# The Impact of Standard Setting on Individual Investors: Evidence from SFAS 109

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**Abstract:** This study uses data on the stock holdings of individual investors to examine how they respond to a change in accounting standards. We examine the response of individual investors to firms' adoptions of FASB Standard 109 (Accounting for Income Taxes), which made significant modifications to the accounting for and reporting of income taxes. We evaluate the extent to which these modifications provided additional decision-useful information to individual investors, thereby lowering the information disadvantage of individual investors relative to more sophisticated investors. Using the staggered adoption of SFAS 109, we predict and find evidence that individual investors increase their holdings in firms more effected by the adoption of SFAS 109. We find that the increase in holdings is concentrated among less sophisticated individual investors. Additionally, we observe an increase in holdings of firms with an immaterial adjustment to retained earnings upon adoption, suggesting our results are a function of an increase in information provided to investors and not driven by heuristic trading strategies (i.e., book-to-market ratio). Collectively, our results are consistent with SFAS 109 providing additional decision-useful information to individual investors, reducing their information disadvantage relative to other investors. Recently, there have been criticisms of the costs of FASB accounting standards relative to their benefits. We add to this debate by evaluating how one FASB standard affects the flow of information to individual investors.

**Keywords: S**FAS 109; standard setting; individual investors; information asymmetry.

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## I. Introduction

The mission of the Financial Accounting Standards Board (FASB) is to "establish and improve standards of financial accounting and reporting that foster financial reporting by nongovernmental entities that provides decision-useful information to investors and other users of financial reports."[1] In fulfilling this mission, the FASB is guided by a number of principles including "[t]o issue standards only when the expected benefits justify the perceived costs."[2] Yet there is growing criticism regarding the costs of compliance related to many financial reporting standards issued by the FASB. Survey evidence indicates that the majority of public company chief financial officers (CFOs) believe that financial reporting has become a compliance activity and does not always lead to high quality reporting of earnings (Dichev, Graham, Harvey, and Rajgopal 2013). Other research suggests that FASB standards impose a real cost on the economy in terms of decreased investment and payout to shareholders (Bird, Ertan, Karolyi, and Ruchti 2018). Additionally, there is evidence that the volume of financial accounting disclosures within Form 10-K is driven, at least in part, by new and expanded accounting standards issued by the FASB (Dyer, Lang, and Stice-Lawrence 2017). In this study, we use detailed data on individual investor stock holdings to evaluate the extent to which one FASB standard, SFAS 109—Accounting for Income Taxes (SFAS 109), provides decision-useful information to individual investors.

The FASB and the Securities and Exchange Commission (SEC) are protectors of the individual investor. As stated by SEC Chairperson Mary Jo White, "(t)he retail investor must be a constant focus of the SEC – if we fail to serve and safeguard the retail investor, we have not fulfilled our mission" (March 21, 2014, Consumer Federation of America). However, when

[1] Financial Accounting Standards Board *Rules of Procedure,* Amended and Restated through December 11, 2013.
[2] Id.

evaluating the impact of financial reporting standards, prior research typically evaluates market-wide reactions to new accounting standards. Notably, Khan, Li, Rajgopal, and Venkatachalam (2017) evaluate abnormal stock returns around the promulgation of 160 accounting standards issued by the FASB since its inception in 1972. Khan et al. (2017) provide evidence that, on average, the issuance of new accounting standards is value neutral. They also provide evidence that 15 standards are value-enhancing and 19 standards are value-decreasing. While market-wide analyses can provide insight into the overall economic impact of a financial reporting standard, they do not shed light on how specific accounting standards affect a key constituent of the FASB and SEC: individual investors. The limited amount of research focusing on individual investor trading activities is primarily due to a lack of publicly available data and not a lack of interest from regulators in understanding how accounting standards affect individual investors.

We focus our analyses on the adoption of SFAS 109—Accounting for Income Taxes for several reasons. Not only are taxes a material expense for most firms, but the accounting for and reporting of income taxes is often complex, and analysts and investors are known to have difficulty forecasting income taxes (e.g., Plumlee 2003; Weber 2009; Chi, Pincus, and Teoh 2014; Bratten, Gleason, Larocque and Mills 2017). Thus, investors—especially individual investors—likely have much to gain from improvements in the accounting for income taxes. From a standard setting perspective, SFAS 109 improved accounting for income taxes primarily by increasing the relevance of deferred taxes recorded on the balance sheet. Yet critics of SFAS 109 were concerned that it created unnecessary complexity in the measurement of deferred taxes and that SFAS 109 afforded management greater subjectivity, thereby increasing the potential for manipulation (Ayers 1998). In addition, the FASB's recent proposed accounting standard update (FASB 2016) focuses on further enhancing the disclosure requirements for income taxes, which suggests that

income tax disclosures under SFAS 109 are inadequate. From a research prospective, SFAS 109 provides a powerful setting to examine the impact of a change in accounting standards because firms adopted SFAS 109 over several years, limiting concerns of a concurrent economic event driving our results. Additionally, SFAS 109 affected firms to varying degrees, providing a basis for confirmatory cross-sectional analyses.

This paper is not the first to evaluate the impact of SFAS 109 adoption. Ayers (1998) provides evidence that the adjustment for the cumulative effect of SFAS 109 adoption and the resulting deferred tax balances provide value relevant information (i.e., are associated with the market value of equity). Espahbodi, Espahbodi, and Tehranian (1995) provide evidence of significant positive abnormal returns around the issuance of exposure drafts for SFAS 96 and SFAS 109, which they argue is consistent with investors being unable to correctly value deferred tax assets and liabilities prior to the adoption of these standards. They further suggest that the positive abnormal returns are a function of the largely income-increasing effects of SFAS 96 and SFAS 109; however, the standard does not "increase income" in an economic sense but rather changes how a firm's income is reported (perhaps moving financial statement income closer to true economic income).

However, recent research calls into question previously held beliefs regarding the positive effects of SFAS 109. In contrast to the findings in Espahbodi et al. (1995), Khan et al. (2017) examine stock returns around events leading up to SFAS 109 adoption (as well as 159 other FASB standards). They find that stock returns are *not* significant around events that change the probability of SFAS 109 issuance. However, Khan et al. (2017) and Espahbodi et al. (1995) only examine the overall market reactions to the issuance of SFAS 109 and do not provide evidence on how the standard impacted individual investors. Based on evidence in Rego, Williams, and Wilson

(2017), we do not expect individual investors to fully understand income taxes reported in financial statements and thus, to benefit from improvements in the accounting for income taxes. In this study, we utilize a unique dataset of individual investor stock holdings and hand-collected data on firm-level adoption dates of SFAS 109 to evaluate if this change in accounting standard provides additional decision-useful information to individual investors.

Fundamentally, SFAS 109 changed the accounting for deferred taxes from an income statement approach to a balance sheet approach.[3] If SFAS 109 provides additional decision-useful information, it should reduce the information disadvantage of individual investors relative to more sophisticated investors (e.g., institutional investors). In this case, we expect individual investors to increase their stock holdings in firms more affected by SFAS 109, following adoption. This prediction stems from analytical models suggesting that additional disclosure will reduce information asymmetry and/or information processing costs, increasing demand for a security (e.g., Diamond and Verrecchia 1991; Easley and O'Hara 2004). Given the intent behind SFAS 109 was to improve the decision-usefulness of the income tax accounts reported on the balance sheet, we expect individual investors to increase their stock holdings in firms more affected by SFAS 109.

To examine our research question, we combine hand-collected data on SFAS 109 adoption dates with individual investor stock holdings data from a discount brokerage (Barber and Odean 2000). The brokerage data consists of 158,034 individual accounts from 78,000 households. We begin our empirical analyses by examining changes in individual investor stock holdings around firms' SFAS 109 adoptions. We find that individual investors increase their holdings in firms more affected by SFAS 109 (based on the adjustment for the cumulative effect of SFAS 109), following

[3] Additional institutional details regarding the substance of SFAS 109 are included in Section 2.

adoption of the standard. This result is robust to the inclusion of numerous controls for changes in firm fundamentals and controls for changes in key financial ratios used by heuristic traders including book-to-market and price-to-earnings ratios. Importantly, our analyses include controls for changes in pension liabilities and other postretirement benefits, since the adoption of SFAS 106, Employers' Accounting for Postretirement Benefits other than Pensions, coincided with the adoption of SFAS 109 for 78 percent of the firms in our sample. We also control for changes in marketable securities, since early adoption of SFAS 109 can coincide with adoption of SFAS 107, Disclosures about Fair Value Instruments. Despite the inclusion of numerous control variables, the initial evidence is consistent with individuals investing more in firms for which SFAS 109 adoption provides additional information about a firm's overall tax position.

Next, we examine cases where a firm's reported income tax position is more likely to deviate from true economics under the standard in effect prior to SFAS 109, i.e., Accounting Principles Board Opinion No. 11 (APB 11). A primary criticism of APB 11 was that deferred taxes reported on the balance sheet reflected an accumulation of historic temporary differences between income taxes reported on the tax return and those reported on the financial statements. With the passage of time this balance becomes less informative of future tax benefits and liabilities, especially in the presence of changing tax rates. Additionally, firms were not required to record deferred tax assets under APB 11. As such, firms with larger net deferred tax assets (DTAs) and firms with net operating losses (a common source of deferred tax assets) likely had deferred tax balances that were less informative under APB 11. Further, inconsistent accounting for deferred tax assets under APB 11 likely increased variation in firms' effective tax rates (ETRs), increasing the difficulty of forecasting future tax-related cash flows. Thus, we also predict that firms with more volatile ETRs likely had deferred tax account balances that were less informative under APB

11. Consistent with our expectations, we observe that individual investors' increase in stock holdings of firms more affected by SFAS 109 adoption is concentrated in firms with larger net deferred tax assets, net operating loss carryforwards, and firms with more volatile ETRs.

We also examine the extent to which investor sophistication influences the willingness of individual investors to own stock in firms more affected by SFAS 109. Consistent with Indjejikian (1991), which defines sophisticated investors as those who face lower costs of information interpretation, we use measures of individual investor financial literacy, wealth, and level of trading activity as proxies for investor sophistication.[4] Collectively, these analyses provide evidence that less (more) sophisticated individual investors did (did not) increase their stock holdings in firms more effected by SFAS 109. These results suggest our primary findings are driven by SFAS 109 reducing the information disadvantage of *less* sophisticated individual investors, thereby increasing their demand for stock of firms more effected by SFAS 109 adoption.

The theory underlying our analysis of changes in individual investor stock holdings around SFAS 109 adoptions is that improved financial disclosure reduces the information disadvantage of individual investors, increasing their demand for securities. However, SFAS 109 adoption likely also improved the flow of information to all investors, reducing information asymmetry between management and all investors. As such, we evaluate the mechanism through which we expect the increased demand to manifest, by examining monthly bid-ask spreads around SFAS 109 adoption. Consistent with expectations, we provide evidence that monthly bid-ask spreads decrease following SFAS 109 adoptions. A decrease in bid-ask spreads, in conjunction with increased stock holdings for our sample of individual investors, provides corroborating evidence that SFAS 109

[4] Based on the data compiled by the discount brokerage firm (and consistent with Lawrence 2013), financially literate individual investors are those that are employed in a "professional" occupation, wealthy investors are those with more than $100,000 in equity investments at the discount brokerage firm, and active investors are those with more than 48 trades a year.

reduced the information disadvantage of less sophisticated investors, thereby increasing their demand for stocks more affected by SFAS 109.

Our research should be of interest to researchers, regulators, and individual investors. First, while prior research has explored the market-wide impact of financial accounting standards, there is limited evidence on how these standards affect individual investors. Both the FASB and the SEC are interested in protecting the individual investor. In fact, the FASB is currently evaluating the disclosure requirements for income taxes as part of the Disclosure Framework project. We provide evidence consistent with SFAS 109 adoption improving the informativeness of financial statement-based tax information for individual investors. While critics suggest that SFAS 109 increased the complexity of accounting for income taxes and afforded managers too much discretion, our evidence suggests that the standard was beneficial for individual investors.

Second, recent academic research provides evidence that financial reporting has become a compliance activity that does not always lead to higher quality earnings (Dichev et al. 2013). Additionally, financial reporting regulation is a contributing factor to the substantial increase in the volume of financial statement disclosures (Dyer et al. 2017), and accounting standards can lead firms to decrease both investment and payout to shareholders (Bird et al 2018). Looking specifically at research on SFAS 109, it is unclear if this standard was beneficial (e.g., Ayers 1998) or value neutral (e.g., Khan et al. 2017). Given the increased scrutiny of the FASB, our findings highlight the benefits of improved financial reporting standards for individual investors. Our analysis also highlights the importance of further analysis, beyond market-wide implications of accounting standards, of how financial reporting standards aid (or harm) individual investors.

## II. Literature Review and Hypothesis Development

### *Background on SFAS 109*

The FASB issued Statement 109, Accounting for Income Taxes in February of 1992. SFAS 109 superseded FASB Statement 96 and APB 11. APB 11 used an income statement approach to accounting for income taxes, where income tax expense is the amount of tax that would be paid if the current tax rate were applied to financial pretax income.[5] The primary criticism of this approach is that deferred tax assets and liabilities on the balance sheet are accumulated residual amounts (i.e., differences between income tax expense and income taxes payable), and these amounts are not updated for changes in tax rates. Under this approach, deferred tax assets and liabilities on the balance sheet do not capture income taxes expected to be paid in the future, a problem that is exacerbated with the passage of time and in the presence of changing tax rates. Moreover, APB 11 did not require firms to record deferred tax assets on the balance sheet, and instead allowed managers to use their discretion when recording deferred tax assets.

To address these criticisms, SFAS 96 moved to a liability approach to accounting for deferred taxes, which emphasizes the reporting of balance sheet amounts that reflect future tax consequences of temporary differences. Yet, the mechanics of recording a deferred tax liability or asset were extremely burdensome under SFAS 96, since it did not allow the preparer to consider future taxable income in the recognition and measurement of deferred tax assets. Significant criticism of SFAS 96 resulted in the enactment date for the standard being delayed three times, allowing firms to move directly from APB 11 to SFAS 109, having never adopted SFAS 96.[6]

[5] Specifically, each year a current deferred tax liability or credit was calculated as the difference between (1) the tax liability calculated on the income tax return and (2) the tax expense calculated by multiplying the current tax rate by financial statement income less permanent differences between financial statement and taxable income. The current year deferred tax liability was then recorded on the balance sheet. [American Institute of Certified Public Accountants, Accounting Principles Board Opinion No. 11, Accounting for Income Taxes (Dec. 1967)].

[6] The original effective date for SFAS 96 was the year beginning after December 15, 1988. However, FASB Statement 100 delayed the effective date to years beginning after December 15, 1989, FASB Statement 103 delayed the effective

Under SFAS 109, firms recognize deferred tax assets (liabilities) in instances where a temporary item causes current taxable income to exceed (be less than) book income. However, after the recognition of deferred tax assets, firms must use a "more likely than not" criterion to evaluate the probability of future realization of the deferred tax assets. Firms must record a valuation allowance (i.e., contra asset account) against any deferred tax assets that are not likely to be realized.

SFAS 109 was effective for fiscal years beginning after December 15, 1992. For a calendar year company this rule requires adoption of the standard on January 1, 1993, with SFAS 109 being reflected in the 1993 annual financial statements issued in early 1994. However, the FASB encouraged early adoption and in fact, many firms adopted SFAS 109 earlier than required.[7] In our sample, over 61 percent of the firms adopted SFAS 109 earlier than required by the standard.

While SFAS 109 also received much criticism, the intent was to improve upon prior standards of accounting for income taxes and improve the communication of value-relevant tax information. In general, SFAS 109 achieved the primary objectives of standard setters, which included the move to a balance sheet approach to accounting for income taxes, reducing the scheduling burden that existed under SFAS 96, and allowing for the recognition of deferred tax assets that are expected to be realized. However, evidence is mixed on the costs and benefits of the standard. Ayers (1998) provides evidence that the cumulative effect adjustment to modify a firm's net deferred tax liabilities under APB 11 to the amount required under SFAS 109 (i.e., the cumulative effect of SFAS 109) and deferred tax assets and liabilities reported after SFAS 109 adoption are value-relevant (i.e., associated with the market value of equity). However, some

date to years beginning after December 15, 1991, and FASB Statement 108 delayed the effective date to years beginning after December 15, 1992.

[7] Financial Accounting Standards Board, Statement of Financial Accounting Standards No. 109, Accounting for Income Taxes (Feb. 1992)

researchers question the usefulness of traditional value-relevance regressions for standard setters (e.g., Holthausen and Watts 2001). Additionally, based on an event study methodology surrounding the promulgation of 160 FASB standards, Khan et al. (2017) provide market-wide evidence that SFAS 109 was value neutral. However, we are specifically interested in the extent to which SFAS 109 improved the flow of value-relevant tax information to individual investors, potentially leading to shifts in their portfolio allocation decisions.

***Evaluating Financial Accounting Standards***

When issuing financial accounting standards, the FASB's intent is to establish standards that will facilitate the communication of decision-useful information to investors. Additionally, the FASB strives to issue standards where the benefits (i.e., the improvement in the quality of information) exceed the costs of compliance.[8] However, some would argue that capital market demand should dictate the optimal amount of disclosure and therefore, a market-based approach to standard setting and regulation would be more efficient (e.g., Grossman and Hart 1980; Sunder 2002). Others have argued that the FASB has monopoly power, which can lead to inefficiencies and corruption (e.g., Sunder 2002; Kothari et al. 2010). Additional criticisms of the FASB include a general belief that FASB standards make financial reporting unnecessarily complex (DiPiazza el al. 2006, Dichev et al. 2013). One of the takeaways from a survey of 169 public company CFOs is that financial reporting has become a compliance activity and does not always lead to high quality reporting of earnings (Dichev et al. 2013). In line with this idea, Bird et al (2018) find evidence that financial accounting standards increase the cost and reduce the supply of credit and equity financing, and that firms respond to these constraints by reducing investment by 3.6 percent

[8] Financial Accounting Standards Board *Rules of Procedure*, Amended and Restated through December 11, 2013.

and payout by 2.6 percent. Bird et al (2018) interpret their results as suggesting that that the implementation of financial accounting standards imposes real costs on the economy.

In light of these criticisms, we seek to evaluate the extent to which the FASB's revision of the standard of accounting for income taxes improved the flow of information to individual investors. Khan et al. (2017) evaluate the extent to which 160 FASB standards promulgated between 1973 and 2009 imposed net costs or benefits on firms most likely to be affected by each standard. Specifically, that study examines abnormal stock returns on key event dates related to the promulgation of each standard. Khan et al. (2017) note that if an accounting standard imposes net costs on shareholders, then the standard should be associated with a decrease in firm value. The results in Khan et al. (2017) indicate that while some standards impose net costs or net benefits on firms, most are value neutral. With respect to SFAS 109, Khan et al. (2017) do not find a significant difference in abnormal returns between firms more vs. less affected by the standard. However, they do provide evidence that around the implementation of SFAS 109 firms more affected by the standard experienced a decrease in estimation risk (measured as the standard deviation of market model beta) relative to firms *not* affected by the standard.

The abnormal stock returns surrounding the promulgation of SFAS 109 in Khan et al. (2017) provide contradictory evidence to Ayers (1998), which concludes that tax information required under SFAS 109 is value-relevant. The Khan et al. (2017) results also contradict Espahbodi et al. (1995), which provides evidence that firms exhibited significant *positive* abnormal returns around the issuance of exposure drafts for SFAS 96 and SFAS 109. Espahbodi et al. (1995) attributes the positive abnormal returns to the fact that both standards generally increased firms' income upon adoption. While SFAS 109 did in fact cause most firms to report higher financial

statement income, it was a change in accounting standard that did *not* directly impact economic earnings or cash flows of a firm.

While the analysis in Khan et al. (2017) suggests that SFAS 109 was neither value enhancing nor value destroying from a market-wide perspective, it does *not* offer insight into the implications of this accounting standard for individual investors.[9] Individual investors are often viewed as less sophisticated than other investors, such as institutional investors (Barber and Odean 2000). Information asymmetry among investors increases the risk to less sophisticated (i.e., uninformed) investors of owning stock because informed investors are better able to shift their portfolio weights to incorporate new information, often at the expense of uninformed investors (e.g., Merton 1987; Diamond and Verrecchia 1991; Kim and Verreccia 1994; Easley and O'Hara 2004). Because the calculation and financial reporting of income taxes is highly complex, it likely increases the information asymmetry between informed (e.g., institutions) and uninformed (e.g., individual) investors. Consistent with financial statement-based tax information being difficult to process, prior accounting research provides evidence that analysts and investors do not understand the implications of tax information for future earnings and returns (e.g., Plumlee 2003; Lev and Nissim 2004; Weber 2009; Chi et al. 2014). Thus, individual investors have much to gain from improvements in the accounting for income taxes under SFAS 109.

However, critics of SFAS 109 were concerned that the new standard created unnecessary complexity and provided management greater subjectivity in the measurement of deferred taxes, thereby increasing the potential for manipulation (Ayers 1998). In addition, the FASB's recent

[9] Institutional investors own 73 percent of the outstanding equity in the largest 1,000 firms on U.S. exchanges and high frequency trading accounts for more than 50 percent of all U.S. equity-exchange trading volume (Goldstein, Kumar, and Graves 2014). These statistics suggest it is unlikely that the *overall* market reaction to a change in accounting standard captures how the change impacts *individual* investors, especially for financial accounting standards that differentially impact the information set of large, institutional investors compared to that of individual investors. For example, Miller (2010) provides evidence of lower trading volume for individual investors when financial disclosures are longer and less readable.

proposed accounting standard update (FASB 2016) focuses on further enhancing the disclosure requirements for income taxes, which suggests that income tax disclosures under SFAS 109 are inadequate. Thus, it is unclear whether SFAS 109 sufficiently improved the flow of value-relevant tax information such that individual investors (who are typically at an information disadvantage relative to more sophisticated investors such as institutions) used the new information about current and deferred income taxes to reallocate their investment portfolios.

Our hypotheses focus on shifts in individual investors' portfolio allocations (and *not* stock returns) because we do not expect changes in individual investor stock holdings to impact stock prices on average, especially in light of Khan et al.'s (2017) findings of insignificant abnormal returns around the promulgation of most accounting standards, including SFAS 109. Further, examining changes in individual investor stock holdings is a more direct test of whether the new accounting standard improved the flow of value-relevant tax information such that these investors were persuaded to increase investments in firms more affected by the standard. We state our first hypothesis in the alternative:

> **H1:** *Relative to non-adoption months, individual investors increased their stock holdings in firms more affected by SFAS 109 in the month following a firm's adoption of the new accounting standard.*

Next, we examine whether less sophisticated individual investors are more likely to increase their stock holdings in firms more affected by SFAS 109 adoption than more sophisticated investors. The theory underlying our first hypothesis (above) suggests that improved income tax disclosures following SFAS 109 adoption will reduce the information disadvantage of individual investors, increasing the demand by individual investors for securities more affected by the new accounting standard. Because sophisticated individual investors have greater knowledge and/or resources to process complex financial statement-based tax information, they likely experience less of an information disadvantage than institutional investors prior to SFAS 109 adoption. Thus,

we expect sophisticated investors to experience smaller increases (or to not change) their stock holdings in firms more affected by SFAS 109 adoption compared to less sophisticated individual investors. Our expectations are consistent with prior research that argues uninformed (or less sophisticated) investors are at a greater information disadvantage and face higher information processing costs than more sophisticated investors (e.g., Diamond and Verrecchia 1991; Indjejikian 1991; Bloomfield 2002; Easley and O'Hara 2004). We state our second hypothesis in the alternative:

> **H2:** *Less sophisticated individual investors are more likely to increase their stock holdings in firms more affected by SFAS 109 in the month following a firm's adoption of the new accounting standard, relative to more sophisticated individual investors.*

## III. Research Methodology

To build our sample we first utilize the ProQuest Historical Annual Report database to hand-collect details regarding SFAS 109 adoption from the financial statements. The ProQuest database includes annual reports in PDF format for more than 75 percent of the firms that commonly appear in the Fortune 500. Firms adopted SFAS 109 between 1992 and 1994.[10] In these years the ProQuest database includes annual reports for 220 to 240 companies per year. From these annual reports, we obtain the firm's date of SFAS 109 adoption, the cumulative effect of SFAS 109 adoption, and the report filing date. Appendix A provides excerpts from two annual reports of Abbott Laboratories, highlighting one tax footnote prior to SFAS 109 adoption, management discussion of SFAS 109 adoption, and one tax footnote following SFAS 109 adoption. Consistent with SFAS 109 adoption leading to improved and expanded tax footnote disclosures, Abbott Laboratories' first tax footnote following SFAS 109 adoption includes a tax rate reconciliation

[10] The FASB issued SFAS 109 in February of 1992, effective for fiscal years beginning after December 15, 1992; however, early adoption was encouraged.

schedule and information about deferred tax assets and liabilities. This information that was not included in Abbott Laboratories' tax footnote prior to SFAS 109 adoption.

We then combine the ProQuest / SFAS 109 adoption data with stock holdings data for individual investors with accounts at a large discount brokerage from 1991-1996. This brokerage data consists of 158,034 individual accounts from 78,000 households. These 78,000 households are a subset of 1.25 million households that were customers of the brokerage firm during the sample period. To extract a sub-sample representative of the full brokerage population, the brokerage firm used a stratified sampling method to select household accounts based on whether the household was classified as a general (60,000 observations), affluent (12,000 observations), or active-trader (6,000 observations) household. A possible limitation of this data is that it may not be representative of the entire individual investor population. As noted in Lawrence (2013) and Rego et al. (2017), prior studies provide evidence that the data has external validity. Specifically, the trades in the dataset are correlated with the trades of other brokerage firms and with information reported on individuals' income tax returns (Ivkovic, Poterba, and Weisbenner 2005; Barber and Odean 2008).[11] We conduct our analyses at the individual account level following prior research that uses this individual holdings data. This level of analysis allows us to investigate how SFAS 109 affects individual investor stock holdings and to exploit differences in individual investor characteristics.

We then compile requisite financial statement data from Compustat, analyst data from IBES, and stock return volatility from CRSP. After combining the data from all sources, we have 89,477 account-firm-year observations for 23,882 unique households and 104 unique firms for fiscal years 1991-1996.

[11] Nonetheless, consistent with statements in Barber and Odean (2000), our findings may not generalize to *retail* brokerage accounts, as the trading practices of retail customers could differ from those of discount customers.

Hypothesis 1 examines the impact of SFAS 109 adoption on individual investors' stock holdings. Thus, our primary analyses focus on the change in stock holdings in the months surrounding a firm's adoption of SFAS 109. To calculate the change in stock holdings, we first require each firm's SFAS 109 adoption date and annual report filing dates. We designate month *m* as the month a firm files its annual report and month *m-1* (*m+1*) as the month before (after) the firm files its annual report. We first calculate individual investor *i*'s change in stock holdings in firm *j* from month *m-1* to month *m+1*. We then compare the average change in individual investors' stock holdings (from month *m-1* to month *m+1*) in firms that are more vs. less affected by SFAS 109 adoption. Our approach is similar to that taken in Khan et al. (2017), which evaluates the market-wide response to the promulgation of 160 FASB standards by comparing the abnormal stock returns of firms that are more vs. less likely to be affected by a specific accounting standard.

We determine whether a firm is more or less affected by SFAS 109 using five different measures. First, we create an indicator variable (*109_INDICATE*) that equals one if the adoption of SFAS 109 had a material (disclosed) cumulative effect on retained earnings to adjust APB 11 deferred taxes to the SFAS 109 amount, and zero otherwise. Second, we also expect the impact of SFAS 109 adoption to be increasing in the magnitude of the absolute value of the cumulative effect adjustment, scaled by total shares outstanding (*ABS_109_EFFECT*). We use the absolute value of the cumulative adjustment effect, given our expectation that the increase in stock holdings is a function of the reduced information disadvantage of individual shareholders and not the directional magnitude of the adjustment to retained earnings. Next, because deferred taxes accrued under APB 11 did not capture expected future tax-related cash flows, we expect firms with greater net deferred tax assets (*NET_DTA*) and larger net operating loss carryforwards (*NOL_CF*) to be more affected by SFAS 109 adoption than other firms. Lastly, the income statement approach to accounting for

deferred taxes under APB 11 could have induced variation in effective tax rates (ETRs) and correspondingly, increased the difficulty of forecasting firms' future tax-related cash flows. Thus, we also expect firms with more volatile ETRs (*ETR VOLATILITY*) to be more affected by SFAS 109 adoption than other firms. We use all five of these variables (*109_INDICATE*, *ABS_109_EFFECT*, *NET_DTA*, *NOL_CF*, and *ETR VOLATILITY*) in our tests of H1.

To test H1, which examines the impact of SFAS 109 adoption on individual investor stock holdings, we use OLS regression to estimate equation (1) below:

$$\Delta HOLDINGS_{i,j,m-1,m+1} = \beta_0 + \beta_1 SFAS109_j + \Sigma_j \beta_j \Delta Controls_{i,j,t} + \Sigma_k \beta_k Industry\ Fixed\ Effects_i + \Sigma_l \beta_l Year\ Fixed\ Effects_t + \varepsilon_{i,t} \quad (1)$$

$\Delta HOLDINGS_{i,j,m-1,m+1}$ is the change in individual *i*'s stock holdings in firm *j* from month *m-1* to month *m+1*, where individual *i*'s stock holdings in firm *j* in month *m-1* (*m+1*) are calculated as the value of individual *i*'s holdings in firm *j* in month *m-1* (*m+1*), scaled by the total value of individual *i's* total stock holdings in month *m-1* (*m+1*). Thus, $\Delta HOLDINGS$ captures how individual investor *i* changes their holdings in firm *j*, relative to their total stock holdings.

As described above, we measure the impact of SFAS 109 adoption using five different proxies. We first include *109_INDICATE* and *ABS_109_EFFECT* in equation (1) as separate proxies for the impact of SFAS 109 on individual investors' stock holdings. We then include the main effects of *NET_DTA*, *NOL_CF*, and *ETR_VOLATILITY* and their interactions with the *109_INDICATE* variable in equation (1) to examine whether SFAS 109 adoption had a greater impact on individual investors' stock holdings in firms with larger net deferred tax assets, larger net operating loss carryforwards, and more volatility ETRs. To the extent SFAS 109 improved the accounting for current and deferred taxes such that individual investors increased their stock

holdings in firms with these attributes, then we expect the coefficients on our proxies for the impact of SFAS 109 ($\beta_1$) to be positive and significant.

To examine if individual investors' stock holdings are incrementally responsive to the adoption of SFAS 109, we control for numerous factors that could be correlated with both the extent to which a firm is affected by SFAS 109 adoption and investment choice. We measure all control variables as changes from year *t-1* to year *t*. We select control variables based on tests of individual investor stock holdings in Lawrence (2013) and Rego, Williams, and Wilson (2017). At the individual investor level, we control for the change in individual investor *i's* total equity holdings ($LogEQUITY_{i,m-1,\ m+1}$). Firm level controls include the change in the price-to-earnings ratio (*PE RATIO*), the number of shareholders that invest in firm *j (LogSHAREHOLDERS)*, total assets (*LogASSETS)*, research and development expense *(R&D)*, pretax profitability *(PRETAX_ROA)*, the market-to-book ratio *(MTB)*, whether the firm is a member of the S&P 500 (*S&P500)*, the number of analysts that follow firm *j (Log(#ANALYSTS))*, market model beta *(BETA)*, stock return volatility (*σRETURNS*), pretax earnings volatility (*σPRETAX_EARN*), the number of business and geographic segments as proxies for firm complexity *(Log(#BSEG); Log(#GSEG))*, financial disclosure completeness as measured by the number of missing data items for firm *j* (*Log(#ITEMS)*), an indicator variable for whether the firm reports a loss in the current year (*LOSS*), and discretionary accruals calculated based on the modified Jones model (*DISCR_ACCR*).

For some of the firms that adopted SFAS 109 early, the adoption could have coincided with the adoption of SFAS 107, Disclosures about Fair Value Instruments. Thus, we include the change in marketable securities (Δ*MKT_SECURITIES*) to control for changes in stock holdings related to this accounting standard. Additionally, we note that 78 percent of our sample firms

adopted SFAS 106 and SFAS 109 in the same fiscal year and in cases of concurrent adoption, SFAS 109 lessened the negative impact of SFAS 106 adoption. Specifically, SFAS 106 required firms to record liabilities for accumulated pension benefit obligations and other post-retirement benefits; however, these liabilities were partially offset by the deferred tax assets (required by SFAS 109) for the future tax benefits associated with the accrued post-retirement obligations. To control for the effects of SFAS 106 adoption on investors' stock holdings, we follow Ayers (1998) and include the accumulated pension benefit obligation (*PENSION*) and the accumulated post-retirement benefit obligation (*OPEB*) in equation (1). Given findings in Rego et al. (2017), we also control for changes in a firm's effective tax rate ($\Delta ETR$). All regressions include both industry and year fixed effects, with standard errors clustered by individual investor account.

To test H2, we examine whether the increase in individual investors' stock holdings following adoption of SFAS 109 varies predictably with investor sophistication. Specifically, we examine individual investors' financial literacy, wealth, and level of trading activity as proxies for investor sophistication. Because more sophisticated investors have greater knowledge and/or resources to process complex financial statement-based tax information, they should have informational advantages over less sophisticated investors prior to SFAS 109 adoption. Thus, we expect sophisticated investors to experience smaller increases (or not change) their stock holdings in firms more affected by SFAS 109 adoption compared to less sophisticated individual investors.

To test this prediction we modify equation (1) to include main effects of investor characteristics and then interact those variables with the SFAS 109 indicator variable (*109_INDICATE*). The coefficients on the interaction terms test whether certain types of investors are less likely to increase their stock holdings shortly after SFAS 109 adoption. Our first proxy for investor sophistication is financial literacy (*FIN_LITERATE*), which is an indicator variable set to

one if the investor is employed in a "professional" occupation, and zero otherwise. Our second proxy for investor sophistication is *WEALTHY*, an indicator variable set to one if the investor holds more than $100,000 in their brokerage account, and zero otherwise. Our last proxy for investor sophistication is *ACTIVE,* an indicator variable set to one if the investor makes more than 48 trades a year, and zero otherwise. We expect investor sophistication to be increasing in trading frequency. We obtain all individual investor characteristic data from the discount brokerage firm dataset.

## IV. Results

### Descriptive Statistics

Table 1 provides descriptive statistics for our sample. The mean value for individual *i*'s holdings in firm *j* in month *m*, scaled by the value of their total stock holdings in month *m* ($HOLDINGS_{i,j,m}$) is 0.282. This mean value indicates that the average individual investor in our sample holds approximately four different securities, which is consistent with the mean holdings value of 0.24 reported in Lawrence (2013). Changes in stockholdings ($\Delta HOLDINGS$) from month *m-1* to month *m+1* are relatively modest, as the median investor does not change their stock holdings and investors in the $25^{th}$ ($75^{th}$) percentiles decrease (increase) their holdings by 0.006. The mean value for the SFAS 109 indicator variable (*109 INDICATE*) is 0.218, which suggests that 21.8 percent of our sample observations are SFAS 109 adoption years. This frequency of observations is a function of our requirement that firms adopt SFAS 109 during 1992-1994 (based on ProQuest data) and then we match these SFAS 109 adoption firms to the discount brokerage data, which spans 1991-1996. Recall the SFAS 109 indicator variable only "turns on" in the month (*m*) of the Form 10-K filing in which the SFAS 109 adoption is first disclosed by firm *j*. On average, the firms included in our sample are fairly large firms with over four business segments,

five geographic segments, and over $13 billion in assets. With regard to the individual investors in the sample, 25 percent have over $100,000 in his/her investment account (*WEALTHY*), approximately 14 percent are classified as active traders (*ACTIVE*), and 39 percent are classified as financially literate based on their occupation (*FIN_LITERATE*).

[INSERT TABLE 1 HERE]

In Table 2 we present descriptive statistics for select tax variables during the pre- and post-SFAS 109 adoption periods for our sample of SFAS 109 adoption firms (Panel A), and also for all U.S. incorporated firms in Compustat with the requisite data (Panel B). This analysis will help us understand whether our relatively small sample of SFAS 109 adoption firms (101 unique firms) exhibit tax characteristics that are similar (or different) from a broader sample of firms in the years before and after SFAS 109 adoption. We observe no difference in mean *GAAP ETR* across the pre- and post- SFAS 109 periods for either sample. However, the mean and median *CURRENT ETR* is significantly lower in the post-SFAS 109 period for both samples, and the mean *NET_DTA* is significantly lower in the post-SFAS 109 period, but only for our sub-sample. We also observe that the mean volatilities of *GAAP ETR*, *CURRENT ETR*, and *NET_DTA* (measured over a three-period) decrease significantly following SFAS 109 for both samples. These results are consistent with SFAS 109 reducing volatility in the tax accrual process for both samples of firms.

[INSERT TABLE 2 HERE]

Table 3 reports the Pearson correlation coefficients for our primary variables of interest. The positive correlations between the change in individual investors' stock holdings from month *m-1* to month *m+1* (Δ*HOLDINGS*) and the two SFAS 109 adoption variables, *109 INDICATE* and *ABS_109_EFFECT*, support our prediction (H1) that individual investors increase their holdings

in firms more effected by SFAS 109 adoption. However, these positive correlations only provide preliminary evidence and so we now discuss the results for multivariate tests of our hypotheses.

[INSERT TABLE 3 HERE]

**Multivariate Analysis**

Table 4 presents the results from four separate estimations of equation (1), which examines how SFAS 109 adoption affected individual investors' stock holdings. In columns (1) and (3) we include the indicator variable (*109 INDICATE*) that equals one if the firm disclosed a cumulative effect adjustment related to SFAS 109 adoption in its annual Form 10-K filing. In columns (2) and (4) we include the absolute value of the magnitude of the cumulative effect of SFAS 109 adoption, scaled by total shares outstanding (*ABS_109_EFFECT*). Across all columns, we observe positive and significant coefficients on the SFAS 109 variables, consistent with our hypothesis that individual investors increase their stock holdings in firms more affected by SFAS 109 adoption. The coefficients on the control variables suggest that individual investors increase their holdings in firms with increases in the price-to-earnings ratio (*PE RATIO*), research and development expenditures (*R&D)*, pretax return on assets (*PRETAX_ROA*), and in the number of geographic segments (*log(#GSEG)*). Investors decrease their holdings of firms with increases in the market-to-book ratio (*MTB*), stock return and pretax earnings volatility (σ*RETURNS* and σ*PRETAX_EARN*), discretionary accruals (*DISCR_ACCR*), pension expense (*PENSION*), and other post-employment benefits (*OPEB*). Consistent with Rego et al. (2017), individual investors decrease their holdings in firms that report lower ETRs (*LOWETR*).

[INSERT TABLE 4 HERE]

Next, we examine whether certain tax characteristics enhance the positive association between SFAS 109 adoption and changes in individual investor stock holdings. For firms with

higher values of these tax characteristics (*NET_DTA*, *NOL_CF*, and *ETR VOLATILITY*) we expect SFAS 109 to have a greater impact on the information disadvantage of less sophisticated investors. Specifically, we expect firms with larger net deferred tax assets (*NET_DTA*), larger net operating loss carryforwards (*NOL_CF*), and more volatile effective tax rates (*ETR VOLATILITY*) to improve the communication of tax information to investors following the adoption of SFAS 109 more than other firms. Thus, we expect the coefficients on the interactions of the tax characteristic variables and the *109 INDICATE* variable to be positive and significant. Consistent with our expectations, in Table 5 we observe that the increase in holdings following SFAS 109 adoption is concentrated in firms with larger net deferred tax assets (*NET_DTA*), larger net operating loss carryforwards (*NOL_CF*), and more volatile effective tax rates (*ETR VOLATILITY*). In all of these instances, it is likely that SFAS 109 adoption was especially beneficial for individual investors, given the likely deviations of deferred taxes from expected future cash flows under the income statement approach of APB 11.

[INSERT TABLE 5 HERE]

Next, we examine the extent to which certain investor characteristics influence the association between SFAS 109 adoption and the change in individual investor stock holdings. Specifically, we include *FIN_LITERACY*, *WEALTHY*, and *ACTIVE* as proxies for investor sophistication in equation (1) and interact these variables with the *109 INDICATE* variable. We expect more sophisticated individual investors to be *less* affected by the improved accounting for income taxes under SFAS 109, and thus we predict the coefficients on the interaction terms to be *negative* and significant. Table 6 presents the results of these analyses. First, we note that we continue to find a significant and positive main effect of SFAS 109 adoption (*109 INDICATE*) on Δ*HOLDINGS* in all columns, consistent with H1 and the results reported in Table 4. In column (1)

the coefficient on the interaction of *109 INDICATE* and *FIN_LITERACY* is not significant; thus, we find no evidence that individuals with higher financial literacy differentially increase their stock holdings for firms that do vs. do not adopt SFAS 109 in month *m*. In contrast, in column (2) the coefficient on the interaction of *109 INDICATE* and *WEALTHY* is negative and significant (coefficient = -0.003; t-statistic = -2.62). The F-statistic that tests whether the sum of the coefficients on the *109 INDICATE* variable and its interaction with *WEALTHY* are significantly different from zero suggests that individual investor wealth attenuates the positive relation between SFAS 109 adoption and the change in individual investor stock holdings. In column (3) the coefficient on the interaction of *109 INDICATE* and *ACTIVE* is also negative and significant (coefficient = -0.004; t-statistic = -2.74). We also find that the sum of the coefficients on the *109 INDICATE* variable and its interaction with *ACTIVE* is not significantly different from zero. Taken together, the results in Table 6 provide evidence consistent with H2; that is, SFAS 109 adoption improved the flow of tax-related information to investors and was especially beneficial for less sophisticated investors.

[INSERT TABLE 6 HERE]

The theory underlying our hypotheses is that improved disclosure will reduce the information disadvantage of individual investors, increasing the demand for securities by individual investors. One concern underlying our empirical tests is that individual investors are trading based on a common firm fundamental such as the price-to-earnings ratio or the book-to-market ratio and thus, are less likely to alter trading behavior following an increase in disclosure. We control for both the change in the price-to-earnings ratio and the book-to-market ratio in equation (1). However, we also estimate equation (1) separately for three subsamples of firms based on the sign of the cumulative effect adjustment for SFAS 109 adoption (i.e., negative, zero,

or positive). If, as we hypothesize, individual investors increase their stock holdings in firms more effected by SFAS 109 because of the improved tax footnote information following SFAS 109 adoption, we would expect to find an increase in stock holdings for all three subsamples, regardless of the effect on income. The results for the three separate estimations, presented in Table 7, provide evidence consistent with these expectations. In columns (1) and (2), we find a positive and significant coefficient on *109 INDICATE* (column (2) coefficient = 0.008; t-statistic = 3.55), suggesting that individual investors increase their holdings in firms in the month following the adoption of SFAS 109 when the cumulative adjustment is negative. In columns (3) and (4), for the subsample of firms where SFAS 109 adoption did *not* result in a material cumulative adjustment, we again find a positive and significant coefficient on *109 INDICATE* (column (4) coefficient = 0.005; t-statistic = 3.24). Lastly, in columns (5) and (6), for the subsample of firms where the cumulative adjustment from the adoption of SFAS 109 increases income, we find mixed evidence. We observe a positive and significant coefficient in the specification with limited controls (column (5) coefficient = 0.002; t-statistic = 2.09), but an insignificant coefficient on *109 INDCIATE* when we add control variables. Overall, these results provide confirmatory evidence that improved communication of tax information after SFAS 109 adoption increased individual investor demand for securities.

[INSERT TABLE 7 HERE]

**Supplemental Analysis**

The primary focus of our analysis is the individual investor and understanding the extent to which the improved communication of SFAS 109 reduced the information disadvantage of the individual investor (compared to more sophisticated investors), increasing individual investor demand for securities. However, SFAS 109 adoption may have also reduced information

asymmetry between managers and all investors. As such, we conduct supplemental analyses that evaluate the extent to which information asymmetry decreases following a firm's adoption of SFAS 109. Consistent with prior research, we use monthly-bid ask spreads (*SPREAD*) as our proxy for information asymmetry. We calculate *SPREAD* following the methodology described in Corwin and Schultz (2012). We then estimate regressions where *SPREAD* is the dependent variable and the variable of interest is *POST_SFAS109*, which equals one for firm-year observations that have adopted SFAS 109 (and zero otherwise). Because the individual investor data is not required in these analyses, we estimate the regressions based on a sample of firm-year observations with requisite data during our sample period of 1991 to 1996. If SFAS 109 reduced information asymmetry between management and all investors then we expect the coefficient on the *POST_SFAS109* indicator variable to be negative and significant. We estimate this regression with three different specifications: 1) only including *POST_SFAS109*, 2) including *POST_SFAS109* and *BETA*, and 3) including *POST_SFAS109* and a full set of control variables. Our results, presented in Table 8, indicate that monthly bid-ask spreads are lower in years following a firm's adoption of SFAS 109. These results provide supporting evidence that SFAS 109 reduced information asymmetry and increased individual investors' demand for stocks more effected by SFAS 109.[12]

[INSERT TABLE 8 HERE]

We are interested in how SFAS 109 adoption impacts individual investor holdings; thus, consistent with prior literature utilizing individual investor data (e.g. Lawrence 2013; Rego et al. 2017) we conduct all primary analyses at the individual account level. In untabulated robustness

[12] We acknowledge, however, that because most of our sample firms adopted SFAS 106 and SFAS 109 in the same fiscal year, we cannot disentangle (in this test) whether SFAS 109 or SFAS 106 is the source of the decrease in information asymmetry.

tests, we modify the dependent variable to be the change in aggregate stock holdings by all individual investors in our discount brokerage sample in firm *j* from month *m-1* to *m+1*. We then re-estimate equation (1) with the aggregate change in holdings, including all control variables, industry and year fixed effects and standard errors clustered by year. The aggregate (or firm-level analysis) includes 577 firm-month observations. We continue to find a positive and significant coefficient on *109 INDICATE* and on the magnitude of the cumulative effect of SFAS 109 adoption (*ABS_109_EFFECT*).

Following prior research (e.g., Lawrence 2013; Rego et al. 2017) the dependent variable in our tabulated analyses, Δ*HOLDINGS*, is calculated as the change in individual *i*'s stock holdings in firm *j* from month *m-1* to month *m+1*, where individual *i*'s stock holdings in firm *j* in month *m-1* (*m+1*) is calculated as the value of individual *i*'s holdings in firm *j* in month *m-1* (*m+1*), scaled by the total value of individual *i's* total stock holdings in month *m-1* (*m+1*). Thus, Δ*HOLDINGS* captures how individual investor *i* changes his/her holdings in firm *j*, relative to their total stock holdings. One concern with this variable is that it captures changes in individual *i*'s holdings in firm *j and* changes in his/her total stock holdings. To address this concern we re-estimate equation (1) replacing Δ*HOLDINGS* with the change in the number of shares held. Specifically, we calculate the natural log of the change in the number of shared held in firm *j*, from month *m-1* to month *m+1*. The results (untabulated) are consistent with those reported in Table 4. We continue to find a positive and significant coefficient on *109 INDICATE* and on the magnitude of the cumulative effect of SFAS 109 adoption (*ABS_109_EFFECT*). To summarize, our primary results are robust to estimating our primary regressions at the firm-level and to modifying the dependent variable to the log of the change in the number of shares held.

## V. Conclusion

Recently, there have been criticisms of the costs of FASB accounting standards relative to their benefits. We add to this debate by evaluating how one FASB standard, SFAS 109 Accounting for Income Taxes, affects the flow of information to individual investors. We predict that SFAS 109 reduced the information disadvantage of individual investors, increasing their demand for securities more affected by the adoption of SFAS 109. We provide evidence consistent with this prediction; individual investors increased their stock holdings in firms more affected by the adoption of SFAS 109. We also provide evidence that suggests the increase in holdings is concentrated among less sophisticated individual investors. Further, our results suggest that the increase in holdings is not solely a function of the adjustment to retained earnings upon SFAS 109 adoption or heuristic trading strategies (i.e., price-to-earnings or book-to-market ratios). We also provide evidence that individual investors increase their holdings for three subsamples of firms, partitioned based on whether the adjustment to retained earnings from SFAS 109 adoption was positive, negative, or immaterial. While data limitations do not allow us to evaluate the costs of SFAS 109 adoption, our findings provide evidence of improved accounting information benefiting individual investors, although market-wide analyses in recent research suggests that SFAS 109 was value neutral (Khan et al. 2017).

Our research should be of interest to researchers, regulators, and individual investors. Our findings are contrary to a growing body of academic research that suggests the costs of financial reporting standards outweigh the benefits. Additionally, our analyses focus specifically on the benefits of improved financial reporting for individual investors, an important group of stakeholders for regulators such as the SEC and FASB.

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## Appendix A: Excerpts from Annual Reports around SFAS 109 Adoption

Appendix A presents excerpts from two annual reports for Abbott Laboratories. Abbott Laboratories adopted SFAS 109 effective on January 1, 1993. SFAS 109 adoption did not have a significant effect on net income.

**Income Tax Footnote for the year ending December 31, 1992 (the year prior to SFAS 109 Adoption)**

### Note 2 – Taxes on Earnings

*(dollars in thousands)*

Earnings before taxes, and the related provisions for taxes on earnings, are as follows:

| Earnings Before Taxes | 1992 | 1991 | 1990 |
|---|---|---|---|
| Domestic | $1,418,335 | $1,205,883 | $1,074,440 |
| Foreign | 320,418 | 338,339 | 276,293 |
| Total | $1,738,753 | $1,544,222 | $1,350,733 |

| Taxes on Earnings | 1992 | 1991 | 1990 |
|---|---|---|---|
| Current: | | | |
| U.S. Federal and Possessions | $347,711 | $316,377 | $266,454 |
| State | 63,838 | 50,758 | 41,903 |
| Foreign | 133,065 | 140,559 | 109,129 |
| Total Current | 544,614 | 507,694 | 417,486 |
| Deferred: | | | |
| Domestic | (35,739) | (49,998) | (34,582) |
| Foreign | (9,179) | (2,151) | 2,055 |
| Total Deferred | (44,918) | (52,149) | (32,527) |
| Total | $499,696 | $455,545 | $384,959 |

The taxes on earnings shown above are less than the amounts that would result from applying the statutory U.S. Federal income tax rate of 34 percent to earnings before taxes. This rate differential results principally from tax incentive grants related to subsidiaries in Puerto Rico and Ireland. These estimated tax savings amounted to $107,000 in 1992, $87,000 in 1991, and $82,000 in 1990.

In February 1992, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 109 "Accounting for Income Taxes." The Company plans to adopt this standard in 1993, and does not expect it to materially affect the Company's financial position or results of operations.

**Excerpt from the Financial Review Section of the Annual Report for the year ending December 31, 1993 (the year of SFAS 109 Adoption)**

### Taxes on Earnings

The Company's effective income tax rate for 1993 was 28.0 percent, compared with 28.7 percent for 1992 and 29.5 percent for 1991.

In the first quarter 1993, the Company adopted Statement of Financial Accounting Standards No. 109, "Accounting for Income Taxes." The effect of this change on income before taxes and net income is not significant, and prior years' financial statements have not been restated.

In August 1993, the President of the United States signed the Omnibus Budget Reconciliation Act of 1993 into law. The effects of this Act on the Company's tax provision in 1993 were not significant. However, as the result of this Act, the Company's 1994 tax provision is expected to increase approximately $50 million.

**Income Tax Footnote for the year ending December 31, 1993 (the year of SFAS 109 Adoption)**

### Note 5 – Taxes on Earnings

*(dollars in thousands)*

Effective January 1, 1993, the Company adopted the provisions of Statement of Financial Accounting Standards No. 109, "Accounting for Income Taxes." This statement requires that deferred income taxes reflect the tax consequences on future years of differences between the tax bases of assets and liabilities and their financial reporting amounts. Prior to 1993, provisions were made for the estimated amount of income taxes on reported earnings which were payable currently and in the future. The effect of this change on income before taxes and net income was not significant, and prior years' financial statements have not been restated.

U.S. income taxes are provided on those earnings of foreign subsidiaries and subsidiaries operating in Puerto Rico under tax incentive grants, which are intended to be remitted to the parent company. Undistributed earnings reinvested indefinitely in foreign subsidiaries as working capital and plant and equipment aggregated $702,000 at December 31, 1993. Deferred income taxes not provided on these earnings are not significant.

Earnings before taxes, and the related provisions for taxes on earnings, are as follows:

| Earnings Before Taxes | 1993 | 1992 | 1991 |
|---|---|---|---|
| Domestic | $1,480,163 | $1,418,335 | $1,205,883 |
| Foreign | 463,067 | 320,418 | 338,339 |
| Total | $1,943,230 | $1,738,753 | $1,544,222 |

| Taxes on Earnings | 1993 | 1992 | 1991 |
|---|---|---|---|
| Current: | | | |
| U.S. Federal and Possessions | $355,813 | $347,711 | $316,377 |
| State | 49,222 | 63,838 | 50,758 |
| Foreign | 175,455 | 133,065 | 140,559 |
| Total current | 580,490 | 544,614 | 507,694 |
| Deferred: | | | |
| Domestic | (29,461) | (35,739) | (49,998) |
| Foreign | 2,066 | (9,179) | (2,151) |
| Enacted tax rate changes | (8,991) | – | – |
| Total deferred | (36,386) | (44,918) | (52,149) |
| Total | $544,104 | $499,696 | $455,545 |

Differences between the effective income tax rate and the U.S. statutory tax rate were as follows:

| | 1993 | 1992 | 1991 |
|---|---|---|---|
| Statutory tax rate | 35.0% | 34.0% | 34.0% |
| Benefit of tax exemptions in Puerto Rico and Ireland | (6.7) | (6.1) | (5.6) |
| State taxes, net of federal benefit | 1.7 | 2.1 | 2.2 |
| All other, net | (2.0) | (1.3) | (1.1) |
| Effective tax rate | 28.0% | 28.7% | 29.5% |

As of December 31, 1993, total deferred tax assets were $632,112 and total deferred tax liabilities were $211,839. Valuation allowances for tax assets are not significant. The major temporary differences that give rise to deferred tax assets are compensation and employee benefits ($146,505), valuation and exposure reserves for inventory and accounts receivable ($86,003 and $91,329, respectively), deferred intercompany profit ($72,129), and state income taxes ($30,715). The use of accelerated depreciation for U.S. income tax purposes ($165,482) and employee benefits ($32,578) are the primary temporary differences that give rise to deferred tax liabilities.

**Appendix B**
**Variable Definitions**

| | |
|---|---|
| *109 INDICATE* | = Indicator variable set to 1 in the year of SFAS109 (Accounting for Income Taxes) adoption, if SFAS 109 adoption had a material (i.e. disclosed in the firm's annual report) impact on the financial statements, zero otherwise. |
| *ABS_109_EFFECT* | = The absolute value of the adoption adjustment for SFAS109 (Accounting for Income Taxes) reported in the firm's annual report, scaled by total shares outstanding. |
| *ACTIVE* | = Calculated from the individual holdings data as an indicator variable set to 1 if the investor trades more than 48 times in a year, zero otherwise. |
| *BETA* | = Fama French (1993) beta for firm *j* using monthly returns. Factor loadings are derived from Ken French's website. |
| *CURRENT_ETR* | =Current tax expense (TXFED+TXFO) divided by pretax book income (PI). When TXFED and TXFO is missing the numerator is replaced by total tax expense less deferred taxes (TXT-TXDI). |
| *DISCR_ACCR* | = Discretionary accruals using the modified Jones-Model from Dechow, Sloan, and Sweeney (1995). Specifically, the error term from the following regression, estimated by industry and year: $Total\ Accruals = b_1\ (1 / AT) + b_2\ (\Delta Rev - \Delta Rec) + b_3\ PPE + e$ |
| *ETR VOLATILITY* | = Standard deviation of the GAAP ETR, calculated as tax expense (TXT) divided by pretax income (PI) less special items (SPI), for a three-year period. |
| *FIN_LITERATE* | = Calculated from individual holdings data as an indicator variable set to 1 if the investor is employed in a "professional" occupation, zero otherwise. |
| *GAAP ETR* | = Tax expense (TXT) scaled by pretax income (PI). |
| $HOLDINGS_{i,j,m}$ | = Stock holdings calculated from the individual holdings data as investor *i*'s average holdings of stock *j* in month *m*, as a total proportion of that investors portfolio in month *m*. |
| $\Delta HOLDINGS_{i,j,(m+1)-(m-1)}$ | = Calculated from the individual holdings data, change in individual *i's* holdings of firm *j* stock around the annual report release date (i.e., holdings *m-1* to holdings *m+1*). |
| *Log(#ANALYSTS)* | = Natural log of 1 plus the number of analysts following the firm, as reported in IBES. |
| *Log(ASSETS)* | = Natural log of total assets (AT). |
| *Log(#BSEG)* | = Natural log of 1 plus the number of business segments. |
| $Log(TOT\_EQUITY)_{i,m}$ | = Calculated using individual holdings data as the log of investor *i*'s total equity holdings in month *m*. |
| *Log(#GSEG)* | = Natural log of 1 plus the number of geographic segments. |

| | |
|---|---|
| *Log(#ITEMS)* | = Natural log of 1 plus the number of missing items in Compustat for firm *j*. |
| *Log(SHAREHOLDERS)* | = The natural log of the number of shareholders invested in firm *j* (i.e., number of unique individual accounts that hold shares), calculated based on discount brokerage data. |
| *LOSS* | = Indicator set to 1 if the firm reports negative income (IB), zero otherwise. |
| *LOWETR* | = Indicator set to 1 if the firm reports a GAAP ETR in the lowest quintile, zero otherwise. |
| *MKT_SECURITIES* | =Marketable securities adjustment (MSA) scaled by total assets (AT). |
| *MTB* | = Market value of equity (PRCC_F*CSHO) divided by book value of equity (CEQ). |
| *NET_DTA* | = Deferred tax assets (TXNDBA) less deferred tax liabilities (TXNDBL), scaled by lagged total assets (AT). |
| *NOL_CF* | = Tax loss carryforward (TLCF), scaled by lagged total assets (AT). |
| *OPEB* | = Postretirement accumulated benefit obligation (PRACO) scaled shares outstanding (CSHO) |
| *PENSION* | = Accumulated benefit obligation associated with the pension plan (PBACO) less pension assets (PPLAO) scaled by shares outstanding (CSHO) |
| *PE RATIO* | =Price at the end of the fiscal year (PRCC_F) scaled by earnings per share (NI/CSHO). |
| *σPRETAX_EARN* | = Standard deviation of the firm's pre-tax earnings (PI), scaled by lagged total assets (AT), over the previous five years. |
| *PRETAX_ROA* | = Pre-tax earnings (PI), scaled by lagged total assets (AT). |
| *R&D* | = Total research and development expense (XRD), scaled by lagged total assets (AT). |
| *σRETURNS* | = Standard deviation of the firm's monthly stock returns (RET) over the previous year. Stock returns obtained from CRSP. |
| *S&P 500* | = Indicator variable set to 1 if the firm is in the S&P 500, zero otherwise. |
| *WEALTHY* | = Calculated from the individual holdings data as an indicator variable set to 1 if the investor has more than $100,000 in their account, and zero otherwise. |

Notes: Unless otherwise noted, variables are from the Compustat database. Compustat variable names are provided in parentheses.

**Table 1: Descriptive Statistics for our Final Sample of Account-Firm-Year Observations**

| Variable | N | Mean | Std. Dev. | 25% | Median | 75% |
|---|---|---|---|---|---|---|
| Individual Investor Characteristics: | | | | | | |
| $\Delta HOLDINGS_{i,j,(m+1)-(m-1)}$ | 89,477 | -0.002 | 0.066 | -0.006 | 0.000 | 0.006 |
| $HOLDINGS_{i,j,m}$ | 89,477 | 0.282 | 0.304 | 0.061 | 0.155 | 0.383 |
| *109 INDICATE* | 89,477 | 0.218 | 0.413 | 0.000 | 0.000 | 0.000 |
| *ABS_109_EFFECT* | 89,477 | 0.234 | 0.760 | 0.000 | 0.000 | 0.000 |
| $WEALTHY_{i,t}$ | 89,477 | 0.250 | 0.433 | 0.000 | 0.000 | 0.000 |
| $FIN\_LITERATE_{i,t}$ | 20,262 | 0.388 | 0.487 | 0.000 | 0.000 | 1.000 |
| $ACTIVE_{i,t}$ | 89,477 | 0.143 | 0.350 | 0.000 | 0.000 | 0.000 |
| $Log(TOT\_EQUITY)_{i,m}$ | 89,477 | 10.681 | 1.548 | 9.616 | 10.566 | 11.749 |
| | | | | | | |
| Firm Characteristics: | | | | | | |
| *NOL_CF* | 89,477 | 0.017 | 0.065 | 0.000 | 0.000 | 0.000 |
| *NET_DTA* | 89,477 | -0.047 | 0.063 | -0.078 | -0.022 | -0.005 |
| *ETR VOLATILITY* | 89,477 | 0.092 | 0.118 | 0.009 | 0.027 | 0.165 |
| *PE RATIO* | 89,477 | 14.500 | 33.529 | 8.849 | 15.704 | 21.714 |
| *Log(SHAREHOLDERS)* | 89,477 | 6.261 | 1.393 | 5.407 | 6.402 | 7.309 |
| *Log(ASSETS)* | 89,477 | 9.543 | 1.133 | 8.968 | 9.466 | 10.124 |
| *R&D* | 89,477 | 0.043 | 0.044 | 0.002 | 0.034 | 0.068 |
| *MTB* | 89,477 | 3.922 | 3.406 | 1.516 | 2.382 | 5.299 |
| *S&P 500* | 89,477 | 0.960 | 0.197 | 1.000 | 1.000 | 1.000 |
| *Log(#ANALYSTS)* | 89,477 | 4.441 | 0.454 | 4.290 | 4.564 | 4.691 |
| *PRETAX_ROA* | 89,477 | 0.100 | 0.115 | 0.033 | 0.096 | 0.196 |
| *BETA* | 89,477 | 0.920 | 0.852 | 0.517 | 0.900 | 1.314 |
| *σRETURNS* | 89,477 | 0.067 | 0.023 | 0.048 | 0.062 | 0.081 |
| *σPRETAX_EARN* | 89,477 | 0.042 | 0.030 | 0.017 | 0.036 | 0.055 |
| *Log(#BSEG)* | 89,477 | 1.487 | 0.340 | 1.099 | 1.609 | 1.792 |
| *Log(#GSEG)* | 89,477 | 1.675 | 0.160 | 1.609 | 1.792 | 1.792 |
| *Log(#ITEMS)* | 89,477 | 6.726 | 0.022 | 6.708 | 6.725 | 6.738 |
| *LOSS* | 89,477 | 0.144 | 0.351 | 0.000 | 0.000 | 0.000 |
| *DISCR_ACCR* | 89,477 | -0.007 | 0.048 | -0.035 | -0.002 | 0.024 |
| *PENSION* | 89,477 | -0.264 | 0.331 | -0.399 | -0.104 | -0.027 |
| *OPEB* | 89,477 | 0.707 | 0.852 | 0.092 | 0.346 | 0.918 |
| *MKT_SECURITIES* | 89,477 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *LOWETR* | 89,477 | 0.056 | 0.230 | 0.000 | 0.000 | 0.000 |

Notes: Variables measured at the individual level are noted with an *i*, subscript. Firm specific variables are measured for firm *j*, year *t*. Market risk factors (*BETA*, *SMB*, *HML*, and *MOMENTUM*) are measured for year *t+1*. All variables are as defined in Appendix A.

**Table 2 : Descriptive Statistics for Tax-Related Variables in the Pre- and Post- SFAS 109 Adoption Periods**

**Panel A: Firms Included in our Analyses**

| | | Pre- SFAS 109 | | | Post- SFAS 109 | | | Difference |
|---|---|---|---|---|---|---|---|---|
| Variable | N | Mean | Median | Std. Dev. | Mean | Median | Std. Dev. | in Means |
| *GAAP ETR* | 101 | 0.350 | 0.300 | 0.180 | 0.342 | 0.355 | 0.122 | 0.518 |
| *CURRENT_ETR* | 92 | 0.311 | 0.297 | 0.206 | 0.279 | 0.208 | 0.155 | 0.006*** |
| *NET_DTA* | 101 | -0.052 | -0.044 | 0.053 | -0.068 | -0.123 | 0.099 | 0.011** |
| *ETR VOLATILITY* | 101 | 0.079 | 0.030 | 0.104 | 0.047 | 0.017 | 0.073 | 0.014** |
| *CURR_ETR_VOLATILITY* | 91 | 0.103 | 0.058 | 0.107 | 0.077 | 0.052 | 0.085 | 0.065* |
| *NET_DTA VOLATILITY* | 101 | 0.016 | 0.010 | 0.018 | 0.013 | 0.008 | 0.014 | 0.138 |

**Panel B: All U.S. Incorporated Firms in Compustat with Requisite Data**

| | | Pre- SFAS 109 | | | Post- SFAS 109 | | | Difference |
|---|---|---|---|---|---|---|---|---|
| Variable | N | Mean | Median | Std. Dev. | Mean | Median | Std. Dev. | in Means |
| *GAAP ETR* | 2,671 | 0.266 | 0.320 | 0.159 | 0.260 | 0.333 | 0.162 | 0.140 |
| *CURRENT_ETR* | 2,671 | 0.224 | 0.250 | 0.172 | 0.208 | 0.230 | 0.160 | 0.001*** |
| *NET_DTA* | 2,671 | -0.032 | -0.011 | 0.049 | -0.033 | -0.005 | 0.065 | 0.402 |
| *ETR VOLATILITY* | 2,671 | 0.060 | 0.020 | 0.086 | 0.050 | 0.015 | 0.080 | 0.000*** |
| *CURR_ETR_VOLATILITY* | 2,671 | 0.083 | 0.045 | 0.104 | 0.071 | 0.037 | 0.091 | 0.000*** |
| *NET_DTA VOLATILITY* | 2,671 | 0.005 | 0.002 | 0.008 | 0.006 | 0.002 | 0.011 | 0.000*** |

Notes: For our sample, we determine pre- and post- FAS109 based on hand collected adoption dates. For the Compustat sample, we measure pre- as 1989-1991 and post as 1994-1996. *, **, ***, indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on two-sided tests. All variables are as defined in Appendix A.

**Table 3: Pearson Correlations**

| | Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|---|
| (1) | $\Delta HOLDINGS_{i,j,(m+1)-(m-1)}$ | 1 | | | | | | | | |
| (2) | $HOLDINGS_{i,j,m}$ | -0.010* | 1 | | | | | | | |
| (3) | *109 INDICATE* | 0.022* | -0.011* | 1 | | | | | | |
| (4) | *ABS_109_EFFECT* | 0.028* | 0.054* | 0.582* | 1 | | | | | |
| (5) | $WEALTHY_{i,t}$ | -0.005 | -0.188* | -0.013* | -0.033* | 1 | | | | |
| (6) | $FIN\_LITERATE_{i,t}$ | -0.013 | 0.046* | -0.001 | 0.024* | -0.031* | 1 | | | |
| (7) | $ACTIVE_{i,t}$ | -0.006 | -0.186* | -0.001 | -0.018* | -0.236* | -0.012 | 1 | | |
| (8) | *NOL_CF* | -0.003 | -0.031* | 0.002 | -0.015* | -0.011* | 0.005 | 0.009* | 1 | |
| (9) | *NET_DTA* | -0.010* | 0.048* | 0.015* | 0.050* | -0.015* | 0.052* | 0.021* | 0.118* | 1 |
| (10) | *ETR VOLATILITY* | 0.002 | 0.118* | 0.120* | 0.451* | -0.070* | 0.053* | -0.044* | -0.012* | 0.214* |

Notes: *indicates the correlation coefficients are significant at the 5% level or better. All variables are as defined in Appendix A.

**Table 4: Results for OLS Regressions of Change in Holdings (from month *m-1* to *m+1*) on SFAS 109 Adoption and Control Variables**

| Variables | (1) Coefficient (T-Stat) | (2) Coefficient (T-Stat) | (3) Coefficient (T-Stat) | (4) Coefficient (T-Stat) |
|---|---|---|---|---|
| Intercept | -0.005*** | -0.005*** | 0.000 | 0.001 |
| | (-4.81) | (-4.55) | (0.37) | (0.73) |
| *109 INDICATE* | 0.005*** | | 0.003*** | |
| | (6.72) | | (3.77) | |
| *ABS_109_EFFECT* | | 0.003*** | | 0.003*** |
| | | (7.01) | | (5.71) |
| *ΔPE RATIO* | | | 0.001*** | 0.001*** |
| | | | (4.41) | (4.37) |
| *ΔMKT_SECURITIES* | | | 0.004* | 0.004* |
| | | | (1.73) | (1.74) |
| $\Delta Log(TOT\_EQUITY)_{i,m+1}$ | | | -0.043*** | -0.043*** |
| | | | (-10.27) | (-10.27) |
| *ΔLog(SHAREHOLDERS)* | | | -0.008** | -0.007** |
| | | | (-2.53) | (-2.16) |
| *ΔLog(ASSETS)* | | | -0.003 | -0.002 |
| | | | (-1.09) | (-0.77) |
| *ΔR&D* | | | 0.040 | 0.074** |
| | | | (1.34) | (2.44) |
| *ΔPRETAX_ROA* | | | 0.015*** | 0.007 |
| | | | (2.89) | (1.28) |
| *ΔMTB* | | | -0.000* | -0.000** |
| | | | (-1.83) | (-2.09) |
| *ΔS&P500* | | | 0.008 | 0.008 |
| | | | (0.73) | (0.69) |
| *ΔLog(#ANALYSTS)* | | | 0.003 | 0.001 |
| | | | (1.33) | (0.31) |
| *ΔBETA* | | | 0.001*** | 0.001*** |
| | | | (4.57) | (5.27) |
| *Δ(σRETURNS)* | | | -0.029** | -0.039*** |
| | | | (-2.46) | (-3.33) |
| *Δ(σPRETAX_EARN)* | | | -0.011 | -0.027* |
| | | | (-0.72) | (-1.69) |
| *ΔLog(#BSEG)* | | | -0.001 | 0.001 |
| | | | (-0.21) | (0.36) |
| *ΔLog(#GSEG)* | | | 0.013** | 0.012** |
| | | | (2.50) | (2.30) |
| *ΔLog(#ITEMS)* | | | 0.028 | 0.015 |
| | | | (1.31) | (0.69) |
| *ΔLOSS* | | | 0.003*** | -0.000 |
| | | | (2.89) | (-0.21) |
| *ΔDISCR_ACCR* | | | -0.015*** | -0.011*** |
| | | | (-3.91) | (-2.92) |
| *ΔPENSION* | | | -0.035*** | -0.034*** |

| | | | | |
|---|---|---|---|---|
| | | | (-9.60) | (-9.32) |
| *ΔOPEB* | | | -0.002* | -0.002* |
| | | | (-1.83) | (-1.86) |
| *ΔLOWETR* | | | -0.003** | -0.001 |
| | | | (-2.40) | (-1.02) |
| Industry and Year FE? | Yes | Yes | Yes | Yes |
| # of Observations | 89,477 | 89,477 | 89,477 | 89,477 |
| Adjusted R-squared | 0.003 | 0.003 | 0.037 | 0.038 |

Notes: *, **, ***, indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on two-sided tests. Standard errors clustered by account. All variables are as defined in Appendix A.

**Table 5: Results for OLS Regressions of Change in Holdings (from month *m-1* to *m+1*) on SFAS 109 Adoption, Interactions with Tax Characteristics and Control Variables**

| Variables | (1) Coefficient (T-Stat) | (2) Coefficient (T-Stat) | (3) Coefficient (T-Stat) |
|---|---|---|---|
| Intercept | 0.001 | -0.000 | 0.002 |
| | (0.48) | (-0.13) | (1.62) |
| *109 INDICATE* | 0.002** | 0.004*** | -0.001 |
| | (2.51) | (4.10) | (-1.04) |
| *109 INDICATE ×NOL_CF* | 0.026*** | | |
| | (3.14) | | |
| *NOL_CF* | -0.014*** | | |
| | (-2.67) | | |
| *109 INDICATE × NET_DTA* | | 0.020** | |
| | | (2.16) | |
| *NET_DTA* | | -0.008 | |
| | | (-1.58) | |
| *109 INDICATE × ETR VOLATILITY* | | | 0.049*** |
| | | | (8.74) |
| *ETR VOLATILITY* | | | -0.021*** |
| | | | (-4.63) |
| *ΔPE RATIO* | 0.001*** | 0.001*** | 0.001*** |
| | (4.19) | (3.45) | (5.33) |
| *ΔMKT_SECURITIES* | 0.004* | 0.004* | 0.003 |
| | (1.70) | (1.80) | (1.30) |
| $\Delta Log(TOT\_EQUITY)_{i,m+1}$ | -0.043*** | -0.043*** | -0.043*** |
| | (-10.27) | (-10.27) | (-10.28) |
| *ΔLog(SHAREHOLDERS)* | -0.008** | -0.008*** | -0.009*** |
| | (-2.56) | (-2.70) | (-2.87) |
| *ΔLog(ASSETS)* | -0.004 | -0.003 | -0.005* |
| | (-1.38) | (-0.92) | (-1.67) |
| *ΔR&D* | 0.049 | 0.037 | 0.082*** |
| | (1.63) | (1.25) | (2.72) |
| *ΔPRETAX_ROA* | 0.010* | 0.016*** | 0.007 |
| | (1.82) | (3.01) | (1.28) |
| *ΔMTB* | -0.000* | -0.000 | -0.000** |
| | (-1.75) | (-1.63) | (-2.27) |
| *ΔS&P500* | 0.009 | 0.008 | 0.007 |
| | (0.79) | (0.68) | (0.56) |
| *ΔLog(#ANALYSTS)* | 0.003 | 0.002 | -0.000 |
| | (1.26) | (1.00) | (-0.19) |
| *ΔBETA* | 0.001*** | 0.001*** | 0.001*** |
| | (4.71) | (4.53) | (4.94) |
| *Δ(σRETURNS)* | -0.026** | -0.031*** | -0.041*** |
| | (-2.14) | (-2.59) | (-3.44) |
| *Δ(σPRETAX_EARN)* | -0.004 | -0.012 | -0.021 |
| | (-0.22) | (-0.73) | (-1.29) |

| | | | |
|---|---|---|---|
| *ΔLog(#BSEG)* | -0.001 | -0.000 | 0.002 |
| | (-0.47) | (-0.17) | (0.65) |
| *ΔLog(#GSEG)* | 0.014*** | 0.016*** | 0.013** |
| | (2.59) | (2.90) | (2.44) |
| *ΔLog(#ITEMS)* | 0.032 | 0.026 | -0.003 |
| | (1.50) | (1.23) | (-0.16) |
| *ΔLOSS* | 0.003** | 0.003*** | -0.001 |
| | (2.42) | (2.73) | (-0.62) |
| *ΔDISCR_ACCR* | -0.014*** | -0.015*** | -0.009** |
| | (-3.51) | (-3.84) | (-2.33) |
| *ΔPENSION* | -0.034*** | -0.035*** | -0.031*** |
| | (-9.41) | (-9.60) | (-8.46) |
| *ΔOPEB* | -0.002 | -0.002 | -0.002* |
| | (-1.33) | (-1.63) | (-1.93) |
| *ΔLOWETR* | -0.003** | -0.003** | -0.001 |
| | (-2.57) | (-2.36) | (-0.61) |
| Industry and Year FE? | Yes | Yes | Yes |
| # of Observations | 89,477 | 89,477 | 89,477 |
| Adjusted R-squared | 0.038 | 0.038 | 0.038 |

Notes: *, **, ***, indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on two-sided tests. Standard errors clustered by account. All variables are as defined in Appendix A.

**Table 6: Results for OLS Regressions of Change in Holdings (from month *m-1* to *m+1*) on SFAS 109 Adoption, Interactions with Investor Sophistication and Control Variables**

| Variables | (1) Coefficient (T-Stat) | (2) Coefficient (T-Stat) | (3) Coefficient (T-Stat) |
|---|---|---|---|
| Intercept | 0.001 | 0.000 | 0.000 |
| | (0.56) | (0.34) | (0.33) |
| *109 INDICATE* | 0.005*** | 0.003*** | 0.003*** |
| | (3.19) | (4.27) | (4.47) |
| *109 IND × FIN_LITERATE$_{i,t}$* | 0.000 | | |
| | (0.19) | | |
| *FIN_LITERATE$_{i,t}$* | -0.001 | | |
| | (-1.24) | | |
| *109 IND × WEALTHY$_{i,t}$* | | -0.003*** | |
| | | (-2.62) | |
| *WEALTHY $_{i,t}$* | | 0.000 | |
| | | (0.19) | |
| *109 IND × ACTIVE$_{i,t}$* | | | -0.004*** |
| | | | (-2.74) |
| *ACTIVE $_{i,t}$* | | | 0.000 |
| | | | (0.57) |
| *ΔPE RATIO* | 0.001*** | 0.001*** | 0.001*** |
| | (2.71) | (4.40) | (4.40) |
| *ΔMKT_SECURITIES* | 0.001 | 0.004* | 0.004* |
| | (0.17) | (1.73) | (1.76) |
| *ΔLog(TOT_EQUITY)$_{i,m+1}$* | -0.055*** | -0.043*** | -0.043*** |
| | (-4.85) | (-10.27) | (-10.27) |
| *ΔLog(SHAREHOLDERS)* | -0.007 | -0.008** | -0.008** |
| | (-1.23) | (-2.52) | (-2.51) |
| *ΔLog(ASSETS)* | -0.000 | -0.003 | -0.003 |
| | (-0.06) | (-1.09) | (-1.11) |
| *ΔR&D* | 0.001 | 0.041 | 0.041 |
| | (0.03) | (1.37) | (1.38) |
| *ΔPRETAX_ROA* | 0.012 | 0.015*** | 0.015*** |
| | (1.15) | (2.86) | (2.86) |
| *ΔMTB* | -0.000 | -0.000* | -0.000* |
| | (-0.50) | (-1.84) | (-1.88) |
| *ΔS&P500* | 0.041 | 0.008 | 0.008 |
| | (1.00) | (0.73) | (0.72) |
| *ΔLog(#ANALYSTS)* | 0.009** | 0.003 | 0.003 |
| | (2.18) | (1.34) | (1.31) |
| *ΔBETA* | 0.001*** | 0.001*** | 0.001*** |
| | (2.73) | (4.57) | (4.61) |
| *Δ(σRETURNS)* | -0.058** | -0.030** | -0.030** |
| | (-2.51) | (-2.46) | (-2.48) |
| *Δ(σPRETAX_EARN)* | 0.071* | -0.011 | -0.012 |
| | (1.92) | (-0.72) | (-0.76) |
| *ΔLog(#BSEG)* | 0.007 | -0.000 | -0.000 |

| | | | |
|---|---|---|---|
| | (1.55) | (-0.18) | (-0.19) |
| *ΔLog(#GSEG)* | 0.014 | 0.013** | 0.013** |
| | (1.45) | (2.46) | (2.51) |
| *ΔLog(#ITEMS)* | -0.032 | 0.028 | 0.027 |
| | (-0.66) | (1.29) | (1.28) |
| *ΔLOSS* | 0.001 | 0.003*** | 0.003*** |
| | (0.32) | (2.81) | (2.85) |
| *ΔDISCR_ACCR* | -0.010 | -0.015*** | -0.015*** |
| | (-1.32) | (-3.91) | (-3.91) |
| *ΔPENSION* | -0.027*** | -0.035*** | -0.035*** |
| | (-3.70) | (-9.58) | (-9.58) |
| *ΔOPEB* | -0.003 | -0.002* | -0.002* |
| | (-1.16) | (-1.82) | (-1.84) |
| *ΔLOWETR* | -0.001 | -0.003** | -0.003** |
| | (-0.37) | (-2.35) | (-2.38) |
| Industry and Year FE? | Yes | Yes | Yes |
| # of Observations | 20,262 | 89,477 | 89,477 |
| Adjusted R-squared | 0.054 | 0.038 | 0.038 |
| F-Test: *109 IND* + *109 IND* × *WEALTHY* = 0 | | F= 0.34<br>P > F = 0.560 | |
| F-Test: *109 IND* + *109 IND* × *ACTIVE*= 0 | | | F= 0.39<br>P > F = 0.532 |

Notes: *, **, ***, indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on two-sided tests. Standard errors clustered by account. All variables are as defined in Appendix A.

**Table 7: Results for Separate OLS Regressions of Change in Holdings (from month *m-1* to *m+1*) on SFAS 109 Adoption and Control Variables, with the Sample Partitioned based on the Sign of the Impact of SFAS 109 Adoption on Earnings**

| | ***Negative 109 Impact*** | | ***No 109 Impact*** | | ***Positive 109 Impact*** | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Coeff. | Coeff. | Coeff. | Coeff. | Coeff. | Coeff. |
| Variables | (T-Stat) | (T-Stat) | (T-Stat) | (T-Stat) | (T-Stat) | (T-Stat) |
| Intercept | -0.001 | 0.005 | -0.002 | 0.004** | -0.007*** | -0.002 |
| | (-0.44) | (1.48) | (-1.19) | (2.16) | (-5.03) | (-1.48) |
| *109 INDICATE* | 0.008*** | 0.008*** | 0.006*** | 0.005*** | 0.002** | -0.001 |
| | (4.84) | (3.55) | (4.90) | (3.24) | (2.09) | (-0.93) |
| *ΔPE RATIO* | | -0.001** | | 0.000 | | 0.001*** |
| | | (-2.08) | | (0.52) | | (7.49) |
| *ΔMARKETSECURITY* | | -0.014** | | -0.005 | | 0.008*** |
| | | (-2.03) | | (-1.23) | | (3.55) |
| $\Delta Log(TOT\_EQUITY)_{i,m+1}$ | | -0.040*** | | -0.059*** | | -0.041*** |
| | | (-5.30) | | (-5.29) | | (-7.34) |
| *ΔLog(SHAREHOLD)* | | 0.014 | | -0.011 | | -0.022*** |
| | | (1.63) | | (-1.56) | | (-5.73) |
| *ΔLog(ASSETS)* | | -0.012 | | -0.009 | | 0.002 |
| | | (-1.53) | | (-1.42) | | (0.61) |
| *ΔR&D* | | -0.129 | | -0.041 | | 0.096** |
| | | (-0.78) | | (-0.64) | | (2.19) |
| *ΔPRETAX_ROA* | | -0.021* | | 0.013 | | 0.024*** |
| | | (-1.95) | | (0.73) | | (3.13) |
| *ΔMTB* | | 0.000 | | -0.001 | | -0.001** |
| | | (0.57) | | (-1.29) | | (-2.46) |
| *ΔS&P500* | | -0.002 | | 0.001 | | 0.056 |
| | | (-0.47) | | (0.27) | | (1.15) |
| *ΔLog(#ANALYSTS)* | | 0.008 | | -0.003 | | -0.002 |
| | | (1.10) | | (-0.62) | | (-0.59) |
| *ΔBETA* | | 0.001*** | | 0.001 | | 0.000 |
| | | (2.69) | | (1.59) | | (1.48) |
| *Δ(σRETURNS)* | | -0.158*** | | -0.070** | | -0.018 |
| | | (-5.85) | | (-2.42) | | (-0.99) |
| *Δ(σPRETAX_EARN)* | | -0.056 | | 0.151*** | | -0.037* |
| | | (-1.39) | | (2.92) | | (-1.83) |
| *ΔLog(#BSEG)* | | 0.015** | | 0.006 | | -0.012** |
| | | (2.38) | | (0.95) | | (-2.30) |
| *ΔLog(#GSEG)* | | 0.009 | | -0.010 | | 0.007 |
| | | (0.69) | | (-0.45) | | (1.14) |
| *ΔLog(#ITEMS)* | | 0.075 | | -0.030 | | 0.055* |
| | | (1.33) | | (-0.79) | | (1.69) |
| *ΔLOSS* | | -0.000 | | -0.004 | | 0.006*** |
| | | (-0.15) | | (-1.56) | | (4.23) |
| *ΔDISCR_ACCR* | | -0.004 | | 0.002 | | -0.017*** |
| | | (-0.39) | | (0.19) | | (-3.12) |
| *ΔPENSION* | | 0.010 | | -0.007 | | -0.038*** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | (1.01) | | (-0.84) | | (-7.51) |
| *ΔOPEB* | | 0.006** | | 0.001 | | 0.000 |
| | | (2.15) | | (0.19) | | (0.24) |
| *ΔLOWETR* | | 0.006* | | 0.004 | | -0.003** |
| | | (1.73) | | (1.48) | | (-2.12) |
| Industry and Year FE? | Yes | Yes | Yes | Yes | Yes | Yes |
| # of Observations | 23,054 | 23,054 | 20,501 | 20,501 | 45,922 | 45,922 |
| Adjusted R-squared | 0.005 | 0.041 | 0.004 | 0.060 | 0.006 | 0.037 |

Notes: *, **, ***, indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on two-sided tests. Standard errors clustered by account. All variables are as defined in Appendix A.

**Table 8: Results for OLS Regressions of Monthly Bid-Ask Spread on SFAS 109 and Control Variables**

| Variables | (1) Coefficient (T-Stat) | (2) Coefficient (T-Stat) | (3) Coefficient (T-Stat) |
|---|---|---|---|
| Intercept | 0.005*** | 0.005*** | 0.130** |
| | (77.17) | (18.25) | (3.28) |
| *POST_FAS109* | -0.001*** | -0.001*** | -0.001*** |
| | (-5.55) | (-6.16) | (-6.52) |
| *BETA* | | -0.000 | -0.001*** |
| | | (-0.37) | (-4.72) |
| *Log(ASSETS)* | | | 0.000* |
| | | | (2.55) |
| *R&D* | | | 0.000 |
| | | | (0.03) |
| *MTB* | | | 0.000 |
| | | | (1.84) |
| *S&P500* | | | -0.001** |
| | | | (-3.08) |
| *Log(#ANALYSTS)* | | | -0.001** |
| | | | (-2.81) |
| *PRETAX_ROA* | | | -0.004* |
| | | | (-2.12) |
| *PRETAX_ROA* $_{t-1}$ | | | -0.010* |
| | | | (-2.32) |
| *σPRETAX_EARN* | | | 0.033* |
| | | | (2.10) |
| *σRETURNS* | | | 0.052*** |
| | | | (10.37) |
| *Log(#BSEG)* | | | 0.000 |
| | | | (0.23) |
| *Log(#GSEG)* | | | -0.003** |
| | | | (-3.42) |
| *Log(#ITEMS)* | | | -0.018** |
| | | | (-3.01) |
| *LOSS* | | | -0.000 |
| | | | (-0.69) |
| *DISCR_ACCR* | | | -0.003 |
| | | | (-0.79) |
| Industry FE? | Yes | Yes | Yes |
| # of Observations | 1,065 | 1,065 | 1,065 |
| Adjusted R-squared | 0.127 | 0.127 | 0.375 |

Notes: *, **, ***, indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on two-sided tests. Standard errors clustered by year. All variables are as defined in Appendix A.