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THE IMPACT OF MATERIALITY: ACCOUNTING'S BEST KEPT SECRET

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ABSTRACT

This paper comprises a review of the literature on materiality in accounting. The paper starts by examining the context in which materiality is relevant, and the problems arising from applying the concept in practice. Definitions of materiality from legal, accounting and stock exchange sources are compared. The relevance of materiality to various accounting situations is discussed. Methods of calculating quantitative thresholds are described and illustrated. Prior research is reviewed, focussing on materiality thresholds, and on the materiality judgments of auditors, preparers and financial statement users. The paper concludes with some suggestions for future research and for policy makers concerning this best kept accounting secret.

Keywords: materiality definitions, materiality thresholds, materiality rules of thumb, materiality judgments

INTRODUCTION

The issue of materiality became topical after U.S. Securities and Exchange Commission (SEC) Chairman Arthur Levitt's (1998) *Numbers Game* speech in which, using the term *"accounting hocus-pocus"*, he referred to the *"immaterial misapplication of accounting principles"*.

But the concept of materiality is one of the most critical in accounting both in terms of how items are accounted for, and how financial statements are audited. The Financial Accounting Standards Board (FASB, 1975) acknowledges

this by stating *"If presentations of financial information are to be prepared economically on a timely basis and presented in a concise intelligible form, the concept of materiality is crucial"*. Notwithstanding its importance, the concept does not appear to be well understood nor the implications of its application in practice.

This paper examines the relevance of materiality judgments in financial reporting and auditing. Legal, professional accounting and stock exchange definitions of materiality are compared. Methods of calculating materiality are described. Research on materiality is reviewed, and the paper concludes with some suggestions for future research and for policy makers.

Company law requires directors to lay before the annual general meeting an income statement and a balance sheet. Directors are responsible for preparing financial statements that give a "true and fair view" (U.K. wording) or for "presenting fairly, in all material respects" the financial statements (U.S. wording). Auditors are responsible for auditing the financial statements and reporting whether, in their opinion, the financial statements give a "true and fair view" or "are presented fairly in all material respects".

An audit is an independent review of the financial statements. The output of an audit is the auditors report on the financial statements in which auditors express an opinion on whether the accounts give a "true and fair view". The audit report is not a certificate – auditors do not certify the financial statements. A "clean" audit report does not guarantee the accuracy of the financial statements – as the auditors do not examine 100% of the transactions of the company. It is not the function of an audit to detect fraud (although fraud may come to light during an audit). Further, auditors give no opinion on the viability of the business.

Company law requires accounts to give a "true and fair view". Company law requires auditors to report on whether accounts give a "true and fair view". But what do these terms mean? They are not defined by legislation, or by the accounting profession. As a result, it is subject to considerable uncertainty and is therefore the most difficult and judgmental aspect of auditors' responsibilities. The auditing profession acknowledges this uncertainty as follows:

> A degree of imprecision is inevitable in the preparation of all but the simplest of financial statements because of inherent uncertainties and the need to use judgment in making accounting estimates and selecting appropriate accounting policies. Accordingly, financial statements may be prepared in different ways and yet still present a true and fair view. (Auditing Practices Board, 1995a, para 4)

However, many investors may not understand that *"financial statements may be prepared in different ways and yet still present a true and fair view."*

What is the purpose of an audit? The auditing profession's definition of an audit shown below highlights the imprecision and uncertainly associated with auditing.

> *An audit … is designed to provide reasonable assurance that the financial statements taken as a whole are free from material misstatement*. (Auditing Practices Board, 1995a, para 8)

In particular, a number of terms in this definition should be noted:

- The audit provides *"reasonable assurance"* only
- The audit opinion is only on financial statements *"taken as a whole"*
- The audit opinion should not be interpreted as implying that the financial statements are *"free from…misstatement"*
- The audit opinion only indicates that the financial statements are free from *"material"* misstatement

Compounding this imprecision and uncertainty around auditing is the profession's own description of an audit.

> Auditors *"carry out procedures designed to obtain sufficient appropriate audit evidence … to determine with reasonable confidence whether the financial statements are free of material misstatement"*. (Auditing Practices Board, 1995a, para 2)

The concept of materiality (in effect) builds flexibility into financial reporting. This can lead to abuse. Companies may intentionally record "small" errors within a defined percentage ceiling, so that auditors will not scrutinize such errors (as they are not material). Management excuse errors by arguing that the effect on the bottom line is so small as not to matter – it is immaterial. These small errors can build up and mislead the stock market and other stakeholders e.g. lenders, employees, creditors. This is illustrated by the quote below in relation to the Enron audit.

> The remainder of the earnings reductions of $92 million from 1997 through 2000 came from what Enron called "prior year proposed audit adjustments and reclassifications"… recommended by Arthur Andersen, Enron's auditors, but not made because the auditors were persuaded the amounts were immaterial. (Oppel & Sorkin, 2001)

DEFINITIONS OF MATERIALITY

The previous section has seen the fundamental importance of materiality to accounts preparation and in auditing. It is also a central concept in law, especially in the prosecution of white-collar crime. But what does the term mean? What follows is a comparative analysis of various definitions of materiality in both legal and in professional accounting regulations with the object of enhancing our understanding of the term. Price and Wallace (2002) carry out a more extensive analysis than provided in this paper of regulations around materiality. They conducted a content analysis of standards dealing with materiality applicable to not-for-profit and public sector organisations across five countries. Broad conceptual and legal dimensions of the regulations were compared.

Definitions of materiality from various sources are summarized in Table 1. Definitions vary around three aspects: (a) the subject of the definition, (b) magnitude/probability (degree of uncertainty involved) and, in the context of securities litigation, (c) the impact on capital markets. What is noticeable is that neither statute/common law, professional accounting requirements nor the SEC provides a precise definition of materiality.

Legal Definitions of Materiality

The relevance of materiality in law relates to whether court findings should be influenced by the materiality of the crime. Statutes must specify that materiality be taken into account for it to be considered relevant to court findings, although some common law has been invoked to infer a materiality requirement in relation to the crime. In U.S. statutes, materiality is an element in false statement and fraud statutes. Podgor (2005, p. 311) discusses a number of definitions of materiality in U.S. statutes. The term was only first defined by the U.S. Supreme Court in 1976 in *TSC Industries, Inc. v. Northway, Inc.* 426 US 438, 449 (1976) (Fedders, 1998).

Professional Accounting Definitions of Materiality

In financial reporting, definitions of materiality are important to three groups of stakeholders: preparers of financial statements, auditors, and users of financial statements. Although materiality decisions are made by only two of these three groups, preparers and auditors, the auditing profession's definitions of materiality have a user-orientation. Judgments of users of financial statements are central to the definition, not judgments of preparers (even though it is preparers who make the judgments).

These definitions beg a number of questions:

- How do preparers or auditors know what would reasonably influence decisions of users?
- Are preparers' or auditors' understandings of this phrase the same or consistent with those of users of financial statements?
- Are preparers' or auditors'/users' understandings of this phrase the same or consistent from preparer to preparer; auditor to auditor; user to user?

Materiality Stakeholders

Definitions of materiality (see Table 1) refer to subjects of the definition variously as decision-making body, recipient [of information], user of financial statements, reasonable investor/person/man, addressee of the auditor and average prudent investor. The most common phrase is "reasonable". For example, SEC chief accountant Turner (2000) has said that "The real test is whether the information would make a difference when considered by a reasonable person." Legal scholars have questioned this definition (Jeffries, 1981; Jennings, Reckers & Kneer, 1985; Langevoort, 2002; Huang, 2005).

Clarity is required first on what is a reasonable investor before the issue of materiality of information can be teased out. Langevoort (2002) argues that the definition of materiality should be tied to what is commonplace or normal as opposed to idealized investors. By way of example, he refers to small adjustments to earnings having irrational market over-reactions which he suggests may act as market wake-up calls, correcting irrational market distortions. He calls for the definition of materiality to be tied to likely market reaction rather than that of a reasonable investor.

Huang (2005) calls for a change in legal thinking in relation to reasonable investors and what it means for information to be material. He argues that rather than being rational, investing in capital markets can be non-rational or what he calls "moody". Huang further argues that the existence of moody investing requires a new definition of materiality which takes account of the presentation and emotional content of information and its influence on investors. He says that a reasonable investor should be considered in terms of a realistic depiction of actual behaviour, rather than a normative idealized type of behaviour. Finally, acknowledging that the way in which information is presented (in terms of imagery, form or presentation and emotion content) can evoke an emotional response, he calls for the definition to take account of the degree or vividness of mental imagery used.

Table 1

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Uncertainty

The courts have also provided some guidance on the level of uncertainty applicable in the materiality decision. U.S. courts have stated that materiality "*will depend at any given time upon a balancing of both the indicated probability that the event will occur and the anticipated magnitude of the event in light of the totality of the company activity."* [*SEC v. Texas Gulf Sulphur Co.*, 401 F.2d 833, 849 (2d Cir. 1968)]. Brudney (1989) discusses the issue of materiality and uncertainty in relation to soft or future-oriented information. Huang (2005) calls for the definition of materiality to include the magnitude of risky outcomes.

To conclude, there are a number of different definitions of the term materiality, all with different nuances of meaning. Jennings et al. (1985, p. 640) quote Judge Learned Hand *"We have to deal with words, there is nothing more fluid than words"*. Related to this point, Jeffries (1981, p. 13) has said:

> It is becoming more and more common for the judicial system to make decisions on accounting matters that are in conflict with what has been accepted within the accounting profession. Unfortunately the accountant has a great deal to lose if the judicial system disagrees with his decision on what was and was not material.

RELEVANCE OF MATERIALITY IN PROFESSIONAL ACCOUNTING

Items disclosed in financial statements are often determined by their materiality. Thus, the content of financial statements is, in part, as a result of judgments exercised around materiality. Materiality is also relevant in auditing, both in planning the audit and designing audit procedures, and in evaluating whether the financial statements are fair and comply with generally accepted accounting principles. Auditing involves testing a sample of transactions or items from which is derived an acceptable level of assurance of detecting misstatements. The extent of testing is determined by the choice of materiality level to be applied in audits.

The sequence of materiality decisions is illustrated in Figure 1. At the start of the annual financial reporting audit cycle, company management and auditors will *independently* choose a materiality level to apply in preparing the financial statements and in auditing those financial statements, respectively. Management must then apply its chosen materiality level in preparing the financial statements. Management must first make a materiality decision, which should be done without consultation with the auditors. One could argue that to do

otherwise could amount to a minor version of opinion shopping: How far are the auditors willing to go with this? Then the auditors apply their chosen materiality level in auditing those financial statements. Thus, management rather than the auditor must first conclude on materiality (Taub, 2004).

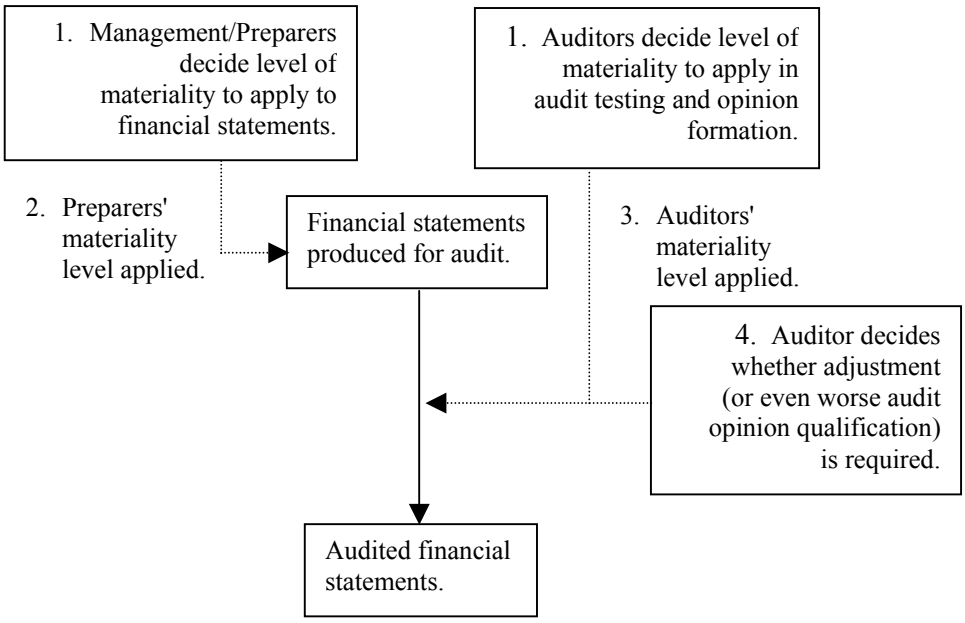

Figure 1. Four-stage materiality decision process in financial reporting cycle

As has been discussed earlier, materiality is relevant in legal and in professional accounting situations. The particular circumstances where it is relevant are now discussed. Four situations in professional accounting are considered. Materiality is relevant in deciding whether or not to disclose an item and to adjust an error or misstatement in the published financial statements. More importantly, materiality is critical in determining the amount of work carried out during the audit. It also influences the nature of the audit opinion provided, where other than a clean opinion is required.

Disclosures in Financial Statements

Accounting regulations (legal and professional accounting) distinguish between material and immaterial items and apply different rules, approaches and requirements to the two categories. This distinction is especially important in determining what will or will not be disclosed in the financial statements. For example, accounting standards require companies to disclose accounting policies

for material items only. For example, accounting regulations only require material contingent liabilities to be disclosed.

Unadjusted Errors in Financial Statements

The decision not to adjust the financial statements for an error is a management decision, not a decision of the auditors. U.S. auditing standards state: *"The measurement of the effect, if any, on the current period's financial statements of misstatements uncorrected in prior periods involves* ***accounting considerations*** *[emphasis added]…"* [American Institute of Certified Public Accountants (AICPA), 1984, para 30]. The error may represent a material misstatement alone or in combination with other errors.

Determinant of Audit Effort

The amount of audit effort is a function of the level of materiality applied in the audit (Blokdijk, Drieenhuizen, Simunic & Stein, 2003). There is a cost-benefit trade-off here. Lower levels of materiality cost more because they require more audit effort, but more accounting errors may be discovered resulting in more accurate financial statements. It is not clear that the additional cost of the audit effort from reducing materiality levels is to the benefit of investors.

Determinant of Audit Opinion

The level of materiality may also influence the audit opinion because the audit opinion is a function of whether relevant items are material or immaterial.

PROFESSIONAL GUIDANCE ON EVALUATING MATERIALITY

Little guidance is provided in financial accounting standards or in auditing standards on how to operationalize the concept of materiality. Materiality tends to be considered in quantitative terms only. However, in the 1970s the SEC introduced the notion of qualitative materiality (Fedders, 1998). Thus, illegal activities were considered material, even if their financial effect was not significant. Fedders (1998) concluded that in a courtroom context, the notion of qualitative materiality is unworkable. Levitt (1998) and the SEC (1999) have said that quantitative measures of materiality should not be slavishly adhered to (there is no *"bright line cutoff of three or five percent"*) and qualitative factors should be taken into account in determining what is material.

In 1999 the SEC issued Staff Accounting Bulletin (SAB) 99 providing guidance on how to evaluate materiality. SAB 99 reaffirms long-accepted concepts in auditing and accounting behind materiality, and focuses more on providing interpretative guidance for application particularly in complex situations. Principles to be applied include:

- Qualitative as well as quantitative considerations should be applied in judging whether an item is material or not
- Items must be evaluated collectively ("financial statements taken as a whole") as well as individually in determining whether an item is material
- An intentional misstatement may be illegal, even if it is not material

While this guidance resolved some issues, it has added confusion in other areas in relation to the analysis of qualitative and quantitative issues. *"Quantifying in percentage terms the magnitude of a misstatement is only the beginning of an analysis of materiality; it cannot be appropriately used in substitute for a full analysis of all relevant considerations"*. (SAB 99, SEC 1999, p. 2).

SAB 99 states that quantitatively small misstatements may be material where they conceal a failure to meet analysts' expectations or where they convert a loss into a profit. Concern is expressed in particular at the practice of deliberately recording errors with a view to smoothing earnings to provide an artificial impression of their stability. The effect on investors is critical, and SAB 99 reminds accountants and auditors of the importance of considering this effect in deciding whether something is immaterial.

The International Federation of Accountants (IFAC) is also re-examining its guidance on materiality. Through its International Auditing and Assurance Standards Board (IAASB), it published an exposure draft in December 2004 to revise ISA 320 *Audit Materiality* (IFAC, 2004). The exposure draft not only considers the size of an item, but also its nature and the circumstances of the entity when determining materiality and evaluating misstatements.

Basis on Which to Assess Materiality

The choice of materiality level will be influenced by the choice of appropriate base for calculating materiality and selection of the percentage rate to multiply by that base (Steinbart, 1987). The most common basis on which to assess materiality is some measure of income. Usually the income amount is "normalized" in some way. Gleason and Mills (2002) find that usage of normal

income is more prevalent than current period measures of income. Firstly, income is taken as operating income from continuing operations. This amount is usually adjusted for unusual nonrecurring events (Vorhies, 2005). This measure is problematic for loss-making firms, and for firms with low incomes. Gleason and Mills (2002) used alternative benchmarks against which materiality may be assessed including:

- Total assets
- Income for profit-making firms (including low-income firms) and 5% of assets for loss-making firms
- Greater of income or 5% of assets (which Gleason and Mills call normal income)

Methods of Assessing Whether an Item is Material

There are a number of methods of assessing in quantitative terms whether an item is material or not. Two methods of assessing in quantitative terms whether an item is material are prevalent, one based on the balance sheet (cumulative method) and one based on the income statement (current period method). Examples 1 and 2 illustrate the two methods.

Current Period/Income Statement/Rollover Method of Assessing Materiality

The income statement method of assessing materiality is also called the current period or rollover method (as effects of prior period errors are rolled over to offset current period methods). In deciding whether an amount is material, the total amount during a period is compared to net income for the period. This method considers as an error amounts that have been recorded in the current period statements that should not have been.

Cumulative/Balance Sheet/Iron Curtain Method

This balance sheet method of assessing materiality is also called the cumulative or iron curtain method. In deciding whether an amount is material, the total cumulative amount at the end of a period is compared to net income. This method considers as the error the total amount which should have been recorded in both the current period and prior periods.

Comparison of Two Methods

Under the current period/income statement method, the error in Example 1 does not appear material in any one of the three years, but is material in year 4, the year of reversal. Conversely, under the cumulative/balance sheet method, the growing amount of the error is apparent (which as it grows may prompt adjustment) but the error does not appear material in year 4, the year of reversal. Both methods yield materially different accounts, yet both methods are used in practice and are accepted by auditors and regulators. Although this choice of method is a policy issue, the choice is never disclosed in (say) the accounting policies section of the financial statements.

Example 1: Cookie jar reserves

A company overstates expenses which has the effect of understating income by $(10) million per annum in years 1, 2 and 3. You are to assume that only amounts of $30 million or more are material. In year 4 the company reverses the error which increases the income by $30 million.

Question

1. What is the amount of the error in each year under the:
   i. Current period/income statement method of assessing materiality?
   ii. Cumulative/balance sheet method of assessing materiality?
2. In your assessment, is this error material?

Solution

	i. Current-period/ income state-ment method $m	**ii. Cumulative/ balance sheet method $m**
Effect on reserves – Year 1	Not material (10)	Not material (10)
Effect on reserves – Year 2	Not material (10)	Not material (20)
Effect on reserves – Year 3	Not material (10)	Material (30)
Reversal of effect – Year 4 on reserves	Material 30	Not material 0

Under the income statement method, the error is never material, and only becomes material in the year of reversal. Under the balance sheet method, the error becomes material in Year 3.

Source: Adapted from Nelson, Smith and Palmrose (2005)

Under the cumulative approach, the cutoff error in Example 2 is material, as it is stand alone, unaffected by Year 1 or Year 3 errors (thus the use of the term 'iron curtain' to describe this method). Under the current period method the cutoff error is not material because Year 1 and Year 2's cutoff errors are offset (thus the use of the term 'rollover' to describe this method).

Example 2: Cutoff error

A company records sales in the wrong accounting period (cutoff error). Sales in Year 1 includes $10 million of Year 2 sales. Year 2 sales includes $12 million of Year 3 sales.

Question

1. What is the amount of the error in Year 2 under the:
   i. Current period/income statement method of assessing materiality?
   ii. Cumulative/balance sheet method of assessing materiality?
2. In your assessment, is this error material?

Solution

i. Current-period/income statement method

	$
Effect on Year 2 sales revenue/income [(10)_{\text{Year 2 sales included in Year 1 in error}}$ + 12_{\text{Year 3 sales included in Year 2 in error}}$]	2 million

ii. Cumulative/balance sheet method

	$
Effect on sales revenue/income (only includes the error in Year 3 as the error in Year 1 has reversed by the end of Year 2)	12 million
Effect on debtors/accounts receivable (end of Year 2 error only)	12 million

The cumulative/balance sheet method yields the higher apparent error of $12 million compared with $2 million under the current period/Income statement method.

Source: Adapted from Nelson, Smith and Palmrose (2005)

Cutoff Rules of Thumb

In addition to the method of calculation, a number of rules of thumb prevail for determining thresholds, based on whether an item exceeds a certain percentage. The percentage is generally calculated as the item scaled by a benchmark such as income, or assets.

Brody, Lowe and Pany (2003) describe AICPA thresholds as being 5–10% of net income or pretax income; 1–1.5% of total assets; or 1–1.5% of

sales revenues. IFAC's (2004) illustrative rules of thumb include 5% of profit before tax from continuing operations, half of 1% of revenues (half of 1% of revenues/expenses for not-for-profits), or half of 1% of net asset value for mutual fund companies. In choosing a benchmark, IFAC requires auditors to take account of factors such as the element in the financial statements (assets, liabilities, equity, etc.), importance of the element to users, the nature of the entity and industry, size, ownership and financing of the entity.

Because there is a minimum amount that should be considered material, regardless of client size, sliding scale/curvilinear measures are also used which are increasing in firm size but at a decreasing rate. Petroni and Beasley (1996) use two materiality measures, the latter being a sliding scale measure: (i) the item (financial statement errors in this instance) scaled by total assets; and (ii) a KPMG planning materiality of 1.6 × (the greater of assets or net premiums) × two-thirds. They also refer in their paper to three common measures of the National Association of Insurance Commissioners: half of 1% of total assets, 5% of pre-tax profits and 1–5% of surplus.

Generally-speaking, rules of thumb based on percentage of income form the basis of materiality decisions, with more than 10% deemed to be material and items in the 4 to 5% of income range being treated as immaterial. It is assumed that the decisions of reasonable investors/persons would not be influenced by fluctuations in net income of 5% or less. Implicit in this assumption is that fluctuations of less than 5% of net income on individual line items in the income statement would also not influence decisions as long as the amount is less than 5% of net income (Vorhies, 2005). The SEC chief accountant has said *"...the use of simple quantitative cutoffs like 5%, or any other percent, as determining whether or not an item needed to be included or corrected is unacceptable"* (Turner, 2000). Kinney, Burgstahler and Martin (2002) suggest that materiality based only on comparisons of assets, revenues or other accounting variables is incomplete since the precision of earnings is not considered. They find that when earnings are highly predictable, small earnings surprises result in a disproportionately larger stock price reaction.

Example 3 illustrates the surprising consequences of applying such rules of thumb, especially when normalized rather than current income is used.

Example 3: Materiality in the case of Enron

Case details

- Enron had to correct accounts back to 1997
- Resulting in total reduction of Enron's audited profits by $591 million
- Correction for 1997, $51 million
- Reported profits in 1997, $105 million
- Adjustment resulted in reduction of reported profits by almost 50% to $54 million (from $105 million)

Question

Were the unadjusted audit items of $51 million in 1997 material?

Solution

The restatements included prior-period proposed audit adjustments and reclassifications, which were determined to be *immaterial* in the periods originally proposed.

Auditor decisions on materiality

- Primarily quantitative methods used to calculate materiality
- Rules of thumb used to quantify the threshold cutoff

Common rules of thumb

5–10% pre-tax income:	**1–1.5% of larger of:**
< 5% *normal* profit before tax immaterial	– Total assets; or
>10% profit before tax material	– Revenue
5–10% – auditor to apply judgment	

Justification for immateriality decision in Enron's case

- In 1997 Enron had taken large nonrecurring charges
- Given the large nonrecurring charges, should materiality be based on reported income of $105 million or on adjusted earnings before items that affect comparability – what accountants call normalized earnings?
- *"We looked at the total mix"* Joseph F Berardino, CEO Arthur Andersen

Source: Adapted from Brody, Lowe and Pany (2003)

RESEARCH ON MATERIALITY

Research on materiality falls into a number of categories: Influence of materiality on judgments of auditors (primarily) and financial statement users; Assessment of materiality levels/thresholds. Research methods applied include archival research (for example, using disclosures in annual reports, auditor opinions), experiments and laboratory studies, event studies and analytical models. Prior research is summarized in Table 2.

Size/Materiality Thresholds

Chewning, Pany and Wheeler (1989, p. 83) summarize prior empirical findings on materiality thresholds. Thresholds ranged from as high as 41% with items of 4 to 5% being immaterial. Chewning, Pany and Wheeler (1989, p. 81–82) also identify the method of measurement to assess materiality applied in prior research. The most common measure is net income, but book value of total assets/net worth, earnings growth, and leverage have also been used.

Macey, Miller, Mitchell and Netter (1991) provide tabular guides on the size of daily share price returns that are statistically significantly different from zero, providing rule of thumb numbers that vary depending on firm size, etc. This data can be applied to a single firm to determine the size of the daily share price return which in turn can provide an indicator of materiality.

Influences of Materiality on Judgments of Auditors, Preparers and Users

Prior research on materiality has attempted to identify the factors that most influence materiality judgments. Chewning et al. (1989) identify 14 factors found in prior research to be relevant to materiality decisions. Not surprisingly, an item's percentage effect on income has been found to be the most influential (Boatsman & Robertson, 1974; Moriarty & Barron, 1976; Bates, Ingram & Reckers, 1982; Holstrum & Messier, 1982; Chewning et al., 1989).

In order to derive implied materiality judgments, researchers must use transactions where both immaterial and material items are disclosed in the financial statements, a relatively rare situation.

Auditor Judgments

Auditors (and their materiality judgments) are the most common user group studied by researchers. Useful reviews of prior research on the influence of materiality on auditor decisions are provided by Moriarty and Barron (1976), Holstrum and Messier (1982) and Morris and Nichols (1988). The studies fall into two types: Those that model the behaviour of auditors in artificial experimental/laboratory settings, and those that attempt to derive insights into auditor judgments using publicly available information. Moriarty and Barron (1976), Bates et al. (1982) and Chewning et al. (1989) find that the effect of an adjustment on income is the primary determinant of auditors' decisions to qualify the audit opinion.

Bates et al. (1982) examine the relation between auditor rotation and materiality and found that long-term affiliation with an audit client can impair auditors' judgments. Chewning et al. (1989) find that income is the primary factor considered by auditors in arriving at decisions around what is material. Three decision situations were examined, and findings varied depending on context. Big 8 auditors had lower materiality thresholds than non-Big 8 auditors. Icerman and Hillison (1991) examine auditors' decisions to book or waive audit errors, and find that the decisions to book is not just a function of materiality (error size) but is also influenced by the audit-firm structure with more structured firms more likely to book an error.

In a study of Dutch auditors, Blokdijk et al. (2003) find that materiality is not a constant percentage of a base such as income but increases at a decreasing rate with client size. They also find Big 5 auditors to make more conservative materiality calculations than non-Big 5 auditors, consistent with the view that Big 5 audits are of higher quality. Where the client is closer to a breakeven result (small profit/loss), auditors were found to lower their materiality levels.

According to Nelson, Smith and Palmrose (2005), the SEC and SEC personnel have expressed concern that the two alternative materiality approaches described in Examples 1 and 2 could affect auditor judgments. Consequently, they investigate the influence of the two different approaches to calculating materiality on auditor judgments. In an experimental setting, they find that auditors require clients to record adjustments where the method applied shows the error to be most material. The authors call for regulators to require auditors to require their clients to adjust their financial statements where the adjustment is material under either method of calculating materiality.

In the light of increasing emphasis by standard setters on qualitative factors in materiality decisions, Brown (2005) examines auditor judgments and 12 different qualitative factors influencing materiality decisions. The qualitative factors were categorized between positive and negative, and weakly and strongly influencing. Auditors were asked to rank the importance of these factors and to indicate their effect on revising their materiality judgments.

Jennings et al. (1987), amongst others, find a lack of consensus amongst auditors in defining materiality. Moriarty and Barron (1976) attempt to explain prior research finding a lack of consensus among auditors' materiality decisions. Morris and Nichols (1988) find that nine publicly available financial measures explain a significant proportion of the variability of auditors' materiality judgments.

Preparer Judgments

Materiality is not an objective measure in the way that some of the methods discussed earlier might imply. Interpretations of materiality vary and depend on particular circumstances. As far back as 1967 Bernstein wrote about this in the context of extraordinary items. Only transactions (in aggregate) that were material were to be treated as extraordinary. Yet Bernstein (1967, p. 86) found practice to be highly varied such that *"...size of an item in relation to net income appears hardly to have any important effect…"*. Rather whether the item was a debit or expense influenced whether the transaction was included in income or treated as extraordinary and taken directly to reserves. Bernstein put this down to a lack of definition of materiality.

Gleason and Mills (2002) examine disclosure of contingent tax liabilities and make inferences around the materiality decisions of preparers. They find that disclosure increases with size of contingent loss. A threshold size of disclosure is not obvious, but only the largest claim triggers disclosure. Many firms do not use the usual 5% of income materiality benchmark, but Gleason and Mills find that that probability of disclosure increases with size of contingent liability (i.e. with materiality). More than expected disclosures are found where the item has a balance sheet effect, and less than expected disclosures when it has an income effect. Generally speaking, firms tend to under-disclose items exceeding 5% of income/assets benchmarks. They find preparer materiality decisions are influenced by likelihood of litigation, with firms in litigious industries more likely to disclose.

Based on a survey of auditors, Nelson, Elliott and Tarpley (2002) compared managers' and auditors' materiality judgments. They find that behaviour of both parties is influenced by whether the transaction is structured and by whether there is a precise accounting standard governing the transaction.

Investor judgments

Tabak and Dunbar (2001) point out that materiality can be objectively determined using event studies. If an event is material to investors, it should move stock prices. This provides a methodology for inferring materiality judgments of investors.

Chewning, Wheeler and Chan (1998) compare investor and auditor judgments about materiality. They use a methodology that allows them to infer their implied judgments from the data. In an archival-based approach, they examined the classification of gains (from equity-for-debt swaps) as ordinary or

extraordinary and derive an implied auditor materiality judgment by comparing amounts with income. They also examine the strength of the capital markets response to the announcement of the equity-for-debt swaps to derive implied investor materiality judgments, with a view to comparing these with auditors' judgments. Classification of gains as extraordinary/ordinary closely follow percentage-of-income materiality rule of thumb (less than four percent classified as ordinary, more than 10% classified as extraordinary). They find auditor and investor judgments to be similar.

Kinney et al. (2002) examine materiality from the perspective of immaterial earnings adjustments that may have economically important stock price effects. Evidence on the relation between earnings surprises and stock prices provides evidence on the potential effects of accounting misstatements on investors' decisions, and this allows a derivation of materiality from a user's perspective. They find that small earnings surprises have a disproportionately large effect on stock returns, and that the marginal effect of earnings surprises on returns is larger for small sized surprises.

TABLE 2
PRIOR RESEARCH ON MATERIALITY: AUDIT JUDGMENT RESEARCH

Paper	**Method**	**Item**	**Result**
Frishkoff (1970)	Analysis of 190 auditor opinions	Auditors' opinions on consistency[1]	Materiality was most significant classificatory variable.
Newton (1977)	Survey experiment with 19 CPAs	Influence of degree of uncertainty on materiality decisions	Materiality decisions were influenced by uncertainty, and the probability that an event will occur.
Bates, Ingram and Reckers (1982)	Survey experiment with 67 CPAs	Disclosure of lawsuit contingency	Materiality level was greater where there was no auditor rotation.
Jennings, Kneer and Reckers (1987)	Survey experiment with 56 judges, 90 lawyers, 121 CPAs	Variety of materiality judgment decisions	Lack of consensus on materiality assessment among various user groups.

(Continued on next page)

TABLE 2 – *(Continued)*

Paper	Method	Item	Result
Jennings, Kneer and Reckers (1987)	Survey experiment with 50 CPAs, 55 bank officials, 46 credit managers, 50 financial analysts	Variety of materiality judgment decisions	Lack of consensus on materiality assessment among various user groups.
Morris and Nichols (1988)	Archival annual reports research	334 Auditors' opinions on consistency[1]	Nine financial factors explain most of the variation in materiality. There was judgment consensus inconsistency among auditors.
Chewning, Pany and Wheeler (1989)	Archival annual reports research	284 Auditors' opinions on consistency[1]	Income effect of accounting change primary factor considered by auditor.
Icerman and Hillison (1991)	Audits of 49 manufacturing firms over three years	1,424 errors	Auditor's decision to book or waive the error is a function of relative error size, and of audit firm structure.
Chewning, Wheeler and Chan (1998)	Archival annual reports research; Event study	Change in accounting principles – Debt-for-equity swaps	Treatment follows conventional materiality rules of thumb; Auditor and investor materiality thresholds similar.
Nelson, Elliott and Tarpley (2002)	Survey of 253 auditors	515 earnings management attempts	Auditors more likely to adjust earnings management attempts to be considered material.

(Continued on next page)

TABLE 2 – *(Continued)*

Paper	**Method**	**Item**	**Result**
Gleason and Mills (2002)	Archival annual reports research	Disclosure of taxation contingent liabilities	Liabilities exceeding 5% rule of thumb often not made.
Price and Wallace (2002)	Archival standards research	International comparison of materiality standards applicable to governments, public services and charities	Obfuscating language found. New Zealand literature more explicit.
Kinney, Burgstahler and Martin (2002)	Event study	Earnings surprises	Small earnings surprises can generate disproportionately large stock price effects.
Patterson and Smith (2003)	Game theoretic model	Reaction of strategic players (auditors/company management) to uncertainty around materiality threshold	Auditors' conservatism increases in the uncertainty of materiality when the expected cost of audit failure is high and relating to expected cost of extending audit work. Auditor conservatism induces management to decrease extent of overstatement bias (and vice versa).
Blokdijk, Drieenhuizen, Simunic and Stein (2003)	Survey of 108 auditors/audit clients	Auditors' planning materiality level	Materiality is not a constant percentage of a base, but varies with client size.

(Continued on next page)

TABLE 2 – *(Continued)*

Paper	Method	Item	Result
Nelson, Smith and Palmrose (2005)	Experiment: 234 auditors	8 cases to book or waive proposed adjusting journal entry	Method of quantifying materiality influenced auditor judgments, as did size of adjustment, subjectivity, current-period income effect, and precision.
Brown (2005)	Experiment with 83 auditors	Twelve possible qualitative factors affecting materiality judgments	Auditors are willing to revise materiality thresholds in response to qualitative factors.

[1] In the U.S., auditors are required to include a consistency report in the audit report where there is a change in accounting policy that is deemed to be material. Changes in accounting policies are evident from notes to the financial statements. If accompanied by a consistency report, the change is deemed material by the auditor.

Between Group Differences

Prior research has examined the factors that are influential in making materiality judgments. Differences may apply depending on the identity of the judgment-maker: financial statement user, accounts preparer or auditor. Boatsman and Robertson (1974) compared the judgments of auditors and financial analysts and found no differences in the judgment processes of the two groups. Conversely, Jennings, Kneer and Reckers (1987) find a lack of consensus amongst a range of users including judges, lawyers, bank officials, financial analysts and credit managers. Based on prior research, Chewning et al. (1998, p. 42) comment that regular between-group differences (auditors vs. preparers vs. users) exist.

ISSUES FOR FUTURE RESEARCH

Nearly all the research on materiality is from the U.S. and is based on U.S. data. Price and Wallace (2002) are an exception as they look at materiality standards from five countries. Blokdijk et al. (2003) analyse the materiality judgments of Dutch auditors.

In the analysis of definitions of materiality the following questions were raised:

- How do preparers/auditors know what would reasonably influence decisions of users?
- Are preparers'/auditors' understandings of this phrase the same/ consistent with those of users of financial statements?
- Are preparers'/auditors'/users' understandings of this phrase the same/ consistent from preparer to preparer; auditor to auditor; user to user?

Prior research has examined these questions from a U.S. perspective. It cannot be assumed that findings can be extrapolated to other jurisdictions, especially when cultural and other inter-country characteristics are considered. This is especially important with the application of international accounting standards across European Union (EU) countries and Australia from 2005 onwards, and with many other countries adopting such standards. Nor can it be assumed that Anglo-American language will be interpreted consistently in different jurisdictions. Price and Wallace (2002) in a public sector not-for-profit context have found blurred language to describe materiality. Even within single countries (the U.S. in this case), they found diverse, contradictory and redundant terms in materiality standards. The topic of materiality deserves greater study in the context of moves towards increased harmonization and adoption of international accounting standards across many jurisdictions.

As illustrated in Figure 1, auditors and preparers should arrive at materiality decisions independently and separately, and it is assumed that in practice this is the approach they take. However, this is an issue that has not been the subject of much research, other than to infer materiality decisions to these two groups. As Chewning et al. (1998, p. 51) point out, the question of whether there is a fundamental difference between audit report materiality and financial statement materiality is worthy of further research.

Finally, an aspect of materiality judgments only touched upon by research to date is the influence of risk and uncertainty. The early work of Newton (1977) on this aspect of materiality decisions deserves to be revisited.

ISSUES FOR POLICY MAKERS

Prior research has mistakenly called for more guidance on the calculation of amounts in assessing materiality. Instead, what is required is more transparency in relation to this critical concept for accounting and auditing. Gleason and Mills

(2002) comment that shareholders may misinterpret the application of materiality through lack of understanding of the differences in calculating materiality by reference to normal income (which is not disclosed) versus current period income. They argue that future research should investigate when items deemed to be immaterial by reference to normal income but material by reference to current period income would influence the decisions of users of financial statements.

Disclosure of Materiality Level by Preparers

Nelson et al. (2005) comment that there is no requirement for preparers of accounts or for auditors to provide information on their approach to materiality decisions. They call for disclosure on this issue as it is akin to an accounting policy choice. The purpose of disclosure is to make financial statements more understandable by users. Surely, rather than disclosing the methodology behind the calculations, it would be much easier to disclose the absolute amount of the materiality level chosen. It is more useful for users of accounts to know the amount of materiality than how that amount was calculated.

It is intriguing to note the statement by Nelson et al. (2005) that they are unaware of any voluntary disclosures on materiality levels by auditors or financial statement preparers. This is not surprising. Both auditors and preparers have significant incentives not to let investors know what these levels are as investor confidence may be undermined. Conversely, investors would benefit significantly from such disclosures in their appreciation of the imprecision of accounting. This imprecision is not always understood by investors who interpret the amounts in balance sheets as having a precision that does not exist. It is interesting that auditing standard setters acknowledge that this imprecision is inevitable in the preparation of all but the simplest of financial statements.

At the start of every audit, the audit partner and staff on the audit select a level of materiality to apply to the audit. This is almost always expressed as a monetary amount. Modern auditing practices are based on methodologies that include statistical sampling. The extent of sampling and testing is a function of the level of materiality applied to an audit. Auditors have incentives to choose high levels of materiality – this reduces the amount of work to be done on the audit and therefore makes the audit less costly/more profitable. Auditors do not disclose materiality levels applied in audits. Investors (and users of accounts generally) therefore cannot understand the limits/margin of error inherent in the audit opinion being provided. Materiality levels are often considerably larger than average investors would guess. Why is it that auditors do not disclose this amount in audit reports? Then audit reports might have some meaning for shareholders by giving them a guide to the margin of error (crudely speaking) in

the accounts. What effect would there be if materiality levels were disclosed? Would materiality levels come down, and the level of audit work increase?

O'Connor and Collins (1974) called for materiality guidelines aimed at providing "the average prudent investor" with information necessary to make informed decisions. What simpler a guideline could there be than informing through disclosure in the financial statements (probably in the accounting policies note) the level of materiality applied in preparing the financial statements. The average prudent investor then has some sense of the margin of error underlying the preparation of those financial statements. Jennings et al. (1987) record that such a suggestion has been made as far back as 1984 by a number of Canadian practitioners, clearly to no avail.

Disclosure of Materiality Level by Auditors

The average prudent investor is also entitled to know the materiality level applied by the auditors. Auditors argue that if materiality levels are increased, then the cost of the audit would go up. The cost of the audit, and its relationship to the choice of materiality, is an issue about which shareholders are entitled to be informed. It would not be excessively onerous to require auditors to disclose in their audit report the planning materiality applied in the audit. Then shareholders could assess the margin of error in the conduct of the audit.

Role of Audit Committees

The primary responsibility of the audit committee is to assist the board of directors in carrying out its responsibilities in relation to the firm's accounting policies, financial reporting practices, internal controls and risk management. Given the financial reporting responsibilities of audit committees, and responsibilities of the audit committee in relation to the external audit, it is essential that these committees be informed about the levels of materiality underlying financial reporting and the audit. Audit committees should be informed of the level of materiality applied in preparing the financial statements, and in auditing those financial statements. Audit committees should take steps to understand the basis on which such amounts have been calculated. Finally, audit committees should include a specific section on materiality in their report to shareholders. In this section, the audit committee should outline the steps it has taken to inform itself of the levels of materiality applied in preparing the financial statements, and in the conduct of the audit. The audit committee should document its satisfaction with the levels chosen, and the justifications provided by management and the auditors for those choices.

CONCLUDING COMMENTS

This paper calls on regulators to extend disclosure requirements to include information about materiality levels to enhance transparency of accounting and auditing. Shareholders and investors are entitled to have this information. They are entitled to be informed about the imprecision underlying what otherwise looks very precise (the balance sheet balances for example). If such disclosure requirements had been put in place it is unlikely that $51 million (approximately half the 1997 profits) in the case of the Enron audit (Brody et al., 2003) would have been treated as immaterial. Management have incentives for materiality levels to be as high as possible. Auditors also have similar incentives. This is not necessarily in the best interests of shareholders. This best kept secret in accounting should be revealed to shareholders.

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