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Income Management After
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Lawrence H. Bajor

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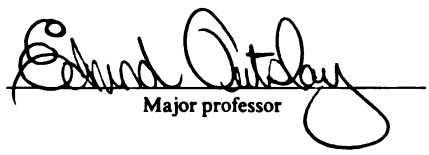

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INCOME MANAGEMENT AFTER INITIAL PUBLIC OFFERINGS

By

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ABSTRACT

INCOME MANAGEMENT AFTER INITIAL PUBLIC OFFERINGS

By

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Abstract: This paper examines earnings management during the underwriter- imposed lock-up period immediately after an I PO. It predicts and finds the use of income increasing accruals during the lock-up period. A sample of 190 firms having IPOs in 1995 and a sample of matching control firms are selected. Using the Modified-Jones, the Hribar/Collins and the Healy definitions of abnormal accruals, earnings management during the lock-up period is demonstrated. The paper also examines the effect of another suspected earnings management vehicle during this period, the valuation allowance under FA S 109.

This study contributes to the literature in that it extends Miller and Skinner to the post IPO lock-up period. It indicates an accounting driven earnings management explanation of the post-IPO behavior observed by Teoh et al.. (1998) and Ritter (1991). In extending Miller and Skinner (1998) the study provides a strong test of the deferred tax asset valuation allowance as an earnings management tool in an environment in which earnings management is demonstrated. I finds that the valuation allowance is not a component of earnings management and that the valuation allowance bears an inverse relation to income from operations.

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Introduction

This study examines earnings management in the period immediately after an initial public offering (IPO). Because managers are heavily invested in their own firms, I predict that managers will take steps to increase earnings through the period of time during which the lock-up expires. The study predicts and finds that compared to a matched control sample, income-increasing accruals are employed during the lock-up period to produce higher earnings. Once the lock-up periods have passed this study predicts and finds no difference between the experimental and matched control group with regard to the nature of the accruals observed. This study also evaluates the impact of the valuation allowance has on earnings management in the post-IPO period.

This study employs an experimental sample of 190 firms and a matched control group. The experimental sample consists of firms having an IPO in 1995. Test results indicate that, relative to the control group, the experimental sample has a significantly larger proportion of firms exhibiting income-increasing accruals during the lock-up period. The mean of the income increasing accruals is significantly more positive for the experimental group than the control group. Similar tests comparing the experimental and control groups in the years after the lock-up expiration do not reveal differences in either the proportion of firms demonstrating positive accruals or in the mean of those accruals. A test comparing the experimental group with itself, before and after the lock-up period, demonstrates a significantly larger proportion of firms showing positive accruals with a significantly larger mean during the lock-up period.

In terms of income increasing behavior, a test of the valuation allowance showed no difference in the ratio of the valuation allowance to deferred tax assets in the lock-up

and post lock-up periods for the experimental group. It is doubtful that the valuation allowance is employed to generally increase income across a broad spectrum of firms.

Using panel data for the experimental group a test of income smoothing employing the valuation allowance is conducted. This test reveals that the change in the valuation allowance was inversely proportional to the change in income from operations. This indicates that as income from operations becomes smaller, a greater proportion of the firms deferred tax assets are thought not to be recoverable. This finding is contrary to what one would expect if the valuation allowance were used to smooth income.

This study makes several contributions. Ritter (1991) observes that IPOs, generally, are underpriced. Measured from the offering price to the market price at the end of the first day of trading IPOs produce an average initial return estimated at 16.4 percent. Ritter's most important contribution is his demonstration that IPOs in the long run appear to be overpriced. He finds a fall off of returns in the third year. He observes that these firms significantly underperform a set of comparable firms matched by size and industry. Teoh (1998) explains Ritter's findings in terms of accounting information specifically the manipulation of accruals. This study explains the observations of Ritter (1991) and Teoh et al. (1998) in terms of income increasing accounting accruals that correspond to the expiration of the lock-up period on management share holdings. The accrual patterns found by this study help to explain Ritter's and Teoh's post-IPO observations.

The accounting community has expressed concern with the income management potential provided by FAS 109. Miller and Skinner (1998) list three instances of probable earnings management using FAS 109 involving Fortune 500 firms.

This study reproduces Miller and Skinner (1998), in part, in a setting in which income management using other means is demonstrated. Consistent with Miller and Skinner, the study finds that the valuation allowance is a function of past earnings, the size of net deferred tax assets, and total carryforwards. However, with regard to income smoothing, I find an inverse relation between first differences in income before extraordinary items and first differences in the valuation allowance, a relation not observed in Miller and Skinner and one which is contrary to that expected if there were income smoothing using FAS 109. In an environment marked by income increasing accruals, manipulating the valuation allowance does not appear to contribute to the earnings management effort.

This study proceeds as follows: in the next section I provide a literature review. The third section provides hypothesis development. Section four contains sample selection. Section five describes the research methods and a test of the model related to accruals. Section six describes the research methods and a test of the model related to the valuation allowance. Section seven presents the conclusion.

Literature Review

Earnings Management

Earnings management and its varied forms have been a staple of accounting research for many years. Schipper (1989) defines earnings management as purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain. Healy (1985) examined the effect of bonus schemes on accounting decisions. He found that managers manipulate earnings to maximize bonus plan compensation conditional on whether earnings before accruals were above, between, or

below that required to receive a bonus. Jones (1991) examined the effect of foreign trade regulations on accounting choices. She introduced a sophisticated accrual expectation model to detect earnings management as a response to accounting-based regulations formulated by the U.S. Foreign Trade Commission. Dechow, Sloan, and Sweeney (1995) evaluated alternative discretionary-accrual-based models for detecting earnings management. They evaluated tests created by Healy (1985), Jones (1991), and DeAngelo (1994) and they found that all of the tests were of low power for detecting earnings management. They cited a modified version of the Jones (1991) as having the most power to detect earnings management. Beneish (1997) studied actual instances of earnings management. From his work he presented a model to detect earnings management among firms experiencing extreme financial performance. He compared the model's performance to that of discretionary accrual models.

Burgstahler and Dichev (1997) provide evidence that firms manage reported earnings to avoid earnings decreases and losses. In cross-sectional distributions of earnings changes and earnings, they found unusually low frequencies of small decreases in earnings and small losses. They also offer theories about the motivation for avoidance of earnings decreases and losses. Burgstahler and Dichev (1997) document earnings management without estimating abnormal accruals. Their main contribution is that earnings management does not occur in a vacuum. Management must perceive a benefit from the actions taken.

Guay, Kothari, and Watts (1996), hereafter GKW, criticize the discretionary-accrual models used in much of the income-management research, Healy (1985); DeAngelo (1986); Jones (1991); Jones as modified in Dechow, Sloan, and Sweeny

(1995) and the industry model proposed by Dechow and Sloan (1991). Their study is a joint test of earnings-price models. Its findings similar to those in Dechow, Sloan, and Sweeny (1995) in that GKW find that all of the models estimate discretionary accruals with imprecision. GKW indicate that the Jones and modified Jones models have the most potential to provide the best chance of estimating discretionary accruals. Their overall results suggest that caution should be exercised in interpreting the research on management's use of accruals motivated by opportunism or performance measure improvement.

Healy (1996) discusses the GKW (1996) paper and finds it to be flawed. He finds the strength of their findings to be at odds with the strength of their study. Healy finds fault with the noise in their market research as it is devised. Healy asks as to whether should one reject the accrual models as GKW suggest or should one reject the GKW model and its predictions. Healy questions the use of a market study in this context because the difference between discretionary and non-discretionary accruals would not be public information. He doubts that the market has the information available to distinguish between the discretionary and non-discretionary accruals. Healy concedes that as with many areas of academic accounting inquiry the method of accrual measurement is flawed. He does not believe that the imperfection of the tools should deter additional efforts in the area of income management but rather that this imperfection provides opportunity for additional research. Healy indicates that the key to research in this area is to select firms and situations in which accruals management is likely to occur. These situations will provide sufficient power so that even crude proxies for earnings management are likely to detect an effect.

Collins and Hribar (1999), question the use of a balance sheet approach to test for earnings management. The Healy (1985) and the Jones and modified Jones tests are balance sheet methods. Collins and Hribar find in particular that these tests of earnings management can be biased in the presence of mergers, acquisitions, and discontinued operations. They recommend computing accruals as follows:

$$Accruals_t = Earnings_t - CFO_t$$

where Earnings is earnings from operations (COMPUSTAT #76) and CFO is the cash flow from continuing operations (COMPUSTAT #108- #78).

Dechow et al.. (2001) further adapt the Jones model to better explain accrual behavior. They drop the implicit assumption that all credit sales are discretionary. They also attempt to capture the predictable component in a firm's accruals and its future sales growth.

Initial Public Offerings

Ritter (1991) observes that IPOs, generally, are underpriced. Measured from the offering price to the market price at the end of the first day of trading, IPOs produce an average initial return estimated at 16.4 percent. Ritter's most important contribution with regard to this study, is his demonstration that IPOs in the long run appear to be overpriced. He finds a fall off of returns in the third year. IPO firms significantly underperformed a set of comparable firms matched by size and industry. In an analysis of individual accounting items, Teoh (1998) found that IPO firms adopt income increasing depreciation policies before the IPO when they deviate from a matched control group of similarly performing non-issuing industry peers. IPO firms also provide

significantly less for uncollectible accounts receivables than the control group of non-issuers. Ritter and Teoh both examined years before the advent of SFAS No. 109.

Beaty, Riffe, and Thompson (2000) examine the relation between IPO stock values and available accounting information. In explaining Ritter, they find that accounting book value, earnings and revenue, in conjunction with several other firm and market characteristics, explain a large portion of IPO offer values. They find that first day stock return from offer price to closing market is also significantly correlated with firm characteristics and accounting information.

FAS 109

Statement of Financial Accounting Standards No. 109, Accounting for Income Taxes, was issued in 1992, effective for fiscal years beginning after December 15, 1992. Deferred taxes represent the future tax consequences of events already recognized in either the financial statements or tax returns. Under FAS 109 businesses recognize deferred tax liabilities for temporary differences that may result in taxable amounts in future years. If in management's judgement future taxable income will not be sufficient to realize a tax benefit from a deferred tax asset, a valuation allowance, offsetting the deferred tax asset by the projected unused portion, must be created. The FASB provides the following guidance in the determination whether or not a valuation allowance is needed. All available evidence should be considered as to whether or not a valuation allowance is needed. The decision is to be made on the basis of the weight of that evidence, both positive and negative. After considering both positive and negative evidence management must decide if it is *more likely than not* that the deferred tax asset

will be realized. The Board defines *more likely than not* to mean a level of likelihood that is more than 50 percent. To the extent that it is not more likely than not a deferred tax asset will be realized a valuation allowance must be set up. There is no corresponding impairment for deferred tax liabilities. The more likely than not standard is viewed as sufficiently broad to enable aggressive managers to manipulate the size of the valuation allowance and subsequently earnings.

FAS 109 has been strongly criticized in that it appears to provide an additional opportunity for managerial interpretation and income management. Ayers (1998) examines the statement from an information content perspective. He concludes that the changes made by FAS 109 provide value relevant firm data beyond that provided by APB 11.

Espahbodi, Espahbodi and Tehranian (1995) observed that SFAS 109 generally is an income-increasing standard. They studied the market reaction observed around the Exposure Draft dates and they found significant positive abnormal returns. The authors also hypothesized that the equity price reaction should correspond to the income effects and the consequences of a given income effect. Their results are consistent with contracting and political cost hypotheses.

Behn, Eaton, and Williams (1998) examined the association between the recognized deferred tax asset valuation allowance and certain variables put forth as sources of evidence in FAS 109. They found that taxable income in prior years, future reversals of deferred tax liabilities, and the potential for future income are factors that are strongly associated with the relative level of deferred tax asset valuation allowance.

Miller and Skinner (1998) also examined the components of the valuation allowance mandated by the standard as it applies to large stable firms. Consistent with FAS 109, they found that the valuation allowance is larger for firms with relatively more deferred tax assets. They also found that the allowance is smaller for firms with higher levels of expected future taxable income. The size of a firm's tax credit and tax loss carryforwards are the most important determinants of the size of the valuation allowance. Miller and Skinner did not find any relation between the size of the valuation allowance and income from operations. Miller and Skinner hypothesized the existence of income management employing the valuation allowance but found no evidence of it. The authors theorized that the reason that their research found no income management was that the power of their tests was insufficient to capture the effect. The sample in the Miller and Skinner paper consisted of 200 large, well established, and publicly traded firms. The only requirement was that they have net deferred tax assets on their balance sheets. Examining firms in an environment known to foster income management as suggested in Healy (1996) could provide a more powerful test.

Brav and Gompers (2000) examined the role of investment bankers and lock-up provisions in the market for new equity issues. They found an average abnormal return at the lock-up expiration. They found that earnings forecasts made by both affiliated and unaffiliated analysts were more optimistic.

This study will first establish the existence of earnings management in a sample of firms that is representative of the post-IPO environment. It will then analyze what contributions the valuation allowance under FAS 109 makes toward earnings management.

Hypothesis Development

The important question being asked is what is the nature of the income management observed prior to the IPO lock-up expiration. A second question explored is whether or not the valuation allowance is being used to manage income. Observing companies in the time frame immediately post-IPO is thought to present an opportunity for management either to artificially increase earnings or to smooth them at artificially high levels. Managers typically have a large portion of their wealth tied up in their company's equity. The median insider ownership of IPO shares in this sample is 37 percent. The mean insider ownership is 39 percent. The median capitalization of the firms in this sample on their IPO date is $139 million dollars. Because of the lock-up of up to 3 years mandated by investment bankers, managers cannot sell their shares at the IPO or immediately after. Beneish (1999) finds that debt covenants and the cost of external financing do not determine earnings management. He finds that the monitoring of managers' trading behavior can be informative about the likelihood of earnings management. Gombola, Lee, and Liu (1999) note significant net selling by insiders prior to seasoned equity offering announcements. Anecdotally, web sites such as www.ipolockup.com and www.unlockdates.com are numerous. Their sole purpose is to provide information about expiring lock-ups. They maintain that stock prices can fluctuate greatly when shares unlock. There is little academic accounting work on the expiration of lock-ups. The suspicion is that there is an incentive for management to control earnings during and just after the lock-up period.

The SEC monitors the trading behavior of insiders. Trading by this group immediately after an earnings surge or before an earnings drop might invite SEC

scrutiny. If managers use accounting to artificially increase income they may also use accounting to smooth income for a time to avoid scrutiny.

The smoothing hypothesis is well known in accounting literature[1]. It concludes that managers use accounting discretion to reduce fluctuations in reported income. Healy (1985) indicates that managers manipulate earnings by increasing and decreasing accruals to match the requirements of bonus contracts. The findings of Ritter (1991) are inconclusive as to whether income increasing or income smoothing transpires in the post-IPO environment. He observes a pattern of high returns at the IPO date and negative returns three years after the IPO date. Teoh, Welch, and Rao (1998) used the Ritter database to examine earnings management during initial public offerings. They found that IPO firms have high positive issue-year earnings and abnormal accruals. The Ritter and Teoh et al.. efforts do not specifically make this statement, but these papers leave open the possibility that the earnings management observed in the year of the IPO is generated to increase or substantiate the offer price.

In examining the sample of IPOs gathered for this study one looks to important dates in the process. First the company must register with the SEC. As part of the registration document, a prospectus is provided. For many companies the registration document will also constitute a comprehensive disclosure document about the company. After the securities are registered, the next important date for purposes of this study is the issue date. At this time the shares become available to the public. With regard to the firms examined in this study, the issue date is usually 60 days after the registration date. After the issue date, the date on which the lock-up of insider shares expires becomes the next most important event.

Closer inspection of the companies in this sample reveals an interesting occurrence. After comparing the fiscal year ends with the registration date and the issue date, it is apparent that the 1995 year-end financial statements were available to investors in only 5 percent of the IPOs.[2] A typical company had the following time line. Total Renal Care is a firm in the sample. Its fiscal year end is 12/31. Its registration date is 3/14/95. The issue date is 4/19/95, and the lock-up expiration date is 5/13/96. Consequently, the year-end 1995 financial data were not available to influence investors in the initial public offering. If income is being managed to influence the IPO offer price, then evidence of earnings manipulation should be evident in the year before the IPO. Teoh et al.. (1998) found evidence of earnings management in the year of the offering. Earnings management in the year of the offering is typically too late to influence the offer price. What then is management's motivation? The only motivation remaining is the lock-up expiration date. In this sample 130 of 190 firms (68 percent) have a 1996 lock-up expiration date. None of the firms has a 1997 lock-up expiration. The lock-up period for this sample varies from 180 to 360 days.

To test for earnings management the study will use three definitions of accrual, modified-Jones (1995), Collins Hribar (1999) and Healy (1985). Each will be employed to test hypothesis one and two separately. First the study will use the modified Jones model as described by Dechow, et al. (2001)[3].

$$TAcc_{it} = \alpha + \beta_1(\Delta Sales_{it} - \Delta Rec_{it}) + \beta_2 PPE_{it} + \xi_{it} \qquad (1)$$

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[1] Watts and Zimmerman (1986).
[2] Since most firms have 12-31 year ends this fact should generalize across all IPOs.
[3] The enhanced version of the modified-Jones model was not used because its requirements caused so many data points to be lost that the power available was nil.

where $\Delta Sales_{it}$ = the change in firmi's sales (Compustat item#12) from year t-1 to t;

ΔRec_{it} = the change in firm i's accounts receivable from operating activities for years t-1 to t (Compustat item #302.)

PPEit = firm i's year gross property, plant and equipment (Compustat item #7); and

ξ_{it} = error term.

ΔRec_{it} is the change made to the Jones (1991) model so that only credit sales are assumed to be discretionary. The variables are scaled by ending year total assets. Equation (1) is estimated separately for both the lock-up and post lock-up periods. The error term represents abnormal accruals computed using this model and is referred to as MJacc.

The second accruals model that I estimate is the Collins-Hribar model of accruals:

$$Accruals_{it} = Earnings_{it} - CFO_{it} \qquad (2)$$

where Earnings is earnings from operations (COMPUSTAT #76) and CFO is the cash flow from continuing operations (COMPUSTAT #108- #78). All variables are scaled by ending year total assets. This is a non-balance sheet model and reportedly is robust to large corporate transitions such as mergers and acquisitions. One of the purposes of this study is to examine the use of the valuation allowance in managing income. This particular method of capturing accruals is chosen because it reflects the income statement effects of reducing the valuation allowance. There would be book income without a corresponding increase in cash flow.

The third accrual model employed is Healy's definition of accrual:

$$ACC_{it} = -DEP_{it} - XI_{it} + \Delta AR_{it} + \Delta INV_{it} - \Delta AP_{it} - (\Delta TP_{it} + D_{it}) \quad eq.(3)^4$$

Where
DEP_{it} = depreciation in year t;
XI_{it} = extraordinary items in year t;
ΔAR_{it} = accounts receivable in year t less accounts receivable in year t-1;
ΔAP_{it} = accounts payable in year t less accounts payable in year t-1;
ΔTP_{it} = income taxes payable in year t less income taxes payable in year t-1;
D_{it} = deferred income tax expense (credit) for year t.

$ACC_{it} = NA_{it} + DA_{it}$, where NA_{it} represents non-discretionary accruals and DA_{it} represents discretionary accruals. When ACC[5] is positive Healy postulates that it is indicative of the fact that managers chose income increasing discretionary accruals whereas a negative sign on ACC indicated that either managers choose negative accruals or that they no longer have the ability to manage reversals. Healy defined discretionary accruals as accruals that arise because management exercises discretion in reporting. Non-discretionary accruals are those that arise from the business fundamentals of a firm. Healy dislikes the terminology and would use the term "unexpected" accruals to describe discretionary accruals and "expected" accruals to label non-discretionary accruals. The terms discretionary and non-discretionary, however, are part of the lexicon of the literature and are employed here.

Healy examined bonus contracts and predicted that managers would manipulate the sign of ACC in response to the income reporting incentives of their bonus contracts. This study predicts that managers will use income-increasing accruals during the period

[4] Note: The dummy variables D1 and D2 are omitted from this equation. Their purpose in the Healy paper was to distinguish between different types of bonus contracts. That issue is moot in this effort.
[5] To control for size ACC is scaled by total book assets.

of time leading up to the expiration of the lock-up period. These thoughts lead to the following hypotheses:

> H1: Sample firms will exhibit a higher proportion of positive accruals and significantly more positive average accruals than a matched sample during the lock-up period.
>
> H2: Sample firms will exhibit a higher proportion of positive accruals and a significantly more positive average accruals during the lock-up period than they will in the post lock-up period years.

Miller and Skinner (1998) looked for income management in a general way. There were no compelling circumstances for earnings management in their sample or timeframe. The only restriction on the Miller and Skinner sample was that the firms in it have deferred tax assets. They did not examine them in the context condusive to income management of Burgstahler and Dichev (1997) or Teoh et al. (1998). Looking at the immediate post-IPO timeframe, because of the potential for income management, provides a stronger test of the valuation allowance as an income management tool.

The realization of deferred tax assets depends principally on the existence of taxable income of sufficient amount and appropriate character. The two major sources of such taxable income are (1) future reversals of existing taxable temporary differences and (2) future taxable income exclusive of reversing temporary differences. These sources of taxable income suggest that the appropriate level of the valuation allowance under FAS 109 also depends on three propositions: (1) the allowance will be smaller the larger the firm's available taxable (deferred tax liabilities) temporary differences; (2) the allowance will be smaller for firms with larger expected future taxable income; (3) the allowance will be larger for firms with large net operating losses and credit carryforwards. The term *propositions* is used to indicate that one is testing issues that involve compliance with

FAS 109. Both the occurrences of the taxable temporary differences and the taxable income must occur in periods that coincide with reversals of the deductible differences (deferred tax assets). The tax law also places restrictions on the benefits associated with carryforward items. These limits usually are in the form of "character" of the loss carryforward, time limits on its use, and jurisdictional differences. For example, capital loss carryforwards can only be used against realized capital gains. Net operating loss (NOL) carryforwards under the U.S. Internal Revenue Code are limited to 20 years after the year of loss,[6] and NOLs generated in other countries are not deductible against income earned in the United States. In general, there are likely to be important restrictions on the extent to which carryforward items can be realized. Therefore proposition (3), the amount of valuation allowance will be greater for firms with large carryforwards, seems appropriate.

The test of the three propositions employs the levels analysis used in Miller and Skinner (1998). The information these tests provides is a baseline to understand if the determinants of the valuation allowance in the period immediately after the IPO date are similar to those found by Miller and Skinner.

With regard to the valuation allowance this research first analyzes what financial elements may be determinants of the valuation allowance and follows the form of the Miller and Skinner study using recent IPOs as the subject population. Finally, the study looks for evidence of income management using the valuation allowance. The

[6] These rules are found in Internal Revenue code section 172. The two-year carryback and 20 year carryforward provisions are effective for years beginning after August 5, 1997. For years beginning before that date the provision is a carryback to three years and or a carryforward to fifteen years. The provision for foreign tax credits is less generous. Under Code section 904(c) a carryback to two years and/or a carryforward to 5 succeeding years is permitted.

following hypotheses will be tested to determine if managers use the valuation allowance to manage income.

> H3: The valuation allowance is used to increase income during the lock-up period the ratio of the valuation allowance to deferred tax assets will be smaller during the lock-up period than it is during the post-lock-up period.
>
> H4: The valuation allowance is used to smooth income there will be a positive relation between changes in the valuation allowance and changes in before tax income from operations.

Sample Selection and Research Method

The sample consists of firms that made initial public offerings in 1995. That year was selected because it was sufficiently removed from the implementation date of FAS 109 so that the financial community would be beyond any implementation uncertainty with regard to the standard. Using 1995 as opposed to a more recent year permits ample post-IPO information to be readily available. Both the Ritter (1991) and the Teoh (1998) papers look at a timeframe that includes three years past the initial public offering. This study looks at the year of going public and three years past the IPO date and therefore includes data up through 1998. The sample was constructed by obtaining a file from Thompson Securities Data Corporation (TSDC). This file contained 2,046 entries representing IPOs occurring in the years 1993 through 1995. A search of the CRSP database using the cusip numbers provided by TSDC revealed trade dates for 1,873 firms. Of these firms 581 had 1995 initial public offerings. This list of firms was run against the Research Insight (COMPUSTAT) database and 553 firms were found. Wishing to examine only firms of substance, an additional cut was made by retaining only firms having assets greater than or equal to $20 million by the end of 1996. This resulted in

209 firms remaining. From this sample, publicly traded foreign companies (ADRs) were eliminated, leaving 198 firms. The result was a sample of companies having an IPO in 1995. Again using TSDC as a data source, the sample was examined for firms reporting lock-up dates. Lock-up dates are not features of all IPOs. Some firms that have them do not report them. Eliminating the firms not reporting lock-up dates resulted in a final sample of 192 firms (hereafter, the "experimental group"). Data were collected on each company for the year of going public and three subsequent years.

A control group was selected using matching firms based on the four-digit SIC code and total assets. Reasonable size matches could not be found within the four-digit SIC code for 3 firms. In these instances a three-digit SIC code match was used. An additional constraint placed on control group firms, was that they had not undergone an IPO in the last 3 years. As a whole the managers of the control group should not have the same incentive to use income-increasing accruals during the 1995 – 1996 lock-up period as do the managers of the experimental group.

Table 1 provides basic statistics on the sales, total assets, and earnings from operations for the experimental and control group firms for each year of the study, 1995 through 1998, individually. The 1996 mean total assets (COMPUSTAT item A6) for the experimental group are $561 million and the median was $87 million. The largest company has assets of approximately $55 billion, and the smallest reported total assets of $20 million. For the control group the 1996 mean total assets are $674 million. The median total assets are $87 million. For the experimental group the mean income from operations in 1996 is $43 million with a median of $8.9 million. Mean sales for the control group is $263 million with a standard deviation of $807 million. The median

sales are $81 million. For the control group in 1996 the mean income from operations is $46 million. The mean sales are $337 million with a median of 88 million. The experimental and control samples appear to be well matched in terms of size. In any case the variables of interest used to test the hypothesis are all ratios, which should minimize size concerns. The companies in this sample are substantial but smaller in general than those employed by Miller and Skinner (1998).

Table 2 contains statistics on the major variable used to test for income management, ACC. ACC is total accruals as defined in Healy (1985) scaled by total assets. The mean of ACC for the experimental group in 1996 is 0.01862 with a median of 0.01650 and a standard deviation of 0.1308. For the control group in 1996 the mean is –0.01394 with a median of –0.01760 and a standard deviation of 0.1224.

Miller and Skinner in limiting their sample also concern themselves with the OPEB charge to sales in the adoption year. Because the firms in this study are all IPOs few had any charges related to Statement of Financial Standards No. 106. Given the time frame of this study there are no issues concerning the adoption of FAS 106.

Miller and Skinner chose to collect a sample of firms that have relatively large deferred tax assets because they rationalized that these firms would have the largest valuation allowances. This study looks at recent IPOs because these new firms might have greater incentive to use FAS 109 to manage income. Because new firms represent a different environment than those examined by Miller and Skinner it is possible that the relation between various components of deferred taxes and the valuation allowance might demonstrate a different dynamic. Not all of the firms in this sample have deferred tax assets. Not all of the firms with deferred tax assets retain them for the entire length of the

study. Over the life of the study the number of firms with deferred tax assets varies from a high of 185 to a low of 134. Some of this change in firms reporting deferred tax assets is due to attrition in the sample. Of the 190 firms in the study, 66 report no valuation allowance for the entire length of the study.

In the accounting literature it is customary to use variables deflated by some element of the firm's financials related to size such as total assets, sales, or some other measure appropriate to the task[7]. Scaling is used to mitigate the effect of size on results. It is reasonable to assume that a larger firm may have a larger deferred tax asset account because of its activities. All of the firms in the Miller and Skinner study were selected because they have deferred tax assets. Miller and Skinner use this number to deflate many of the variables in their study. They refer to deferred tax assets as a natural deflator for the study.[8] Table 3 provides descriptive statistics on the deferred tax positions of sample firms using both total assets and deferred tax assets as a deflator. These data were obtained by examining the tax footnotes as provided in the 10K reports for each firm. The mean deferred tax assets to total assets for the first year of the study is .0922. The mean of the difference between deferred tax assets and deferred tax liabilities scaled by deferred tax assets is .1859, and this again is comparable to the Miller and Skinner study. The mean of tax carryforwards scaled by deferred tax assets is .2811, which is considerably higher than that in the earlier work. In this study's first year 93 firms recorded a valuation allowance of zero. In the first year of the Miller and Skinner study 72 firms reported a valuation allowance of zero. The other years of this study were also comparable along these parameters. Of course Miller and Skinner covers 3 years and this

[7] Barth and Kallapur (1996) is a definitive work on the effects of scale differences.

study creates a panel consisting of 4 years. Note that with the variable DIFFAT that the maximum exceeds one in a number of years. The net deferred tax assets exceed the total of all assets. This is not an error. It does not reflect gamesmanship on the part of management. Many firms in this sample take the net of the deferred tax assets and deferred tax liabilities and create a valuation allowance for the difference. This effectively removes any net deferred tax asset from the balance sheet. The net deferred tax asset may well be larger than the remaining assets. This effect is also due to the types of firms having 1995 initial public offerings. Many "new" firms have substantial intangible assets that have been expensed not capitalized under GAAP. For example in 1998: the maximum value for DIFFAT is 3.1235. The maximum value for VAAT is also 3.1235.

Model and Test of Discretionary Accruals

The study employs three definitions of accrual to determine if there is earnings management during the lock-up period, the modified-Jones, the Collins and Hribar, and the Healy methods. Each is used to test hypothesis H1 by comparing both the proportion of experimental group firms reporting positive accruals during the lock-up period and the mean accrual during this period with the same parameters in the control group firms. It also compares both mean accruals and the proportion of experimental group firms reporting income-increasing accruals during the post lock-up period with control group firms. If H1 is to be rejected, both the mean of ACC and the proportion of firms reporting income-increasing accruals must be statistically the same during the lock-up period and statistically different during the post lock-up period. By using a matched

[8] The author has also run the test found in this paper using total assets as a deflator. The results presented

control group, the effects of confounding factors due to the direction of the economy and requirements of the industries represented during the time period studied are muted. Any effects observed should be due primarily to the difference in management incentives. Because the firms in the control group have been selected precisely because they are not recent IPOs, their managers should not have, as a whole, the same income increasing incentives.

Table 4a part A illustrates the Collins Hribar definition of accrual. Observe that during the lock-up period the proportion of firms in the experimental group reporting income-increasing accruals is 70 percent. The proportion of firms in the control group reporting income-increasing accruals is 61 percent. A test of the inequality of these proportions generates a z score of 1.923, p-value of < 0.05 indicating that the proportion of firms in the experimental group reporting income-increasing accruals is larger than the proportion of firms in the control group reporting income-increasing accruals during the lock-up period. A test of the means during the lock-up period between the study and the control group generates a t of 2.87, p-value of < 0.05. This indicates that the mean accrual is significantly greater for the experimental group than it is for the control group.

To insure that this finding is not an artifact of the method by which samples were selected the same tests are run for the period after lock-ups expire. See Table 4a section B. If the two groups are good matches, one would expect no difference in the income increasing accruals once the lock-up period has expired. Also, one would expect no difference in either the proportion of firms booking income increasing accruals or the size of the mean accrual when comparing the experimental and control groups in the post-lock-up period. A test comparing the mean accruals for equality between groups returns

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are robust to the deflator utilized.

a *t* of 1.96. The null hypothesis stating that the mean accruals are the same cannot be rejected at any traditional level of significance. A test of the equality of the proportion of firms reporting positive accruals between the two groups returns a z score of 5.345, which is significant at the 0.05 level. The null hypothesis stating that the proportions are the same cannot be rejected.

A test of H2 involves a comparison of the experimental group with itself across the two periods being tested. To reject the null of H2 the proportion of firms reporting income-increasing accruals would have to be the same in both the lock-up and post-lock-up periods. See Table 4a part C. During the lock-up period, 70 percent of the firms report income-increasing accruals. After the lock-up period, only 64 percent of the experimental firms report income-increasing accruals. A test of these proportions generates a Z score of 1.37, p value of < 0.05. The null hypothesis that these proportions are the same cannot be rejected. A comparison of the mean accruals between periods for the experimental group indicates that the mean accrual is higher during the lock-up period. The *t* statistic is 3.61. It permits the rejection of the null hypothesis that the means are the same at $p < 0.05$.

Neither H1 nor H2 can be rejected by these tests. Note Table 4a aggregates both the two lock-up and the two post-lock-up years. The results are not sensitive to the level of aggregation. Testing years individually does not alter the findings. The aggregation is an act of parsimony to benefit the reader.

Table 4b part A illustrates the test of the modified-Jones definition of accrual. Observe that during the lock-up period the proportion of firms in the experimental group reporting income-increasing accruals is 54 percent. The proportion of firms in the control

group reporting income-increasing accruals is 37 percent. A test of the inequality of these proportions generates a Z score of 3.74, p-value of < 0.05 indicating that the proportion of firms in the experimental group reporting income-increasing accruals is larger than the proportion of firms in the control group reporting income-increasing accruals during the lock-up period. A test of the means during the lock-up period between the study and the control group generates a t of –0.0028, p-value of > 0.05. This indicates that the mean accrual may not greater for the experimental group than it is for the control group.

To insure that this finding is not an artifact of the method by which samples were selected the same tests are run for the period after lock-ups expire. See Table 4b section B. If the two groups are good matches, one would expect no difference in the income increasing accruals once the lock-up period has expired. Also, one would expect no difference in either the proportion of firms booking income increasing accruals or the size of the mean accrual when comparing the experimental and control groups in the post-lock-up period. A test comparing the mean accruals between groups returns a t of 0.0520. The null hypothesis stating that the mean accruals are the same can be rejected at the traditional level of significance. A test of the equality of the proportion of firms reporting positive accruals between the two groups returns a Z score of 6.84, which is significant at the 0.05 level. The null hypothesis stating that the proportions are the same cannot be rejected.

A test of H2 involves a comparison of the experimental group with itself across the two periods being tested. To reject the null of H2 the proportion of firms reporting income-increasing accruals would have to be the same in both the lock-up and post-lock-

up periods. See Table 4 part C. During the lock-up period, 54 percent of the firms report income-increasing accruals. After the lock-up period, only 41 percent of the experimental firms report income-increasing accruals. A test of the inequality of these proportions generates a Z score of 2.97, p value of < 0.05. The null hypothesis that these proportions are the same can be rejected. A comparison of the mean accruals between periods for the experimental group indicates that the mean accrual is higher during the lock-up period. The *t* statistic is -.0718. It does not permit the rejection of the null hypothesis that the means are the same at $p < 0.05$.

Under the modified-Jones definition of accrual, neither H1 nor H2 can be completely rejected. The modified-Jones model rejects the hypothesis with regard to the average accruals. It cannot reject these hypotheses with regard to the proportions of firms demonstrating positive accruals. Note Table 4b aggregates both the two lock-up and the two post-lock-up years. The results are not sensitive to the level of aggregation. Testing years individually does not alter the findings.

Table 4c part A, Healy definition of accrual, observe that during the lock-up period the proportion of firms in the experimental group reporting income-increasing accruals is 60 percent. The proportion of firms in the control group reporting income-increasing accruals is 42 percent. A test of the inequality of these proportions generates a Z score of 4.110, p-value of < 0.05 indicating that the proportion of firms in the experimental group reporting income-increasing accruals is larger than the proportion of firms in the control group reporting income-increasing accruals during the lock-up period. A test of the means during the lock-up period between the study and the control

group generates a *t* of 5.4038, p-value of < 0.05. This indicates that the mean accrual is greater for the experimental group than it is for the control group.

To insure that this finding is not an artifact of the method by which samples were selected the same tests are run for the period after lock-ups expire. See Table 4c section B. If the two groups are good matches, one would expect no difference in the income increasing accruals once the lock-up period has expired. Also, one would expect no difference in either the proportion of firms booking income increasing accruals or the size of the mean accrual when comparing the experimental and control groups in the post-lock-up period. A test comparing the mean accruals between groups returns a *t* of 0.8270. The null hypothesis stating that the mean accruals are the same cannot be rejected at any traditional level of significance. A test of the proportion of firms reporting positive accruals between the two groups returns a Z score of 1.725, which is not significant at the 0.05 level. The null hypothesis stating that the proportions are the same cannot be rejected.

A test of H2 involves a comparison of the experimental group with itself across the two periods being tested. To reject the null of H2 the proportion of firms reporting income-increasing accruals would have to be the same in both the lock-up and post-lock-up periods. See Table 4c part C. During the lock-up period, 60 percent of the firms report income-increasing accruals. After the lock-up period, only 41 percent of the experimental firms report income-increasing accruals. A test of the equality of these proportions generates a Z score of 4.501, p value of < 0.05. The null hypothesis that these proportions are the same can be rejected. A comparison of the mean accruals between periods for the experimental group indicates that the mean accrual is higher

during the lock-up period. The *t* statistic is 8.5992. It permits the rejection of the null hypothesis that the means are the same at $p < 0.05$.

Neither H1 nor H2 can be rejected by these tests. Note Table 4 aggregates both the two lock-up and the two post-lock-up years. The results are not sensitive to the level of aggregation. Testing years individually does not alter the findings. The aggregation is an act of parsimony to benefit the reader.

Model and Test of the Valuation Allowance

VADTA is a percentage indicating what proportion of the deferred tax assets have been recognized as being unrecoverable. If the valuation allowance is employed as an income increasing vehicle during the lock-up period one would expect that the mean of the variable VADTA would be smaller during the lock-up period than it is in the post-lock-up period. See Table 5. A test of H3 involves a comparison of the experimental group with itself across the two periods being tested. To reject the null of H3 the mean VADTA, a test of the equality of these means across the lock-up and post lock-up periods is required. A comparison of the mean of VADTA between periods for the experimental group indicates that the mean of VADTA is 0.32027 during the lock-up period. The mean of the variable VADTA is 0.32344 during the post lock-up period. The *t* statistic testing the equality of these means is –0.0947. The null H3 that these means are the same cannot be rejected at any meaningful level of significance.

Because the test of H3, the use of the valuation allowance to increase income is negative, perhaps there is something unusual about the composition of the valuation

allowance in this sample. To remove this concern, the study replicates Miller and Skinner (1998) in this post-IPO environment.

To test the three compliance propositions listed earlier, one requires measures of these firms' net deferred taxes, their expected future taxable income, and the extent to which their deferred tax assets are comprised of the tax benefits of tax loss and tax credit carryforwards. Measures of net deferred tax credit and loss carryforwards come directly from the tax footnotes of the 10K. Measures of managers' expectations of future taxable income are less obvious. Beaver in Market Efficiency, Financial Reporting: An Accounting Revolution indicates that the best guess of future earnings is those of the most recent year past. I employ income from operations before the adjustment for the change in deferred tax asset valuation account. Another variable commonly used as a method of predicting future earnings is the ratio of the firm's market value divided by the book value of equity. This ratio expresses the market's opinion as to a firm's future earnings. This variable is COMPUSTAT's mnemonic MKBK.

A measure of financial distress is Altman's Z score measure of bankruptcy (Altman 1983). It measures the likelihood that the corporation will survive. With a normal cross section of firms, bankruptcy is a rare event. In the IPO environment initial losses resulting from start-up expenses are common. The potential to encounter firms with poor financial standing would appear to be greater in the IPO environment. If a firm's Z score is less than 1.8 there is a high probability of bankruptcy. If the Z score is greater than 3.0, then there is a low probability of bankruptcy. This item is designed to forecast failure in the short-term (within two years). The mean Z score for this sample in the first year of the study is 9.68 with a median of 5.95. The average firm, based on

Altman's test, does not appear to be in danger of bankruptcy. However, 10 percent of the 1995 sample is below the 1.8 barrier, indicating a high probability of bankruptcy.

Table 6 presents descriptive statistics on the proposition variables. Table 7 shows the correlation between independent variables. The correlations, in general, are not high among these variables, indicating that they are measuring different aspects of performance. There is no danger of violating MLR assumption number 4, which requires that the independent variables be orthogonal. There are no linear relations among the independent variables.

I test the first three propositions using the following model:

$$VADTA = \alpha + \beta_1 DIFDTA - \beta_2 PROA - \beta_3 MKBK + \beta_4 ZS + \beta_5 CFDTA + \mu$$

Eq (4)

Where VADTA is the valuation allowance scaled by deferred tax assets. PROA is the average of past ROAs. MKBK is the market-to-book ratio. ZS is the COMPUSTAT Z score, and CFDTA represents the sum of NOL and tax credit carryforwards scaled by deferred tax assets. I test this model first by using cross-sectional levels by year.[9] The Breusch-Pagan test indicates the probability of heteroskedasticity at $p = 0.05$. Consequently all of the t-tests reported in subsequent tables will employ standard errors computed in a manner to make them robust to heteroskedasticity.

The first proposition implies that as the quantity (deferred tax assets – deferred tax liabilities)/total assets decreases, DIFDTA, the valuation allowance, falls. A positive

[9] Various studies have found sensitivity to management adventurism and audit quality. These studies frequently bifurcate the world of auditors into Big 5 and Non-Big Five. However, of the 190 firms in the sample, 184 employed either a Big 5 auditor or a firm that was merged into the Big 5. This variable when added to the model is not significant and does not change the results.

coefficient on DIFDTA is expected. The second proposition indicates that the valuation allowance should become smaller as evidence of future profitability increases. Negative coefficients are expected for PROA and MKBK. The third proposition predicts a positive coefficient on CFDTA. As net operating loss carryforwards and credit carryforwards increase it becomes less likely that they will be realized and the valuation allowance will increase.

The estimates using cross-sectional OLS by year are in Table 8. The coefficient on DIFDTA is positive and significant at p- value of 0.05 for all years as was predicted by the first proposition. Over the time period from 1995 to 1998 the median value for CFDTA moved from 28 percent to 37 percent of deferred tax assets. During this time period DIFDTA moved from 18 percent to 9 percent of differed tax assets. It is possible that as these firms mature the value of the carryforwards will be a greater predictor of the valuation allowance than the difference between deferred tax assets and deferred tax liabilities.

Proposition 2 predicts a negative coefficient on all measures of profitability. PROA is negative and significant for all years for which it is available.

As predicted by proposition 3, CFDTA is positive and significant in all years. The sum of net operating loss carryforwards and credit carryforwards appears to dominate the other variables, as was the case in the Miller and Skinner study. This is not surprising because for many of the firms the valuation allowance is set at the sum of the net operating loss carryforwards and credit carryforwards. There are 760 data points across the 4 years of the study. For 462 entries the valuation allowance was set equal to the carryforwards.

MKBK is negative and significant only in the first year of the study. It is possible that given the volatility of the IPO market that MKBK is not as good a predictor of future profitability in an IPO environment as it is in the general population of firms.[10] Note the dependent variable VADTA is limited. It is roughly continuous over strictly positive values, but it is zero for a nontrivial fraction of the firms in the sample. Wooldridge (1999, Chapter 17) indicates that in this instance the appropriate statistical tool is Tobit. OLS statistics are reported in the body of this study. However, the results are robust to the use of a model employing Tobit.

Hypothesis 4 theorizes that managers will use the valuation allowance as a means of smoothing reported income. The valuation allowance will be used as a hidden reserve to be employed when income from operations falls below expectations. Using the random walk theory, the best predictor of next year's earnings is last year's earnings. To the extent that this year's earnings fall below last year's earnings, one might expect the valuation allowance to fall to offset the shortfall. The model is as follows:

$$\Delta VADTA = \alpha + \beta_1 \Delta DIFDTA + \beta_2 \Delta PROA + \beta_3 \Delta MKBK + \beta_5 \Delta CFDTA + \beta_6 \Delta IOAT + \mu$$

Eq.(5)

The measure of earnings is IOAT (COMPUSTAT number A178). This item represents the operating income of a company after deducting expenses for cost of goods sold, selling, general and administrative expenses, and depreciation. It is scaled by total assets (COMPUSTAT number A6). This item is not net of taxes. Any change in the valuation

[10] The regressions testing hypothesis one were examined for the effects of outliers. The covratio first employed by Besley, Kuh and Welsch (1980) was used in the evaluation. Eight data points identified as

allowance would affect the after-tax number only. Miller and Skinner found no correlation of any kind between changes in the valuation allowance and changes in income from operations. From a reading of FAS 109 one would expect a negative correlation between the valuation allowance and IOAT. That is, the coefficient on IOAT will be negative. If an effort to smooth earnings is employed, one would expect the coefficient on IOAT to be positive. The data collected for this study represent a panel, 190 firms followed over 4 years.[11] The nature of FAS 109 is to cause management to make a link between years. To set (or not set) a valuation allowance in the current year, management must predict future profitability sufficient to use deferred tax assets before they expire. This connection between years makes the use of panel data relevant to the situation. The data have both time series and cross-sectional dimensions; one cannot assume that the observations are independently distributed across time. The decision to create or change a valuation allowance considers aspects of the firm's financial condition that may well span more than one year. There may also be unobserved differences between firms that are time constant and affect the dependent variable. These differences might be location, industry, management philosophy, etc. To control for these unobserved effects, fixed effects panel data analysis is employed. Note Miller and Skinner used a technique called first differences in which the difference between the years of a variable become the data points. First differencing also controls for omitted variables; however, it is not robust to serial correlation.

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outliers were dropped from the regressions without adversely affecting the results presented.

[11]A panel data set has both a cross-sectional and a time series dimension. It could be called longitudinal data. I follow or attempt to follow the same firms over the life of the study. Obviously, this is an unbalanced panel. Several firms drop out of existence before the end of the research period. The statistics employed are robust to this eventuality. Wooldridge (1999, Chapter 14).

This is not to imply an error on the part of Miller and Skinner. To circumvent the serial correlation issue, they bifurcate their test period into two parts effectively making the issue of serial correlation moot. When there are only two time periods in a sample, all test statistics and estimates are identical when first differencing and fixed effects are compared. This manner of testing the hypothesis sacrifices the power obtained from using the entire sample of four periods.

A test for serial correlation in this sample of IPOs reveals a significant positive relation between the current and lagged error terms. The finding of serial correlation makes it necessary to use a cross-sectional time-series regression model, (Wooldrich 1999, Chapter 14).

The helpful aspects of first differencing are retained by the panel data statistics, the elimination of the effects of unobserved omitted variables. There are two different methods of evaluating panel data, fixed effects and random effects. The differences between these two methods are subtle and beyond the scope of this study. For completeness, results using both methods are reported in Table 9.[12] Please note that although much is made of the differing management mindset in the lock-up vs. the post-lock-up years the results shown for the test of H4 are robust to the time frame examined.

The coefficient on PROA is negative and significant as expected. As the change in past return on assets is positive the change in VADTA is negative. The coefficient on the change in CFDTA is positive and significant as expected. When net operating losses and credit carryforwards accumulate the valuation allowance increases. Finally, the coefficient on IOAT is negative and significant. As the change in income from operations increases, the valuation allowance becomes smaller. IPOs may be firms with

a brief history. Early year losses are not uncommon. As earnings from operations increase year-to-year management gains confidence in the quality of those earnings.

Bradshaw (2000) attempts to evaluate how analysts use earnings forecasts in generating stock recommendations. He finds that analysts incorporate their earnings forecasts into their recommendations in a manner consistent with earnings based heuristics rather than a theoretically based valuation model. The earnings favored by analysts appear to be income before extraordinary items and not income from operations. This model was tested for sensitivity by using the variable PIAT. PIAT is COMPUSTAT's annual data number A170 deflated by total assets, annual data number A6. PIAT represents operating and non-operating income before provisions for income taxes and minority interest. It specifically excludes extraordinary items and discontinued operations. The correlation between PIAT and IOAT is high, .8512. See Table 7. The model tested is identical to that in equation 5 except that PIAT is substituted for IOAT. See Table 9 Part 2. The sign on the coefficient for PIAT is negative and significant. The coefficients and the t-scores are significantly larger for PIAT. The result is, as one would expect. If the valuation allowance is driven primarily by loss carryforwards, then, any income of the appropriate source[13] will serve as a means of reducing the NOL.

One of the basic rules in experimentation is that if there is no variation in a variable, its correlation with other variables does little to inform. Certain firms within the sample demonstrate persistent zero valuation allowances. Of the 190 firms in the sample, 61 do not report any change in the valuation allowance. It is persistently zero for the life

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[12] An adjusted R squared is not available for this statistic.

[13] Source rules are important in using NOL's and credits under the U.S. Tax Code. A NOL generated in a foreign jurisdiction cannot be offset by income generated in the U.S. The IRC distinguishes between

of the study. Because there is no variation in the valuation allowance it is obvious that the valuation allowance is not being used to smooth income. These firms are removed from the sample. It is possible that their presence is affecting the sign or the significance or the variables testing for income smoothing. The model is otherwise unchanged from equation 5. See Table 10. The coefficients on DIFDTA, PROA, CFDTA, IOAT, and PIAT do not change in either sign or significance. Importantly, IOAT and PIAT remain negative and significant. Note that when compared with Table 9, the coefficients on IOAT and PIAT are smaller. The R squared for the model presented in Table 10 also is smaller.

Unlike the Miller and Skinner study, a change in earnings appears to be a factor considered by management when evaluating the required size of the valuation allowance. The Miller and Skinner study found no correlation between first differences in the valuation allowance scaled by deferred tax assets and the first differences in income from operations before tax scaled by total assets. Both studies found huge coefficients and *t*-scores on the variable measuring the sum of net operating losses and deferred tax credits deflated by deferred tax assets. The difference in the findings probably results from the difference in the life cycles of the firms studied. In the Miller and Skinner study the firms are well established. The net operating losses and or deferred tax credits may have, in effect, become structural components of the balance sheet, with little or no hope of recovery. In the Miller and Skinner paper, management may set a valuation allowance, not because future profitability is in doubt, but rather because the net operating losses and deferred credits are near expiration. If these deferred tax assets are near expiration there

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ordinary income and capital gains. It does not distinguish between income from operations and income from administrative activities.

may be little that even a profitable firm can do to recover them. In the present study, because of the newness of the firms in question, management may not only have concerns about the continued profitability of the operation but the size of those profits. Demonstrated profitability is not a stated requirement in FAS109 for non-recognition of a valuation allowance. However, it is difficult to assume future profitability if profitability has never been demonstrated or if continued profitability is in doubt.

CONCLUSION

This study explores the nature of earnings management in the post-IPO lock-up period. It extends Healy (1985) in that it demonstrates management's willingness to employ income increasing accruals in a situation in which doing so has the potential to enrich those managers. The study extends Teoh, Wong and Rao (1998) and Ritter (1991) in that it uses institutional knowledge of the IPO process to explain the reasons for the income management they first observed. Given the timing of the prospectus, fiscal year ends, and the issue date, it is unlikely that the financial statements of the IPO year play any significant role for those investing in the IPO. The observed propensity for income increasing accruals in the IPO year seem to be a matter of managerial self-interest. Proportionally, more managers employ income-increasing accruals during the lock-up period than do managers for whom no similar incentive exists.

The valuation allowance under FAS 109 has been a suspected tool of income management since its inception. This study does not support this suspicion. In examining the determinants of the valuation allowance for deferred tax assets under FAS 109 in the context of recent initial public offerings, the study finds the major

determinants of the valuation allowance to be the level of net deferred tax assets and the level of tax loss and credit carryforwards. The study also finds a strong negative relation between a firm's average past return on assets and the level of the valuation allowance. These relations reflect general compliance with the letter of FAS 109. The findings are in agreement with Miller and Skinner (1998).

This study also demonstrates a negative correlation between changes in the valuation allowance and changes in income from operations before taxes and income from all sources before extraordinary items and taxes. Miller and Skinner did not observe this effect. With IPOs, the fact that there is an inverse relation between changes in the valuation allowance and earnings could reflect management's uncertainty about future profitability and its magnitude.

The data are also used to determine if the valuation allowance is used to increase income during the lock-up period. This test also was negative. I conclude that the valuation allowance under FAS 109, when examined in an environment in which there is evidence of income management, is not used to either increase or to smooth income.

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TABLE 1
General Descriptive Statistics of 200 Firms Making IPOs in 1995
Years 1995 through 1999 Listed Individually
in (000)

VARIABLE NAME	Sample Firms AT Assets Total	SALES Sales	INOPS Income From Operations	Control Group AT Assets Total	SALES Sales	INOPS Income From Operations
1995						
MEAN	442894.7	209237	35390.61	610493.8	293491	40748
MEDIAN	55295	53894	5911	68114	65714	6059
SD	3284343	725384.4	224086.6	4056935	1275488	249532
MAXIMUM	44600000	8294000	2998269	45672290	16008000	2492000
MINIMUM	4552	0	-25337	2626	0	-21254
Obs.	189	189	189	189	189	189
1996						
MEAN	561087.7	263359.9	42664.86	674556.4	336569	45832
MEDIAN	87259	81307.5	8888	87589	88910	6320
SD	4016173	807180	42664.86	4422231	1370965	268559
MAXIMUM	55500000	8889000	3339600	52511350	17063000	2680000
MINIMUM	20199	137	-109345	10195	0	-57773
Obs.	190	190	190	190	190	190
1997						
MEAN	704007.3	315250.2	51102.03	750872.7	380874	53837
MEDIAN	119649	101264	10131	97193	106432	8037
SD	5081105	895903.1	345565.4	4692432	1424656	305773
MAXIMUM	70500000	8734000	4673309	57065030	17057000	3217654
MINIMUM	14789	0	-224271	11496	0	-71776
Obs.	190	190	190	190	190	190

TABLE 1 Continued
General Descriptive Statistics of 190 Firms Making IPOs in 1995
in (000)

VARIABLE		Sample Firms			Control Group	
NAME	AT	SALES	INOPS	AT	SALES	INOPS
	Assets Total	Sales	Income From	Assets Total	Sales	Income From
1998			Operations			Operations
MEAN	813045	375777.6	49639.83	776004	413150	53689
MEDIAN	143094.5	127282	9836.5	115658	115298	8380
SD	5297764	971204.7	394870.4	4455772	1472235	314119
MAXIMUM	72300000	8452342	5130651	55417592	17037000	3559475
MINIMUM	7340	835	-1385000	4979	0	-142.9
Obs.	190	190	190	190	190	190

Sample comprises 190 firms making IPOs in 1995. Data are from Research Insight.
The control group consists of 190 firms matched by sic code and total assets.
Variables are defined as follows.
AT = total assets, Compustat item #A6.
SALES = net sales, Compustat item # A12
INOPS = income from operations after depreciation deduction but before taxes, COMPUSTAT item #A178.

TABLE 2
Descriptive Statistics on the Accrual Positions of 190 Firms Making IPOs in 1995 and the Control Group

	Sample Firms	Control Group
1995		
MEAN	0.051048	-0.017936
MEDIAN	0.02573	-0.020268
SD	0.13559	0.115233
MAXIMUM	0.71066	0.35222
MINIMUM	-0.38459	-0.456596
Obs.	141	141
1996		
MEAN	0.018662	-0.013935
MEDIAN	0.016505	-0.017603
SD	0.130889	0.122433
MAXIMUM	0.411195	0.361479
MINIMUM	-0.606972	-0.403878
Obs.	179	179
1997		
MEAN	-0.056091	-0.027837
MEDIAN	-0.01746	-0.020843
SD	0.304371	0.182686
MAXIMUM	0.28254	0.407227
MINIMUM	-3.522041	-1.941646
Obs.	176	176
1998		
MEAN	-0.042293	-0.099319
MEDIAN	-0.025525	-0.032823
SD	0.153917	0.36592
MAXIMUM	0.290875	0.277033
MINIMUM	-1.300136	-3.162132
Obs.	170	170

The reported accruals are all scaled by total assets.

TABLE 3

Descriptive Statistics on the Deferred Tax Positions of 190 Firms Making IPOs in 1995

VARIABLE NAME	DTAAT	DIFFAT	VAAT	CFAT	DIFDTA	VADTA	CFDTA
	DTA TA	DTA-DTL TA	ALLOWANCE TA	CARRY FORWARDS TA	DTA-DTL DTA	ALLOWANCE DTA	CARRY FORWARDS DTA
1995							
MEAN	0.0922	0.06476	0.0572	0.0444	0.1859	0.3104	0.2811
MEDIAN	0.0401	0.02853	0	0.001	0.8519	0	0.0361
SD	0.1494	0.1607	0.1496	0.1261	1.9383	0.4074	0.2811
MAXIMUM	1.4587	1.4587	1.4587	1.2682	1	1	1
MINIMUM	0.0008	-0.3305	0	0	-17.4989	0	0
Obs.	182	182	178	173	184	179	174
1996							
MEAN	0.0902	0.06795	0.0533	0.0473	0.0934	0.2809	0.3224
MEDIAN	0.0462	0.0275	0	0.0051	0.8317	0	0.214
SD	0.1267	0.1342	0.1191	0.0966	2.3955	0.3851	0.3491
MAXIMUM	0.7199	0.7199	0.6694	0.6205	1	1	1
MINIMUM	0.0007	-0.1851	0	0	-22.435	0	0
Obs.	183	182	180	183	188	188	182
1997							
MEAN	0.1297	0.0871	0.0958	0.0859	0.2005	0.2993	0.3607
MEDIAN	0.0434	0.0251	0.0001	0.0111	0.7872	0.0022	0.2862
SD	0.2523	0.3466	0.259	0.2027	1.5705	0.4069	0.3518
MAXIMUM	1.8114	1.8114	1.8114	0.8139	1	1	1
MINIMUM	0.0006	-3.1001	0	0	-8.8488	0	0
Obs.	189	187	186	177	187	186	177

TABLE 3 Continued
Descriptive Statistics on the Deferred Tax Positions of 190 Firms Making IPOs in 1995

VARIABLE NAME	DTAAT	DIFFAT	VAAT	CFAT	DIFDTA	VADTA	CFDTA
	DTA / TA	DTA-DTL / TA	ALLOWANCE / TA	CARRY FORWARDS / TA	DTA-DTL / DTA	ALLOWANCE / DTA	CARRY FORWARDS / DTA
1998							
MEAN	0.1669	0.1429	0.1288	0.116	0.0939	0.3216	0.3789
MEDIAN	0.0548	0.0384	0.0026	0.0175	0.8576	0.0801	0.3157
SD	0.3733	0.3827	0.3789	0.3236	2.3364	0.4032	0.3614
MAXIMUM	3.1235	3.1235	3.1235	2.4403	1	1	1
MINIMUM	0.0012	-0.1697	0	0	-22.64	0	0
Obs.	184	182	182	173	182	181	172

Sample comprises 190 firms making IPOs in 1995. Data are from the tax footnotes of firm's 10K filing. Variables are defined as follows.

DTA = deferred tax assets (gross).

DTL = deferred tax liabilities (gross) from the firm's tax footnote.

ALLOWANCE = valuation allowance for deferred tax assets from the firm's tax footnote.

Carryforwards = Represents the sum of a firm's NOL and tax credit carryforwards.

TABLE 4a
Summary of the Association Between Accruals and Lock-up Periods
Hribar Definition of Accrual

Portfolio	Proportion of Accruals With a Given Sign POSITIVE	NEGATIVE	Years	Mean Accruals	*t*-test for Difference in Means
A. Comparison of the Study and Control portfolios during the lock-up period.					
Study	.70	.30	1995/1996	.08002	
Control	.61	.39	1995/1996	.04225	2.87*
test of proportion differences	1.923** S>C				S>C
B. Comparison of the Study and Control portfolios after the lock-up period.					
Study	.64	.36	1997/1998	.03252	
Control	.64	.36	1997/1998	.05793	1.96*
test of proportion differences	5.345** S=C				S=C
C. Comparison of the lock-up period with the post lock-up period for the Study portfolio alone.					
Study	.70	.30	1995/1996	.08002	
Study	.64	.36	1997/1998	.03252	3.61*
test of proportion differences	1.37 St1>St2				St1>St2

Portfolio: Study consists of a sample of 190 firms having an IPO in 1995.

Portfolio: Control consists of firms matching the Study portfolio on size and SIC code. None of the control firms has undergone an ipo within 3 years of 1995.

Accruals are deflated by the book value of total assets.

* Indicates a t significant at $p < .05$.

** Indicates a z-score significant at $p < .05$.

These tests are not sensitive to the level of aggregation. Tests of individual years provide similar results.

TABLE 4b
Summary of the Association Between Accruals and Lock-up Periods
Modified-Jones Definition of Accrual

Portfolio	Proportion of Accruals With a Given Sign POSITIVE	NEGATIVE	Years	Mean Accruals	*t*-test for Difference in Means
A. Comparison of the Study and Control portfolios during the lock-up period.					
Study	.54	.46	1995/1996	-.0025	
Control	.37	.63	1995/1996	-.0023	-0.0028
test of proportion				S>C	
differences	3.74**				
	S>C				
B. Comparison of the Study and Control portfolios after the lock-up period.					
Study	.54	.46	1997/1998	.0001	
Control	.54	.46	1997/1998	-.0003	0.0520
test of proportion				S=C	
differences	6.83**				
	S=C				
C. Comparison of the lock-up period with the post lock-up period for the Study portfolio alone.					
Study	.54	.46	1995/1996	-.0025	
Study	.41	.59	1997/1998	.0001	-0.0718
test of proportion					St1>St2
differences	2.97**				
	St1>St2				

Portfolio: Study consists of a sample of 190 firms having an IPO in 1995.

Portfolio: Control consists of firms matching the Study portfolio on size and SIC code. None of the control firms has undergone an ipo within 3 years of 1995.

These accruals are by definition a residual.

* Indicates a t significant at $p < .05$.

** Indicates a z-score significant at $p < .05$.

These tests are not sensitive to the level of aggregation. Tests of individual years provide similar results.

TABLE 4c

Summary of the Association Between Accruals and Lock-up Periods

Healy Definition of Accrual

Portfolio	Proportion of Accruals With a Given Sign POSITIVE	NEGATIVE	Years	Mean Accruals	*t*-test for Difference in Means
A. Comparison of the Study and Control portfolios during the lock-up period.					
Study	0.60	0.40	1995/1996	0.03427	
Control	0.42	0.58	1995/1996	-0.01627	5.4038*
test of proportion					S>C
differences	4.110**				
	S>C				
B. Comparison of the Study and Control portfolios after the lock-up period.					
Study	0.41	0.59	1997/1998	-0.045822	
Control	0.35	0.65	1997/1998	-0.049657	0.8270
test of proportion					S>C
differences	1.725				
	S>C				
C. Comparison of the lock-up period with the post lock-up period for the Study portfolio.					
Study	0.60	0.40	1995/1996	0.03405	
Study	0.41	0.59	1997/1998	-0.04582	8.5992*
test of proportion					St1>St2
differences	4.501**				
	St1>St2				

Portfolio: Study consists of a sample of 190 firms having an IPO in 1995.

Portfolio: Control consists of firms matching the Study portfolio on size and SIC code. None of the control firms has undergone an ipo within 3 years of 1995.

Accruals are deflated by the book value of total assets.

* Indicates a t significant at $p < .05$.

** Indicates a z-score significant at $p < .05$.

These tests are not sensitive to the level of aggregation. Tests of individual years provide similar results.

TABLE 5

Summary of the Association Between
the Valuation Allowance
and Lock-up Periods

Portfolio	Years	Mean VADTA	*t*-test for Difference in Means
Comparison of the lock-up period with the post lock-up period for the Study portfolio.			
Sample	1995/1996	0.3202699	
Sample	1997/1998	0.3234425	-0.0947*
		Proportion With VADTA	Z-test of Proportions
Sample	1995/1996	.55	
Sample	1997/1998	.58	-0.99**

Portfolio: Study consists of a sample of 190 firms having an IPO in 1995.

VADTA is the valuation allowance deflated by deferred tax assets.

* P > |t| = 0.09247. The null hypothesis that the means are equal cannot be rejected at any meaningful level.

** P > z = 0.8410. The null hypothesis that the means are equal cannot be rejected at ant meaningful level.
This test is not sensitive to the level of aggregation. Testing separate years provides similar results.

TABLE 6
Descriptive Statistics on Other Independent Variables
In 1995

VARIABLE NAME	ZS	MKBK	PROA	IOAT	PIAT
MEAN	11.8318	1.7744	-2.6123	0.084	0.0479
MEDIAN	5.9545	4.071	5.52	0.0948	0.0718
SD	18.4928	31.0008	37.2759	0.1634	0.2802
MAXIMUM	153.26	115.93	84.461	0.5469	0.5589
MINIMUM	-7.199	-232.921	-237.319	-0.7989	-3.0838
OBSERVATIONS	180	190	155	190	190

Sample comprises 190 firms making IPOs in 1995. Data are from Research Insight.
Variables are defined as follows.

ZS = 1.2 (working capital/total assets) + 1.4 (retained earnings/total assets)
+ 3.3 (EBIT/total assets) + .6 (Market value of equity/book value of liabilities)
+ .999 (sales/total assets). This is the method of computation provided in Research Insight.
It is a method of predicting bankruptcy. A value of less than 1.81 indicates a high probability of bankruptcy. A value of 3.0 or greater indicates a low probability of bankruptcy.

MKBK = Market to Book
PROA = Average Past ROA
IOAT = Income fro operations before taxes
PIAT = Total income before extraordinary items and taxes

TABLE 7

Correlations Between Independent Variables Used In Table 8 and Subsequent Tables

Pearson Correlation Coefficients

	DIFDTA	PROA	ZS	MKBK	CFDTA	IOAT	PIAT
DIFDTA	1						
PROA	-0.1304	1					
ZS	0.1426	-0.1144	1				
MKBK	-0.0223	0.2648	0.1203	1			
CFDTA	0.1646	-0.422	0.0725	-0.1119	1		
IOAT	-0.0855	0.5068	0.1093	0.0477	-0.4239	1	
PIAT	-0.1152	0.4322	0.1645	0.1662	-0.3802	0.8518	1

DIFDTA = The difference between a firm's deferred tax assets and deferred tax liabilities scaled by deferred tax assets.

PROA = The average of a firm's actual past return on assets.

ZS = 1.2 (working capital/total assets) + 1.4 (retained earnings/total assets) + 3.3 (EBIT/total assets) + .6 (Market value of equity/book value of liabilities) + .999 (sales/total assets). This is the method of computation provided in Research Insight. It is a method of predicting bankruptcy. A value of less than 1.81 indicates a high probability of bankruptcy. A value of 3.0 or greater indicates a low probability of bankruptcy.

MKBK = Is the firm's market to book ratio.

CFDTA = This represents the sum of a firms tax loss carryforwards and its tax credit carryforwards divided by deferred tax assets.

IOAT = Is the income from operations before taxes, scaled by total assets.

PIAT = Is the net income of the firm before taxes and extraordinary items, scaled by total assets.

TABLE 8
OLS Levels Regressions of the Valuation Allowance Scaled by Deferred Tax Assets on Measures of Past and Future Earnings

Year	Obs.	Intercept	DIFDTA	PROA	ZS	MKBK	CFDTA	R squared
1995	107	0.1202	0.0577	**	0.0022	-0.0022	0.5231	0.597
		(3.714)	(2.888)*		(1.826)	(-2.970)*	(5.934)*	
1996	114	0.1622	0.0368	-0.0072	0.0009	-0.0034	0.3075	0.5425
		(3.776)	(2.467)*	(-4.138)*	(0.527)	(-0.825)	(3.348)*	
1997	114	0.1145	0.0297	-0.0084	0.0024	-0.005	0.4702	0.5446
		(2.132)	(1.977)	(-3.558)*	(0.600)	(-1.381)	(4.731)*	
1998	111	0.1463	0.0518	-0.0091	0.0019	-0.0061	0.4168	0.5322
		(3.701)	(3.764)*	(-4.819)*	(0.601)	(-0.883)	(3.571)*	

The definitions of these variables appear on Tables 3 and 6.
The numbers in parenthesis are the t-statistics based on standard errors robust to heteroskedasticity.
*An asterisk indicates significance at p = .05 or lower.
** Given the time frame of this study past actual ROA wan not available for many firms.

TABLE 9

Panel Data Time Series Cross-Sectional Regressions of the Valuation Allowance Scaled by Deferred Tax Assets on Measures of Income Smoothing

Years 1995 through 1998

Assumption	Obs.	Intercept	DIFDTA	PROA	MKBK	CFDTA	IOAT	R squared
Fixed Effects	624	0.1312 (7.728)	0.0029 (0.486)	-0.002 (-2.297)*	0.0007 (1.836)	0.4683 (11.319)*	-0.1415 (-2.410)*	0.5166
Random Effects	624	0.1349 (6.080)	0.0113 (2.282)*	-0.0037 (-5.933)*	0.0007 (1.931)	0.4789 (13.289)*	-0.2212 (-4.208)*	0.5481

Assumption	Obs.	Intercept	DIFDTA	PROA	MKBK	CFDTA	PIAT	R squared
Fixed Effects	624	0.1289 (7.931)	0.0018 (0.301)	-0.0023 (-2.672)*	0.0007 (1.883)	0.4652 (11.469)*	-0.1538 (-3.324)*	0.5283
Random Effects	624	0.1302 (6.079)	0.0102 (2.06)*	-0.004 (-6.271)*	0.0008 (1.975)*	0.4756 (13.44)*	-0.2252 (-5.293)*	0.5566

The definitions of these variables appear on Tables 3 and 6.

*An asterisk indicates significance at p = .05 or lower.

ZS was dropped as a variable from the regression to make it more comparable with the MS98 study. Regressions including these variables were not materially different in their result from that reported here.

TABLE 10

Panel Data Time Series Cross-Sectional Regressions of the Valuation Allowance Scaled by Deferred Tax Assets on Measures of Income Smoothing

Sample Eliminates Firms With Persistant Zero Valuation Allowance**

Assumptior	Obs.	Intercept	DIFDTA	PROA	MKBK	CFDTA	IOAT	R squared
Fixed Effects	563	0.123 (4.328)	0.0598 (2.835)*	-0.0018 (-1.072)	0.0006 (1.191)	0.6171 (11.048)*	-0.1188 (-1.638)	0.4989
Random Effects	563	0.1512 (4.936)	0.0424 (2.847)	-0.0032 (-4.426)*	0.0006 (1.447)	0.573 (11.845)*	-0.1883 (-2.995)*	0.5281

Assumptior	Obs.	Intercept	DIFDTA	PROA	MKBK	CFDTA	PIAT	R squared
Fixed Effects	563	0.1215 (4.375)	0.0576 (2.744)*	-0.0021 (-1.966)*	0.0005 (1.238)	0.611 (11.185)*	-0.1372 (-2.396)*	0.5123
Random Effects	563		0.0401 (2.734)*	-0.0035 (-4.882)*	0.0006 (1.494)	0.5649 (11.935)*	-0.2049 (-4.006)*	0.5391

The definitions of these variables appear on Tables 3 and 6.

*An asterisk indicates significance at p = .05 or lower.

**Firms that never recorded a valuation allowance were eliminated from the regression.

The objective of this test was to determine if earnings management (smoothing) is present with regard to setting the level of the valuation allowance. Obviously, firms without a valuation allowance are not using the valuation allowance to smooth earnings.

ZS was dropped as a variable from the regression to make it more comparable with the MS98 study. Regressions including these variables were not materially different.