute this deviation over the period t-1 to t-3 (DEVHIST).

Regardless of whether bank managers are engaging in one-sided earnings management to maximize income or attempting to smooth income, we predict that there will be a positive association between BELOW_IBES (or BELOW_HIST) and the change in the valuation allowance. A positive coefficient will imply that on average, firms with greater deviations below the target (more negative BELOW_IBES or BELOW_HIST) will record larger decreases in the valuation allowance, and thus higher reported earnings. If a manager's objective is income smoothing, we also predict a positive association between ABOVE_IBES (or ABOVE_HIST) and the adjustment to the valuation allowance. A positive coefficient will imply that on average, firms with greater deviations above the target will record larger increases in the valuation allowance, and thus lower reported earnings. If a manager's objective is to maximize reported earnings, we expect no association between ABOVE_IBES (or ABOVE_HIST) and ΔVA.

Managers can have incentives to manage earnings toward both the consensus forecast and historical earnings. We estimate the model with ABOVE_IBES and BELOW_IBES in one specification, and separately with ABOVE_HIST and BELOW_HIST. In a third specification, we include both the deviations of unadjusted earnings from historical earnings and from the analyst forecast target. Moehrle (2002) provides evidence that firms reverse previously recorded restructuring charges to meet both analyst forecast and historical earnings targets.

There are three potential specification and measurement issues associated with equation (3). First, if analysts can perfectly predict earnings before the valuation allowance ("unadjusted" earnings) and the amount of a change in the valuation allowance, then DEVIBES will exactly equal the change in the valuation allowance (ΔVA). In this case, the coefficient on the DEVIBES variables will be one, even when the change in the valuation allowance is completely nondiscretionary, and regardless of whether the control variables are adequate for measuring changes in the components of DTAs ($\Delta COMPONENTS$) and changes in a bank's assessment of

the realizability of the DTAs (ΔFUT_REAL). A correlation between ΔVA and DEVIBES will bias the results in favor of our hypotheses.

The degree to which this potential bias affects our conclusions depends on two key factors, how well analysts forecast earnings before the valuation allowance, and how well they forecast the valuation allowance. If the forecast error on earnings before the valuation allowance swamps the change in the valuation allowance and this error is random, then the mechanical relation between DEVIBES and ΔVA will not be strong. Likewise, if analysts are unable to predict the change in the valuation allowance, including a ΔVA that is totally nondiscretionary, then the mechanical relation will not be strong. Given the relative magnitudes of EPS compared to ΔVA per share, it is likely that the error in predicting EPS is much greater than ΔVA per share. On average, the reported EPS is $1.99, while ΔVA is only $0.05 per share. Also, given that the tax footnote is generally not included in 10-Qs so that quarterly information on the valuation allowance or the components of deferred taxes is not publicly available, it is unlikely that analysts have good information on which to predict the valuation allowance.

The second specification issue is that the extent to which current-period earnings deviate from the average historical earnings target may be correlated with the proxies for changes in management's assessment of future profitability and DTA realizability (ΔFUT_REAL). However, in our regression analysis, traditional tests for multicollinearity do not suggest that multicollinearity affects the coefficient estimates. Moreover, we predict a negative association between the change in the valuation allowance and ΔFUT_REAL and a positive association between ΔVA and ABOVE_HIST and BELOW_HIST. Thus, our interpretation of the associations is not confounded by the correlation between the profitability variables and the two proxies for earnings management incentives.

Third, by specifying the proxies for earnings management incentives as the total deviation from the target, we assume that the valuation allowance is the only earnings management tool that banks can use to manage earnings toward the target. However, banks can also use other discretionary accruals, such as loan loss provisions, to manage earnings (see

Beatty et al., 1995, and Collins et al., 1995). This specification issue biases against finding a significant association between deviations from the target and the change in the valuation allowance.

B. Descriptive statistics

Table 3 presents pooled descriptive statistics of the change in the valuation allowance. The table also provides descriptive statistics of the explanatory variables in equation (3) for all sample bank-year observations with non-missing data that we use to estimate the equation (220 bank-year observations for 80 banks).

Bank-year observations begin in the year after the bank adopts SFAS 109 and continue through fiscal 1998. Both the mean and median changes in the valuation allowance per share (ΔVA) are negative. The decreases in the valuation allowance are consistent with the generally improving performance of financial institutions during the sample period. As evidence of the improving performance, the change in historical EPS ($\Delta HEPS$) and the change in one-year-ahead EPS (ΔEPS_{t+1}) are positive. The decreases in the valuation allowance are also consistent with the financial press's claim that firms overestimate valuation allowances at adoption and decrease them over time to manage earnings.

{INSERT TABLE 3 HERE.}

Changes in DTAs related to other postretirement benefits ($\Delta OPEB$) are the largest change. On average, these changes are \$0.041 per share. The average change in DTAs related to net operating loss carryforwards (ΔNOL) is negative because the carryforwards are used against positive earnings during this time period, or expire. The average changes in other DTA components are small. Only the change in DTAs associated with loan loss provisions (ΔLLP) has a nonzero median.

Of the 220 observations, 186 have EPS before the change in the valuation allowance (unadjusted earnings) below the forecasted EPS, and 34 observations have unadjusted EPS above the target. The mean deviation of EPS from the targeted EPS is -0.03 for the observations below target compared to 0.02 for the observations above target. The small number of ABOVE_IBES firms (15.5% of the total) indicates that analysts were overly optimistic during the sample period. If banks expect analysts to be optimistic, this expectation can affect banks' incentives to manage earnings toward the consensus forecast. For example, a bank with earnings just below the forecast might not have incentives to meet the forecast since most of the bank's peers were also not meeting their forecasts.

The univariate results reported in Figure 1 are consistent with this expectation of bank behavior. Decreases in the VA are concentrated in the four categories of banks with the greatest deviations from the IBES consensus forecast. However, banks close to the forecast show less evidence that they use the valuation allowance to increase earnings toward the forecast.

Analyst optimism can also affect the earnings management incentives for banks with earnings above the forecast. These banks might have greater incentives to manage earnings down toward the consensus forecast, since most of the bank's peers are not "beating" the forecast. Unfortunately, the small sample of banks with earnings above the forecast reduces the empirical power of this proxy for detecting earnings management from above. For the alternative target for earnings management, there are 76 observations with unadjusted EPS below historical EPS, and 144 observations (65.5% of the total) with unadjusted EPS above the historical target.

Table 4 reports the Pearson correlation coefficients for the explanatory variables included in equation (3). Correlation coefficients that are significant at the 5% level are reported in bold. In general, the changes in the components of DTAs are not highly correlated with each other. Only four pairs exhibit a significant correlation coefficient, but the magnitudes are small. The two proxies for changes in expectations about future income realizations (ΔHEPS and ΔEPS_{t+1}) are correlated with some of the changes in DTA components.

The positive and significant correlation between one-year-ahead EPS and changes in other carryforwards is 0.494. This correlation indicates that banks with large increases in carryforwards from period t-1 to period t had larger increases in earnings from period t to period t+1. Thus, following a bad year that creates carryforwards (such as the alternative minimum tax credit), the banks are more likely to have larger increases in earnings and return to profitability, possibly due in part to using the carryforwards.

The proxies for earnings management incentives related to analyst forecasts (DEVIBES) and historical earnings (DEVHIST) are significantly, negatively correlated, although the magnitude of the correlation is small (coefficient = -0.227). In the regression analysis, we include these proxies for earnings management incentives separately in one specification of equation (3) and together in another. The change in historical earnings per share (ΔHEPS) is highly correlated with DEVHIST, with a correlation coefficient of 0.863. We expect this correlation, since we define both variables by using average historical EPS. However, as discussed earlier, we predict that the associations between these two variables and the change in valuation allowance will have opposite signs. Thus, as noted previously, the correlation will not confound interpretation of the results.

{INSERT TABLE 4 HERE.}

The adoption-date test results reported in Section 3 indicate that the phenomenon of creating hidden reserves is most concentrated in the large, well-capitalized money center banks. Therefore, we conduct post-adoption earnings management tests separately for the full sample and for the subsample of non-MCBs. To conserve space, we report the results for the non-MCBs only and discuss differences, if any, with the full sample results.

C. Results of subsequent-period tests

Table 5 presents the regression results for three versions of equation (3) that differ in the proxies for earnings management incentives. The regression models are estimated for 190 pooled bank-year observations of non-MCBs with non-missing data in any year following the year of adoption through fiscal 1998. All observations have a nonzero valuation allowance at the beginning of the year. (The full sample contains 220 bank-year observations.) We eliminate from the regressions influential observations, which we identify based on studentized residuals, Cook's D, and the standard measures of the observation's influence on the predicted value. We report the number of observations in the final sample at the bottom of the table. The models include fixed-year-effect dummy variables; however, we do not report the coefficient estimates on these variables.

The results about earnings management are mixed across the three specifications of model (3). In the first equation, the estimated coefficient on BELOW_IBES is significantly positive, but that on ABOVE_IBES is indistinguishably different from zero. This finding suggests that banks manage EPS upward to the consensus IBES forecast, but they do not engage in earnings smoothing by also managing earnings downward.

In contrast, for the full sample, the estimated coefficients on both BELOW_IBES and ABOVE_IBES are indistinguishably different from zero. The greater significance of the earnings management results for the non-MCB sample contrasts with the earlier finding that the well-capitalized MCBs are more likely to create the hidden reserves when they adopt SFAS 109. Differences in power across the MCB and non-MCB samples do not explain this finding. One explanation for the combination of results is that the MCBs have a greater ability to generate hidden reserves ex ante, expecting to use them in subsequent periods. However, these institutions do not need to decrease the reserve to maximize earnings during what is an economically profitable sample period for banks. By contrast, smaller and less profitable banks have fewer opportunities than MCBs to create hidden reserves. However, to the extent they are created, these smaller banks are more likely to need to decrease the reserve in subsequent periods

to meet earnings targets. The larger, more profitable MCBs might also have more tools available to manage earnings besides the valuation allowance account.

In the second equation, the coefficients on both BELOW_HIST and ABOVE_HIST are significantly, positively associated with ΔVA at the 1% level. Positive coefficients on the variables in both directions suggest the presence of earnings smoothing toward the historical earnings targets. These results are similar in the full sample (not tabulated).

In the final equation, when we include proxies related to both earnings targets in the model, the coefficient estimates on BELOW_HIST and ABOVE_HIST remain significantly positive, but the coefficient estimates on BELOW_IBES and ABOVE_IBES also are significantly positive. If unadjusted earnings were $1 below the IBES forecast but $1 above the historical EPS, the net effect on ΔVA would be a reduction of $0.044 (equals –0.139 + 0.095), all else equal. Positive coefficients on the variables in both directions suggest the presence of earnings smoothing toward the targets.

Although the statistical significance of BELOW_IBES and ABOVE_IBES in the third specification can be explained by the correlation between the proxies for the two earnings management objectives, as shown in Table 4, statistical procedures do not identify multicollinearity as a problem for the interpretation of the coefficient estimates or their standard errors.

The results for the control variables – changes in the components of DTAs and changes in the bank's assessment of the realizability of the DTAs – are generally as we expected. The estimated coefficients on the changes in DTAs attributable to changes in NOLs, OTHERCFs, and LLPs are significantly positive. In addition, the estimated coefficients on ΔDEFCOMP in the first equation and ΔREALE in the last two equations are statistically positive. The positive association between changes in loan loss provisions and ΔVA contrasts with the negative association between the level of LLPs and the level of the VA set at adoption, as reported in Table 2. The negative association in levels at the adoption date suggests that firms are able to justify not recording a valuation allowance, possibly because the DTAs related to LLPs reverse

relatively quickly. The positive association between changes in the DTAs related to LLPs and the change in the valuation allowance is consistent with the hypothesis that increased loan loss provisions provide evidence on future realizability of DTAs.

A change in NOLs has the largest economic effect on the change in the valuation allowance. A one-dollar per share change in NOLs implies a $0.35–$0.38 per-share change in the valuation allowance. For the full sample, only ΔNOL, ΔOTHERCF, and ΔLLP exhibit significant explanatory power. The magnitudes of coefficient estimates on these three variables are smaller than those for the subsample. For example, a one-dollar per share change in NOLs implies a $0.27–$0.30 per-share change in the valuation allowance.

For the proxies for the changes in the future realizability of DTAs, we find that the change in the average historical EPS, but not the change in one-year-ahead EPS, has a statistically negative association with ΔVA in all three equations. (For the full sample, ΔEPS_{t+1} has a significant (at the 10% level) negative coefficient in the first equation.) These results confirm our predictions and indicate that bank managers use historical information to predict future profitability, thus justifying valuation allowance adjustments that follow the guidelines of SFAS 109.

We find that changes in DTLs are not significantly associated with changes in the valuation allowance. The lack of explanatory power is consistent with Brezovec and Snow's (1992) conjecture that in the banking industry, DTLs are generally not as important as other evidence about future realizability, because they are too short-lived to justify the probable realization of DTAs that are related to loan loss provisions and postretirement benefits.

We conduct two sets of sensitivity analyses. First, we scale the changes in the valuation allowance and deferred tax asset components by lagged deferred tax assets, as in Miller and Skinner (1998). The estimated coefficients on the changes in net operating loss carryforwards and loan loss provisions are statistically positive. The estimated coefficient on the change in historical return on assets (the counterpart of ΔHEPS) is negative, and those on BELOW_HIST and ABOVE_HIST (both scaled by lagged total assets) are significantly positive. Second, we

estimate the regressions by event year. The overall results are qualitatively similar to those based on the pooled sample. In particular, the estimated coefficients on ΔNOL and ΔOTHERCF are significantly positive, the estimated coefficient on ΔHEPS is negative, and those on BELOW_IBES, BELOW_HIST and ABOVE_HIST are statistically positive in about half of the year-by-year regressions.

{INSERT TABLE 5 HERE.}

Table 6 reports our results based on a refinement of equation (3) that includes adjusted proxy variables for earnings management incentives. A bank's ability to manage earnings upward toward a target is limited by the amount of the valuation allowance at the beginning of the period. To account for this limitation, we define two new proxies for earnings management incentives when unadjusted earnings are below the target. The adjusted variables (A_BELOW_IBES and A_BELOW_HIST) are equal to the minimum (in absolute value) of the deviation from the target on a per-share basis and the valuation allowance as of the beginning of the year on a per-share basis. For example, if BELOW_HIST is –0.07, but the amount of the beginning balance of the valuation allowance is only –0.03, then we set A_BELOW_HIST equal to –0.03. We report results for the sample of non-MCBs. Results (not tabulated) for the full sample are qualitatively similar.

Overall, the coefficient estimates on the changes in the DTA components and the proxies for the changes in the future realizability of DTAs are qualitatively similar to those reported in Table 5. However, the evidence on the presence of earnings management toward the two earnings targets is stronger. The significant positive coefficient estimates on the proxies for earnings management incentives, adjusted to reflect the maximum earnings that the bank can manage, further support the earlier evidence that banks use the allowance to smooth income toward the targets.

{INSERT TABLE 6 HERE.}

The evidence that earnings management occurs, despite the guidelines in SFAS 109 that bias against finding such results, is consistent with earnings management. Banks with earnings below the target decrease the valuation allowance (or increase it less than the expected amount). However, if we assume that the information that analysts use to make forecasts is correlated with information that managers use to provide positive evidence about a bank's future prospects, it should be more difficult for these below-target banks to justify a lower allowance. It should also be more difficult for banks with a negative trend in earnings (DEVHIST < 0) to justify a lower allowance. The converse holds for banks that have earnings above the target. These banks should be better able to justify a decrease in the valuation account and an increase in earnings. However, we do not find evidence that banks use the valuation account for this purpose. Taken together, our results suggest that bank managers use the valuation allowance account to smooth unadjusted earnings toward the forecast and historical earnings per share.

5. Conclusion

In this paper, we investigate whether banks strategically set a high valuation allowance associated with deferred tax assets (DTAs) for the purpose of managing earnings in subsequent periods. When SFAS 109 first went into effect in 1992, it required recording valuation allowances against DTAs. When banks adopted the standard, the well-capitalized banks appeared to create hidden reserves conditional on establishing a valuation allowance. These banks had sufficient capital to absorb the initial negative impact of recording an allowance.

In later periods, we find that discretionary changes in the valuation allowance against deferred tax assets are associated with deviations of the banks' unadjusted earnings from the consensus analyst forecast and from average historical earnings. The pattern of the discretionary changes is consistent with income-increasing earnings management when earnings before adjusting the valuation allowance are below the targets, and income-decreasing management

when unadjusted earnings are above the targets. We identify the discretionary changes in the valuation allowance by using a model that controls for factors that contribute to nondiscretionary changes in the valuation allowance based on the guidelines of SFAS 109. These factors include changes in the components of DTAs as well as changes in management's assessment of the bank's future profitability.

Our results pertain to a specific earnings management tool—the valuation allowance against DTAs—as it is used by a specific sample—banks. The restricted sample allows us to model the nondiscretionary factors that affect the valuation allowance and subsequent changes to the VA, and to produce more powerful tests of earnings management behavior that uses this account.

The more powerful tests may explain the conflict between our results and those of Miller and Skinner (1998). Their study, which is based on a sample of firms from multiple industries, finds no evidence that firms use the allowance account for earnings management.

While our study resolves this conflict, at the same time, our restricted sample brings up questions about the generalizability of the results to firms in other industries, and to earnings management with other sources of hidden reserves. However, the proxies for earnings management incentives that we examine, and the guidelines for using the valuation allowance account, are not unique to banks. Thus, we would expect to find similar results for firms in other industries if we could conduct tests that adequately controlled for the nondiscretionary portion of the valuation allowance and subsequent changes to this account.

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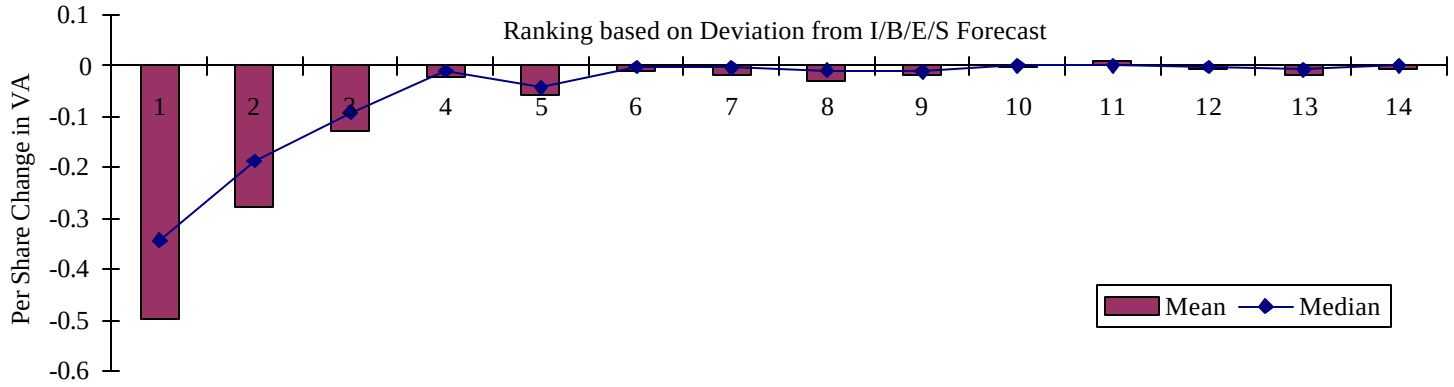
Figure 1

Mean and Median Per Share Changes in the Valuation Allowance Account by the Deviation from the I/B/E/S forecast



	1	2	3	4	5	6	7	8	9	10	11	12	13	14
# OBS.	19	19	20	19	20	19	20	19	20	19	20	19	19	20
DEVIBES														
Mean	-1.529	-0.468	-0.275	-0.207	-0.170	-0.144	-0.125	-0.109	-0.091	-0.071	-0.052	-0.017	0.033	5.237
Median	-0.819	-0.458	-0.273	-0.207	-0.168	-0.144	-0.125	-0.109	-0.091	-0.071	-0.053	-0.017	0.022	0.211
ΔVA														
Mean	-0.498	-0.277	-0.126	-0.022	-0.059	-0.012	-0.017	-0.030	-0.019	-0.002	0.011	-0.007	-0.016	-0.005
Median	-0.342	-0.187	-0.091	-0.010	-0.043	-0.002	-0.004	-0.009	-0.011	-0.000	-0.000	-0.002	-0.007	0.000
LAGVA_PS														
Mean	1.238	0.491	0.268	0.239	0.294	0.253	0.143	0.096	0.082	0.128	0.112	0.073	0.135	0.822
Median	0.710	0.398	0.200	0.046	0.153	0.087	0.029	0.051	0.062	0.048	0.058	0.062	0.051	0.077

Figure 1 shows the mean and median per share changes in the valuation allowance for partitions of the sample banks. We base these changes on the deviation of their "unadjusted" earnings from the IBES forecast. DEVIBES is less than 0 for all banks ranked 1 through 12; DEVIBES is greater than or equal to 0 for banks ranked 13 and 14. The table below the figure shows the number of observations in each ranking, the mean and median levels of DEVIBES, the change in the valuation allowance on a per share basis (ΔVA), and the lagged valuation allowance on a per share basis (LAGVA_PS), across the 14 categories of banks.

Table 1
Descriptive statistics of deferred tax assets at adoption of SFAS 109 (N=235)

Adoption-year descriptive statistics for 235 commercial banks that adopted SFAS 109 in 1993. We require the sample banks to have non-missing data and a December fiscal year end. The sample is drawn from the 1993 Compustat Bank Annual file.

(Dollar figures in millions)

Variable	Mean	Std Dev	Min	Max	N > 0	% > 0
DTA	$ 102.6	$ 367.4	$ 0.1	$ 3,794.0	235	100.0%
DTL	71.5	258.7	0.0	2,631.0	231	98.3%
VA	11.1	76.3	0.0	1,120.0	92	39.1%
NOL	3.5	22.2	0.0	283.0	55	23.4%
OTHERCF	2.9	21.2	0.0	300.0	24	10.2%
LLP	57.3	193.2	0.0	1,801.0	229	97.4%
OPEB	3.9	28.1	0.0	390.0	73	31.1%
DEFCOMP	0.4	1.6	0.0	14.9	58	24.7%
NACCINT	1.0	7.9	0.0	89.0	26	11.1%
REALE	3.9	22.4	0.0	288.0	75	31.9%
LNFEE	0.7	4.1	0.0	56.0	65	27.7%
DTL / DTA	58.9%	71.5%	0.0%	660.9%	231	98.3%
VA / DTA	13.1%	26.1%	0.0%	100.0%	92	39.1%
NOL / DTA	5.3%	15.7%	0.0%	90.5%	55	23.4%
OTHERCF / DTA	1.4%	6.1%	0.0%	67.0%	24	10.2%
LLP / DTA	61.3%	21.9%	0.0%	100.0%	229	97.4%
OPEB / DTA	3.5%	7.0%	0.0%	34.1%	73	31.1%
DEFCOMP / DTA	2.6%	6.1%	0.0%	35.2%	58	24.7%
NACCINT / DTA	1.0%	4.2%	0.0%	47.1%	26	11.1%
REALE / DTA	3.3%	6.5%	0.0%	33.6%	75	31.9%
LNFEE / DTA	2.7%	6.3%	0.0%	46.0%	65	27.7%

DTA = Deferred tax assets
DTL = Deferred tax liabilities
VA = Valuation allowance for deferred tax assets
NOL = DTA attributable to net operating loss carryforwards
OTHERCF = DTA attributable to carryforwards other than NOLs
LLP = DTA attributable to loan loss provisions
OPEB = DTA attributable to other postretirement benefits
DEFCOMP = DTA attributable to deferred compensation
NACCINT = DTA attributable to nonaccrual interest
REALE = DTA attributable to real estate assets acquired in foreclosure
LNFEE = DTA attributable to loan origination fees

Table 2
Analysis of the determinants of the valuation allowance at adoption

The table shows our two-stage least squares estimation of a model of the determinants of firms' valuation allowance at adoption of SFAS 109. The probit equation uses 225 bank observations with non-missing data to model the likelihood that the banks report a valuation allowance. The dependent variable equals one if the valuation allowance is greater than zero, and zero otherwise. The linear equation models the amount of the valuation allowance, scaled by DTAs, for the 86 observations with a non-zero valuation allowance. The potential determinants include the components of DTAs, proxies for the future realizability of DTAs, and proxies for earnings management incentives.

		Probit Equation		Linear Equation	
Variable	Pred. Sign	Marginal effect	2-sided p-value	Coeff	2-sided p-value
Intercept	?	0.5064	0.0469	0.8085	0.0000
Components of DTAs:					
NOL / DTA	+	3.2285	0.0028	0.0804	0.5474
OTHERCF / DTA	+	3.1305	0.0290	-0.6468	0.0151
LLP / DTA	?	-0.5316	0.0324	-0.6392	0.0000
OPEB / DTA	?	-0.5418	0.3597	-0.4409	0.1723
DEFCOMP / DTA	?	-0.8783	0.2409	0.4209	0.2994
NACCINT / DTA	?	-1.9177	0.1446	0.9716	0.0872
REALE / DTA	?	-0.0825	0.9000	-0.2504	0.3515
LNFEE / DTA	?	0.1935	0.7529	-0.7971	0.0241
Proxies for future realizability of DTAs:					
DTL / DTA	–	-0.1988	0.2856	-0.4551	0.0000
DTLvDTA	?	0.0573	0.7302	0.3267	0.0000
HROA	–	-44.0106	0.0007	-11.9561	0.0009
ROA_{t+1}	–	7.6943	0.5310	1.3689	0.2159
Proxies for earnings management incentives:					
CAPABOVE	+	-0.0095	0.6177	0.0237	0.0484
CAPBELOW	+	-0.0528	0.1051	-0.0270	0.0269
Number of observations		225		86	
Likelihood ratio or Adj R^2		-97.29		69.82%	

DTLvDTA = DTL / DTA if DTL > DTA, and equals zero otherwise.
HROA = Mean historical ROA computed over t, t-1, and t-2
TIER1CAP = Tier 1 capital (Compustat data item #137).
CAPABOVE = TIER1CAP-median size-adjusted industry TIER1CAP if this difference > 0; and 0 otherwise.
CAPBELOW = TIER1CAP-median size-adjusted industry TIER1CAP if this difference < 0; and 0 otherwise.

See additional variable definitions in Table 1.

Table 3
Descriptive statistics for adjustments to the valuation allowance following adoption
The table provides descriptive statistics for the sample banks that have non-missing data (including IBES data). The sample is derived from the 235 commercial banks on the 1993 Compustat Bank Annual file with a December fiscal year-end, annual reports or Form 10-K filings available on Laser Disclosure, and data on the Compustat Bank Annual file or the IBES Summary Data file.

Variable	N	Mean	Std Dev	Minimum	Median	Maximum
ΔVA	220	-0.050	0.200	-1.547	-0.008	0.469
ΔNOL	220	-0.024	0.161	-1.257	0.000	0.600
ΔOTHERCF	220	0.008	0.192	-1.378	0.000	1.779
ΔLLP	220	0.004	0.303	-2.756	0.019	1.236
ΔOPEB	220	0.041	0.232	-0.130	0.000	2.726
ΔDEFCOMP	220	0.006	0.029	-0.083	0.000	0.349
ΔNACCINT	220	0.002	0.021	-0.020	0.000	0.298
ΔREALE	220	-0.010	0.046	-0.352	0.000	0.157
ΔLNFEE	220	-0.001	0.021	-0.238	0.000	0.076
ΔDTL	220	0.072	0.453	-2.859	0.043	1.972
ΔHEPS	220	0.274	0.777	-2.155	0.168	5.196
ΔEPS_{t+1}	220	0.038	1.590	-9.695	0.151	11.427
BELOW_IBES	220	-0.025	0.073	-0.809	-0.004	0.000
Non-zero observations	186	-0.030	0.078	-0.809	-0.006	0.000
ABOVE_IBES	220	0.003	0.013	0.000	0.000	0.111
Non-zero observations	34	0.020	0.029	0.000	0.007	0.111
A_BELOW_IBES	220	-0.021	0.063	-0.809	-0.004	0.000
Non-zero observations	183	-0.026	0.069	-0.809	-0.006	0.000
BELOW_HIST	220	-0.334	0.807	-7.083	0.000	0.000
Non-zero observations	76	-0.966	1.133	-7.083	-0.598	-0.016
ABOVE_HIST	220	0.671	0.977	0.000	0.313	6.893
Non-zero observations	144	1.025	1.047	0.005	0.657	6.893
A_BELOW_HIST	220	-0.067	0.324	-3.023	0.000	0.000
Non-zero observations	74	-0.201	0.537	-3.023	-0.042	-0.001

Variable definitions:

ΔVA	=	Change in the valuation allowance for DTAs per share (a positive amount indicates an increase in the valuation allowance which is a reduction of earnings)
ΔNOL	=	Change in DTAs attributable to net operating loss carryforwards per share
ΔOTHERCF	=	Change in DTAs attributable to other carryforwards per share
ΔLLP	=	Change in DTAs attributable to book loan loss provisions per share
ΔOPEB	=	Change in DTAs attributable to other postretirement benefits per share
ΔDEFCOMP	=	Change in DTAs attributable to deferred compensation per share
ΔNACCINT	=	Change in DTAs attributable to deferred compensation per share
ΔREALE	=	Change in DTAs attributable to real estate assets acquired in foreclosure per share
ΔLNFEE	=	Change in DTAs attributable to loan origination fees per share

(continued...)

Table 3 (…continued)

ΔDTL	=	Change in deferred tax liabilities per share
ΔHEPS	=	Change in mean historical earnings per share (EPS) computed over t and t-2
ΔEPS_{t+1}	=	Change in EPS = $EPS_{t+1} - EPS_t$
DEVIBES	=	EPS before adjustment to the valuation allowance – IBES consensus EPS forecast
BELOW_IBES	=	DEVIBES if DEVIBES < 0; zero otherwise
ABOVE_IBES	=	DEVIBES if DEVIBES > 0; zero otherwise
A_BELOW_IBES	=	Minimum of BELOW_IBES and lagged VA per share
DEVHIST	=	EPS before adjustment to the valuation allowance – Average historical EPS (computed over t-1 and t-3)
BELOW_HIST	=	DEVHIST if DEVHIST < 0; zero otherwise
ABOVE_HIST	=	DEVHIST if DEVHIST > 0; zero otherwise
A_BELOW_HIST	=	Minimum of BELOW_HIST and lagged VA per share

Table 4
Pearson correlation coefficients for explanatory variables for the changes in the valuation allowance (N=220)
Correlation coefficients that are statistically significant at the 5% level are listed in bold. See Table 3 for variable definitions.

	ΔNOL	ΔOTHERCF	ΔLLP	ΔOPEB	ΔDEFCOMP	ΔNACCINT	ΔREALE	ΔLNFEE	ΔDTL	ΔHEPS	ΔEPS_{t+1}	DEVIBES
ΔOTHERCF	0.103											
ΔLLP	-0.011	-0.092										
ΔOPEB	-0.075	**-0.268**	**-0.114**									
ΔDEFCOMP	0.065	-0.023	-0.013	-0.042								
ΔNACCINT	-0.017	-0.004	-0.026	-0.015	-0.018							
ΔREALE	0.001	0.051	**0.268**	0.026	0.027	0.053						
ΔLNFEE	0.034	0.021	-0.014	0.006	**0.199**	0.113	0.009					
ΔDTL	0.053	**-0.187**	**0.315**	**-0.198**	0.016	-0.002	0.064	-0.002				
ΔHEPS	**-0.175**	**-0.179**	-0.012	-0.015	-0.086	-0.018	**-0.143**	-0.077	0.033			
ΔEPS_{t+1}	-0.016	**0.494**	0.060	**-0.225**	0.020	-0.019	-0.055	-0.016	-0.016	**-0.155**		
DEVIBES	0.125	0.049	0.075	0.039	-0.011	0.001	0.091	0.052	0.058	-0.107	0.026	
DEVHIST	**-0.166**	**-0.334**	-0.028	0.042	-0.090	-0.019	**-0.136**	-0.092	0.116	**0.863**	**-0.310**	**-0.227**

Table 5
Determinants of changes in the valuation allowance and tests for earnings management (non-money center banks)
The table presents our OLS estimations of equation (3), including fixed event-year effects. The explanatory variables represent changes in the components of DTAs (ΔCOMPONENTS), changes in management's assessment of the future realizability of DTAs (ΔFUT_REAL), negative and positive deviations from analyst forecasts (BELOW_IBES and ABOVE_IBES, respectively) and from average historical EPS (BELOW_HIST and ABOVE_HIST, respectively). See Table 3 for variable definitions. Influential observations are deleted.

$$\Delta VA = \alpha + \lambda_1\Delta NOL + \lambda_2\Delta OTHERCF + \lambda_3\Delta LLP + \lambda_4\Delta OPEB + \lambda_5\Delta DEFCOMP + \lambda_6\Delta NACCINT + \lambda_7\Delta REALE + \lambda_8\Delta LNFEE + \phi_1\Delta DTL + \phi_2\Delta HROA + \phi_3\Delta ROA_{t+1} + \sum_i \beta_i EARNMGMT + \varepsilon$$

Variable	Pred. Sign	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
INTERCEPT	?	-0.021	-0.72	-0.038	-1.23	-0.056	-1.77*
Proxies for changes in DTA components:							
ΔNOL	+	0.356	6.65***	0.368	6.50***	0.375	6.74***
ΔOTHERCF	+	0.195	2.69***	0.154	1.93**	0.122	1.58*
ΔLLP	?	0.173	3.79***	0.204	4.10***	0.209	4.36***
ΔOPEB	?	-0.048	-0.28	0.023	0.12	0.033	0.17
ΔDEFCOMP	?	0.378	1.95*	0.222	1.07	0.299	1.47
ΔNACCINT	?	0.188	0.77	0.285	1.06	0.284	1.10
ΔREALE	?	0.201	0.89	0.487	1.98**	0.537	2.26**
ΔLNFEE	?	-0.282	-1.11	-0.003	-0.01	-0.029	-0.11
Proxies for future realizability of DTAs:							
ΔDTL	–	-0.025	-0.72	-0.042	-1.20	-0.003	-0.09
ΔHEPS	–	-0.048	-4.78***	-0.179	-8.46***	-0.181	-8.49***
ΔEPS_{t+1}	–	-0.004	-0.54	0.002	0.23	0.000	-0.01
Proxies for earnings management incentives:							
BELOW_IBES	+	0.544	3.14***			0.139	1.52*
ABOVE_IBES	+	0.598	0.89			1.449	2.03**
BELOW_HIST	+			0.059	4.08***	0.065	4.62***
ABOVE_HIST	+			0.093	5.70***	0.095	5.57***
F-statistic		8.996***		9.971***		10.248***	
Adjusted R^2		0.447		0.470		0.505	
N		179		183		182	

* (**) {***} Statistically significant at the 10% (5%) {1%} level using a one-tailed test (two-tailed test if the sign is not predicted).

Table 6
Determinants of changes in the valuation allowance and tests for earnings management for non-money center banks, using alternative proxies for earnings management incentives

The table presents our OLS estimations of equation (3), including fixed event-year effects. The explanatory variables represent changes in the components of DTAs (ΔCOMPONENTS), changes in management's assessment of the future realizability of DTAs (ΔFUT_REAL), negative and positive deviations from analyst forecasts (BELOW_IBES and ABOVE_IBES, respectively) and from average historical EPS (BELOW_HIST and ABOVE_HIST, respectively). See Table 3 for variable definitions. Influential observations are deleted.

$$\Delta VA = \alpha + \lambda_1 \Delta NOL + \lambda_2 \Delta OTHERCF + \lambda_3 \Delta LLP + \lambda_4 \Delta OPEB + \lambda_5 \Delta DEFCOMP + \lambda_6 \Delta NACCINT + \lambda_7 \Delta REALE + \lambda_8 \Delta LNFEE + \phi_1 \Delta DTL + \phi_2 \Delta HROA + \phi_3 \Delta ROA_{t+1} + \sum_i \beta_i EARNMGMT + \varepsilon$$

Variable	Pred. Sign	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
INTERCEPT	?	-0.019	-0.70	-0.024	-0.87	-0.044	-1.69*
Proxies for changes in DTA components:							
ΔNOL	+	0.171	3.93***	0.202	4.54***	0.185	4.46***
ΔOTHERCF	+	0.335	6.59***	0.324	6.45***	0.300	6.47***
ΔLLP	?	0.186	2.69***	0.220	2.89***	0.205	2.88***
ΔOPEB	?	-0.044	-0.27	-0.081	-0.49	-0.081	-0.53
ΔDEFCOMP	?	0.419	2.26**	0.146	0.81	0.256	1.51
ΔNACCINT	?	0.135	0.58	0.266	1.14	0.185	0.86
ΔREALE	?	0.162	0.75	0.266	1.20	0.156	0.77
ΔLNFEE	?	-0.287	-1.18	-0.155	-0.64	-0.133	-0.59
Proxies for future realizability of DTAs:							
ΔDTL	–	-0.021	-0.66	-0.039	-1.26	-0.054	-1.87**
ΔHEPS	–	-0.043	-4.54***	-0.124	-7.12***	-0.107	-6.27***
ΔEPS_{t+1}	–	-0.003	-0.50	-0.000	-0.14	-0.001	-0.16
Proxies for earnings management incentives:							
A_BELOW_IBES	+	0.872	5.15***			0.632	3.85***
ABOVE_IBES	+	0.527	0.82			3.886	7.77***
A_BELOW_HIST	+			0.268	2.81***	0.574	6.14***
ABOVE_HIST	+			0.059	4.08***	0.050	3.54***
F-statistic		10.649		10.001		14.884	
Adjusted R^2		0.493		0.477		0.612	
N		179		178		177	

* (**) {***} Statistically significant at the 10% (5%) {1%} level using a one-tailed test (two-tailed test if the sign is not predicted).