

**The Materiality of Quantitatively Large Misstatements:  
Evidence from Staff Accounting Bulletin No. 108**

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**Abstract:** We examine the market response to the disclosure of quantitatively large misstatements in previously issued financial reports under Staff Accounting Bulletin No. 108 to determine the relevance of these misstatements for future investment decisions. This question is motivated by the debate surrounding proposed changes to materiality guidance that would accommodate auditors waiving quantitatively large misstatements as immaterial. Investor groups oppose these recommendations, arguing that large misstatements are always material and that the proposal will reduce earnings quality. We find significant price and volume reactions to SAB 108 disclosures based on the accounts misstated and the income direction and number of misstatements. In addition, we identify significant changes in ERCs and long-run returns following correction of these misstatements. These findings support investor groups' assertions that large misstatements convey material information to financial statement users and suggest that materiality regulations permitting auditors to waive quantitatively large misstatements as immaterial may disservice investors.

**Keywords:** Materiality, Staff Accounting Bulletin No. 108, Earnings Informativeness

## **The Materiality of Quantitatively Large Misstatements: Evidence from Staff Accounting Bulletin No. 108**

### **Introduction:**

Can a quantitatively large misstatement be immaterial to financial statement users? This question arises frequently in debates surrounding materiality regulation (Hardiman 2006, 2007) and the increase in restatements in recent years (CIFR 2008). The most recent materiality guidance issued by the SEC in Staff Accounting Bulletin (SAB) No. 99, *Materiality* (SEC 1999) is asymmetric in emphasizing that small misstatements may be material for qualitative reasons but “[SAB 99] is silent on whether, and when, a quantitatively large error could be immaterial,” (Taub 2007). As a result, many registrants and practitioners believe that this guidance precludes judging quantitatively large misstatements to be immaterial.

The SEC’s Advisory Committee for Improvements to Financial Reporting (CIFR) issued recommendations in 2008 to eliminate this asymmetry in SAB 99 and facilitate registrants and their auditors judging quantitatively large misstatements as qualitatively immaterial.<sup>1</sup> These recommendations are motivated in part by the apparent immateriality of many financial restatements in recent years.<sup>2</sup> However, numerous investor groups oppose these recommendations, arguing that large misstatements are always material to investors and that the proposal will reduce earnings quality.<sup>3</sup> Little empirical evidence on quantitatively large

<sup>1</sup> We define misstatements as being quantitatively large if the misstatement meets or exceeds the quantitative materiality threshold established by the auditor. Auditors commonly use rule of thumb materiality thresholds such as five percent of net income, however the threshold set by individual auditors varies in practice and by client (Messier et al. 2005)

<sup>2</sup> The CIFR bases its conclusion that many restatements are immaterial on the absence of significant market reaction to many restatement announcements (Scholz 2008) and the frequency of restatements for non-core expenses, cash flows, and small amounts (CIFR 2008, p. 76-81).

<sup>3</sup> The CFA Institute, AFL-CIO, CALPERS, The Capital Group Companies, The Council of Institutional Investors, Consumer Federation of America, and Investors Technical Advisory Committee submitted comment letters to the

uncorrected misstatements exists because the decision to waive correction of a misstatement as immaterial is not visible outside the firm and because practitioners usually designate misstatements above a certain magnitude to be material.<sup>4</sup> However, the transition provisions for Staff Accounting Bulletin (SAB) No. 108, *Considering the effects of prior year misstatements when quantifying misstatements in the current year* (SEC 2006) provide an opportunity to contribute to this debate by requiring firms to correct and disclose quantitatively large misstatements judged by auditors to be immaterial in prior periods.

The SEC issued SAB 108 because auditors historically used one of two different methods to quantify misstatements, where the magnitude of the misstatement varied based on whether the misstatement was quantified relative to the income statement or relative to the balance sheet. As a consequence, materiality decisions may differ depending on which method the auditor uses to quantify misstatements. SAB 108 requires auditors to use both methods concurrently and correct and disclose misstatements that are quantitatively material under either method. The misstatements disclosed under SAB 108 are those that auditors judged to be quantitatively small using one method, but would be quantitatively large had the auditor used the other method. These adjustments represent the closest approximation to the misstatements that investors are concerned would be judged to be qualitatively immaterial given the proposed guidance. This setting allows us to test the two main concerns expressed by investors. First, that allowing quantitatively large misstatements to remain uncorrected in financial reports reduces earnings

SEC opposing the proposed changes in materiality guidance on the grounds that large misstatements should not be judged as immaterial.

<sup>4</sup> The American Accounting Association's National CIFR Tracking Team concludes that "too little empirical research is available to draw reliable conclusions about whether a quantitatively large error could be immaterial for qualitative reasons" (AAA 2008).

quality and second, that the revelation of quantitatively large uncorrected misstatements in previously issued financial reports conveys material information to investors.

We perform three sets of tests on firms disclosing SAB 108 misstatements. First, we examine the earnings response coefficients (ERCs) and volume reactions to earnings announcements coinciding with SAB 108 adoption. Material misstatements, by definition, likely influence investors' valuation decisions; therefore evidence of a price or volume reaction provides evidence on how investors judge the materiality of these misstatements. Our second and third tests examine the effects of uncorrected misstatements on earnings quality and firm valuation. We test for differences in earnings quality by comparing earnings response coefficients in the pre- and post-adoption periods. Earnings response coefficients measure the valuation of earnings surprises (Kothari 2001), therefore differences in ERCs between the pre- and post- adoption periods measure differences in perceived earnings quality following the disclosure of large misstatements. Finally, laboratory market research suggests that investors cannot identify misstatements recorded within conventional materiality thresholds (five to ten percent of net income) but can identify very large misstatements well exceeding conventional materiality thresholds (i.e., misstatements of thirty to fifty percent of net income) (Tuttle et al. 2002); therefore, we examine long-run abnormal returns in the pre- and post-adoption periods for evidence of market mis-pricing to determine whether investors identified quantitatively large misstatements in prior financial reports and how investors incorporated SAB 108 misstatements into firm valuation. We interpret evidence indicating that investors view SAB 108 misstatements as material or evidence of higher earnings quality in the post-adoption period as support for investor groups' assertions that quantitatively large misstatements should not be waived as qualitatively immaterial. We interpret no evidence of investor reaction to SAB 108 disclosures

or evidence of lower earnings quality following SAB 108 adoption as indicating support for the SEC's assertion that quantitatively large misstatements can be immaterial to investors.<sup>5</sup>

We document evidence supporting investors' contention that large misstatements convey material information. However we also document evidence indicating lower earnings quality and returns among SAB 108 firms in the post-adoption period. At SAB 108 adoption, firms disclosing quantitatively large understatements of prior period income have significantly positive ERCs and significantly lower trading volume. Firms disclosing quantitatively large overstatements of prior period income exhibit no difference in ERCs but have significantly higher trading volume indicating a lack of consensus among investors, which may have inhibited price movement upon SAB 108 adoption. Our tests of earnings quality and long-run returns across the pre- and post-adoption periods indicate that firms disclosing understatements of income have significantly lower ERCs in the post-adoption period although firms with overstatements of prior period income exhibit no significant difference in earnings quality. In addition, firms disclosing overstatements of prior period income appear to earn lower returns relative to the control sample and SAB 108 firms that understated income. Finally, we find no evidence of mispricing in the pre-adoption period, consistent with investors failing to identify and price and existence of quantitatively large misstatements in financial reports. Overall, our findings provide some support for investors' concerns as well as for the SEC's proposed guidance, and suggest that further research is needed before drawing policy conclusions regarding materiality regulation and standard setting.

<sup>5</sup> Alternately, we would expect no investor reaction if investors viewed SAB 108 as a clarification of existing accounting standards. This possibility does not affect the inferences drawn from significant investor response to SAB 108.

We contribute to the auditing literature and the regulatory debate surrounding materiality determinations. Our research design overcomes a limitation of materiality research by linking auditors' decisions to waive correction of large misstatements as immaterial to investors' valuation decisions. Second, we provide archival evidence to complement experimental findings that investors and auditors have different tolerances for misstatements. Third, our finding that quantitatively large understatements of prior income are material to investors has implications for researchers and regulators as prior research suggests that auditors are more likely to waive correction of misstatements that understate income (Wright and Wright 1997; Braun 2001; Nelson et al. 2002). Finally, our archival results confirm and extend experimental research suggesting that investors cannot detect uncorrected misstatements recorded within conventional materiality thresholds.

The remainder of this paper proceeds as follows: Section Two provides background information and develops the theoretical framework for our main hypotheses. Section Three describes our research design. Section Four presents the results of empirical testing and Section Five concludes.

## **II. Hypothesis Development and Theoretical Framework**

### ***Background Information on Staff Accounting Bulletin No. 108***

The SEC issued SAB 108 in 2006 to standardize the quantification of errors identified during financial statement audits. Auditors previously used one of two methods, the rollover method or the iron curtain method, to evaluate the materiality of misstatements identified during

an audit.<sup>6</sup> No accounting or auditing standards directly address the appropriateness of either method, but the method chosen must be applied consistently (AICPA 1984) and practitioners determine which method to apply at the time of client acceptance (Nelson et al. 2005).<sup>7</sup>

The rollover method quantifies an error relative to the current year income statement effect; whereas, the iron curtain method quantifies an error relative to the current year balance sheet effect. The potential result of this diversity in audit practice is that the post-audit level of misstatement may vary across firms whose auditors use different methods to quantify errors (Nelson et al. 2005; Taub 2004; Hodge 2004). In particular, the rollover method can result in the accumulation of significant misstatements on the balance sheet that are deemed immaterial because the income statement error reported each year is quantitatively small (SEC 2006).<sup>8</sup>

To address these concerns, SAB 108 requires auditors to quantify errors under both the iron curtain and rollover methods and to disclose and correct errors that were previously judged to be immaterial using one method but material using the other method. The transition provisions permit firms to correct these errors and record the income effect as a cumulative adjustment to beginning retained earnings or by recording the adjustment in current year earnings. Firms must also disclose the nature of the errors, how they arose, and the amount and financial statement accounts affected by each error.

<sup>6</sup> We use the practitioner terminology for conformity with SAB 108 and other SEC communications (Turner 2000; Taub, 2004; Hodge 2004). The rollover method is also known as the current-period method and the income statement method. The iron curtain method is also known as the cumulative method and the balance sheet method. Nelson et al. (2005) use the current period/cumulative terminology and Keune and Johnstone (2009) use the income statement/balance sheet terminology.

<sup>7</sup>As a result, registrants audited by the same public accounting firm may be using different methods to quantify misstatements.

<sup>8</sup> The second method employed by auditors, the iron curtain method, does not result in cumulative errors on the balance sheet. In an experiment addressing the decision to waive a misstatement under the rollover versus the iron curtain approach, Nelson et al. (2005) document that auditors are more likely to waive misstatements under whichever method makes the misstatement appear to be smaller.

## *Hypothesis Development*

The SEC issued SAB 99 in 1999 amid concerns that auditors did not adequately weight the qualitative characteristics of misstatements and that auditors used strict quantitative materiality thresholds to excuse opportunistic financial reporting (Levitt 1998).<sup>9</sup> SAB 99 does not change or contradict previous materiality guidance requiring auditors to consider both quantitative and qualitative misstatement characteristics when judging materiality (FASB 1980); rather SAB 99 emphasizes that quantitatively small misstatements may be material for qualitative reasons, for example when a small misstatement converts a loss into a gain (SEC 1999). However, SAB 99 does not address qualitative considerations that would lead to waiving correction of a large misstatement as immaterial and “[this asymmetry], combined with other experience working with the staff on particular issues, have led many to conclude that the SEC staff would never accept that a quantitatively large error was immaterial,” (Taub 2007).

In 2008, the CIFI issued recommendations to correct the asymmetric guidance issued in SAB 99 by adopting the “user perspective” to materiality defined by the Supreme Court. The Supreme Court defines a fact as “material if there is a substantial likelihood that a reasonable investor in making an investment decision would consider it as having significantly altered the total mix of information available,” (TSC Industries, Inc. v. Northway, Inc., 426 U.S. 438 449, 1976).<sup>10</sup> The Supreme Court’s definition accommodates judging a quantitatively large

<sup>9</sup> Concurrent with SAB 99, the AICPA issued Statements of Auditing Standard (SAS) No. 89: Audit Adjustments to increase scrutiny of misstatements waived by auditors as immaterial. SAS 89 requires the auditor to inform the client’s audit committee regarding all misstatements identified by the auditor that were not corrected by the client on the basis that the misstatements are not material to the financial statements as a whole (AICPA 1999).

<sup>10</sup> This definition is consistent with materiality guidance issued by the FASB and IASB. FASB defines an item as material if “it is probable that the judgment of a reasonable person relying on the report would have been changed or influenced by the inclusion or correction of the item” (FASB 1980).

misstatement as immaterial for qualitative reasons if preparers and auditors determine that a financial statement user would not judge a large misstatement to be material to a current investment decision. The CIFR provide examples of three qualitative characteristics that could lead to a quantitatively large misstatement being judged qualitatively immaterial: the error impacts metrics that do not drive investor conclusions or are not important to investor models; the error is a one-time item and does not alter investors' perceptions of key trends affecting the company; or the error does not impact a business segment or other portion of the registrant's business that investors regard as driving valuation or risks (CIFR 2008, p. 81).

Several investor groups oppose the CIFR's proposal to eliminate the asymmetry in SAB

99. Analyst Elizabeth F. Mooney of The Capital Group Companies testified,

“We emphatically oppose having anyone other than investors determine whether quantitatively significant errors provide relevant information to investors; that is, whether such errors are capable of making a difference in user decisions. Quantitatively large errors should not be deemed immaterial by the company and auditors.” (Mooney 2008, p.1-2)

The AFL-CIO argues that the asymmetry in SAB 99 “is vital to preserving the integrity of the financial reporting system” and that eliminating this asymmetry is “fundamentally reckless” (AFL-CIO 2008). The CFA Institute argues that the proposal “may disadvantage investors by increasing the number of undisclosed immaterial items,” and notes, “Fundamentally, we do not understand how a quantitatively large error could be immaterial due to qualitative factors” (CFA Institute 2008, p.3). Finally, The Council of Institutional Investors comments that the CIFR proposal is motivated by the concerns of preparers and auditors rather than by the needs of investors (Council of Institutional Investors 2008). These comments indicate that many financial statement users do not find credible the concept of a large immaterial misstatement and suggest

concerns regarding a decline in earnings quality and loss of confidence in the quality of financial reporting.

As the user perspective defines materiality in the eyes of the investor or financial statement user, the materiality of quantitatively large misstatements ultimately is an empirical question. Therefore, we examine whether the disclosure of quantitatively large misstatements in previously issued financial reports impacts the market's valuation of earnings surprises and expectations of firm value and earnings quality. Following prior research (e.g. Teoh and Wong 1993; Francis and Ke 2006; Wilson 2008), we build upon the analytical framework developed by Holthausen and Verrecchia (1988) for examining the relation between stock price responses and the precision of an earnings signal, or earnings quality.

Holthausen and Verrecchia (1988) show that, holding constant the level of noise in earnings, the stock price response to an earnings surprise (earnings response coefficient) decreases as the level of prior uncertainty in earnings increases. Likewise, the earnings response coefficient increases as the noise in earnings decreases, holding constant the level of prior uncertainty. If investors perceive the revelation and correction of large misstatements to indicate higher (lower) earnings quality (i.e., less (more) uncertainty in earnings), we expect higher (lower) ERCs for SAB 108 firms than for control sample firms at the adoption date. Next, SAB 108 adjustments represent misstatements in the accrual component of earnings with no associated cash flow component, (i.e., noise in earnings). The correction of these misstatements should decrease the noise in earnings and, thus, may result in higher earnings response coefficients among SAB 108 firms in the post-adoption period. In either case, a revision of investors' valuation of earnings surprises would indicate the materiality of large misstatements disclosed under SAB 108. We set forth the following hypotheses stated in the null form:

**H1:** Earnings response coefficients for SAB 108 firms are not significantly different than those of control firms for earnings announcements coinciding with SAB 108 adoption.

**H2:** Earnings response coefficients are not significantly different between the pre- and post-adoption period among SAB 108 firms.

If investors consider SAB 108 misstatements to be immaterial, we expect no significant difference in earnings response coefficients at the SAB 108 adoption date. However, SAB 108 misstatements may provide material information to investors in absence of a significant ERC difference if investor disagreement generates trading but inhibits price movement (Beaver 1968). Significant trading volume reactions to information releases indicate that the information affects investors' expectations and investment decisions (see Bamber et al. 2009 for a review) and prior research documents significant trading surrounding information events with no significant price reaction (Bamber and Cheon 1995; Kandel and Pearson 1995; Baily et al. 2003). For this reason, we also examine abnormal trading volume at SAB 108 adoption for evidence on the materiality of large misstatements to investors.

**H3:** Trading volume is not significantly different between SAB 108 and control firms at the SAB 180 adoption date.

Finally, long-horizon returns measure the valuation of earnings and non-earnings information for firms over time. Prior research suggests that investors can detect misstatements recorded outside conventional materiality thresholds but that investors cannot detect misstatements recorded within conventional materiality thresholds (Tuttle et al. 2002), thus the presence of abnormal returns in the pre-adoption period provides evidence on the magnitude of misstatement required for investors to identify misstatements. Negative long-run abnormal

returns in the pre-adoption period would suggest that investors can detect quantitatively large misstatements and that the CIFR's proposed changes would not harm investors because investors can undo the effects of misstatements in equilibrium (Mittendorf 2009). However the presence of positive abnormal returns in the pre-adoption period would suggest that SAB 108 firms are over-valued relative to comparable firms and support investor groups' concerns that large uncorrected misstatements may harm investors. Finally, examining long-run abnormal returns in the post-adoption period provide evidence on how investors incorporate the information contained in SAB 108 disclosures over longer horizons. Accordingly, we set forth the following hypothesis:

**H4:** SAB 108 firms do not earn long-horizon abnormal returns in the pre-adoption or post-adoption periods.

### **III. Research Design**

#### *Sample Selection*

We identify firms adopting SAB 108 using the EDGAR full text search function to search SEC filings for all mentions of the search terms 'SAB' and 'Staff Accounting Bulletin.' We set an indicator variable equal to one if a firm disclosed adjustments to its financial statements due to SAB 108. The transition provisions of SAB 108 require firms to disclose how and when each misstatement arose and the dollar amount of the adjustment to all accounts affected by the misstatement. We also record variables based on firms' footnote disclosures concerning the specific misstatements disclosed. We draw upon research investigating investors' reactions to restatement announcements to guide our categorization of SAB 108 misstatements due to the

lack of empirical evidence on the determinants of investor reaction to non-restatement misstatement disclosures.

Prior research finds that investors respond negatively to overstatements of prior period income (Palmrose et al. 2004; Plumlee and Yohn 2008) and that the market reaction to income increasing restatements is not significantly different from zero (Callen et al. 2009). Due to this differential response, we record whether SAB 108 firms corrected errors resulting in a net overstatement or understatement of income in prior periods (NET\_OVER or NET\_UNDER). Next, the specific accounts misstated affect investors' reactions to restatement announcements (Palmrose et al. 2004; Plumlee and Yohn 2008; Scholz 2008). We record the accounts misstated and classify the misstatements using the accrual reliability classification from Richardson et al. (2005). Misstatements in short term investments, debt, and current liabilities are classified as occurring in high reliability accruals (HIGH). Misstatements in long term investments and non-current liabilities are classified as medium reliability (MED). Misstatements in current operating assets and non-current assets are classified as low reliability (LOW). We group non-accrual misstatements relating to equity accounts (EQUITY), such as misstatements in other comprehensive income due to foreign currency translation.

Finally, the number of misstatements disclosed may influence investors' decisions, therefore we collect the number of errors overstating income in prior periods (NUM\_OVER), the number of errors understating income in prior periods (NUM\_UNDER) and the total number of errors corrected by the firm under SAB 108 (NUM\_ADJ). Although registrants are required to disclose the specific years in which the misstatements arise, many firms did not disclose this information adequately to determine the specific number of misstatements in each year. For example, many firms disclosed that misstatements arose "in prior years" or "in the years prior to

2004.” For this reason, we do not perform pre/post analysis (as discussed below) on the number of misstatements disclosed.

The sample consists of all quarterly observations from 2004 through 2008 for SAB 108 firms and a control sample of all firms in the same four digit SIC codes with available data on Compustat, CRSP, and I/B/E/S for our main tests. We exclude firms in heavily regulated industries (SIC codes 49 and 60-67) for consistency with prior research and due to the macroeconomic events in the banking and insurance industry in the post-SAB 108 period (2007-2008).

### *Valuation of earnings surprises coinciding with SAB 108 adoption*

To examine the valuation of earnings surprises coinciding with SAB 108 adoption, we classify the firm as adopting SAB 108 as of the earnings announcement date reported in Compustat that corresponds with the balance sheet date of the adoption filing. For control sample firms that did not record any adjustments upon SAB 108 adoption, we classify all firms as adopting SAB 108 as of the earnings announcement date coinciding with the first fourth-quarter following November 2006.<sup>11</sup> We estimate the following model:<sup>12</sup>

$$CAR_{it} = \alpha_0 + \beta_1 UE_{it} + \beta_{2,n} UE * SAB VAR_{it} + \sum UE * CONTROLS \quad (1)$$

<sup>11</sup> We reviewed the SAB 108 disclosures for a sample of control firms and confirm that control sample firms disclosed no effect of SAB 108 adoption at Q4 2006.

<sup>12</sup> We discuss and tabulate our findings excluding main effects for all interaction terms for clarity of presentation. Our inferences are identical when main effects for all interaction terms are included in equation 1.

Cumulative abnormal returns (CAR) are calculated as three day returns centered on the quarterly earnings announcement date coinciding with SAB 108 adoption, less the CRSP value weighted market return over the same period. Unexpected earnings are quarterly earnings per share as reported in I/B/E/S less the mean analyst consensus forecast for the same quarter.<sup>13</sup> We construct the analyst consensus forecast using the mean of the last available forecast per analyst issued within 60 days of the earnings announcement date and require at least two analyst forecasts per observation. Both cumulative abnormal returns and unexpected earnings are scaled by the closing stock price for the fiscal quarter. SAB VAR represents the set of SAB 108 variables collected from footnote disclosures (NET\_OVER, NET\_UNDER, NUM\_ADJ, NUM\_OVER, and NUM\_UNDER as discussed previously) and an indicator variable equal to one if the firm disclosed adjustments under SAB 108.

CONTROLS is a vector of control variables documented in the prior literature to affect the relation between unexpected earnings and unexpected returns, including the four determinants of earnings response coefficients – growth opportunities, risk, earnings persistence, and the risk free interest rate (Kothari 2001) as follows:

- BTM represents the ratio of the book value of equity to the market value of equity as of the end of quarter  $t$  and controls for a firm's growth opportunities. Collins and Kothari (1989) document a positive association between growth opportunities and earnings response coefficients. This variable also provides a control for earnings persistence (Teoh and Wong 1993).

<sup>13</sup> Our results are not sensitive to using the median analyst consensus forecast.

- BETA represents firm beta calculated by regressing returns on earnings over the period from 300 to 45 days prior to the earnings announcement date in quarter t due to the documented association between systematic risk and earnings response coefficients (Collins and Kothari 1989; Easton and Zmijewski 1989).
- DEBT\_RATIO represents the debt to equity ratio as of the end of quarter t and is included as a control for firm risk.
- SDRET is the standard deviation of returns over the period from 27 to 2 days prior to the earnings announcement date and is included to control for uncertainty regarding underlying firm value (Jiang et al. 2005; Wilson 2008).
- LOSS is an indicator variable equal to one if the firm reports negative income before extraordinary items in quarter t, and zero otherwise, because prior research documents that losses are less persistent than gains (Hayn 1995; Basu 1997).
- LNMVE represents firm size calculated as the natural log of the market value of equity (in millions) as of the end of quarter t and is included to control for differences in firm size (Easton and Zmijewski 1989).
- ROA is return on equity for quarter t and is included to control for firm performance.
- ABSUE is the absolute value of unexpected earnings (UE) and is included because prior research documents non-linearity in the earnings response coefficient for large earnings surprises (Freeman and Tse 1989).

In addition, we include fixed effects for firm quarter and year due to differences in earnings response coefficients in the fourth quarter compared to the first three fiscal quarters (Mendenhall and Nichols 1988) and to control for differences in the risk-free rate. Finally, following Francis and Ke (2006), we include indicator variables based on the industry groupings as defined in

Frankel et al. (2002).<sup>14</sup> Standard errors are adjusted for heteroskedasticity using the White (1980) correction.

### ***Trading Volume Reaction at SAB 108 Adoption***

Our second set of tests examines trading volume reaction to SAB 108 adoption. We calculate abnormal trading volume as the mean percentage of shares traded daily over the period (-1, 1) centered on the announcement window less the mean percentage of shares traded daily over the period (-52, -2). This measure controls for non-information based trading, and is similar to the measures used by Burks (2009) and Garfinkel and Sokobin (2006).<sup>15</sup> We estimate the following regression:

$$AB\_VOL_{it} = \alpha_0 + \beta_{1,n}SAB\ VAR_{it} + \sum CONTROLS \quad (2)$$

CONTROLS is a vector of control variables documented in the prior literature to affect the relation between trading volume and an information release, such as an earnings announcement. Kim and Verrecchia (1991) demonstrate that the absolute value of the price change and the differential precision of investors' pre-disclosure information are significant determinants of trading volume reaction. Therefore we include controls for the absolute value of returns over the three-day announcement window (ABSRET) and the standard deviation of

<sup>14</sup> Agriculture (SIC 0100-0999); mining and construction (SIC 1000-1299, SIC 1300-1999); food (SIC 2000-2111); Textiles, printing, and publications (SIC 2200-2799); Chemicals (SIC 2800-2824, 2840-2899); Pharmaceuticals (SIC 2830-2836); Extract (SIC 2900-2999, 1300-1399); Manufacturing (SIC 3000-3999, excluding 3570-3579 and 3670-3679); Transportation (SIC 4000-4899); Retail (SIC 5000-5999); Services (SIC 7000-8999); Computers (SIC 7370-7379, 3570-3579, 3670-3679).

<sup>15</sup> Our results are consistent using the natural log of trading volume and adjusting using the median pre-announcement trading volume.

returns over the 25 trading days prior to the earnings announcement (SDRET) to control for differences in the information environment. We include the absolute value of unexpected earnings (ABSUE) following Bamber (1987) and Ziebart (1990) and the natural log of market value of equity (Ziebart 1990) to control for firm size. In addition, we include control variables as defined previously for book-to-market ratio (BTM) to control for the investment opportunity set, return on assets (ROA) to control for firm performance, firm beta (BETA) to control for firm risk (Kross et al. 1994), an indicator variable for loss (LOSS), and year and quarter fixed effects.

### ***Changes in market value of earnings surprises in the pre- and post-SAB 108 periods***

Our third set of tests examines differences in the market valuation of earnings surprises in the pre- and post-SAB 108 adoption periods. If SAB 108 adjustments are material to investors, we expect significant differences in the information content of earnings and valuation of earnings surprises in the post-adoption period. The SEC issued SAB 108 in September 2006, therefore we define the pre-adoption period from January 2004 through June 2006. The post-adoption period consists of earnings announcements subsequent to SAB 108 adoption through April 2009 (i.e., fourth quarter 2008). This research design excludes the transition period from the third quarter of 2006 through SAB 108 adoption due to uncertainty regarding the presence of misstatements in previously issued financial statements. We test for differences in ERCs using seemingly unrelated estimation (Zellner 1962) by estimating equation (1) separately for the pre- and post-adoption period and testing the equality of the  $\beta_1$  and  $\beta_{2-n}$  coefficients. Seemingly unrelated estimation combines the parameter estimates and co-variance matrices of the pre- and post-adoption models into a single parameter vector and simultaneous covariance matrix, allowing for cross-testing hypotheses. The advantage of this method over a regression that pools

the pre- and post-adoption periods is that this method does not assume equal residual variance between the two periods.<sup>16</sup>

### ***Long run abnormal returns***

Our final set of tests examines long-run abnormal returns in the pre- and post-adoption periods to identify mis-pricing. We do not propose an implementable trading strategy based on the presence or disclosure of quantitatively large misstatements, but rather examine how investors value SAB 108 firms relative to the control sample and comparable portfolio firms. We use the portfolio matching strategy in Daniel et al. (1997) and Wermers (2004) controlling for size, book-to-market ratio and momentum, because tests of long-horizon returns may be misspecified when using size or market value decile reference portfolios (Barber and Lyon 1997).<sup>17,18</sup> We sort firms into quintiles based on size, and within each size quintile, we sort firms into quintiles based on book-to-market ratio (excluding firms with negative BTM) at the beginning of each month. Within each of these 25 portfolios, we sort firms into quintiles based on returns over the period (-12, -2) months for a total of 125 portfolios. We calculate the buy-and hold abnormal returns as the buy-and-hold return for the SAB 108 or control firm less the buy-and-hold abnormal return for the reference portfolio.

## **IV. Results**

<sup>16</sup> We perform pooled pre/post tests in the supplemental analysis section and find consistent inferences.

<sup>17</sup> For an example of this portfolio matching strategy in the accounting literature, see Hirschleifer et al. 2004.

<sup>18</sup> The DGTW benchmarks are available via <http://www.smith.umd.edu/faculty/rwermers/ftpsite/Dgtw/coverpage.htm>. These portfolios are calculated on an annual basis; whereas, the portfolios used in this study are calculated as described above.

Table 1 presents descriptive evidence on the nature of adjustments disclosed under SAB 108. Panel A presents the sample size reconciliation. Initially, we identify 406 firms disclosing adjustments under SAB 108. We eliminate banks and utilities, 18 industrial firms missing Compustat data to calculate our variables of interest, 33 industrial firms missing CRSP data, and 53 industrial firms missing I/B/E/S data, leaving 185 industrial SAB 108 firms in the sample.

Table 1, Panel B presents the net retained earnings impact of SAB 108 adoption by industry. Sixty-five firms report a net increase in retained earnings upon SAB 108 adoption, indicating that these firms under-stated earnings in prior years. Computers, transportation, and retail industry firms comprise the majority of firms that under-stated earnings in prior periods. One hundred sixteen firms report a net decrease to retained earnings upon SAB 108 adoption, indicating that these firms over-stated earnings in prior years. Computers, services, and manufacturing industry firms comprise the majority of firms that over-stated earnings in prior periods. In addition, four firms reported no retained earnings impact upon SAB 108 adoption, indicating that these firms corrected misstatements with no income effect, such as a misclassification of a balance sheet item.

**[INSERT TABLE 1 HERE]**

Table 1, Panel C presents the number of misstatements corrected under SAB 108 by industry. The mean number of adjustments disclosed by firms (NUM\_ADJ) equals 2.03. The mean number of errors overstating prior period income (NUM\_OVER) equals 0.92 and the mean number of errors understating prior period income (NUM\_UNDER) equals 1.09. Firms in extraction, chemicals, and computers reported a mean greater than two misstatements per firm; whereas, all other industries reported a mean number of misstatements between one and two.

Table 1, Panel D reports the magnitude of retained earnings and stockholders' equity

misstatement across all SAB 108 firms. Table 1, Panel E reports the distribution of misstatements by accrual reliability for NET\_OVER and NET\_UNDER firms.

**[INSERT TABLE 2 HERE]**

Table 2 presents descriptive statistics for dependent and independent variables. Table 2, Panel A, presents descriptive statistics as of the SAB 108 adoption date. Mean cumulative abnormal return (CAR) are -0.000 for SAB 108 firms and -0.0014 for control sample firms. Like many restatement announcements (Scholz 2008), the mean CAR for SAB 108 firms is not significantly different from zero. However the mean CAR for control sample firms is significantly negative ( $t=-4.60$ ) and SAB 108 firms have significantly less negative CARs than control sample firms at the SAB 108 adoption date ( $t=1.78$ ).

Mean unexpected earnings (UE) are -0.003 for SAB 108 firms and -0.0017 for control sample firms. Overall, SAB 108 firms are similar in size to control firms with log market value of equity (LNMVE) equal to 6.897 for SAB 108 firms versus 6.687 for control firms. Mean market to book ratio (MTB) for SAB 108 firms equals 0.458 versus 0.375 for control firms, mean beta for SAB 108 firms equals 1.20 versus 1.34 for control firms, mean standard deviation of returns (SDRET) days equals 0.020 for SAB 108 and control sample firms, and mean proportion of firms reporting a loss (LOSS) is 0.259 for SAB 108 firms versus 0.321 for control firms. Eighty-five percent of SAB 108 firms adopted during a fourth quarter (Q4) and mean debt ratio (DEBTRATIO) is 0.214 for SAB 108 firms versus 0.191 for control sample firms. Mean absolute value of unexpected earnings (ABSUE) is 0.006 for SAB 108 firms and 0.0067 for control sample firms, and mean return on assets (ROA) is 0.002 for SAB 108 firms versus -0.0098 for control sample firms. Table 2, Panel B presents descriptive statistics for 2004-2008 with no notable differences.

**[INSERT TABLE 3 HERE]**

Table 3 presents the estimates of the earnings response coefficient model upon SAB 108 adoption. Table 3, Panel A presents the results from estimating equation (1) with the SAB 108 variables introduced individually into the regression. With the exception of  $\beta_{2,2}$  (UE\*NET\_OVER), the coefficients for UE\*SAB VAR are significantly different from zero ( $p < 0.05$ ), indicating that the number of adjustments and the direction of adjustments have significant explanatory power for the relation between unexpected earnings and abnormal returns. Investors appear to increase the valuation of earnings surprises for firms that previously under-stated net income ( $\beta_{2,3}$ , UE\*NET\_UNDER,  $p < 0.01$ ) and this effect increases as the number of misstatements disclosed increases ( $\beta_{2,4}$ , UE\*NUM\_ADJ,  $p < 0.01$ ) regardless of direction ( $\beta_{2,5}$  UE\*NUM\_OVER and  $\beta_{2,6}$ , UE\*NUM\_UNDER,  $p < 0.05$ ). Table 3, Panel B introduces the number of misstatements and direction of misstatements together in the ERC model. The coefficient for understating prior period income remains positive and significant ( $\beta_{2,3}$ , UE\*NET\_UNDER,  $p < 0.01$ ) controlling for firms that overstated prior period income (model 7) and the number of adjustments (model 9). Finally, the number of adjustments overstating and understating income remain significant when included together in model 10 ( $\beta_{2,5}$  UE\*NUM\_OVER and  $\beta_{2,6}$  UE\*NUM\_UNDER,  $p < 0.05$ ). These results indicate that the disclosure of misstatements understating prior period income and the number of misstatements convey material information to investors for current investment decisions.

**[INSERT TABLE 4 HERE]**

Table 4 presents the results of abnormal trading volume reaction upon SAB adoption. Table 4, Panel A presents the results from estimating equation (2) with the SAB 108 variables introduced individually into the regression. The coefficients for NET\_UNDER, NUM\_ADJ,

NUM\_UNDER, and NUM\_OVER are significantly negative, indicating relatively greater consensus among investors regarding the information contained in these SAB 108 misstatements. Table 4, Panel B presents the net direction and number of misstatements together. In all models, the coefficient for NET\_UNDER firms is negative and significant ( $p < 0.05$ ), controlling for the number and direction of misstatements (models 6 and 10) and firms that overstated prior income (model 8).

Interestingly, the coefficient for NET\_OVER firms is not significant in Panel A and is marginally significant when controlling for the number of errors (NET\_OVER,  $p < 0.1$ ) in Panel B. To investigate this result further, we examine the trading volume response to misstatement reliability in Table 4, Panel C. We find no significant volume reaction to high reliability (HIGH), low reliability (LOW), and equity misstatements (EQUITY), however we find a significantly negative volume reaction to medium reliability misstatements (MEDIUM). When including net income direction in the model, we find that the coefficient on NET\_OVER is positive and significant ( $p < 0.01$ ). This finding suggests that misstatements overstating prior period income are informative, and that the lack of price reaction in Table 3 is due to disagreement among investors inhibiting price movement. Overall, these results are consistent with Table 3, Panels A and B, and indicate that the number of misstatements and income direction of misstatements are informative to investors.

**[INSERT TABLE 5 HERE]**

Table 5 presents the results of seemingly unrelated estimation testing the equality of individual coefficients in separate regressions of SAB 108 and control firms in the pre- and post-adoption periods. The ERC is significantly lower for SAB 108 firms in the post-adoption period ( $\beta_1 + \beta_{2,1}$ , difference between pre- and post-adoption period = -0.486,  $p < 0.1$ ). In addition, the

coefficient for SAB 108 is significantly positive in the pre-adoption period ( $\beta_{2,1}=0.113$ ,  $p<0.05$ ) and significantly negative in the post-adoption period ( $\beta_{2,1}=-0.102$ ,  $p<0.05$ ).

Separating the SAB 108 indicator variable into firms with net overstatements and firms with net understatements of prior period income, the lower ERC in the post-adoption period is due to firms that under-stated prior period income ( $\beta_{2,2}$ , difference between pre- and post-adoption period  $=-0.414$ ,  $p<0.01$ ). Firms with a net overstatement of prior period income have insignificantly different ERCs from control sample firms and experience no differences in ERCs between the pre- and post-adoption periods.

**[INSERT TABLE 6 HERE]**

Table 6 presents the long-run abnormal returns for SAB 108 firms. In the twelve months preceding SAB 108 adoption, neither SAB 108 nor control sample firms exhibit abnormal returns relative to their matched portfolios. These findings suggest that investors do not identify the misstatements recorded in prior financial reports, indicating that the misstatements are not so severe as to result in mispricing. In the post-adoption period, NET\_OVER firms earn marginally negative abnormal returns ( $p<0.10$ ) over the first six months; however, when accumulating returns over nine and twelve months, these firms earn buy and hold returns that are not significantly different from their matched portfolios. In the three through twelve months following SAB 108 adoption, NET\_UNDER firms earnings marginally positive abnormal returns ( $p<0.10$ ); however, these returns are driven primarily by two retailers earnings abnormal returns in excess of 0.9 relative to their matched portfolios in the nine months subsequent to SAB 108 adoption. Abnormal returns are not significantly different from zero when these two firms are excluded from the sample.

## **Supplemental Analysis:**

We perform several tests to determine the sensitivity of our results to model specification. First, we exclude 20 SAB 108 firms disclosing net misstatements less than five percent of net income. Although these registrants and their auditors judged the misstatements to be material upon application of the dual quantification method, we follow the five-percent convention to align our analysis more closely with the construct of quantitatively large misstatements. Our inferences remain consistent when these firms are excluded from the analysis.

Second, we examine only December 31 year-end firms adopting SAB 108 at 12/31/06 to eliminate differences related to early or late adoption of the standard, resulting in a loss of 54 SAB 108 firms. Our results generally are stronger and we find a positive and significant coefficient for firms disclosing overstatement of prior period earnings (UE\*NET\_OVER,  $p < 0.01$ ); however, this result does not hold in any other model specification. We also include an indicator variable equal to one if the registrant disclosed a material weakness coinciding with SAB 108 adoption to control for information arising from annual Sarbanes-Oxley disclosures. Finally, we remove four SAB 108 firms disclosing material weaknesses related to SAB 108. We find that including internal control opinions or excluding firms with SAB 108 related material weaknesses does not affect our inferences.

Next, we calculate unexpected earnings (UE) using the median analyst consensus forecast; we include the magnitude of the total misstatement as a covariate; and we include an indicator variable equal to one if the firm is audited by a Big 4 auditor and equal to zero otherwise (Teoh and Wong 1993). We find no changes in inferences in these alternate specifications.

We re-estimate equation (1) for 58 SAB 108 firms in the banking industry and 478 match sample firms meeting our data requirements. We find a positive and significant coefficient for banking firms disclosing under-statements of prior period income ( $UE*NET\_UNDER$ ,  $p<0.01$ ) and a negative and significant coefficient for banking firms disclosing over-statement of prior period income ( $UE*NET\_OVER$ ,  $p<0.01$ ). Likewise, we identify the same pattern for the number of misstatements disclosed. Specifically, the coefficient for the number of misstatements overstating prior period income is negative and significant ( $UE*NUM\_OVER$ ,  $p<0.01$ ) and the coefficient for the number of misstatements understating prior period income is positive and significant ( $UE*NUM\_UNDER$ ,  $p<0.01$ ). We do not perform a pre/post analysis for these firms due to influence of macro-economic factors on the banking and insurance industry in 2007 and 2008. Further, we do not generalize these findings beyond the banking industry due to regulatory differences between banking and non-banking firms, and because banking industry SAB 108 firms are generally audited by the smallest audit firms; whereas, non-banking SAB 108 firms are generally audited by Big 4 firms (Keune and Johnstone 2009).

We perform a pre/post analysis pooling all observations in the pre- and post-adoption period and including an indicator variable equal to one for observations in the post-adoption period and equal to zero otherwise (POST). Consistent with Table 4, we find a significantly lower ERC for NET\_UNDER firms in the post-adoption period ( $UE*NET\_UNDER*POST$ ) and no significant difference for firms that overstated prior period income. Including main effects for all interaction terms has no effect on the inferences from these tests.

Prior research documents higher earnings response coefficients when earnings announcements include more concurrent information, such as detailed income information in contemporaneous press releases (Francis et al. 2002). Accordingly, we re-estimate equation (1)

including an indicator variable equal to one if the firm included discussion of SAB 108 adjustments in a press release concurrent with the earnings announcement, and equal to zero otherwise (PR). We use Lexis Nexus to identify forty nine SAB 108 firms that disclosed the correction of misstatements in the quarterly earnings announcement press release. We find a significantly positive coefficient on the UE\*PR interaction term ( $p < 0.01$ ) when included in models controlling for disclosing SAB 108 adjustments (UE\*SAB108) or reporting a net understatement of prior period income (UE\*NET\_UNDER). Including SAB 108 adoption in a press release is not significant when included with other misstatement variables.

Finally, our inferences may be affected by selection bias if the disclosure of SAB 108 misstatements does not arise randomly across all firms. We use propensity score matching (Rosenbaum and Rubin 1983) to create matched pairs with similar observable characteristics, but that differ along a treatment variable, in this case, disclosing misstatements under SAB 108. By re-performing our analysis on these matched pairs, we can more easily attribute our statistical findings to differences in the treatment variable of interest rather than differences among other variables. We estimate the propensity to disclose adjustments under SAB 108 and use the nearest neighbor method to match SAB 108 firms to non-SAB 108 firms. We then test our matched sample for covariate balance to confirm that the distribution of covariates is similar across the treatment and control group.<sup>19</sup> After determining that our sample is balanced, we then re-estimate equations 1 and 2 using the matched pairs and find inferences consistent with the full sample as reported in Tables 3 and 4. These results suggest that self-selection is not a likely explanation for our findings.

<sup>19</sup> Unbalanced samples across the treatment and control group may indicate an identification problem.

## **V. Conclusion**

We examine the earnings response coefficients, trading volume, and long-run returns of firms disclosing large misstatements in previously issued financial reports under SAB 108 to determine the materiality of these misstatements for future investment decisions. This question is motivated by the debate surrounding proposed changes to materiality guidance that would accommodate auditors waiving quantitatively large misstatements as immaterial. Investor groups oppose these recommendations, suggesting that large misstatements are always material to valuation decisions and that the proposal may reduce earnings quality.

Our empirical tests indicate that quantitatively large misstatements disclosed under SAB 108 are informative to investors and provide evidence that these misstatements are material to investors' valuation decisions. We also document evidence indicating lower earnings quality and returns among SAB 108 firms in the post-adoption period. Firms disclosing quantitatively large misstatements that under-stated income in prior years have significantly higher ERCs and significantly lower trading volume upon SAB 108 adoption; whereas, firms disclosing quantitatively large overstatements of prior period income exhibit no significant ERC at SAB 108 adoption, but significantly higher abnormal trading volume, suggesting that the disclosures conveyed information, but that investors did not agree regarding the implications for earnings quality and valuation. In addition, firms with large understatements of prior income exhibit significantly lower ERCs in the post-adoption period and firms with large overstatements of prior income earn lower returns than control sample and other SAB 108 firms in the post-adoption period. Taken together, these findings provide some support both for investor groups' position and for the CIFR's proposed guidance. Overall, our findings suggest that further

research is needed before drawing policy conclusions regarding materiality regulation and standard setting.

We contribute to the auditing literature and the regulatory debate surrounding materiality determinations first by providing archival evidence on the effects of auditors' decisions to waive correction of misstatements as immaterial on investors' decisions. The SAB 108 setting overcomes a limitation of archival materiality research because the auditor's decision to waive correction of a misstatement as immaterial is observable ex-post for SAB 108 disclosures. Prior research examines the factors auditors consider when judging misstatement materiality (Icerman and Hillison 1991; Wright and Wright 1997; Braun 2001; Acito et al. 2009; Joe et al. 2009) and we contribute to this line of literature by linking the decision to waive a misstatement as immaterial to investors' valuation decisions and assessments of earnings quality.

Second, these findings contribute archival evidence to complement experimental evidence documenting that preparers' and auditors' materiality judgments are not aligned with those of investors and other financial statement users. Specifically, our results suggest that auditors may have a greater tolerance than investors for balance sheet misstatements. These findings are relevant to researchers, standard setters, and practitioners because they provide limited evidence that auditors may not implement the "user perspective" to judgments.

Finally, prior laboratory market research suggests that investors do not detect or price income overstatements within conventional materiality thresholds (Tuttle et al. 2002); we extend these results in an archival setting in two important ways. We examine misstatements across a variety of financial statement accounts rather than examining only misstatements recorded in net sales and current assets. And, our sample includes misstatements that under-stated income in

prior periods. In practice, auditors often “net” misstatements that overstate income with misstatements that understate income (Wright and Wright 1997) and approximately one-third of SAB 108 adjustments result from under-reporting income in prior periods (see also Keune and Johnstone 2009). Examining waived misstatements using archival data overcomes these limitations and provides additional evidence that investors cannot detect misstatements recorded within or exceeding conventional materiality thresholds.

Our results are subject to three limitations. First, our tests do not include firms without I/B/E/S, CRSP, and Compustat data and our inferences may not generalize to firms with no analyst following. Second, we cannot rule out the possibility that registrants with the most severe misstatements chose not to disclose the misstatements at SAB 108 adoption. However, this decision would place such firms in a relatively serious noncompliance position with securities regulators and, therefore, we do not consider this a likely explanation for our results. Finally, further research is needed before drawing policy conclusions regarding materiality regulation and standard setting.

Our findings suggest several opportunities for future research. Although data availability generally precludes archival study of waived misstatements, the experimental setting provides opportunities to study the materiality of large misstatements. First, does investors’ tolerance for large misstatements vary with regulatory regime and would the proposed changes to eliminate the asymmetry in SAB 99 lead to higher or lower tolerance for misstatement? Next, we cannot identify the specific qualitative factors auditors considered when judging SAB 108 misstatements as immaterial in prior periods. The CIFR identifies qualitative criteria auditors would consider when judging large misstatements to be immaterial, and experimental investigation could determine how investors weight various qualitative factors. Finally, our

study suggests the need for further study of how auditors implement the user perspective, particularly given the heightened role of materiality judgments for Level Two and Level Three fair value instruments. These questions and others are left for future research.

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## Appendix A: Variable Definitions

**CAR** = cumulative abnormal returns are calculated as cumulative three day returns (-1, +1) around the quarterly earnings announcement date less size adjusted returns over the same period

**UE** = unexpected earnings is calculated as the difference between quarterly earnings as reported in I/B/E/S less the median of the analyst forecasts issued within 60 days of the quarterly earnings announcement scaled by closing stock price for quarter t.

**SAB 108** = Indicator variable equal to 1 if the firm reported a misstatement under SAB 108.

**NET\_OVER** = Indicator variable equal to 1 if the misstatements reported under SAB 108 resulted in a net overstatement of retained earnings prior to adoption. This variable equals zero for all match sample firms.

**NET\_UNDER** = Indicator variable equal to 1 if the misstatements reported under SAB 108 resulted in a net understatement of retained earnings prior to adoption. This variable equals zero for all match sample firms.

**NUM\_OVER** = the total number of misstatements that overstated retained earnings.

**NUM\_UNDER** = the total number of misstatements that understated retained earnings.

**NUM\_ADJ** = the total number of adjustments reported under SAB 108. This variable equals zero for all match sample firms and the sum of NUM\_OVER and NUM\_UNDER for SAB 108 firms.

**HIGH** = Indicator variables equal to one if the firm disclosed misstatements in a high reliability accrual account as defined by Richardson et al. (2005).

**MEDIUM** = Indicator variable equal to one if the firm disclosed misstatements in a medium reliability accrual account as defined by Richardson et al. (2005).

**LOW** = Indicator variable equal to one if the firm disclosed misstatements in a low reliability accrual account as defined by Richardson et al. (2005)

**EQUITY** = Indicator variable equal to one if the firm disclosed misstatements in equity accounts.

**LN MVE** = the natural log of the market value of equity as of the end of quarter t.

**BTM** = the book to market ratio as of the end of quarter t.

**BETA** = firm specific beta calculated over the period (-300,-45) prior to each quarterly earnings announcement.

**LOSS** = Indicator variable equal to 1 if the firm reported net income before extraordinary items less than 0 in the quarter.

**Q4** = Indicator variable equal to 1 if the observation represents the fourth fiscal quarter.

**ROA** = Return on assets as of the end of quarter t.

**SDRET** = the standard deviation of returns for 25 trading days preceding the quarterly earnings announcement window (-27, -2).

**ABSUE** = the absolute value of unexpected earnings (UE)

**ABSRET** = the absolute value of returns over the period (-1, 1)

**AB\_VOL** = mean percentage of shares traded (shares traded/shares outstanding) over the quarterly earnings announcement window (-1, 1) less mean percentage shares traded over the period (-32, -2).

**Table 1****Descriptive Statistics for SAB 108 firms***Panel A: Sample size reconciliation*

	Full Sample	Industrial Sample
SAB 108 Firms	406	289
Less: Firms missing Compustat Data	-28	-18
Less: Firms missing CRSP Data	-28	-33
Less: Firms missing I/B/E/S Data	-111	-53
 Firms with all data available at the earnings announcement date coinciding with SAB 108 adoption	239	185

*Panel B: Net retained earnings effect of SAB 108 adoption*

	Total	NET_UNDER	NET_OVER	Zero Impact
Agriculture	1	1	0	0
Mining	5	4	1	0
Food	5	2	2	1
Textile	10	4	6	0
Chemicals	8	3	5	0
Pharmaceuticals	4	2	2	0
Extraction	3	2	1	0
Manufacturing	25	5	20	0
Transportation	21	11	10	0
Retail	24	8	16	0
Services	32	5	27	0
Computers	46	17	26	3
Unclassified	1	1	0	0
Utilities	0	0	0	0
Banks	0	0	0	0
	185	65	116	4

**Table 1 (cont)***Panel C: Mean number of adjustments and income effect of adjustments by industry*

	NUM_ADJ	NUM_UNDER	NUM_OVER
Agriculture	2	1	1
Mining	2	1	1
Food	1.6	0.2	1.4
Textile	1.7	0.9	0.8
Chemicals	2.87	1.37	1.5
Pharmaceuticals	1.25	0.5	0.75
Extraction	6.66	2	4.667
Manufacturing	1.72	1.04	0.68
Transportation	2.19	1.33	0.857
Retail	1.79	1.2	0.667
Services	1.78	1.28	0.5
Computers	2.13	0.91	1.1
Unclassified	5	1	4
Means across all industries	2.03	1.09	0.929

*Panel D: Magnitude of Misstatement as of the SAB 108 adoption date*

Variable	mean	min	p5	p25	p50	p75	p95	max
RE Impact	-5.52	-767.69	-28.00	-4.62	-0.70	0.91	24.20	328.00
SE Impact	1.99	-99.70	-15.60	-3.10	-0.30	0.96	24.20	328.00
Absolute Value RE	16.35	0.00	0.18	0.80	2.70	9.71	58.00	767.69

RE Impact is the adjustment to retained earnings due to SAB 108 adoption as disclosed in SEC filings (in millions).  
SE Impact is the adjustment to stockholders equity due to SAB 108 adoption (in millions).

*Panel E: Misstatement Accrual Reliability by Net Retained Earnings Impact*

	NET_OVER Firms	NET_OVER Misstatements	NET_UNDER Firms	NET_UNDER Misstatements
High	38	68	16	33
Med	61	102	38	53
Low	39	76	41	52
Equity	28	45	9	11

**Table 2***Panel A: Descriptive Statistics at the SAB 108 adoption date*

SAB 108	N	Mean	SD	p5	p25	p50	p75	p95
CAR***	185	-0.000	0.009	-0.013	-0.002	0.000	0.002	0.010
AB_VOL	161	0.008	0.011	-0.001	0.001	0.004	0.009	0.026
UE	185	-0.003	0.016	-0.023	-0.001	0.000	0.002	0.006
LN MVE	185	6.897	1.678	4.530	5.724	6.752	7.945	10.078
BTM***	185	0.458	0.345	0.069	0.243	0.392	0.602	1.077
BETA***	185	1.202	0.587	0.306	0.752	1.142	1.616	2.131
SDRET***	185	0.020	0.011	0.008	0.012	0.017	0.024	0.038
LOSS*	185	0.259	0.440	0.000	0.000	0.000	1.000	1.000
Q4	185	0.849	0.359	0.000	1.000	1.000	1.000	1.000
DEBTRATIO	185	0.214	0.225	0.000	0.012	0.167	0.347	0.656
ABSUE	185	0.006	0.015	0.000	0.001	0.002	0.005	0.023
ROA*	185	0.002	0.045	-0.064	0.000	0.010	0.019	0.037
CONTROL	N	Mean	SD	p5	p25	p50	p75	p95
CAR***	1899	-0.0014	0.0129	-0.0210	-0.0025	-0.0001	0.0018	0.0109
AB_VOL	1568	0.0105	0.0159	-0.0017	0.0011	0.0053	0.0131	0.0426
UE	1899	-0.0017	0.0148	-0.0235	-0.0018	0.0004	0.0023	0.0106
LN MVE	1899	6.6876	1.6694	4.3032	5.4857	6.5003	7.6760	9.8634
BTM***	1899	0.3752	0.3679	0.0360	0.2129	0.3462	0.5364	0.8842
BETA***	1895	1.3369	0.6521	0.3232	0.8572	1.3125	1.8163	2.4583
SDRET***	1899	0.0220	0.0119	0.0084	0.0142	0.0195	0.0269	0.0418
LOSS*	1899	0.3211	0.4670	0.0000	0.0000	0.0000	1.0000	1.0000
Q4	1899	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
DEBTRATIO	1899	0.1907	0.2341	0.0000	0.0005	0.1235	0.2993	0.6226
ABSUE	1899	0.0067	0.0133	0.0001	0.0007	0.0021	0.0054	0.0355
ROA*	1899	-0.0098	0.0828	-0.1501	-0.0119	0.0109	0.0252	0.0562

\*\*\*, \*\*, \*, indicates significant difference between SAB 108 and control sample firms at  $p < 0.01$ ,  $p < 0.05$ , and  $p < 0.1$  respectively.

**Table 2 (cont)***Panel B: Descriptive Statistics over the Sample period 2004-2008*

SAB108	N	Mean	sd	p5	p25	p50	p75	p95
CAR	2829	-0.001	0.011	-0.016	-0.002	0.000	0.002	0.011
UE	2829	-0.001	0.013	-0.001	-0.014	0.000	0.002	0.010
LN MVE	2829	6.871	1.666	5.678	4.397	6.760	7.917	9.918
BTM	2829	0.434	0.363	0.233	0.056	0.382	0.592	1.012
BETA	2829	1.268	0.597	0.845	0.386	1.227	1.647	2.325
SDRET	2829	0.022	0.011	0.014	0.009	0.019	0.027	0.043
LOSS	2829	0.221	0.415	0.000	0.000	0.000	0.000	1.000
Q4	2829	0.252	0.434	0.000	0.000	0.000	1.000	1.000
DEBTRATIO	2829	0.212	0.234	0.003	0.000	0.150	0.337	0.642
ABSUE	2829	0.005	0.012	0.001	0.000	0.002	0.005	0.023
ROA	2829	0.008	0.036	0.002	-0.033	0.011	0.021	0.044
CONTROL	N	Mean	sd	p5	p25	p50	p75	p95
CAR	28409	-0.001	0.013	-0.020	-0.003	0.000	0.002	0.015
UE	28409	-0.001	0.013	-0.001	-0.016	0.000	0.002	0.011
LN MVE	28409	6.678	1.641	5.492	4.319	6.485	7.670	9.785
BTM	28409	0.397	0.383	0.219	0.050	0.356	0.555	0.939
BETA	28331	1.384	0.663	0.907	0.392	1.329	1.802	2.603
SDRET	28409	0.025	0.013	0.016	0.010	0.022	0.030	0.048
LOSS	28409	0.311	0.463	0.000	0.000	0.000	1.000	1.000
Q4	28409	0.250	0.433	0.000	0.000	0.000	1.000	1.000
DEBTRATIO	28409	0.183	0.231	0.000	0.000	0.114	0.289	0.598
ABSUE	28409	0.006	0.012	0.001	0.000	0.002	0.005	0.026
ROA	28409	-0.007	0.076	-0.008	-0.129	0.010	0.023	0.051

**Table 3**

*Market reaction to SAB 108 and Footnote Components*

$$CAR_{it} = \alpha_0 + \beta_1 UE_{it} + \beta_{2,n} UE * SAB VAR_{it} + \sum UE * CONTROLS$$

*Panel A: Individual Coefficient Estimates*

		(1)	(2)	(3)	(4)	(5)	(6)
UE	$\beta_1$	1.258*** (0.547)	1.687*** (0.511)	1.634*** (0.515)	1.415*** (0.539)	1.550*** (0.536)	1.634*** (0.521)
UE*SAB108	$\beta_{2,1}$	0.273*** (0.136)					
UE*NET_OVER	$\beta_{2,2}$		0.055 (0.113)				
UE*NET_UNDER	$\beta_{2,3}$			0.290*** (0.100)			
UE*NUM_ADJ	$\beta_{2,4}$				0.112*** (0.042)		
UE*NUM_OVER	$\beta_{2,5}$					0.108** (0.055)	
UE*NUM_UNDER	$\beta_{2,6}$						0.129** (0.069)

Sum of the Coefficient Estimates:

$\beta_1 + \beta_{2,1}$	1.531*** ###
$\beta_1 + \beta_{2,2}$	1.742***
$\beta_1 + \beta_{2,3}$	1.924*** ###
$\beta_1 + \beta_{2,4}$	1.527*** ###
$\beta_1 + \beta_{2,5}$	1.658*** ##
$\beta_1 + \beta_{2,6}$	1.763*** ##

**Table 3 (cont)***Panel B: Models including Error Direction and Number of Errors*

		(7)	(8)	(9)	(10)
UE	$\beta_1$	1.404*** (0.510)	1.442*** (0.526)	1.449*** (0.537)	1.457*** (0.532)
UE*NET_OVER	$\beta_{2,2}$	0.173* (0.118)	-0.031 (0.102)		
UE*NET_UNDER	$\beta_{2,3}$	0.349*** (0.116)		0.186*** (0.092)	
UE*NUM_ADJ	$\beta_{2,4}$		0.115*** (0.044)	0.075** (0.043)	
UE*NUM_OVER	$\beta_{2,5}$				0.099** (0.052)
UE*NUM_UNDER	$\beta_{2,6}$				0.118** (0.068)

Sum of the Coefficient Estimates:

$\beta_1 + \beta_{2,2} + \beta_{2,3}$	1.926 *** ###
$\beta_1 + \beta_{2,2} + \beta_{2,4}$	1.526 *** ###
$\beta_1 + \beta_{2,3} + \beta_{2,4}$	1.710 *** ###
$\beta_1 + \beta_{2,5} + \beta_{2,6}$	1.674 *** ###

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 significantly different from zero based on one tailed tests. ### p<0.01, ## p<0.05 significantly different from the coefficient on UE based on White (1980) heteroskedasticity adjusted standard errors. Controls include LNMVE, BTM, SDRET, BETA, ABSUE, LOSS, Q4, ROA, and year and industry fixed effects. See appendix A for variable definitions.

**TABLE 4**

**Abnormal Trading Volume at the SAB 108 Adoption Date**

$$AB\_VOL_{it} = \alpha_0 + \beta_{1,n} SAB\ VAR_{it} + \sum CONTROLS$$

*Panel A: Individual Coefficient estimates*

	(1)	(2)	(3)	(4)	(5)
NET_UNDER	-0.005*** (0.001)				
NET_OVER		0.001 (0.002)			
NUM_ADJ			-0.001*** (0.000)		
NUM_UNDER				-0.001** (0.000)	
NUM_OVER					-0.001*** (0.000)
ABS(UE)	-0.052 (0.055)	-0.053 (0.000)	-0.053 (0.000)	-0.053 (0.000)	-0.054 (0.000)
ABS(RET)	0.496*** (0.089)	0.497*** (0.089)	0.495*** (0.089)	0.495*** (0.089)	0.496*** (0.089)
LN MVE	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
BTM	-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)
SDRET	0.279* (0.144)	0.281* (0.144)	0.278* (0.144)	0.279* (0.144)	0.279* (0.144)
BETA	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)
LOSS	-0.004*** (0.002)	-0.004*** (0.002)	-0.004*** (0.002)	-0.004*** (0.002)	-0.004*** (0.002)
ROA	0.048*** (0.010)	0.048*** (0.010)	0.048*** (0.010)	0.048*** (0.010)	0.048*** (0.010)
Constant	0.002 (0.008)	-0.002 (0.008)	-0.000 (0.007)	-0.000 (0.008)	-0.000 (0.008)
Observations	1725	1725	1725	1725	1725

**Table 4 (cont)***Panel B: Models including Error Direction and Number of Errors*

	(6)	(7)	(8)	(9)	(10)
NET_UNDER	-0.006*** (0.002)		-0.005*** (0.002)		-0.004*** (0.002)
NET_OVER		0.003* (0.002)	0.000 (0.001)		0.003 (0.002)
NUM_ADJ	-0.004*** (0.000)	-0.001*** (0.000)			
NUM_UNDER				-0.001 (0.000)	-0.002** (0.001)
NUM_OVER				-0.001** (0.000)	-0.000 (0.000)
Observations	1725	1725	1725	1725	1725
R-squared	0.096	0.096	0.096	0.096	0.097

*Panel C: Models including Reliability of Misstated Accruals*

	(11)	(12)	(13)	(14)	(15)	(16)	(17)
HIGH	0.000 (0.002)				0.002 (0.002)	0.002 (0.002)	0.001 (0.002)
MEDIUM		-0.003*** (0.001)			-0.004*** (0.001)	-0.003*** (0.001)	-0.006*** (0.002)
LOW			-0.001 (0.001)		-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)
EQUITY				-0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	-0.002 (0.002)
NET UNDER						-0.004** (0.002)	
NET OVER							0.004*** (0.002)
Observations	1725	1725	1725	1725	1725	1725	1725
R-squared	0.095	0.095	0.093	0.093	0.097	0.0948	0.098

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1, Robust standard errors in parentheses. All control variables included in Panel A are included in the model, but omitted for brevity. Abnormal trading volume is calculated as average percentage total shares outstanding traded over the earnings announcement period (-1, 1) scaled by the average percentage total shares outstanding over the period (-52, -2).

**Table 5**

**Tests of individual coefficients in separate regressions for the pre- and post-adoption periods for SAB 108 and control firms**

$$CAR_{it} = \alpha_0 + \beta_1 UE_{it} + \beta_{2,n} UE * SAB VAR_{it} + \sum UE * CONTROLS$$

		Pre-Adoption		Post-Adoption		Difference	
UE	$\beta_1$	0.838 (0.208)	***	0.567 (0.208)	***	-0.271	
UE*SAB108	$\beta_{2,1}$	0.113 (0.058)	**	-0.102 (0.075)	**	-0.215	&&&
$\beta_1 + \beta_{2,1}$		0.951	***	0.465	***	-0.486	&
		Pre-Adoption		Post-Adoption		Difference	
UE	$\beta_1$	0.837 (0.208)	***	0.578 (0.215)	***	-0.259	
UE*NET_UNDER	$\beta_{2,2}$	0.120 (0.052)	***	-0.295 (0.101)	***	-0.414	&&&
UE*NET_OVER	$\beta_{2,3}$	0.101 (0.081)		0.019 (0.066)		-0.082	
$\beta_1 + \beta_{2,2} + \beta_{2,3}$		1.058	***	0.302		-0.756	&&&

The pre-adoption period is defined as 1/1/04 through 6/30/06. The post adoption period is defined as starting in the first quarter of fiscal 2007 for control firms through 12/31/08 and all fiscal quarters following SAB 108 adoption for SAB firms. Coefficient differences reported at significance levels of &&& p<0.01, && p<0.05, & p<0.1 based on chi-square distribution using seemingly unrelated estimation (SUEST).

**Table 6***Accumulated Long Run Abnormal Returns surrounding SAB 108 adoption for SAB 108 firms*

	SAB	NET_OVER	NET_UNDER	Control
Prior 12 months	-0.0226	-0.0371	0.0004	0.0073
T stat	-0.75	-0.90	0.01	0.59
Prior 9 months	-0.0053	-0.0367	0.0397	0.0044
T stat	-0.25	-1.34	1.11	0.10
Prior 6 months	-0.0197	-0.0154	-0.0276	-0.0032
T stat	-1.10	-0.61	-1.10	-0.43
Prior 3 months	-0.0024	0.0135	-0.0339	0.0017
	-0.17	0.66	-1.70	0.31
Adoption quarter	-	-	-	-
Subsequent 3 months	-0.0010	-0.0262	0.0398*	0.0046
T stat	-0.09	-1.63	1.84	1.10
Subsequent 6 months	0.0001	-0.0424	<b>0.0791*</b>	0.0082
T stat	0.04	-1.91	<b>2.11</b>	1.31
Subsequent 9 months	0.0087	-0.0291	0.0851*	<b>0.0246</b>
T stat	0.36	-0.74	1.91	<b>2.80</b>
Subsequent 12 months	0.0121	-0.0299	0.1093*	<b>0.0296</b>
T stat	0.42	-0.99	1.83	<b>2.95</b>

Buy and hold abnormal returns are calculated following the portfolio matching strategy in Daniel et al. (1997) and Wermers (2004). Prior 12 month returns are accumulated through the balance sheet date coinciding with SAB 108 adoption to exclude event returns surrounding SAB 108 adoption. Subsequent returns are calculated beginning 4 months after SAB 108 adoption. **Bold** indicates significant at  $p < 0.05$  for t statistics testing whether abnormal returns are significantly different from zero.

\* Results include two retailers earnings abnormal returns exceeding 0.9 relative to their match portfolios over the nine months following SAB 108 adoption. Excluding these observations, BHARs are not significantly different from zero. BHAR at 3 months for NET\_UNDER firms excluding these observations at three months equal 0.0139 (0.73), at 6 months total 0.045 (1.55), at nine months equal 0.0428 (1.08), and at twelve months equal 0.0158 (0.39)