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The Valuation Allowance for Deferred Tax Assets*

– Information Content and Earnings Management –

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— <Abstract> —

The valuation allowance for deferred tax assets is an estimate of the portion of deferred tax assets that is not realizable because of insufficient future taxable income. Changes in the valuation allowance contain incremental information content, in addition to publicly available information, in predicting future income. However, changes in the valuation allowance for firms that likely manage earnings through their valuation allowance accounts are less associated with future income than for non-earnings management firms, implying that managers manipulate the valuation allowance to manage earnings. These findings of this study have mixed implications for accounting standard setters and regulators. Incremental information content of the valuation allowance found here suggests that mandating recognition of forward-looking information in financial statements has the potential to make these statements more informative. On the other hand, earnings management implication of the valuation allowance, which is also found here, implies managers' ability to fool investors through opportunistic manipulation and a potential to make the financial statements less informative. Korean GAAP does not require firms to report the valuation allowance for deferred tax assets. Considering the properties of deferred tax assets, information contents and earnings management, the disclosure of the valuation allowance for deferred tax assets is expected to improve the usefulness of financial information.

<Key words> deferred taxes, valuation allowance, information content, earnings management

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I. INTRODUCTION

The Financial Accounting Standards Board's (FASB) Statement of Financial Accounting Concept No. 1 (1978) states that financial statement data should provide useful information for assessing future cash flows. However, the traditional financial reporting model focuses on the recognition and disclosure of information on past transactions and lacks prospective information in the form of earnings forecasts, book values, and cash flows (AICPA 1994, 2002). There is a demand for forward-looking information on the firm's future earnings and cash flows from users of financial reports (Journal of Accountancy, October 1994, pp.41-46).¹⁾

Forward-looking information may help users of financial statements assess the amounts, timing, and uncertainty of future cash flows. However, allowing the disclosure of forward-looking information creates opportunities for earnings management (Lang and Warfield 1997).²⁾ By focusing on the costs and benefits of forward-looking-information disclosure, accounting research can examine whether such disclosure improves the flow of information to the market.

Under current U.S. financial accounting standards, the valuation allowance for deferred tax assets is a unique account that is estimated largely on the basis of the manager's forward-looking information.³⁾ Deferred tax assets represent future tax benefits from deductible temporary differences and carryforwards of operating losses and tax credits. Since realization of deferred tax assets depends on the existence of sufficient taxable income over a limited future time period, all future tax benefits may not be realized. Therefore, Statement of Financial Accounting Standards (SFAS) No. 109 requires firms to reduce the net amount of deferred tax assets through a valuation allowance to the extent that the deferred tax assets are not likely to be realized.

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- 1) The Journal of Accountancy interviewed 10 business leaders and reported that they favored disclosing forward-looking information on financial statements.
 - 2) Arthur Levitt, a former Chairman of the Securities and Exchange Commission (SEC), defined earnings management as practices by which earnings reports reflect the desires of management rather than the underlying financial performance of the firm" (Levitt 1998). Schipper (1989 p.92) defines earnings management as "disclosure management in the sense of purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain." Since forward-looking information requires managers to exercise judgment in financial reporting, managers may choose reporting methods that reflect their desires and estimates that do not accurately reflect their firms' underlying economics.
 - 3) Bad debt expense and intangible assets are also estimated based on managers' forward-looking information, but these are limited to specific assets. On the other hand, the deferred tax allowance is estimated on the basis of managers' prospective information about income as a whole.

Since the valuation allowance for deferred tax assets depends on the manager's judgment about future taxable income, it might contain the manager's forward-looking information about future income. On the other hand, the valuation allowance is based on the manager's unverifiable forecasts, and thus offers opportunities for earnings management. Therefore, the valuation allowance for deferred tax assets has two potential characteristics : forward-looking information content and earnings management vehicle. Given this, this study examines whether the valuation allowance disclosure improves the flow of information to the market by focusing on the benefits (i.e., incremental information content of the valuation allowance) and costs (i.e., earnings management implication of the valuation allowance).

For this study, 719 news releases of the valuation allowance for deferred tax assets are collected from LEXIS/NEXIS. The empirical results provide evidence of both incremental information content and earnings management implication of the valuation allowance. Specifically, changes in the valuation allowance contain incremental information beyond publicly available information in predicting one-year-ahead income. However, changes in the valuation allowance for firms that likely manage earnings through their valuation allowance accounts are less negatively associated with future income than for non-earnings management firms.

The remainder of this study is organized as follows : Section II develops hypotheses on information content and earnings management implication of changes in the valuation allowance for deferred tax assets. Section III explains research designs used to test these hypotheses. Section IV provides details on data collection and presents the empirical results. Section V contains concluding remarks.

II. HYPOTHESIS DEVELOPMENT

1. Information Content of Changes in the Valuation Allowance

SFAS 109 requires firms to estimate and recognize a valuation allowance to reduce the net deferred tax assets to the amount that is "more likely than not" to be realized future taxable income is not expected to be high enough to utilize the deferred tax assets. Once a valuation allowance is established, it can be changed in subsequent periods if there are changes in circumstances that alter expectations about future taxable income expected to be available to realize a tax benefit.

A manager should consider all evidence, both positive and negative, to determine whether the

valuation allowance should be increased or decreased based on the weight of that evidence.⁴⁾ If managers use not only public information provided in other accounts, but also their private forward-looking information about future income in determining the valuation allowance, then, in addition to publicly available information, changes in the valuation allowance will contain incremental information content that is useful in predicting future income.

Prior studies (e.g., Behn et al. 1998 ; Visvanathan 1998 ; Miller and Skinner 1998 ; Burgstahler et al. 2002 ; Schrand and Wong 2003 ; Frank and Rego 2003) find that changes in the valuation allowance for deferred tax assets in part reflect publicly available information such as deferred tax assets (or liabilities) and prior earnings. Furthermore, this study investigates whether changes in the valuation allowance for deferred tax assets contain incremental information (e.g., managers' private forward-looking information) beyond public information summarized in other accounts in predicting future income. Assuming that managers change the valuation allowance in response to both publicly available information and their private forward-looking information about future income, public and non-public information components of changes in the valuation allowance is negatively associated with future income, respectively.

H1a : Public information component of changes in the valuation allowance for deferred tax assets is negatively associated with future income.

H1b : Non-public information component of changes in the valuation allowance for deferred tax assets is negatively associated with future income.

2. Earnings Management Implication of the Valuation Allowance

Though SFAS 109 provides some guidance for managers to consider in determining the amount of a valuation allowance, the need for a valuation allowance and its dollar amount are based primarily on the manager's judgment about the likelihood of realizing the tax benefits in

4) Positive evidence reinforces the likelihood that deferred tax assets will be realized, and reduces the need for a deferred tax allowance. Conversely, negative evidence reduces the likelihood that deferred tax assets will be realized, and increases the need for a deferred tax allowance. SFAS 109 identifies several examples of positive and negative evidence. Examples of positive evidence include (1) existing contracts or sales backlog, (2) an excess of appreciated asset value over the tax basis of the firm's net assets, and (3) a strong earnings history. Negative evidence includes (1) cumulative losses in recent years, (2) a history of operating loss or tax credit carryforwards expiring unused, (3) losses expected in early future years, (4) unsettled circumstances that, if unfavorably resolved, would adversely affect future operations and profit levels, and (5) a carryback and/or carryforward period that is so brief that it would limit realization of tax benefits.

future years. Thus, the valuation allowance amount depends on both verifiable objective evidence and unverifiable managers' judgment. Since an increase (decrease) in the valuation allowance reduces (increases) income from continuing operations on the firm's income statement, inclusion of unverifiable managers' judgment in determining the valuation allowance creates opportunities of earnings managements.⁵⁾

Early studies (Miller and Skinner 1998 ; Visvanathan 1998 ; Bauman et al. 2001) do not find evidence consistent with managers using the valuation allowance for deferred tax assets to manage earnings, but more recent studies do find such evidence. For instance, Burgstahler et al. (2002) find that firms with small profits (probable earnings management firms) decrease the valuation allowance more than firms with small losses (probable non-earnings management firms) ; Schrand and Wong (2003) document that banks use the valuation allowance to smooth earnings toward average earnings in the prior three years and toward analysts' consensus forecasts ; Frank and Rego (2003) provide evidence of earnings management through the valuation allowance to smooth earnings, avoid reporting losses or earnings-declines, and meet analyst forecasts.

This study identifies a subsample of firms that likely manage earnings through their valuation allowances, and investigates the information content of the valuation allowance for this subsample, as well as for non-earnings management firms. Since a change in the valuation allowance for deferred tax assets should result from a change in the manager's judgment about the existence of sufficient income to utilize the related deferred tax assets in future years, changes in the valuation allowance are negatively associated with future income if managers change the valuation allowance in response to information on future income without bias. However, the association of the valuation allowance with future income will likely weaken if managers manipulate the valuation allowance to manage earnings.

H2 : Changes in the valuation allowance for firms that likely manage earnings through their valuation allowance accounts are less negatively associated with future income than for non-earnings management firms.

5) Prior studies provide some cases in which earnings were likely managed via manipulation of the valuation allowance account. For instance, USF&G and Network Appliance Corporations reduced their valuation allowances to avoid reporting losses in 1994 and 1996, respectively (Visvanathan 1998 ; Burgstahler et al. 2002). Also, IBM Corporation more than doubled its valuation allowance in 1993, and then in 1995, it reported an earnings increase, over half of which was attributable to a reduction in the valuation allowance (Miller and Skinner 1998). IBM's manipulation of its valuation allowance account is a typical example of earnings smoothing.

III. RESEARCH DESIGN

1. Information Content of Changes in the Valuation Allowance

Since SFAS 109 requires that the effects of changes in the valuation allowance ordinarily shall be included in income from continuing operations, income from continuing operations (E_t) is separated into "income from continuing operations before changes in the valuation allowance for deferred tax assets" ($EBVA_t$) and "changes in the valuation allowance for deferred tax assets" (ΔVA_t) :

$$E_t \equiv EBVA_t - \Delta VA_t \quad (1)$$

In equation (1), $EBVA_t$ is a measure of the firm's operating performance in year t and ΔVA_t is partially a function of managers' judgment about future income if managers change the valuation allowance without bias. Therefore, future income is expected to be positively associated with $EBVA_t$ and negatively with ΔVA_t as follows : ⁶⁾

$$E_{t+i} = \alpha_0 + \alpha_1 \Delta VA_t + \alpha_2 EBVA_t + \epsilon_t \quad (2)$$

To test whether changes in the valuation allowance contain incremental information content beyond publicly available information in predicting future income, this study separates a change in the valuation allowance into a public information component (ΔPVA_t), which is entirely determined by publicly available financial information, and a non-public information component ($\Delta NPVA_t$) that is assumed to include the manager's private information about future income :

$$\Delta VA_t \equiv \Delta PVA_t + \Delta NPVA_t \quad (3)$$

SFAS 109 identifies four possible sources of taxable income available to realize deferred tax assets : (1) future reversals of existing taxable temporary differences, (2) future taxable income, (3) taxable income in prior carryback years if carryback is permitted, and (4) tax-planning strategies. Among them, (1) and (2) are likely to be the more important sources and (3) and (4) are limited in scope (Miller and Skinner 1998 ; Burgstahler et al. 2002 ; Frank and Rego 2003).⁷⁾

6) If managers change the valuation allowance without bias, they would increase (reduce) the valuation allowance when receiving negative (positive) information on future income.

7) Miller and Skinner (1998) provide the following example to explain (3) and (4) : "(3) usually applies to situations where there are future reversals of deductible temporary differences during periods in which the firm reports pre-tax losses. The firm is able to realize these benefits by carrying them

Consistent with these prior studies, this study assumes that in the absence of earnings management, two factors determine changes in the valuation allowance : changes in future reversals of existing taxable temporary differences and changes in managers' expectations about future income.

A change in future reversals of existing taxable temporary difference is measured by a change in net deferred tax liabilities because deferred tax liabilities, upon reversal, constitute taxable income that can be used to realize deferred tax assets. Visvanathan (1998), Miller and Skinner (1998), Burgstahler et al. (2002) and Frank and Rego (2003) document that a firm with an increase (decrease) in deferred tax liabilities relative to deferred tax assets decreases (increases) the valuation allowance. Therefore, this study considers changes in deferred tax assets and liabilities as publicly available information on future income in determining the valuation allowance.

Prior studies adopted various proxies for managers' expectations of future taxable income, but they failed to find that the valuation allowance for deferred tax assets is consistently associated with such proxies as return on assets (Burgstahler et al. 2002 ; Frank and Rego 2003), market to book value of equity (Burgstahler et al. 2002), realized operating earnings in future years (Schrand and Wong 2003), and analysts' earnings forecasts (Miller and Skinner 1998). On the other hand, a firm with more taxable income in prior and current years is likely to report a smaller valuation allowance (Behn et al. 1998 ; Schrand and Wong 2003). Therefore, this study uses earnings over the prior two years as a publicly available proxy for managers' expectations about future income. Further, this study uses change in the market value of equity as another publicly available proxy for managers' expectations about future income because stock prices largely capture information before it is reflected in earnings (Beaver et al. 1980, 1987 ; Collins et al. 1987 ; Freeman 1986).

To measure the public component of changes in the valuation allowance, I estimate a regression of changes in the valuation on the public information :

$$\Delta VA_t = \gamma_0 + \gamma_1 \Delta DTA_t + \gamma_2 \Delta DTL_t + \gamma_3 EBVA_t + \gamma_4 E_{t-1} + \gamma_5 E_{t-2} + \gamma_6 \Delta MVE_t + \epsilon_t \quad (4)$$

where,

ΔVA_t = changes in the valuation allowance from year t-1 to t

ΔDTA_t = changes in deferred tax assets from year t-1 to t

ΔDTL_t = changes in deferred tax liabilities from year t-1 to t

back to prior years in which taxable income is reported. (4) applies to situations in which management takes actions that otherwise would not be taken to prevent, for example, a tax loss carryforward from expiring unused (e.g., switching from tax-exempt to taxable investment)."

$EBVA_t$ = income from continuing operations before changes in the valuation allowance
in year t

E_{t-i} = income from continuing operations in year t-i

ΔMVE_t = changes in market value of equity from year t-1 to t

* Each variable is scaled by the beginning market value of equity.

Then, the public information component of changes in the valuation allowance are measured using the coefficients ($\hat{\gamma}_i$) estimated in equation (4) :

$$\Delta P\hat{V}A_t = \hat{\gamma}_0 + \hat{\gamma}_1 \Delta DTA_t + \hat{\gamma}_2 \Delta DTL_t + \hat{\gamma}_3 EBVA_t + \hat{\gamma}_4 E_{t-1} + \hat{\gamma}_5 E_{t-2} + \hat{\gamma}_6 \Delta MVE_t \quad (5)$$

By substituting $\Delta P\hat{V}A_t$ for ΔPVA_t in equation (3), I get an estimate of non-public information component of changes in the valuation allowance :

$$\Delta NP\hat{V}A_t = \Delta VA_t - \Delta P\hat{V}A_t \quad (6)$$

To examine the association of $P\hat{V}A_t$ and $NP\hat{V}A_t$ for future income, I estimate equation (2) by substituting $P\hat{V}A_t$ and $NP\hat{V}A_t$ for ΔVA_t .

$$E_{t+i} = \alpha_0 + \alpha_1 \Delta NP\hat{V}A_t + \alpha_2 \Delta P\hat{V}A_t + \alpha_3 EBVA_t + \epsilon_t \quad (7)$$

If changes in the valuation allowance for deferred tax assets include non-public information about future income, such as managers' private forward-looking information, α_1 will be negative (Hypothesis H1b). If managers change the valuation allowances in response to public information on future income that is not reflected in $EBVA_t$, α_2 will be negative (Hypothesis H1a). In the absence of any changes in the valuation allowance (i.e., $\Delta VA_t = 0$), E_t is positively associated with E_{t+i} (Ball and Watts 1972 ; Albrecht et al. 1977 ; Watts and Leftwich 1977 ; Lev 1983 ; Finger 1994 ; Dechow et al. 1998 ; Dechow and Dichev 2002). Therefore, α_3 is expected to be positive.

2. Earnings Management Implication of the Valuation Allowance

Firms manage earnings to meet two thresholds (Burgstahler and Dichev 1997 ; Degeorge et al. 1990) : the first is to report positive earnings and the second is to report earnings that sustain recent performance. The subjective nature of the valuation allowance for deferred tax assets gives

managers the opportunity to use it as a tool for these earnings managements. Earnings management through the valuation allowance would weaken the association of the valuation allowance with future income, since such changes in the valuation allowance would be uncorrelated with future income. To examine the earnings management implication of the valuation allowance for deferred tax assets, potential earnings management firms are identified by a two-step process. First, it is determined whether a firm has an earnings management incentive. Second, it is tested whether a firm with an earnings management incentive changes its valuation allowance in accordance with that incentive. Table 1 summarizes the steps taken to identify potential earnings management firms.

A typical earnings managements is to increase income to avoid reporting losses (Carslaw 1988 ; Thomas 1989 ; Hayn 1995 ; Burgstahler and Dichev 1997) and earnings declines (Hayn 1995 ; Burgstahler and Dichev 1997 ; Abarbanell and Lehavy 2000 ; DeFond and Park 2000). The earnings management incentive to avoid reporting losses is restricted to small losses because it is harder to hide large losses. This study defines "small losses" as negative $EBVA_t$ between 0 to -3% of the beginning market value of equity.⁸⁾ In addition, $EBVA_t$ (in absolute value) must be less than the beginning valuation allowance ; otherwise, the firm could not use the valuation allowance to avoid the loss. A firm with a small loss is likely to decrease the valuation allowance to bring reported earnings into positive territory. Therefore, the first group of potential earnings management firms :

- have negative $EBVA_t$ between 0 and -3% of the beginning market value of equity;
- have negative $EBVA_t$ whose absolute value is less than the valuation allowance ;
- decrease the valuation allowance ;
- report positive earnings.

Firms are also likely to increase income to avoid reporting earnings declines. This study assumes that a firm with the incentive to avoid reporting earnings declines has positive $EBVA_t$ less than E_{t-1} . In addition, the difference(in absolute value) between $EBVA_t$ and E_{t-1} must be less than the beginning valuation allowance otherwise, the manager could not use the valuation allowance to avoid the earnings decline. Such an incentive leads a firm to decrease the valuation allowance. Thus, the second group of potential earnings management firms

8) Burgstahler and Dichev (1997) and Degeorge et al. (1999) provide ranges of price-scaled earnings (or changes) around zero within which firms have a large incentive to manage earnings : $0 \sim \pm 0.01$, $0 \sim \pm 0.02$, $0 \sim \pm 0.03$ (or $0 \sim \pm 0.0005$, $0 \sim \pm 0.001$, $0 \sim \pm 0.015$). This study uses the earnings ranges derived from this prior research to investigate whether a firm uses its valuation allowance to smooth earnings, avoid reporting losses or earnings-declines, and take earnings big baths.

- have positive $EBVA_t$ that is less than prior earnings ;
- have the beginning valuation allowance that is larger than prior earnings minus $EBVA_t$
- decrease the valuation allowance;
- report earnings greater than prior earnings.

In along view, earnings management may be used to decrease income to maintain the appearance of a smoothly increasing earnings series when earnings are temporarily high (Beidlerman 1973, Moses 1987, Bannister and Newman 1996, Subramanyam 1996) and to artificially enhance subsequent years' earnings when losses cannot avoid (Kirschenheiter and Melumad 2003). Ronen and Sadan (1981), Trueman and Titman (1988), Dye (1988), and Goel and Thakor (2003) argue that a manager may smooth reported income to lower investors' perception of the variance of the firm's underlying economic earnings, which could have a positive effect on the firm's market value. In light of the earnings-smoothing incentive, a manager chooses to increase the valuation allowance in a year when earnings are temporarily high, and reduce it in a later year when earnings need a boost. This study regards "temporarily high earnings" as positive $EBVA_t$ that is greater than 3% of the beginning market value of equity and greater than prior earnings by at least 1.5% of the beginning market value of equity. A firm with earnings-smoothing incentive increases the valuation allowance and, in addition, the increase must be sufficiently large to substantially manage earnings. Following Frank and Rego (2003), this study defines a "sufficiently large" increase in the valuation allowance as 1.5% of the beginning market value of equity. Therefore, the third group of potential earnings management firms

- have $EBVA_t$ greater than 3% of the beginning market value of equity ;
- have $EBVA_t$ greater than the prior earnings by at least 1.5% of the beginning market value of equity ;
- increase the valuation allowance by at least 1.5% of the beginning market value of equity;
- report earnings less than $EBVA_t$ (resulting from increases in the valuation allowance), but greater than the prior earnings.

A manager may also choose to increase the valuation allowance in a year when they cannot avoid reporting losses because the losses are too large. They may reserve a portion of income in current losses to enhance earnings in future years, thereby taking an earnings big bath. This study considers large losses as negative $EBVA_t$ that is less than (i.e., more than, in absolute value) 3% of the beginning market value of equity and less than the prior year's earnings by at least 1.5% of the beginning market value of equity. The firms with an incentive to take an earnings big bath increase the valuation allowance, and the increase must be sufficiently large. Thus, the fourth

group of potential earnings management firms:

- have negative $EBVA_t$ less than -3% of the beginning market value of equity ;
- $EBVA_t$ is less than prior earnings by at least 1.5% of the beginning market value of equity;
- increase the valuation allowance by at least 1.5% of the beginning market value of equity.

This study estimates the regression model (2) separately on subsamples of likely earnings management and non-earnings management firms. Since the negative association of changes in the valuation allowance with future income is expected to be stronger for non-earnings management firms than for earnings management firms, the absolute value of α_1 for non-earnings management firms will be greater than for earnings management firms (Hypothesis H2).

To test whether α_1 is different between non-earnings management firms and earnings management firms, a dummy variable which takes on unit value if the firm likely managed its earnings through the deferred tax allowance is added to the explanatory variables in model (2) as follows :

$$E_{t+i} = \alpha_0 + \alpha_1 \Delta VA_t + \alpha_2 EBVA_t + \alpha_3 EM_t + \alpha_4 EM_t * \Delta VA_t + \epsilon_t \quad (8)$$

where,

E_{t+i} = income from continuing operations in year $t+i$

ΔVA_t = changes in the valuation allowance from year $t-1$ to t

$EBVA_t$ = income from continuing operations before changes in the valuation allowance
in year t

$EM_t = 1$ for likely earnings management firm-years : 0 otherwise

* Each variable (except EM_t) is scaled by the beginning market value of equity at year t .

In equation (8), the coefficient of changes in the valuation allowance for non-earnings management firms is α_1 whereas for earnings management firms this coefficient is $(\alpha_1 + \alpha_4)$. If managers manipulate the valuation allowance to manage earnings, the absolute value of α_1 will be greater than the absolute value of $(\alpha_1 + \alpha_4)$, that is, α_4 will be positive since α_1 is negative.

IV. EMPIRICAL ANALYSIS

1. Data Collection and Sample Description

The sample for this study is drawn from a search for news releases in the PR Newswire file in LEXIS/NEXIS using the key words "valuation allowance." PR Newswire delivers full-text,

unedited news releases, including announcements of quarterly and annual earnings, dividends, and earnings forecasts. The wire is updated every 30 minutes by teleprinter directly to the newsrooms of wire services, broadcasters, newspapers and magazines. Therefore, PR Newswire plays a key role in dissemination of time-critical financial information.

Table 2 summarizes the data collection procedure. First, 719 news reports about annual valuation allowance from 1994 to 2002 were found. SFAS 109 became effective for fiscal years beginning after December 15, 1992 : hence, to ensure consistent financial reporting this study includes firms for the period 1994-2002. Second, 247 firm-years that are not listed on Compustat are excluded. Third, 218 firm-years are dropped because they do not have the necessary valuation allowance or deferred tax asset and liability data on their 10-Ks through LEXIS/NEXIS. Fourth, 11 firm-years are deleted because of missing data items needed to compute changes in the valuation allowance for deferred tax assets. The remaining 243 firm-years are narrowed differently for the various tests depending on the data items needed.⁹⁾ The various columns in table 2 show the effects of these various data limitations.

Table 3 shows the number of news releases mentioning the valuation allowance for 1994-1998 and for 1999-2002. It also presents the industry composition of the 243 observations (before being narrowed further for the various tests). A majority (74.9%) of the announcements are for 1999-2002, and nearly three-quarters of the announcements pertain to firms in the manufacturing and service industries.

Table 4 reports descriptive statistics for the variables. The mean (median) earnings (E_t) and $EBVA_t$ are $-\$7.2M$ ($\$1.1M$) and $-\$7.9M$ ($\$2.4M$), respectively. The mean market value of equity of $\$698.4M$ is about 40% of the $\$1,735M$ mean market value of equity for the Compustat population over 1994-2001.¹⁰⁾ These statistics imply that the average sample firms in this study are smaller than the Compustat firms and incurred losses over the sample period. The sample firms, on average, account the valuation allowance of $\$40.4M$ for deferred tax assets of $\$94.8M$ and have deferred tax liabilities of $\$56.5M$.¹¹⁾ Their mean (median) change in the valuation allowance is $\$ -1.0M$ ($\$0$).

Table 5 presents the correlations between the valuation allowance for deferred tax assets with other variables. The correlations are consistent with expectations. The valuation allowance is negatively correlated with future income. It is also correlated with such public information, which

9) The 243 firm-years consist of 213 different firms.

10) Frank and Rego (2003, p.35) provide some descriptive statistics for the Compustat population.

11) In general, more than half of the firms reporting deferred tax assets record some amounts of related valuation allowance (Comiskey and Mulford 1994 ; Petree et al. 1995 ; Behn et al. 1998).

may provide prediction of changes in the valuation allowance, as changes in deferred tax assets and liabilities, current earnings before changes in the valuation allowance, earnings in each of the prior two years and changes in the market value of equity.

2. Information Content of Changes in the Valuation Allowance

Table 6 shows the ordinary-least-squares (OLS) results for regression models (4) and (7). In the regression model (4), changes in the valuation allowance are regressed on publicly available information in predicting future income such as deferred tax assets/liabilities, earnings, and market value of equity. As expected, changes in deferred tax assets (liabilities) are positively(negatively) associated with changes in the valuation allowance. Current $EBVA_t$ has a negative coefficient. This indicates that higher current earnings before changes in the valuation allowance are associated with downward revisions in the valuation allowance. Prior earnings also have significant explanatory power. Changes in the market value of equity are negatively associated with changes in the valuation allowance. This result is consistent with the view that good news on future profitability is reflected in a higher current security price and also causes managers to reduce the valuation allowance. These results of the regression model (4) imply that managers, on average, change the valuation allowance in response to public information that causes changes in expectations of future income. This conclusion is consistent with earlier studies (e.g., Miller and Skinner 1998 ; Visvanathan 1998 ; Bauman et al. 2001 ; Phillips et al. 2003).

Another regression model (7) in Table 6 is to test the association between future income and estimated public and non-public information components of changes in the valuation allowance. The regression model of one-year-ahead income is significant at the .01 level, and its adjusted R^2 is 26.9%. As expected in the hypothesis H1, the one-year-ahead income is negatively associated with both the public (at the .05 significance level) and nonpublic information component of changes (at the .01 significance level) in the valuation allowances as well as being positively associated with current $EBVA$ (at the .01 significance level). However, the two-year-ahead income is significantly associated only with current $EBVA$. These results imply that changes in the valuation contain incremental nonpublic information beyond publicly available information in predicting one-year-ahead income.

3. Earnings Management Implication of the Valuation Allowance

Using the methodology outlined in Table 1, potential earnings management firms of 159 (76.1%) and non-earnings management firms of 50 (23.9%) are identified from 209 news releases of annual valuation allowance on PR newswire from 1994 to 2002. Of the 159 firm-years, 50 (31.4%) have an earnings-smoothing incentive, 12 (7.6%) have a loss-avoidance incentive, 34 (21.4%) have an earnings-decline-avoidance incentive, and 63 (39.6%) have an earnings big bath incentive. Surprisingly, 70.5% of the sample firms increase the valuation allowance to reduce income to be reported for the purpose of earnings management.

Table 7 reports the OLS estimation results for the regression model (2) on subsamples of potential earnings management firms and non-earnings management firms. Changes in the valuation allowance of non-earnings management firms are associated with both one- and two-year-ahead income at .01 significance level. On the other hand, changes in the valuation allowance of potential earnings management firms are associated with only one-year-ahead income at .05 significance level. Therefore, the association of changes in the valuation allowance with future income for potential earnings management firms is weaker than the association for non-earnings management firms (Hypothesis H2). These results imply that managers manipulate the valuation allowance to manage earnings, making the valuation allowance less informative.

Table 7 also presents the OLS results of another regression model (8), which adds a dummy variable of earnings management into regression model (2) in order to test the significance of the difference of the association of changes in the valuation allowance with one- and two-year-ahead incomes between non-earnings management firms and earnings management firms. The coefficient of the interactive term α_4 is positive and significant for both one and two-year-ahead income, which indicates that the association of deferred tax allowance changes with one- and two-year-ahead incomes for earnings management firms is significantly weaker than the association for non-earnings management firms (Hypothesis H2).

V. CONCLUSION

Under SFAS 109, a manager should change the valuation allowance for deferred tax assets in response to not only publicly available information but also private forward-looking information about future income. Therefore, inclusion of the valuation allowance for deferred tax assets in the financial reports might improve the flow of information to the market. However, allowing the disclosure of forward-looking information creates opportunities for earnings management.

This study provides evidence of both benefits and costs of inclusion of the valuation allowance. Changes in the valuation allowance contain incremental information (e.g., managers' private information) beyond publicly available information in predicting future income. However, the association between changes in the valuation allowance and future income for earnings management firms is weaker than for non-earnings management, implying that managers manipulate the valuation allowance to manage earnings.

The findings of this study have mixed implications for accounting standard setters and regulators. The incremental information content of the valuation allowance found here suggests that mandating recognition of forward-looking information in financial statements has the potential to make these statements more informative.

On the other hand, the earnings management implication of the valuation allowance, which is also found here, implies managers' ability to fool investors through opportunistic manipulation and a potential to make the financial statements less informative. Therefore, an avenue for future research is to investigate whether the users of financial statements are able to extract value-relevant information from the valuation allowance with recognizing earnings management effects on the valuation allowance.

Korean GAAP does not require firms to report the valuation allowance for deferred tax assets. Deferred tax assets should be recognized to the extent that it is very probable that taxable profit will be available. Considering the properties of deferred tax assets, information contents and earnings management, the disclosure of the valuation allowance for deferred tax assets is expected to improve the usefulness of financial information.

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이연법인세자산에 대한 평가충당금

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<요 약>

미국 재무회계기준서(SFAS 109)에서는 이연법인세자산 중 미래에 법인세소득이 불충분하여 실현되지 않을 부분에 대한 평가액을 이연법인세자산에 대한 평가충당금으로 보고하도록 규정하고 있다. 따라서 그 평가충당금의 변동액은 경영자가 미래의 법인세 소득을 예측함에 있어서 자본시장에 공개된 정보 이외에 기업 내부정보를 추가로 포함한다. 그러나 그 평가충당금은 경영자의 주관적 판단에 의존하기 때문에, 이익을 조정하려는 기업의 평가충당금 변동액은 이익조정의 의도가 없는 기업의 평가충당금보다 미래의 법인세 소득과의 연관성이 낮다. 이러한 실증분석결과는 기업들이 이연법인세자산의 평가충당금을 이익조정의 목적으로 사용함을 의미한다. 본 연구는 회계기준제정자와 감독자들에게 상충된 시사점을 제시한다. 이연법인세자산의 평가충당금과 같이 경영자의 미래예측정보에 기초한 재무정보를 재무제표에 공시하도록 하는 것은 그 정보이용자들에게 자본시장에 공개된 정보 이외의 경영자의 내부정보를 추가로 제공할 수 있지만, 동시에 경영자들이 재무정보이용자들의 의사결정을 오도할 수 있는 이익조정의 수단으로도 사용될 수 있다. 한편, 국내회계처리기준에서는 평가충당금을 별도로 보고하지 않고 실현가능성이 거의 확실한 경우에 이연법인세자산을 인식하도록 규정하고 있다. 이연법인세자산의 실현가능성에 대한 경영자의 주관적 판단이 재무정보이용자들에게 추가의 정보를 제공하는 긍정적 효과뿐만 아니라 이익조정의 수단으로 사용되는 부정적 효과가 있다면, 이연법인세자산의 실현가능성에 따른 평가충당금을 별도로 공시하는 것이 회계정보의 유용성을 제고할 것으로 기대된다.

<주제어> 이연법인세, 이연법인세자산, 정보요소, 이익조정

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〈Table 1〉 Identification of Potential Earnings Management Firms

Thresholds	Step 1 : Earnings Management Incentive		Step 2 : Manipulation of Changes in the Valuation Allowance	
			Deferred-Tax-Allowance Changes	Reported Earning
Positive Earnings	Earnings Smoothing	$EBVA_t > 0.03 * P_{t-1} \ \& \ EBVA_t > E_{t-1} + 0.015 * P_{t-1}$	$\Delta VA_t > 0.015 * P_{t-1}$	$E_{t-1} < E_t < EBVA_t$
	Earnings big-bath	$EBVA_t < -0.03 * P_{t-1} \ \& \ EBVA_t - E_{t-1} < -0.015 * P_{t-1}$	$\Delta VA_t > 0.015 * P_{t-1}$	$E_t < EBVA_t$
	Avoiding Loss	$-0.03 * P_{t-1} < EBVA_t < 0$ $- VA_{t-1} < EBVA_t < 0$	$\Delta VA_t < 0$	$E_t > 0$
Recent Earnings	Avoiding Earnings-Declines	$- VA_{t-1} < EBVA_t - E_{t-1} < 0$	$\Delta VA_t < 0$	$E_t > E_{t-1}$

Variable Definition :

 $EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t P_{t-1} = beginning market value of equity at year t E_{t-1} = income from continuing operations in year t-1 ΔVA_t = change in the valuation allowance from year t-1 to year t, VA_{t-1} = beginning valuation allowances at year t

〈Table 2〉 Data Collection

	(a)	(b)	(c)	(d)	(e)
News releases of annual valuation allowance on PR newswire from 1994 to 2002	719	719	719	719	719
(Less) Firm-years that are not listed in Compustat	(247)	(247)	(247)	(247)	(247)
(Less) Firm-years that are not reported on 10-K through LEXIS/NEXIS	(218)	(218)	(218)	(218)	(218)
(Less) Missing data items for the valuation allowance change	(11)	(11)	(11)	(11)	(11)
	243	243	243	243	243
(Less) Missing data items for public information	(30)	(30)	(30)		
(Less) Missing data items for to identify earnings management incentives	(4)			(4)	(4)
(Less) Missing data items for one-year-ahead income		(71)		(76)	
(Less) Missing data items for two-year-ahead income			(123)		(138)
Sample size	209	142	90	163	101

Note :

- (a) Regression (4) of changes in the valuation allowance on public information
- (b) Regression (7) of one-year-ahead income on public and non-public components of changes in the valuation allowance and $EBVA_t$
- (c) Regression (7) of two-year-ahead income on public and non-public components of changes in the valuation allowance and $EBVA_t$
- (d) Regression (2) & (8) of one-year-ahead income on changes in the valuation allowance and $EBVA_t$ for earnings management firms and non-earnings management firms
- (e) Regression (2) & (8) of two-year-ahead income on changes in the valuation allowance and $EBVA_t$ for earnings management firms and non-earnings management firms

〈Table 3〉 Sample Composition

	Firm—Years	Percentage
1994 – 1998	61	25.10%
1999 – 2002	182	74.90%
Total	243	100.0%
Mining and Construction (SIC Code 10 – 17)	16	6.58%
Manufacturing (SIC 20 – 39)	124	51.03%
Transportation and Public Utilities (SIC 40 – 49)	11	4.53%
Wholesale Trade and Retail Trade (SIC 50 – 59)	16	6.58%
Finance, Insurance, Real Estate (SIC 60 – 67)	24	9.88%
Services (SIC 70 – 87)	52	21.40%
Total	243	100.00%

〈Table 4〉 Sample Description

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
E_t	-7,235	1,120	219,872	-2,236,576	903,000
$EBVA_t$	-7,924	2,421	209,660	-2,235,961	902,957
MVE_t	698,465	74,044	1,955,898	1,646	19,039,686
ΔVA_t	-1,072	0	99,916	-1,055,700	662,000
DTA_t	94,829	19,148	223,731	294	2,030,100
DTL_t	56,530	1,666	247,778	0	3,391,000
VA_t	40,406	7,523	133,533	0	1,646,100
CF_t	62,447	4,660	220,214	-99,194	2,382,100
E_t/P_{t-1}	-.3243	.0200	1.1323	-10.74	.88
$EBVA_t/P_{t-1}$	-.1443	.0100	1.6942	-25.66	2.01
$\Delta MVE_t/P_{t-1}$	.2014	-.1200	1.3208	-.95	10.86
$\Delta VA_t/P_{t-1}$	-.0753	.0000	1.6674	-25.69	.97
$\Delta DTA_t/P_{t-1}$	.0493	.0100	.4151	-.86	5.58
$\Delta DTL_t/P_{t-1}$	-.0127	.0000	.1050	-.96	.29
CF_t/P_{t-1}	.1280	.0600	.3292	-.91	2.30

Variable Definition (Unit \$1,000) :

E_t = income from continuing operations in year t

$EBVA_t$ = earnings before changes in the valuation allowance in year t

ΔVA_t = changes in the valuation allowance from year t-1 to t

CF_t = cash flows from operations in year t

MVE_t = market value of equity at year t

DTA_t = deferred tax assets at year t

DTL_t = deferred tax liabilities at year t

P_{t-1} = beginning market value of equity at t

〈Table 5〉 Variable Correlations

	Variable	Expected Sign	ΔVA_t		
			Pearson	Kendall	Spearman
Predictive Ability	E_{t+3}	–	–.191**	–.152**	–.212**
	E_{t+2}	–	–.203**	–.340***	–.465***
	E_{t+1}	–	–.353***	–.311***	–.392***
Public Information	ΔDTA_t	+	–.816***	.583***	.695***
	ΔDTL_t	–	.543***	–.081**	–.107**
	$EBVA_t$	?	.964***	–.297***	–.370***
	E_{t-1}	?	–.037	–.229***	–.301***
	E_{t-2}	?	.251***	–.011	.002
	ΔMVE_t	–	–.022	–.213***	–.312***

Variable Definition :

ΔVA_t = changes in the valuation allowance from year $t-1$ to t

E_t = income from continuing operations in year t

CF_t = cash flows from operations in year t

ΔDTA_t = changes in deferred tax assets at year t ,

ΔDTL_t = changes in deferred tax liabilities at year t

$EBVA_t$ = earnings before deferred – tax – allowance changes in year t

ΔMVE_t = changes in market value of equity at year t

***, **, * indicate significance at the .01, .05, and .10 levels, respectively for one – tailed tests.

〈Table 6〉 Information Content of Changes in the Valuation Allowance for Deferred Tax Assets

$$(4) \Delta VA_t = \gamma_0 + \gamma_1 \Delta DTA_t + \gamma_2 \Delta DTL_t + \gamma_3 EBVA_t + \gamma_4 E_{t-1} + \gamma_5 E_{t-2} + \gamma_6 \Delta MVE_t + \epsilon_t$$

Dependent Variable	Number of Sample	F value	Adjust R^2	Coefficient (t value)						
				Constant	ΔDTA_t	ΔDTL_t	$EBVA_t$	E_{t-1}	E_{t-2}	ΔMVE_t
ΔVA_t	209	16.382 ⁺⁺⁺	.307	.008 (.283)	.458 ^{***} (7.215)	-.286 [*] (-1.409)	-.073 ^{**} (-1.885)	-.087 ^{**} (-1.830)	.194 ^{***} (3.585)	-.020 ^{**} (-1.875)

$$(7) E_{t+i} = \alpha_0 + \alpha_{1a} \Delta NP\hat{V}A_t + \alpha_{1b} \Delta P\hat{V}A_t + \alpha_2 EBVA_t + \epsilon_t$$

Dependent Variable	Number of Sample	F value	Adjust R^2	Coefficient (t value)			
				Constant	$\Delta NP\hat{V}A_t$	$\Delta P\hat{V}A_t$	$EBVA_t$
E_{t+1}	142	18.339 ⁺⁺⁺	.269	.024 (.984)	-.225 ^{**} (-2.020)	-.741 ^{***} (-4.325)	.267 ^{***} (4.184)
E_{t+2}	90	2.569 ⁺	.050	.062 [*] (1.433)	-.232 (-1.166)	-.281 (-1.015)	.348 ^{**} (1.881)

Variable Definition:

ΔVA_t = changes in the valuation allowance from year t-1 to t,

ΔDTA_t = changes in deferred tax assets from year t-1 to t

ΔDTL_t = changes in deferred tax liabilities from year t-1 to t

$EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t

E_{t-1} = income from continuing operations in year t-1

ΔMVE_t = changes in market value of equity from year t-1 to t

$\Delta NP\hat{V}A_t$ = estimates of non-public information components

$\Delta P\hat{V}A_t$ = estimates of public information components

Each variable is scaled by the beginning market value of equity.

+++, ++, + (***, **, *) indicate significance at the .01, .05, and .10 levels, respectively for two-tailed tests (one-tailed tests).

〈Table 7〉 Earnings Management Implication of the Valuation Allowance for Deferred Tax Assets

$$(2) E_{t+i} = \alpha_0 + \alpha_1 \Delta VA_t + \alpha_2 EBVA_t + \epsilon_t$$

$$(8) E_{t+i} = \alpha_0 + \alpha_1 \Delta VA_t + \alpha_2 EBVA_t + \alpha_3 EM_t + \alpha_4 EM_t * \Delta VA_t + \epsilon_t$$

Model	Dependent Variable	Number of Sample	F value	Adjust R^2	[expected sign] Coefficient (t value)				
					constant	$[-] \Delta VA_t$	$[+] EBVA_t$	EM_t	$EM_t * \Delta VA_t$
(2)	E_{t+1}	97 Non – Earnings Management Firms	40.585 ⁺⁺⁺	.449	.009 (.367)	-.969 ^{***} (-6.628)	.880 ^{***} (7.588)		
(2)		65 Earnings Management Firms	11.118 ⁺⁺⁺	.240	.016 (.473)	-.249 ^{***} (-2.661)	.208 ^{***} (3.170)		
(8)		163	27.495 ⁺⁺⁺	.246	.028 [*] (1.287)	-.372 ^{***} (-4.428)	.319 ^{***} (5.309)		
(8)		163	17.315 ⁺⁺⁺	.287	.019 (.683)	-.805 ^{***} (-5.233)	.369 ^{***} (6.029)	.017 (.381)	.609 ^{***} (3.293)
(2)	E_{t+2}	62 Non – Earnings Management Firms	19.287 ⁺⁺⁺	.375	.018 (.711)	-.906 ^{***} (-3.447)	1.333 ^{***} (4.740)		
(2)		38 Earnings Management Firms	.305	-.038	-.003 (-.047)	-.057 (-.417)	-.134 (-.682)		
(8)		101	5.171 ⁺⁺⁺	.077	.063 [*] (1.637)	-.264 ^{**} (-1.893)	.430 ^{***} (2.429)		
(8)		101	5.191 ⁺⁺⁺	.144	.086 ^{**} (1.775)	-1.007 ^{***} (-3.606)	.380 ^{**} (2.137)	-.061 (-.767)	.969 ^{***} (3.047)

Variable Definition :

E_{t+i} = income from continuing operations in year t+i

ΔVA_t = changes in the valuation allowance from year t-1 to t

$EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t

EM_t = 1 if potential earnings management firms : =0 otherwise

Each variable is scaled by the beginning market value of equity at t year.

+++, ++, + (***, **, *) indicate significance at the .01, .05, and .10 levels, respectively for two-tailed tests (one-tailed tests).

Note : Among earnings management firm-years, one influential outlier is deleted in this estimation.