‘Materiality’ is considered a key audit concept both theoretically and in practice, but regulation enforcers are concerned about different views on materiality by preparers, auditors, users and enforcers, respectively, because different levels of materiality can result in users having a heterogeneous decision basis. This may seem surprising considering that the rule-of-thumb is simply to calculate materiality as 5% of net income before taxes. By analysing the prior audit materiality literature through a comprehensive literature review, this paper identifies the important quantitative and qualitative components of materiality judgments, which include task, person and interpersonal interactions in line with general audit judgment and decision-making theory. This analysis offers an enhanced understanding of why the «black box» of professional materiality judgment contains material. Analysis will enable auditors to make more homogeneous and informed judgements.

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Judgment in an auditor’s materiality assessments

Rikke Holmslykke Kristensen

Abstract

‘Materiality’ is considered a key audit concept both theoretically and in practice, but regulation enforcers are concerned about the different views on materiality held by preparers, auditors, users and enforcers, respectively, because different levels of materiality could result in users having a heterogeneous decision basis. This may seem surprising considering that the rule-of-thumb is simply to calculate materiality as 5% of net income before taxes. By analysing the prior audit materiality literature through a comprehensive literature review, this paper identifies the important quantitative and qualitative components of materiality judgments, which include both task, person and interpersonal interactions in line with general audit judgment and decision-making theory. This analysis offers an enhanced understanding of what the »black box« of professional materiality judgment contains. The analysis will enable auditors to make more homogeneous judgments; and it will allow external stakeholders, such as financial statements users, legislators and standard setters, and regulation enforcers to achieve a better understanding of the materiality concept and any divergent materiality decisions.

1. Introduction

‘Materiality’ is considered a key audit concept both in theory and in practice (Messier et al. 2005; Corte 2010; EC 2011; Keune and Johnstone 2012; ESMA 2013). The concept of materiality states that: »Information is material if omitting it or misstating it could influence decisions that users make on the basis of financial information about a specific reporting entity.« (IASB 2010: 84). In other words, materiality depends on users (stakeholders) and what they find will influence the decisions they make on the basis of financial information. Furthermore, the concept specifies that materiality depends on quantitative concerns, e.g., the magnitude of the item, but also on qualitative concerns, e.g., the nature of the item and the specific entity.

Standard setters, regulation enforcers and legislators like the European Commission (EC) find the concept of materiality interesting as they are concerned about different
views on the materiality concept held by preparers, auditors, users and enforcers (EC 2011; ESMA 2011; IAASB 2013; PCAOB 2013). The European Securities and Markets Authority (ESMA) has expressed concern about apparently heterogeneous materiality assessments made by auditors, resulting in different information in financial statements and thus different decision bases for users (ESMA 2011; ESMA 2013). Both the International and the American standard setters, the IAASB and the PCAOB, are conducting projects that aim to improve audit reporting on financial statements, recommending more information in the auditor’s report about materiality (IAASB 2013; PCAOB 2013).

Considering the significant concern raised about the materiality issue by important stakeholders such as the EC, ESMA, the IAASB and the PCAOB, it is surprising that audit practitioners do not seem to consider that materiality is problematic. The Big-4 audit firms’ audit manuals prescribe a practical rule-of-thumb stating that auditors should simply calculate materiality thresholds as 5% of net income before taxes (see, e.g., audit manuals and Eilifsen et al. 2014: 84; Eilifsen and Messier 2015). This paper claims that one reason for this discrepancy is that materiality is a matter of professional judgment, which – besides quantitative calculations – includes qualitative judgments (Martinov and Roebuck 1998; Messier et al. 2005). The principle-based international standards on auditing (ISA), primarily ISA 320 and 450 (IFAC 2009), consider materiality a matter of the auditor’s professional judgment, which for users and other stakeholders of financial statements is a misunderstood and opaque concept (Holstrum and Messier 1982; Patterson and Smith 2003; Edgley 2014).

Materiality assessment is considered a »black box« (Bernstein 1967: 90; Edgley 2014: 267) as it remains unknown specifically how the auditor’s judgment is made. Audit theory, specifically audit judgment and decision-making theory, states that an audit judgment consists of three important features; the audit task, the auditor himself and the interaction between auditors and between the auditor and other stakeholders (Nelson and Hun-Tong 2005). Surprisingly, prior audit judgment research on the assessment of materiality has mainly focused on materiality as a task (Nelson and Hun-Tong 2005: 45-46) rather than perceived materiality as a judgment that includes both a task, a person and interpersonal interactions.

By analysing the prior audit materiality literature, this paper will identify the important quantitative and qualitative components of materiality judgments, including task, person and interpersonal interactions in line with the general audit judgment and decision-making theory. The analysis is conducted through a comprehensive literature review of materiality papers published in top 35 peer-reviewed accounting and auditing journals (Hartzing 2014). This analysis will provide an enhanced understanding of what the »black box« of professional materiality judgment contains. This understanding will give auditors a basis on which to make more homogeneous judgments.
Furthermore, it will give external stakeholders, such as financial statements users, legislators, standard setters, and regulation enforcers a better understanding of the materiality concept and any divergent materiality decisions.

2. Theory
The concept of materiality is essentially an accounting term that has been defined by the International Accounting Standards Board (IASB) as:

»Information is material if omitting it or misstating it could influence decisions that users make on the basis of financial information about a specific reporting entity. In other words, materiality is an entity-specific aspect of relevance based on the nature or magnitude, or both, of the items to which the information relates in the context of an individual entity’s financial report« (IASB 2010: 84) (author’s emphasis).

Auditing adopted this definition of materiality. In auditing, the materiality concept is used to design and perform an audit that provides reasonable assurance of detecting misstatements that are of a sufficient magnitude to affect the judgment of reasonable financial statement users, as it is not the goal to perform an audit that catches every misstatement no matter how small (Eilifsen et al. 2014). Auditors assess materiality for the financial statements as a whole and decide on performance materiality for significant accounts or disclosures. This paper is concerned with the assessment of materiality for the financial statements taken as a whole.

Theoretically, materiality has been and continues to be a subject of importance and interest (Messier et al. 2005; Corte 2010; Keune and Johnstone 2012; Eilifsen and Messier 2015). The assessment of materiality at each of the phases of the audit is considered a matter of professional judgment, i.e. a subjective matter (Martinov and Roebuck 1998; IFAC 2009). Since it is a subjective judgment made by the auditor, the IASB »cannot specify a uniform quantitative threshold for materiality or predetermine what could be material in a particular situation« (IASB 2010: 84).

To date, five broad reviews of academic research of materiality (Holstrum and Messier 1982; Iskandar and Iselin 1999; Chewning and Higgs 2000; Messier et al. 2005; Vance 2011) have been published. Two of the reviews (Chewning and Higgs 2000; Vance 2011) are meta-analyses considering only numbers and effect sizes of materiality. These will not be analysed further here. The remaining three reviews find that the most important factor in establishing materiality is the percentage effect on net income. Furthermore, all three reviews find that there are differences between users, preparers and auditors regarding materiality thresholds and significant variance among auditors. According to Holstrum and Messier (1982), the variance among auditors can be explained
by the absence of guidelines, and since auditors’ materiality judgments are diverse and lack consensus, they result in confusion among users. Messier et al. (2005) also find that authoritative guidance can have an effect on an auditor’s materiality judgment. In addition, both Iskandar and Iselin (1999) and Messier et al. (2005) find that the auditor’s personal characteristics, especially experience, are important and that audit structure/firm type has a significant influence on the judgment made.

Besides being a matter of professional judgment, materiality is one among many judgments in auditing where the outcome of the decision is not clear and where different auditors can make widely different decisions in the same circumstances (Johnson et al. 1989). The generally accepted goal for audit judgment research is to understand and improve auditor decision-making (Johnson et al. 1989). Nelson and Hun-Tong (2005), e.g., define judgment and decision-making research in auditing as; *research that uses a psychological lens to understand, evaluate, and improve judgments, decisions, or choices in an auditing setting* (p. 41). Audit judgment theory states that a judgment in auditing consists of the audit task, the auditor himself and the interaction between auditors and between the auditor and other stakeholders. These three features are integrated in most auditing settings. Auditors perform different tasks to form an overall audit opinion. This performance draws on the auditor’s various personal attributes, which have an influence on the outcome. In the process, the auditor interacts with other auditors, clients and other participants in the financial reporting process. These three features do not exist in isolation, though; *effects of interpersonal interactions likely depend on personal attributes of the auditor who interacts with others, and on what tasks ...* (Nelson and Hun-Tong 2005: 61).

Nelson and Hun-Tong (2005) see assessment of materiality as a task. According to the definition (IASB 2010: 84), auditing standards (IFAC 2009) and prior reviews of materiality (Holstrum and Messier 1982; Iskandar and Iselin 1999; Messier et al. 2005), assessment of materiality is a judgment. The prior reviews of materiality contain contradictions, though. On one hand, they find the most important factor to be percentage effect on net income, i.e., a quantitative measure and the practical rule-of-thumb; but on the other hand, they find that significant differences between and among groups exist, which should not be possible if a single measure determines the materiality threshold. These differences between and among groups support the assumption that assessment of materiality is not just a task, but also includes the person and interpersonal interactions.
3. Method
This paper focuses on identifying qualitative and quantitative components in auditors’ assessments of materiality. The components will be identified through a comprehensive literature review of 179 papers published in top 35 peer-reviewed accounting and auditing journals (Hartzing 2014). Each journal has been searched for the terms »materiality« and »audit*« or »account*« in the abstract. The 179 papers were manually reduced to 73 based on relevance, and limiting the potential bias in the manual delimitation by exposure to peer review. The delimitation was based on 4 criteria: 1) ‘materiality’ is mentioned in the abstract, but the paper is about another topic and does not discuss materiality assessments (78 papers), 2) the paper replies to or discusses other materiality papers not discussing the topic, but the methods used or discussing papers not included in the review (20 papers), 3) book reviews or summaries of other papers (4 papers) and 4) prior review papers (4 papers).

The relevant papers were analysed using a structured method listing the specific components in auditors’ assessments of materiality (Hart 2010: ch. 6). Subsequently, the components were categorised according to audit judgment and decision-making theory; prior literature regarding each category was synthesised; and the components that increase understanding of what the »black box« of professional materiality judgment contains are enhanced. In this way, the components are deduced from earlier research findings and thus theoretically justified.

As with all methods involving interpretation, the selection of components developed from the literature could contain bias. In order to improve the validity and dependability, i.e. the extent to which interpretations are compatible with other researchers’ interpretations (Lincoln and Guba 1985), the paper has been exposed to peers from an early stage and throughout the whole process. With respect to confirmability, i.e. the extent to which an interpretation is supportable by data and represents a logical set of conclusions given the specific reasoning, which is to be non-prejudiced and non-judgmental, results have been exposed to peers, and the methods used have been clarified and made transparent.

4. Analysis
The results from the analysis of original research papers on materiality is presented below in Table 1, where each component is attached to either the audit task, the auditor or interpersonal interactions in audit judgment and decision-making theory (only components included in three or more original materiality research papers are mentioned in Table 1).
### Table 1: Identified components and connection to the three features in audit judgment and decision-making theory

<table>
<thead>
<tr>
<th>Feature level</th>
<th>Degree of consensus at feature level</th>
<th>Component level</th>
<th>Degree of consensus at component level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Feature in general audit judgment and decision-making theory …</td>
<td>More precisely, materiality assessment is influenced by …</td>
<td>Number of papers (compared to total number of papers)</td>
</tr>
<tr>
<td><strong>Task</strong></td>
<td>48 papers (66%)</td>
<td>quantitative client component</td>
<td>38 papers (52%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>industry the client is placed in</td>
<td>9 papers (12%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nature of the item (asset type), including objective or subjective amount</td>
<td>8 papers (11%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>impression of management/management integrity</td>
<td>3 papers (4%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>control environment</td>
<td>3 papers (4%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>other identified errors</td>
<td>3 papers (4%)</td>
</tr>
<tr>
<td><strong>Person</strong></td>
<td>30 papers (41%)</td>
<td>audit firm type and culture</td>
<td>8 papers (11%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>auditor’s experience (number of years in the audit industry, prior experience with the client, the item or the relevant rules)</td>
<td>7 papers (10%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>consensus among auditors</td>
<td>6 papers (8%)</td>
</tr>
<tr>
<td><strong>Interpersonal interactions</strong></td>
<td>26 papers (36%)</td>
<td>materiality guidance</td>
<td>11 papers (15%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>intended use of the financial statements</td>
<td>5 papers (7%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>agreement between auditor and user</td>
<td>4 papers (5%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>who are the users?</td>
<td>3 papers (4%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>materiality levels public</td>
<td>3 papers (4%)</td>
</tr>
</tbody>
</table>

4.1. The audit task

The audit task regarding materiality assessment is primarily divided between quantitative measures and qualitative client characteristics. 52% of the papers reviewed contain quantitative measures, indicating that it is essential for materiality assessments to take the actual accounts under audit into consideration. The percentage effect on net income is found to be the most researched quantitative measure, with earnings trend or total assets as a distant second. Most of the earlier studies found that a 5% effect on net income is the most commonly used quantitative benchmark, which is equal to the practical rule-of-thumb (see e.g. Frishkoff 1970; Steinbart 1987; Chewning et al. 1998; Acito et al. 2009; Libby and Brown 2013).

Qualitative characteristics of the client also affect materiality assessments: an increase in the client’s or the industry’s complexity should trigger a decrease in materiality thresholds (Patterson 1967; Steinbart 1987; Blokdijk et al. 2003; Keune and Johnstone 2009), whereas an increase in the quality of the client’s control environment should trigger an increase in materiality thresholds (Krogstad et al. 1984; Mayper et al. 1989; Blokdijk et al. 2003). Further findings show that the client’s wish to meet earnings thresholds affects the auditor’s decision to book or waive audit differences and hence the materiality level (Ng 2007; Keune and Johnstone 2012). Auditors’ perception of man-
agement and the presence of other identified accounting errors also have an effect on materiality levels (Wong-On-Wing et al. 1989; Reckers and Wong-On-Wing 1991; Dutta and Graham 1998; Arnold and Bernardi 2001; DeZoort et al. 2003; Acito et al. 2009).

Another part of the audit task is related to items-under-audit. The major finding here is that auditors use lower materiality levels when the item-under-audit is subjective (like accounting estimates) or a non-routine transaction. Findings are not completely clear though, as an older study (Chewning et al. 1989) shows that the materiality level decreases with the subjectivity of the item, while newer studies (Nelson et al. 2005; Ng 2007) report the opposite. This contradiction can be connected to auditors’ experience or audit quality, but it could also be related to the validity of the studies. Chewning et al. (1989) use evidence from real decisions, while Nelson et al. (2005) and Ng (2007) use evidence from experiments, which indicates that the validity in the older study is higher and that more emphasis should be placed on this study. Another angle is that in the newer studies, the subjective items included estimates which the auditor would not adjust unless the auditor was certain of the correct amount, whereas older studies (Boatsman and Robertson 1974; Chewning et al. 1989; Mayper et al. 1989) were either archival studies or experimental studies not focusing on estimates. This indicates that the degree of estimation that goes into the item is important in materiality assessments.

The audit task ‘materiality assessment’ is related to the client’s characteristics, either quantitative or qualitative, including the specific items present at the client. Prior research has focused extensively on the quantitative part and supports the 5% rule-of-thumb, which indicates that calculation plays an important role when materiality is assessed. But since a financial report contains many different numbers, it also supports the assumption that materiality assessments are not just a standard calculation task because they involve the need for an auditor to choose between the different numbers in the accounts.

4.2. The auditor

In materiality assessment research, the auditor feature is primarily researched in terms of auditor experience, consensus among auditors and the effect of the employing audit firm. Regarding experience, this may be either experience in the audit industry (number of years as an auditor), prior experience with the client or the item, or experience with the rules in question. In general, prior research found that the more experience the auditor has, the higher the materiality threshold is assessed when the item under audit is a simple item (Messier 1983). This was modified by Carpenter & Dirsmith (1992), who found that experienced auditors had lower materiality levels than less experienced auditors when the item under audit was an unstructured item. This indicates that with experience, an auditor is better able to see through the nature of the item-
under-audit and to assess the proper materiality of the item. Conversely, higher risk or greater uncertainty results in a lower materiality level (Newton 1977; Steinbart 1987).

Remarkably, prior research regarding consensus among auditors shows that no two auditors are alike. They have different individual decision models (Moriarity and Barron 1976; Moriarity and Barron 1979), and there is a lack of consensus regarding materiality within the audit profession (Neumann 1968; Ward 1976; Firth 1979; Mayper 1982; Jennings et al. 1987; Messier et al. 2005). This indicates both the difficulty of formulating an exact set of rules for materiality assessments, and the need to ensure that materiality assessments are performed with the same minimum of quality regardless of the auditor performing it to ensure that users have a homogeneous decision-making basis.

Another part of the auditor feature is the audit firm component (Nelson and Hun-Tong 2005: 48 and 53), which has been researched as the effect from Big-4 versus non-Big-4 audit firms (i.e. large versus small firms). Findings here are contradictory, with older studies (Messier 1983; Chewning et al. 1989) finding that non-Big-4 audit partners set lower materiality levels than Big-4 partners, while Blokdijk et al. (2003) and Keune and Johnstone (2009) found the opposite. The evidence in the older studies are a mix of evidence from experiments and from real decisions (archival studies), whereas the more recent studies use solely evidence from real decisions. This indicates a higher validity in the newer studies, but also a need for further research at firm level to see whether the difference is caused by a change in audit quality in Big-4 and non-Big-4 audit firms over the past 20 years or if other variables influence the result. One variable that may come into play here is the enlarged pressure on auditors resulting from the financial crisis, which could have made Big-4 audit firms more cautious.

Prior materiality research on the auditor feature shows that both experience and the employing audit firm have an effect on materiality assessments. But since many other attributes of the auditor, like individual characteristics and cognitive limitations, are mentioned in audit judgment and decision-making theory, further research concerning materiality and the auditor is needed. Prior research also shows a lack of consensus among auditors supporting the assumption that materiality is a complex judgment. This also supports the concern of standard setters, regulation enforcers and legislators that auditors prepare materiality assessments heterogeneously, resulting in different information in financial statements and thus different decision bases for users.

4.3. Interpersonal interactions

The feature entitled interpersonal interactions includes interactions between auditors, between auditors and their clients, and between auditors and other participants in the financial reporting process.
Interactions between auditors and their clients are an under-researched aspect of materiality assessments. Interpersonal interactions between auditors and other participants in the financial reporting process regarding materiality assessment can be divided into two; on the one hand interactions between auditors and users, on the other hand interactions between auditors and standard setters, regulation enforcers and legislators.

According to Hicks (1964), who the users are should always be a consideration for the auditor as the definition of materiality depends on the user. This assumption is generally supported by prior research (see e.g. Krogstad et al. 1984; Steinbart 1987; Dutta and Graham 1998; Corte 2010) finding that reflections regarding the users and how the auditors assume the users intend to use the financial statements are of importance to the auditor’s choices in the materiality assessment procedure. Newer studies regarding interactions between auditors and users (Jennings et al. 1987; Chewning et al. 1998) found a lack of consensus among auditors and users contrary to the findings in Boatsman & Robertson’s (1974) older study, which reported that the judgmental processes of auditors and users apparently do not differ in any important respect. This contradiction can be related to the time periods during which the studies took place, but also to the validity of the studies. Both Jennings et al. (1987) and Boatsman & Robertson (1974) are using evidence from experiments, whereas Chewning et al. (1998) use evidence from real decisions, which indicates that the validity of the newest study is higher.

Regarding interactions between auditors and standard setters, regulation enforcers and legislators, prior research on assessment of materiality has focused on the need for materiality guidance and a request to make materiality levels public. Most studies are in favour of official materiality guidance as they find that this reduces the variability in auditors’ materiality assessments, making them more equal (see e.g. Patterson 1967; Firth 1979; DeZoort et al. 2006; Pinsker et al. 2009). According to Selley (1984), requiring auditors to disclose the actual materiality levels used will result in an inevitable convergence of materiality decisions in similar situations and industries over time. Thus, market forces will react and revise materiality where political processes have failed. This indicates that a requirement to disclose the actual materiality levels used will solve challenges regarding the assessment of materiality.

The interpersonal interactions feature is important in audit judgment and decision-making theory as auditors do not work in isolation but collaborate with clients, and with other participants in the financial reporting process; thus, it is crucial to understand these interactions. Prior materiality research reveals a lack of research into these interactions. The research mentioned above was not focused on real interactions, but rather on research involving or related to other stakeholders apart from the auditor. E.g. in cited articles, it seems that the auditor does not need to interact with actual
users to learn what will influence the decisions users make based on the financial information. The lack of research could indicate that interactions are not important when making materiality judgments, but it is highly probable that it should rather be interpreted as an indication of the need for further research into materiality and interpersonal interactions. This is supported by the fact that the definition of materiality hinges on the user.

5. Conclusion and implications

According to the practical rule-of-thumb prescribed by the Big-4 audit firms’ audit manuals, auditors should calculate materiality thresholds as 5% of net income before taxes. It is therefore surprising that important stakeholders such as the EC, ESMA, the IAASB and the PCAOB problematise the materiality issue, and prior theory cannot answer this question. Using audit judgment and decision-making theory, this paper performed an analysis of prior materiality research to demonstrate that making a materiality assessment is a complex judgment. Furthermore, the paper provides an enhanced understanding of what the »black box« of professional materiality judgments contains. The materiality judgment embraces three features consistent with general audit judgment and decision-making theory; the audit task, the auditor and interpersonal interactions.

The analysis has demonstrated that, besides a significant quantitative element concerning the client in question, making a materiality assessment also includes significant qualitative components. The quantitative component is mostly related to the audit task, whereas the qualitative components are reflected in all three features of the general audit judgment and decision-making theory. The audit task feature contains a qualitative client-specific component and a component related to the specific item under audit. The auditor feature contains experience and the characteristics of the employing audit firm, which are significant components as no two auditors are alike. The interpersonal interactions feature is especially interesting in the materiality judgment as the definition of materiality depends on users. This feature contains a user component and an official guidance component. The analysis has revealed that there is a lack of consensus between users and auditors, which indicates that auditors are unable to foresee the needs of users or simply do not consider them when making the assessment. This is an essential lack of consensus considering the definition of materiality, which the auditors should be fully aware of as it can be crucial for users’ confidence in the audit profession.

This analysis of prior audit materiality literature has implications for both theory and practice. Regarding theory, the analysis extends existing literature by increasing the understanding of the contents of the »black box« of professional materiality judgments. This understanding is necessary to determine how auditors may achieve
more homogeneous materiality judgments. Future research could determine if heterogeneous materiality judgments are a problem for audit report users and, if they are, explore how to make auditors conduct more homogeneous materiality judgments.

Regarding practice, materiality assessments are a concern for several standard setters and regulation enforcers, e.g. the EC, ESMA, the IAASB and the PCAOB. The analysis confirms their concern as materiality is a complicated judgment involving many different components, but the analysis also gives a better understanding of the materiality concept and any divergent materiality decisions. One manner in which improved information may be provided to the users of financial statements is by giving the required information either directly in the auditor’s report as proposed by standard setters (IAASB 2013; PCAOB 2013) or by providing more general information, which the users may then elaborate through their own searches.

References


Notes
1. The Big-4 audit firms are PwC, Deloitte, Ernst & Young and KPMG.