The current issue and full text archive of this journal is available at
www.emeraldinsight.com/1475-7702.htm

An analysis of the relationship between accounting restatements and quantitative benchmarks of audit planning materiality

Hanmei Chen and Kurt Pany
Arizona State University, Tempe, Arizona, USA, and
Jian Zhang
Accounting and Finance, School of Business, San Jose State University, San Jose, California, USA

Abstract

Purpose – The purpose of this paper is to investigate the relationship between the amounts obtained using professionally accepted quantitative benchmarks of audit planning materiality and the size of accounting misstatements corrected by financial statements restatements.

Design/methodology/approach – The paper uses a sample of 136 companies (237 company years) that have restated such financial statements and compare the amounts of the restatements with planning materiality benchmarks (rules of thumb) established to aid auditors in arriving at audit planning levels.

Findings – It was found that, depending on the method of analysis selected and the materiality benchmark followed, as high as approximately 62 per cent of the restatements involve income levels less than the planning materiality level.

Research limitations/implications – The results lead to questions as to the appropriate relationship between the scope of audit procedures, which is in part determined by these quantitative materiality benchmarks, and subsequent financial statement restatements.

Originality/value – The issue addressed in this study is important because if audit planning levels for materiality are in excess of the amounts subsequently restated due to accounting misstatements, this might serve as an explanation for a number of recent restatements. Furthermore, it might suggest the need to consider decreasing acceptable materiality planning levels, thus resulting in a recalibration of the audit process.

Keywords Accounting, Auditing, Accounting information

Paper type Research paper

Introduction

In this study, we address the relationship between frequently used quantitative benchmarks of audit planning materiality and the size of misstatements recorded in the restatement of financial statements. Our objective is to analyze the frequency with which various quantitative benchmarks[1] of materiality exceed the size of the misstatements in financial statements that were later restated. This information is potentially relevant in that if the scope of audits is often based on a larger measure of materiality than the amount of subsequently determined necessary restatements of income, one may question whether that current scope is adequate to meet public needs. We find that frequently (ranging from approximately 12 to 62 per cent of the time, depending upon the materiality benchmark used) the size of the planning materiality benchmark is greater than the size of the subsequent restatement of income for restated years. Furthermore, we find that if this planning materiality benchmark is divided in half to represent a measure of tolerable misstatement applied at the account level, a benchmark that might more closely approximate the measure used to help establish the scope of audit

Review of Accounting and Finance
Vol. 7 No. 3, 2008
pp. 236-251
© Emerald Group Publishing Limited
1475-7702
DOI 10.1108/14757700810898230

المنارة للاستشارات
www.mana

procedures, those percentages range from 7 to 42 per cent. The use of materiality benchmarks based on a percent of total assets or total revenues result in many more restatements considered "immaterial" than do those based on income.

Our approach is to use the auditing literature's quantitative materiality and tolerable misstatements concepts to analyze a portion of the 2003 Government Accountability Office (GAO) restatement database. While the research on the market reactions to the restatements suggests a market reaction[2], researchers have not compared the financial amounts of the accounting effects of these misstatements to the levels of materiality suggested for use by auditors in determining the scope of their audits. Our intent is not to argue that these restatements are irrelevant. Nor do, we address qualitative factors that may be considered in arriving at planning materiality measures in a particular circumstance[3]. Rather, our intent is to examine suggested quantitative planning materiality thresholds of an audit to compare with the subsequent levels of restatements of financial statement information. While our approach does not allow us to answer normative questions such as what the scope of an audit should be, it does allow us to compare current materiality benchmarks with the magnitude of misstatements that have subsequently required restatement of previously issued financial.

In the next section of this paper, we provide background on financial statement restatements and materiality. The following sections describe our research method, results, limitations and conclusions.

Background

As background, we first present a brief discussion of the financial statement restatement environment. Following are reviews of the accounting and auditing standards most directly related to accounting restatements and on available research and professional guidance on the audit concept of planning materiality.

The restatement environment

The need for corporations to issue restated financial statements has drawn widespread attention. The GAO[4] estimates market-related losses in market capitalization due to financial statement restatements between the beginning of 1997 and 30 September 2005 at approximately $143 billion (GAO, 2003, 2006)[5]. In addition, the number of companies announcing financial restatements for the period ending June 2002 as compared to that ending in September 2005 rose from 3.7 to 6.8 per cent (GAO, 2003, 2006). Consistently, the Huron Group (2003) reports an increase in the number of restatements of recent years.

The number of financial statement restatements leads to a question as to whether a need to restate financial statements by definition also indicates an audit failure. Indeed, an audit was performed, and the audit report issued did not indicate any such misstatements. Turner (2002, p. 3), then chief accountant of the Securities and Exchange Commission (SEC), suggested that restatements should be considered accounting and auditing failures. Furthermore, he suggests that:

> What we do know today is that the increasing number of earnings restatements, the number of massive financial frauds, the tens and hundreds in billions of losses to investors and now Enron, accompanied by the almost daily parade of financial reporting issues, highlight a serious question in the minds of investors with respect to the quality of audits.

If one accepts that auditors should be objective experts in the area of accounting, it would seem that two interrelated explanations might exist for failing to detect such misstatements in a timely fashion:

المنارة للاستشارات

www.mana

(1) Although an audit ideally provides a high level of assurance of detecting misstatements, this assurance is not absolute (AICPA, 2006b)[6].

(2) The misstatements were not material within the context of how an audit was performed.

The first point is probably agreed to as audit failure, with arguments being framed that an audit cannot be expected to detect every material misstatement and still be performed in a cost-effective manner. It is this second point that we address in this paper, the possibility that the audit was not calibrated to detect the misstatement. Consistent with this possibility, Brody *et al.* (2003) use various materiality rules of thumb to compare against the misstatement in the financial statements of Enron that Arthur Andersen found immaterial and report that a number of these measures are consistent with the Andersen conclusion. In this paper, we provide evidence about the empirical association between financial statement restatements and various planning materiality benchmarks.

Accounting restatement standards

Section A35 of the Financial Accounting Standards (FASB, 2006), which in essence is FASB Statement No. 16 as updated by FASB Statement No. 154, provides authoritative guidance on prior-period adjustments. It requires that an item of profit and loss related to the correction of an error in the financial statements of a prior period must be accounted for as a prior-period adjustment and excluded from the determination of net income for the current period. It then provides the following examples of errors in financial statements:

- mathematical mistakes;
- mistakes in the application of accounting principles; and
- oversight or misuse of facts that existed after time the financial statements were prepared;

While disclosures of the periods affected must be made, the detailed accounting varies by whether only single period or comparative financial statements are being presented as follows:

- Single-period statements – the opening balance of retained earnings is adjusted.
- Comparative statements – adjustments are made of the amounts of net income, its components, retained earnings balances and other affected balances for all the periods presented to reflect the retroactive application of the prior-period adjustments.

Securities and Exchange Commission reporting requirements require Form 10-K annual reporting of the most recent three years of income statements. Because restatements may affect a number of years, in this study, we address the effects on the reported net income of those years presented in the company's various Forms 10-K and restated 10-Ks filed with the SEC[7].

Materiality standards

The Auditing Standards Board addressed materiality in 1983 when it issued Statement on Auditing Standards (SAS) No. 47 (AICPA, 2006b, AU 312) "Audit risk and materiality in conducting the audit," and in 2006 with SAS No. 107 with the same title.

المنارة للاستشارات
www.mana

Because SAS No. 47 was in effect during the period of the restatements being considered, we cite it. The key concepts discussed below remain in SAS No. 107.

To serve as a frame of reference for the materiality judgment, SAS No. 47 cites FASB Statement of Financial Accounting Concepts No. 2, paragraph 132, which defines materiality as follows:

> The omission or misstatement of an item in a financial report is material if, in the light of surrounding circumstances, the magnitude of the item is such that 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 items.

Statement on Auditing Standards No. 47's provisions relating to materiality require auditors to make a "preliminary judgment about materiality levels" in planning the audit. Subsequently, when misstatements are identified, an auditor must consider both quantitative and qualitative considerations in determining whether the financial statements are materially misstated[8].

In this paper, our emphasis is upon the planning phase measure of materiality. This is the measure used to design the appropriate scope of audit procedures. Rule 3-02 of SEC Regulation S-X states that if an "amount which would otherwise be required to be shown with respect to any item is not material, it need not be separately set forth". The SEC also states that a material matter is one "about which an average prudent investor ought reasonably to be informed" (Rule 1-02) and that material information is "such... information as is necessary to make the required statements, in the light of the circumstances under which they are made, not misleading" (Rule 3-06).

The issue addressed in this paper is the relationship between the size of restatements that were subsequently announced and the size of planning materiality using various benchmarks related to materiality. If indeed the size of the restatements virtually always exceeds levels of materiality, these restatements might well be considered indicative of audit failure. Alternatively, if they do not in general exceed the levels of materiality, the situation is more complex in that audits may not be calibrated at the level necessary to identify the misstatements of the sizes identified in the restatements.

The use of materiality benchmarks

Researchers have used a variety of approaches as well as user groups to consider materiality thresholds (e.g. Brody *et al.*, 2003; Chewning *et al.*, 1989; Geary and Ricketts, 1992; Gist and Shastri, 2003; Holstrum and Messier, 1982; Icerman and Hillison, 1991; Iskandar and Iselin, 1999; Jennings *et al.*, 1987; Krogstad *et al.*, 1984; Messier, 1983; Nelson *et al.*, 2005; Pany and Wheeler, 1989a, b; Tuttle *et al.*, 2002; Wheeler and Pany, 1990). In their thorough review of the materiality literature, Messier *et al.* (2005, p. 181) point out that net income is the most important factor in determining the materiality of a misstatement as the majority of accounting firms use a percentage of income to establish planning materiality. Alternatively, a percentage of net assets or revenues are also frequently used. The studies in general suggest planning materiality levels of 5 to 10 per cent of income when income is relatively stable. When income is close to zero, research suggests that the base may often become assets or revenues[9].

Although neither SAS No. 47 nor 107 provide quantitative guidance for assessing materiality, the AICPA *Audit and Accounting Manual* (2005) provides operational guidance on materiality levels that is relatively consistent with the available

المنارة للاستشارات

www.mana

research. Paragraph 3140.19 of this nonauthoritative practice aid, which seems generally consistent with findings of the above, states that:

> A common benchmark for materiality is 5 to 10 per cent of pretax income. Some auditors apply this benchmark so that items less than 5 per cent of normal pretax income are considered immaterial, whereas items that are more than 10 per cent are material. For items between 5 and 10 per cent, judgment is applied. For example, when unusual factors exist (perhaps the company is about to be sold for a multiple of audited earnings) auditors would tend to classify items between 5 and 10 per cent as material. Others use 1 or 1.5 percent of the larger of total assets or revenues.

Subsequently, it is suggested that the decision on which benchmark to use depends upon factors such as income variability. Our review of previous editions of the annually released *Audit and Accounting Manual* reveals that this guidance was included during the entire period of this study's sample of restatements.

While the *Audit and Accounting Manual* (2005) provides only nonauthoritative advice to CPAs, its introduction states that its objective is "to provide practitioners with the tools needed to help plan, perform and report on their engagements". Thus, although not authoritative (such as SAS), its intent is to provide guidance. This becomes particularly important in areas in which the authoritative guidance is very general – as is the case with determining planning materiality.

In addition, it might be argued that analysis using tolerable misstatement amounts rather than materiality benchmarks is appropriate. The tolerable misstatement concept is a planning concept and is related to planning materiality levels in such a way that tolerable misstatement, combined across the entire audit plan, does not exceed those materiality levels. In essence, the materiality measure is subdivided into smaller amounts. The concept suggests that while various ways of performing this disaggregation are possible (Whittington and Pany, 2008, pp. 199-202), the one presented in the AICPA's Audit Sampling Guide (2001) is to apply a percentage (usually, between 50 and 75 per cent) to planning materiality to determine the tolerable misstatement for all sampling applications.

Thus, while the comparison of materiality measures with restatement amounts compares the overall calibration of audits, the tolerable misstatement measures address more directly the relationship between account planning amounts and those restatements. Considering both, the materiality and tolerable misstatement measures in this study more completely addresses the issue of the relationship between the scope of current audits and restatements than does either by itself.

The previously cited analysis by Messier *et al.* (2005) reviews empirical studies on materiality in the last two decades. The review indicates that there has been substantial research on materiality, but many questions still remain. As pointed out in the review, how planning materiality is determined is one of the important questions that needs to be investigated. Our study examines the suggested planning materiality thresholds. Although we do not provide an answer to the question of how planning materiality should be determined, our study serves as an initial step to further investigate the question.

Method

Materiality benchmarks

In this paper, we analyze our data by adapting the *Audit and Accounting Manual's* suggested approach using the following materiality and tolerable misstatement benchmarks:

المنارة للاستشارات
www.mana

(1) Non-conservative materiality approaches:
- 10 per cent of income[10];
- 1.5 per cent of the greater of total assets or revenues[11]; and
- the larger of the above two benchmarks[12].

(2) Conservative materiality approaches:
- 5 per cent of income;
- 1 per cent of the greater of total assets or revenues; and
- the larger of the above two benchmarks.

(3) Tolerable misstatement approaches:
- 2.5 per cent of income;
- 0.5 per cent of the greater of total assets or revenues; and
- the larger of the two benchmarks.

The non-conservative and conservative materiality approaches address the suggested guidance provided by the AICPA. The tolerable misstatement approaches are also consistent in the sense that they use one-half of the conservative materiality amounts – 2.5 per cent of income and 0.5 per cent of the larger of total assets or revenues. This equates to the conservative end of the AICPA recommendation that 50-75 per cent of the materiality measure be used.

Years analyzed

Because most restatements affect more than one year, and because, as indicated above, multiple benchmarks of materiality are possible, a large number of possible methods of analysis exist. As indicated earlier, SEC Form 10-K ordinarily requires that the restatement's effects of all years must be provided. For the companies in our sample, our analysis considers all affected years that are reported. In addition, we searched SEC filings to determine that no other restatement was involved causing the monetary effect.

In many situations, the restatement also involves the current year with only previously released reviewed quarterly information being restated. Since that information is being corrected before it has been released as audited, we do not include current year adjustments in the analysis.

Method of analysis

We analyzed the data by comparing the income effect of the restatements with our planning materiality benchmarks at three levels:

(1) For the entire aggregated data set, calculating the proportion of years restated in which planning materiality exceeds the income restatement (level 1 analysis).

(2) By individual companies, calculating the proportion of companies with a restatement amount that, for one or more years, exceeded our planning materiality benchmarks (level 2 analysis).

(3) By individual companies, calculating the proportion of companies with total restated income that exceeded our planning materiality benchmarks (level 3 analysis).

المنارة للاستشارات

www.mana

Level 1 analysis. We first considered all of the years that were restated by companies issuing a restatement. For example, if Company A in 2002 announced a restatement affecting both 2000 and 2001, we considered both years and aggregated each of those years with those of other companies in this portion of the analysis. This involved analysis of both the 10-Ks as originally filed and as corrected. Thus, the level 1 analysis provides an overall measure of all misstated company-years and the frequency with which the restatement amount did not exceed the benchmark – that is, it was quantitatively "immaterial" from an audit perspective[13]. The level 1 analysis does not address materiality for any particular company but aggregates results across companies, neither does it address the fact that any amounts involved need only be significant to one year.

Level 2 analysis. Our second method of analysis is to determine for each company whether the restatement amount for each of the years restated is less than the corresponding benchmark being considered. If that is the situation, the restatement is considered immaterial relative to the benchmark. If the restatement amount for any one restatement year is greater than the benchmark, the restatement is considered material. Using our previous example, if Company A restated both 2000 and 2001, we compared year 2000 and year 2001 materiality benchmarks with the corresponding year's income restatement amount. If the restatement's income effect in year 2000 and in year 2001 is less than the benchmark, we classify the restatement of Company A as immaterial. If the restatement effect for either year is greater than the benchmark, we classify the restatement of Company A as material.

Level 3 analysis. Our third approach involves accumulating the restatements of all the restatement years for each company and determine whether the aggregate restatement amount is less than the corresponding benchmark being considered. If that is the situation, the company's restatement is considered immaterial relative to the benchmark. The reasoning behind this analysis is that a series of immaterial misstatements from prior years could result in a material adjustment to the current year. Because many misstatements tend to counter-balance one another (e.g. a $100,000 overstatement of this year's income may understate next year's income by that amount), we use absolute values for this analysis.

Using the previous example, if Company A restated both 2000 and 2001, we aggregated the absolute value of the income restatement amounts for those two years and compared the total with year 2001 materiality benchmark. If the total restatement's income effect is less than the benchmark, we classify the restatement of Company A as immaterial.

Sample. Our sample is drawn from the 2003 GAO Financial Statement Restatement Database. That database includes 919 restatements announced from 1 January 1997 to 30 June 2002, that involves accounting irregularities resulting in "material misstatements of financial statement results" (GAO, 2003, p. 11). Restatements due to stock splits, changes in accounting principles, and other financial statement restatements that were not made to correct misstatements were not included in the database (GAO, 2003, p. 11). The database was created using Lexis-Nexis, and cross-checked against lists compiled by the SEC, the Congressional Research Service, and others when such information was available. The accuracy of restatement dates was verified using SEC filings.

Our initial sample includes 550 restatements (made by 523 companies) announced between year 2000 and June 2002 from the GAO list[14]. A total of 109 companies have missing data from 10-K or 8-K, which left 414 companies[15]. We collected data from

المنارة للاستشارات
www.mana

forms 10-K and 8-K and identified the reasons for restatements[16]. We eliminated 278 companies for various reasons, such as only quarterly and not annual information or misstated and because a number of the restatements are arguably for reasons other than an accounting misstatement or there is no income effect . The final sample comprised of 136 companies with 237 company-year observations. Table I summarizes this information. The descriptive statistics on our final sample are presented in Table II[17].

Results

As discussed, we present our results at two levels. Level 1 considers all company-years independent of one another and arrives at the frequency to which restatements of income for misstatements are considered immaterial when compared against the planning materiality benchmark. Level 2 addresses whether, for each restating company, all years involved are immaterial in the sense that each year's restatement is less than our quantitative benchmark of materiality. Level 3 considers the income effect of the restatements aggregated over each of the restated years.

Level 1 results

Table III presents our results when considering the relationship between our planning materiality benchmarks and the income restatement amounts. Panel A of Table III is based on non-conservative benchmarks. The results of the analysis reveal that 10 per cent of income planning materiality results in 36.71 per cent of immaterial results, and the second benchmark relating to total assets and revenues results in 57.38 per cent. Panel B of Table III is based on conservative materiality benchmarks. Of the total of 237 company-years analyzed, 22.78 per cent of the annual restatements are for amounts less than the materiality benchmark of 5 per cent of net income. The percentage immaterial using 1 per cent of the greater of total assets or revenues is 49.79. Using the larger of the above mentioned two benchmarks, the percentage immaterial is 54.01 per cent. Panel C presents our results using conservative tolerable misstatement benchmarks. Even here, we find that with income measures of only 2.5 per cent of income and 0.5 per cent of the greater of total asserts or revenues, 11.81 and 39.66 per cent, respectively, are determined immaterial.

Level 2 results

Table IV presents the results of our analysis on individual companies. An immaterial result should be interpreted as a finding that for a particular company that restated one or more years, all years involved with the restatement are individually less than the

	Companies
Companies with restatement in years 2000-2002	523
Companies with missing data	109
Companies with restatement data	414
Companies with quarterly restatement only or restatement arguably not due to an accounting misstatement or restatement with no income effect	278
Data used in the analysis	136

Notes: GAO complete list consists of 919 restatements from 859 companies. Of the 919 restatements, 550 restatements from 523 companies were made in year 2000 to 2002. The data used in the analysis consist of 136 companies with 237 years of restated financial statements

Table I.
Sample selection details

المنارة للاستشارات
www.mana

	Mean (millions)	Median (millions)	Number	Percentage
Panel A: Assets, revenue and income information				
Assets	3,649	342		
Revenue	2,394	199		
Income	44	2		
Panel B: Auditor information				
Auditor				
Arthur Anderson			38	16.03
Big four			154	64.98
Others			45	18.99
Total			237	100
Panel C: Industry composition				
Industry[a]				
Mining			6	2.53
Construction			25	10.55
Manufacturing			63	26.58
Transportation, communications, electric, gas, and sanitary services			16	6.75
Wholesale trade			35	14.77
Retail trade			33	13.92
Finance, insurance, and real estate			48	20.25
Services			9	3.80
Public administration			2	0.84
Total			237	100

Note: [a]Industry composition is based on one digit Standard Industry Classification (SIC) code

Table II.
Descriptive statistics

	Total years analyzed	Number immaterial	Percent immaterial
Panel A: Non-conservative overall materiality benchmarks			
10 per cent of income	237	87	36.71
1.5 per cent of greater of total assets (revenues)	237	136	57.38
Larger of income or assets (revenues)	237	146	61.60
Panel B: Conservative overall materiality benchmarks			
5 per cent of income	237	54	22.78
1 per cent of greater of total assets (revenues)	237	118	49.79
Larger of income or assets (revenues)	237	128	54.01
Panel C: Conservative tolerable misstatement benchmarks			
2.5 per cent of income	237	28	11.81
0.5 per cent of greater of total assets (revenues)	237	94	39.66
Larger of income or assets (revenues)	237	99	41.77

Table III.
Level 1 analysis across all restated years: planning materiality greater than the income restatement for each restated year (Immaterial)

materiality benchmark being considered. Panel A shows that of the 136 companies analyzed, 34 companies (25 per cent) have no year in which the restatement is material; similarly, the greater of total assets or revenues measure presents 49.26 per cent as immaterial. Panel B shows the results using conservative benchmarks, and the results are similar. Panel C reveals that even using the tolerable misstatements do not reveal

المنارة للاستشارات
www.mana

material amounts 7.35 per cent for 2.5 per cent of income and 30.15 per cent for 0.5 per cent of the greater of total assets or revenues.

Thus, the results presented in Table IV are consistent with those of Table III. A significant portion of corporate restatements in our sample have income statement effects less than the planning materiality benchmarks[18].

Level 3 results

Table V presents the results of our analysis on individual companies of the aggregated income restatement. An immaterial result should be interpreted as a finding that for a particular company that restated one or more years, the accumulated effect on retained earnings of all years involved with the restatement is less than the materiality benchmark being considered. The results presented in Table V are very similar to those in Table IV.

Limitations and conclusions

Several limitations of our study should be noted. First, we use the AICPA materiality guidelines to approximate the unknown true planning materiality level. Given that accounting firms may or may not follow the standard guidelines in determining the planning materiality level, the materiality threshold applied could be either significantly higher or lower than that based on the standard guidance.

Second, it is important to realize that our study emphasizes quantitative planning materiality benchmarks, despite the fact that full and complete reliance on quantitative standards has probably never been considered acceptable. Thus, to the extent that a misstatement with significant qualitative aspects is involved (e.g. a related party transaction involving management that might be misreported), our approach does not capture such qualitative aspects. A third limitation is that the analysis only relates to income effects. A number of restatements do not affect income.

Fourth, our study does not address the possibility that companies may restate financial statements with restatements they consider immaterial. That is, to the extent that companies find what seem to be relatively small misstatements, they might simply restate the financial statements so as to avoid any question as to materiality. Also, our approach does not directly address specific market reactions to various sizes of restatements. Thus, for example, if a particularly small dollar restatement does not

	Total companies analyzed	Number immaterial	Percent immaterial
Panel A: Non-conservative overall materiality benchmarks			
10 per cent of income	136	34	25.00
1.5 per cent of greater of total assets (revenues)	136	67	49.26
Larger of income or assets (revenues)	136	71	52.21
Panel B: Conservative overall materiality benchmarks			
5 per cent of income	136	16	11.76
1 per cent of greater of total assets (revenues)	136	57	41.92
Larger of income or assets (revenues)	136	61	44.85
Panel C: Conservative tolerable misstatement benchmarks			
2.5 per cent of income	136	10	7.35
0.5 per cent of greater of total assets (revenues)	136	41	30.15
Larger of income or assets (revenues)	136	43	31.62

Table IV. Level 2 analysis by individual restating company: planning materiality greater than the income restatement for each restated year (immaterial)

المنارة للاستشارات
www.mana

result in a market reaction, this may indicate that management's restatement is not considered material by either the market or the auditor.

Subject to the above limitations, we find that using the quantitative guidance currently available in the *AICPA Audit and Accounting Manual* (2005) and our most conservative materiality approach, the restatements identified by the GAO are immaterial 12 per cent of the time using 5 per cent of income, and 42 per cent using 1 per cent of the greater of total assets and revenues in our analysis that considers whether one or more years for a particular company restatement were material (level 2 analysis).

Given these results, and given that the same materiality benchmarks are used in practice (Messier *et al.*, 2005) and continue to be included in the most recent version of the AICPA's *Audit and Accounting Manual* (2005), the profession might investigate further whether they are appropriate. A significant finding here is that planning materiality measures based on the larger of total assets or revenues, on an overall basis, tend to result in many more immaterial findings than do income based measures. Thus, the auditor who uses measures of the larger of total assets or revenues is on average performing an audit with a higher materiality (tolerable misstatement) measure. A reconsideration of materiality thresholds could lead the AICPA to update their *Audit and Accounting Manual* (2005) or to incorporate guidance into the professional standards as these do not reflect Staff Accounting Bulleting (SAB) 99 and other authoritative sources. Indeed, an early draft of SAS No. 107 included limited quantitative guidance[19], yet consideration of the propriety of any levels of such guidance is necessary. Guidance on circumstances in which income-based vs asset or revenue based measures are appropriate might lead to a greater consistency in the use of the materiality concept. Certainly, income measures become difficult to apply in a meaningful manner for companies at or near the breakeven point. Yet, guidance might be possible on whether asset or revenue based measures which result in higher materiality measures for profitable companies are appropriate.

Simply providing lower benchmarks for auditors is not an easy solution. To the extent that auditors use these benchmarks when determining the scope of audit tests, revising them has significant ramifications for audit planning and the cost of an audit. Changes that lower planning materiality could substantially increase the scope of audit procedures and, by extension, the cost of an audit. Also, one must bear in mind that when income measures are used for our sample the great majority of restatements are considered material.

	Total companies analyzed	Number immaterial	Percent immaterial
Panel A: Non-conservative overall materiality benchmarks			
10 per cent of income	136	36	26.47
1.5 per cent of greater of total assets (revenues)	136	65	47.79
Larger of income or assets (revenues)	136	70	51.47
Panel B: Conservative overall materiality benchmarks			
5 per cent of income	136	20	14.71
1 per cent of greater of total assets (revenues)	136	55	40.44
Larger of income or assets (revenues)	136	58	42.65
Panel C: Conservative tolerable misstatement benchmarks			
2.5 per cent of income	136	15	11.03
0.5 per cent of greater of total assets (revenues)	136	43	31.62
Larger of income or assets (revenues)	136	45	33.09

Table V. Level 3 analysis by individual restating company: planning materiality greater than the aggregated income restatement for all restated years (immaterial)

المنارة للاستشارات
www.mana

Future research could explore the tradeoff between the cost of restatements of the restatement company and its investors and the cost of additional auditing. This could help provide insights on the setting of planning levels of materiality. Another future research area is to investigate the firms with restatement below the preliminary materiality levels compared to those above. Some comparisons of interest might include auditor type, financial condition of the years of restatements and corporate governance characteristics that could relate to the quality of financial reporting. Finally, future research could attempt to address more precisely the effect on market reactions of various sizes of restatements. Efforts in both of these areas, investigating characteristics of companies making restatements for relatively small amounts and their market reactions, may provide additional insights into the setting of planning levels of materiality.

Notes

1. In this paper, based on the term's usage in SAS No. 107 (AICPA, 2006a), we use the word benchmarks. The term rules of thumb has also often been used and is interchangeable with our use of benchmarks.
2. There has been extensive research on market reactions to restatements. Recent studies include Dechow *et al.* (1996), Turner *et al.* (2001), Wu (2002), GAO (2003), Anderson and Yohn (2002) and Palmrose *et al.* (2004). Dechow *et al.* (1996) find −6 per cent return for restatement with SEC enforcement. Turner e*t al.* (2001) report returns ranging from −5 to −12 per cent depending on the reasons for misstatements. Wu (2002) document returns of −11 per cent while GAO (2003, p. 26) report an average decrease in market capitalization of 9.5 per cent when a restatement occurs. Anderson and Yohn (2002) find −3.8 per cent returns. Palmrose *et al.* (2004) document an average abnormal return of about −9 per cent.
3. Consistent with this, both SAS 47 (in effect during the period sampled), and its replacement SAS 107, emphasize that while qualitative factors may be considered when considering materiality at the planning stage of the audit, the emphasis in on quantitative factors such as those considered in this paper.
4. In 2004, the General Accounting Office changed its name to the GAO.
5. The GAO suggests, for purposes of its analysis, a restatement occurs when a company, either voluntarily or prompted by auditors or regulators revises public financial information that was previously reported (GAO, 2006, p. 1). While this includes misstatements, it does not include revision of financial statements due to factors such as a change in accounting principles.
6. A related possibility for not identifying misstatements exists if one concludes that the complexity of accounting guidance in an area may lead to mistakes of application. That is, while the auditors (or management) may have been aware of the situation, they might not have identified it as a departure from generally accepted accounting principles.
7. In 2006, the SEC released SAB No. 108 (2006), which modifies guidance provided for materiality judgments and restatements. The standard is not directly relevant to our paper in that our sample relates to periods prior to the standard's implementation.
8. Staff Accounting Bulletin No. 99, Materiality (SEC, 1999), and SAS No. 47 point out that in addition to quantitative factors, qualitative factors are important, particularly for making materiality judgments when evaluating an identified misstatement. The emphasis for materiality during planning is on a quantitative measure. But, while emphasizing the use materiality benchmarks, SAS No. 107 also points out that in developing an overall audit strategy the auditor should consider any particular needs of investors (i.e. make qualitative considerations). But the emphasis during planning remains on quantitative benchmarks.

المنارة للاستشارات
www.mana

9. The difficulty with using net income may be seen when using the following assumed income stream for a company: 2002 – \$2,000,000; and 2003 – \$50,000.
   A planning materiality of 10 per cent would result in levels of \$200,000 and \$5,000 respectively for the two years. Yet, a much more detailed audit would be necessary in 2003 due to the much lower level of planning materiality.
10. Since the data was more complete for corrections on an after-tax basis, we collected net income data for each company in our sample. This does not affect the net income measures since as long as a consistent approach of pre or post tax measures is used, the results do not change.
11. To adjust for the tax effect, we use 40 per cent income tax rate and adjust the materiality calculation as follows:

$$\text{Tax adjusted 1.5\% asset/revenue materiality} = 1.5\% * (1 - 40\%) * \text{Assets/Revenue.}$$

   We use a 40 per cent income tax rate as an estimate of the total of the combined federal and state income tax rate (the federal rate is 35 per cent, while state income tax rates vary).
12. Using the smaller of the two benchmarks is often impractical, since as discussed in Footnote 8, basing materiality on very low levels of income results in extremely low materiality measure for companies operating near the breakeven point.
13. Our use of the term immaterial must be interpreted cautiously since, as indicated earlier in the paper, it includes no consideration of qualitative aspects of misstatements. We use the term simply to indicate that the materiality benchmark is quantitatively larger than the misstatement of income.
14. The restatement announcements cover restatements on financial statements from year 1995 to 2002.
15. The missing companies include those with no restatement information reported in SEC filings, foreign companies and companies with incomplete financial information of assets, sales and income.
16. The restatement data is hand collected from 10-K or 8-K instead of using the Compustat database. The reason can be illustrated in the following example: Company A restated its 1997 income (\$5 million) twice: one in year 2000 (\$7 million) and one in year 2002 (\$10 million). To get the restatement amount(\$2 million) for 2000 restatement, we need to compare the originally reported 1997 income (\$5 million) and the restated income reported in year 2000 (\$7 million). To get the restatement amount(\$3 million) for 2002 restatement, we need to compare the restated income reported in year 2002 (\$10 million) with the restated income reported 2000 income (\$7 million). Compustat does not report historical restatement amount. That is the reason we have to hand collect all the data from SEC filing for each restatement.
17. We tested the differences in the means and medians on assets, revenues and income of our sample and the overall population. None of the differences is significant.
18. The most common reasons for restatements in our sample include: revenue recognition (34.18 per cent of our sample), cost or expense (15.19 per cent) and restructuring assets or inventory (13.08 per cent). Other reasons for restatements include: acquisitions and mergers, related party transactions, securities related, tax related and other or unspecified reasons. We also examined the subsample of restatement due to revenue recognition and the subsample of restatement due to cost or expense. The results correspond to our main results presented in Tables III and IV.
19. The guidelines were similar to those we test, with the exception that 0.5 per cent of the larger of total assets or revenues was considered. Even in that situation, the larger of total assets or revenues dominates income measures in our sample. For example, greater than 50 per cent of the differences remain immaterial.

المنارة للاستشارات
www.mana

References

American Institute of Certified Public Accountants (AICPA) (2001), *Audit Sampling, AICPA Audit Guide*, AICPA, New York, NY.

American Institute of Certified Public Accountants (AICPA) (2005), *AICPA Audit and Accounting Manual*, AICPA, New York, NY.

American Institute of Certified Public Accountants (AICPA) (2006a), "Audit risk and materiality in conducting an audit", *Statement on Auditing Standards No. 107* (March).

American Institute of Certified Public Accountants (AICPA) (2006b), *Codification of Statements on Auditing Standards*, AICPA, New York, NY.

Anderson, K.L. and Yohn, T.L. (2002), "The effect of 10-K restatements on firm value, information asymmetries, and investors' reliance on earnings", working paper, Georgetown University, Washington, DC.

Brody, R.G. Lowe, D.J. and Pany, K. (2003), "Could $51 million be immaterial when Enron reports income of $105 Million?", *Accounting Horizons*, Vol. 17 No.2, pp. 153-60.

Chewning, G., Pany, K. and Wheeler, S. (1989), "Auditor reporting decisions involving accounting principle changes: some evidence on materiality thresholds", *Journal of Accounting Research*, Vol. 27 No. 1, pp. 78-97.

Dechow, P.M., Sloan, R.G. and Sweeney, A. (1996), "Causes and consequences of earnings manipulation: an analysis of firms subject to enforcements actions by the SEC", *Contemporary Accounting Research*, Vol. 13, pp. 1-36.

Financial Accounting Standards Board (FASB) (2006), *Current Text: Accounting Standards*, online version.

Geary, K.M. and Ricketts, J.B. (1992), "Materiality guidelines for reporting on a lack of consistency", *Ohio CPA Journal*, Vol. 51 No. 2, p. 28.

General Accounting Office (GAO) (2003), "Financial statement restatements: trends, market impacts, regulatory responses, and remaining challenges", 17 January, available at: www.gao.gov

General Accountability Office (GAO) (2006), "Financial restatements: update of public company trends, market impacts, and regulatory enforcement activities", 24 July, available at: www.gao.gov

Gist, W.E. and Shastri, T. (2003), "Revisiting materiality", *The CPA Journal*, November.

Holstrum, G.L. and Messier, W.F. (1982), "A review and integration of empirical research on materiality", *Auditing: A Journal of Practice and Theory*, Vol. 2 No. 1, pp. 45-63.

Huron Consulting Group (2003), "An analysis of restatements matters: rules, errors, ethics, for the five years ended 31 December 2002", available at: www.huronconsultinggroup.com

Icerman, R. and Hillison, W. (1991), "Disposition of audit detected errors: some evidence on evaluative materiality", *Auditing: A Journal of Practice and Theory*, Vol. 10 No. 1, pp. 22-34.

Iskander, T. and Iselin, E. (1999), "A review of materiality research", *Accounting Forum*, Vol. 23 No. 3, pp. 209-39.

Jennings, M., Kneer, D.C. and Reckers, P.M.J. (1987), "A reexamination of the concept of materiality: views of auditors, users, and officers of the court", *Auditing: A Journal of Practice and Theory*, Vol. 6 No. 2, pp. 104-15.

Krogstad, J.L., Ettenson, R.T. and Shanteau, J. (1984), "Context and experience in auditors' materiality judgments", *Auditing: A Journal of Practice and Theory*, Vol. 4 No. 1, pp. 54-73.

Messier, W.F. Jr (1983), "The effect of experience and firm type on materiality/disclosure judgments", *Journal of Accounting Research*, Vol. 21 No. 2, pp. 611-8.

المنارة للاستشارات

www.mana

Messier, W.F. Jr, Martinov-Bennie, N. and Eilifsen, A. (2005), A review and integration of empirical research on materiality: two decades later", *Auditing: A Journal of Practice and Theory*, Vol. 24 No. 2, pp. 153-87.

Nelson, M.W., Smith, S. and Palmrose, Z.V. (2005), "The effect of qualitative materiality approach on auditors' adjustment decision", *The Accounting Review*, July, p. 897.

Palmrose, Z.-V., Richardson, V.J. and Scholz, S. (2004), "Determinants of market reactions to restaatment announcements", *Journal of Accounting and Economics*, Vol. 37, pp. 59-89.

Pany, K. and Wheeler, S. (1989a), "A comparison of various materiality rules of thumb", *The CPA Journal*, June, pp. 62-3.

Pany, K. and Wheeler, S. (1989b), "Materiality: an inter-industry comparison of the magnitude and stability of various quantitative measures", *Accounting Horizons*, Vol. 3 No. 4, pp. 71-8.

Pany, K. and Wheeler, S. (1992), "A test of the analytical procedure effectiveness", *The CPA Journal*, Vol. 62 No. 6, pp. 64-7.

Securities and Exchange Commission (SEC) (2006), *Staff Accounting Bulletin No. 108*, US Printing Office, Washington, DC, 13 September.

Securities and Exchange Commission (SEC) (1999), *Materiality. SEC Staff Accounting Bulletin No. 99*, US Printing Office, Washington, DC, 12 August.

Turner, L. (2002), "Hearing on accounting and investor protection issues raised by Enron and other public companies: oversight of the accounting profession, audit quality and independence, and formulation of accounting principles", 26 February, available at: http://banking.senate.gov/02_02hrg/022602/turner.htm

Turner, L., Dietrich, J.R., Anderson, K. and Bailey, A.J. (2001), "Accounting restatements", working paper, SEC, Washington, DC.

Tuttle, B., Coller, M. and Plumlee, R.D. (2002), "The effect of misstatements on decision of financial statement users: an experimental investigation of auditor materiality thresholds", *Auditing: A Journal of Practice and Theory*, Vol. 21 No. 1, pp. 1-27.

Wheeler, S. and Pany, K. (1990), "Assessing the performance of analytical procedures: a best case scenario", *The Accounting Review*, Vol. 65 No. 3, pp. 557-78.

Whittington, R. and Pany, K. (2008), *Principles of Auditing and Other Assurance Services*, McGraw-Hill Irwin, New York, NY.

Wu, M. (2002), "Accounting restatements: a capital market perspective", unpublished working paper, New York University, New York, NY.

Further reading

Financial Accounting Standards Board (FASB) (1980), "Qualitative characteristics of accounting information", *Statement of Financial Accounting Concepts No. 2*, FASB, Norwalk, CT.

Kinney, W.R., Burgstahler, D. and Martini, R. (2002), "Earnings surprise "materiality" as measured by stock returns", *Journal of Accounting Research*, Vol. 40 No. 5, pp. 1297-1329.

About the authors

Hanmei Chen is a doctoral candidate in the School of Accountancy, W.P. Carey School of Business of Arizona State University. She earned her Bachelor and Master degrees from Tsinghua University, Beijing, China. Prior to joining ASU she worked in auditing for the Beijing office of KPMG.

Kurt Pany, CPA is Professor of Accounting at School of Accountancy, W.P. Carey School of Business of Arizona State University. He received his BS, MBA and PhD degrees from the University of Arizona, the University of Minnesota and the University of Illinois, respectively. He has also served as a staff accountant with Arthur Andersen and Touche Ross, and as an academic fellow with the American Institute of Certified Public Accountants. Professor Pany has

المنارة للاستشارات
www.mana

published articles on auditing in such journals as *The Journal of Accounting Research, The Accounting Review, Auditing: A Journal of Practice & Theory, The Journal of Accountancy*, and *The CPA Journal*. He is a member and has served on various committees of the American Accounting Association, the American Institute of Certified Public Accountants and the Arizona Society of Certified Public Accountants.

Jian Zhang is Assistant Professor of Accounting at San Jose State University. She received her Bachelor and Mater degrees from Tsinghua University, Beijing, China and PhD degree from Arizona State University. She also served as a staff auditor with Deloitte Touche Tohmatsu. Jian Zhang is the corresponding author and can be contacted at: zhang_j@cob.sisu.edu

To purchase reprints of this article please e-mail: **reprints@emeraldinsight.com**
Or visit our web site for further details: **www.emeraldinsight.com/reprints**

المنارة للاستشارات

www.mana

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

المنارة للاستشارات

www.manaraa.com