Effects of qualitative factors and auditors' personal characteristics on materiality judgments

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Abstract

Purpose – The purpose of this paper is to investigate the effect of qualitative materiality factors on auditors' assessment of materiality and the determination of the type of the auditors' reports. This paper also analyzes whether differences in personal characteristics of auditors can influence their use of qualitative materiality factors in assessing material misstatements.

Design/methodology/approach – A questionnaire and experimental case studies were undertaken to determine whether differences in personal characteristics of auditors can influence their degree of reliance on qualitative factors in assessing the materiality of detected misstatements. Descriptive and statistical tests were used to analyze the data collected.

Findings – The results of this paper show that qualitative materiality factors strongly influence the auditor's materiality judgments. However, no significant differences were found regarding the effects of auditors' personal characteristics on the degree to which they rely on the qualitative factors in their materiality judgments. Also, in certain situations, auditors considered factors other than the income for assessing certain misstatements as material and consequently modified their audit reports.

Originality/value – This paper examines the influence of qualitative factors on auditors' materiality judgments and develops a list of qualitative factors to be considered by auditors when assessing materiality. It also concludes that the nature of misstatement is the least important qualitative factor considered by auditors when assessing materiality of detected misstatements and that the existence of more explicit or standardized qualitative materiality guidelines would lead to a more uniform judgment among auditors.

Keywords Egypt, Auditors, Audit report, Auditing, Qualitative factors, Earnings management, Materiality

Paper type Research paper

1. Introduction

Materiality judgment is a key element in the effectiveness of the audit process and its results and involves both qualitative and quantitative factors (Securities and Exchange Commission - SEC, 1999 and FRC Standard, 2013; FRC Consultation Paper, 2013). Because of the lack of agreed upon standardized guidelines for materiality judgments, similar issues could be judged differently by distinct auditors (Iselin and Iskandar, 1999; Messier *et al.*, 2005; DeZoort *et al.*, 2006; DeFond and Zhang, 2014; Amiram *et al.*, 2017; Choudhary *et al.*, 2019). Prior research documented a lack of consistency in applying the concept of materiality for both auditors and accountants (Elder and Allen, 1998; FRC Standard, 2013; Lee *et al.*, 2018). Auditors rely on audit manuals and audit firms' working papers to determine materiality which differs from one audit firm to another (Martinov and Roebuck,

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1998). Staff Accounting Bulletin Number 99 (SAB 99) emphasized the importance of quantitative and qualitative factors in making materiality judgments to minimize earnings management which negatively affects analysts' earnings projections (SEC, 1999; Jung *et al.*, 2013). GAAP (Acito *et al.*, 2009) and SAB 99 did not adopt precise materiality standards but provided guidelines in applying materiality thresholds in the preparation of financial statements and in auditing those statements. Therefore, management and auditors must jointly negotiate a subjectively determined (but unobservable) materiality assessment on a case-by-case basis. Also, despite the recognition of the important role of qualitative factors, there is little guidance provided as to how these factors are used, integrated and assessed in practice, thus leaving it up to the judgment of individual auditors (Patterson and Smith, 2003, p. 2). The PCAOB Auditing Standard Number 2 (PCAOB, 2004) requires auditors and management to consider materiality, including qualitative factors, when deciding which controls to test and in assessing which control deficiency is considered material. Choudhary *et al.* (2017) indicated that when making materiality assessments, auditors underemphasize qualitative and contextual factors. They added that auditors' materiality assessments are not simply based on a rule of thumb such as 5% of pretax income. A few studies identified qualitative factors that auditors consider while making materiality judgments. The most common factor is earnings trend misstatements (Messier, 1983; Houghton *et al.*, 2011). Other qualitative factors identified include the risk of the audited company (Boatsman and Robertson, 1974; Krogstad *et al.*, 1984), the context of the circumstances surrounding the misstatement (Jennings *et al.*, 1987; Friedberg *et al.*, 1989), competitive pricing and client pressure within the auditing industry (Walker, 1999; Braun, 2001), client's status, preferences and pressure (Nelson *et al.*, 2002) and potential violation of debt covenants (Dutta and Graham, 2017). Although prior studies have considered qualitative factors in making materiality judgments, they did not specifically address whether qualitative factors will affect auditors' assessment of materiality and, consequently, the determination of the type of the audit report (Keune and Johnstone, 2012).

The research problems are derived from both the above gap in the literature and the lack of clear materiality guidelines from professional accounting bodies and standard setters for determining and assessing qualitative materiality measures (DeFond and Zhang, 2014). Do auditors recognize materiality qualitative factors in practice and are there differences in the type of the audit report that are attributable to the nature of such qualitative factors? Are the differences in the degree of auditors' reliance on qualitative materiality factors influenced by their personal characteristics? Thus, this study examines empirically, using both survey and case studies, the impact of qualitative materiality factors on the auditor's materiality judgments and the type of the audit report. The results show that qualitative materiality factors strongly influence the auditor's materiality judgments. However, no significant differences were found regarding the effects of auditors' personal characteristics on the degree to which they rely on the qualitative factors in their materiality judgments.

There are several reasons for choosing Egypt as the selected country for study. Egypt has a rapid growth as an emerging economy with large foreign investment potentials, because of a new economic system that has led to convergence with the International Financial Reporting Standards (IFRSs) and International Standards on Auditing (ISA). The Egyptian Society of Accountants and Auditors plays a central role in the accounting profession, providing continued professional education for its members and the business community at large and is a member of International Federation of Accountants (IFAC). Most of the international accounting networks are represented in Egypt, with one of the Big 4 considered as the largest certified public accountants (CPA) firm in Africa and the Middle East (Samaha and Hegazy, 2010). The Financial Reporting Authority plays a significant

monitoring role in overseeing the reliability of the financial statements of listed companies and ensuring that management and external auditors comply with either IFAC or local accounting and auditing standards. Audit practitioners in Egypt are required to follow the Code of Ethics for Professional Accountants (World Bank, 2002). All the above developments in the auditing profession led auditors to comply with the requirements of the various auditing standards including the application of both the quantitative and qualitative materiality factors and their effects on the type of the audit reports for both listed and private companies.

Thus, this research makes several important contributions to the auditing literature. First, it complements and extends prior studies on auditor materiality judgments (Eilifsen and Messier, 2015; Gutierrez *et al.*, 2016; Amiram *et al.*, 2017). The study investigates the influence of qualitative factors (identified in SAB 99 and other standards guidelines) on materiality judgments, rather than focusing on determining the quantitative thresholds beyond which auditors classify as material. Second, it explores the degree to which the qualitative materiality factors, outlined in the authoritative guidance (SEC, IAASB and PCAOB), are used by auditors in practice. An important benefit of the study's methodology is that it allows us to focus directly on auditors' materiality judgments which are often difficult to observe in empirical studies. The examination of auditors' judgment in relation to materiality should enable us in identifying the diversity of practice in complying with professional standards and guidelines. Third, the study assesses the effects of applying qualitative materiality factors on the determination of the type of the audit report. Fourth, it investigates whether differences in the personal characteristics of auditors can influence their use of qualitative materiality factors in assessing material misstatements. The results are relevant to auditors in practice who rely more on quantitative materiality thresholds to gain insights into the audit process and, more importantly, to determine the appropriate type of the audit report.

The remainder of the paper proceeds as follows: Section 2 reviews the literature concerning materiality factors and related auditors' judgment decisions and the development of the research's questions. Section 3 describes the research methodology. Section 4 discusses the results and findings. The last section provides conclusion, limitations and recommendations for future research.

2. Prior research and research questions on materiality

Qualitative factors in determining materiality have recently received much attention from the professional literature as well as the accounting and auditing standard setters (Libby and Kinney, 2000; Blokdijk *et al.*, 2003; DeZoort *et al.*, 2006; IFAC, 2010b; DeFond and Zhang, 2014; Acito *et al.*, 2019; Choudhary *et al.*, 2019). One reason is that the reliance on quantitative thresholds alone may cause auditors to waive quantitatively immaterial, but qualitatively material, audit differences (or detected misstatements), thus undermining the quality of the audit and the related financial reports (DeZoort *et al.*, 2006). ISA 450 (IFAC, 2010b) and SAB 99 (SEC, 1999) included a list of qualitative materiality factors that auditors should consider when evaluating materiality of uncorrected adjustments that are below certain quantitative levels. Empirical evidence also indicated that qualitative factors may cause misstatements of quantitatively small amounts to be material (Libby and Kinney, 2000; Ng and Tan, 2007). For example, Liu and Mittelstaedt (2002) indicated that profitability, ownership concentration and firm size affect the decision to disclose retiree health care costs. Similarly, Gleason and Mills (2002) provided evidence that firms operating in litigious industries are more likely to disclose contingent tax liability. Acito *et al.* (2009) used SAB 99 materiality measures and tested the determinants of materiality judgments

and their role in shaping the firm's error correction decisions. The results revealed that two of the six quantitative materiality measures used in the study (annual net income and total assets) and two qualitative materiality considerations (lease intensity and the presence of other accounting errors) had a significant positive association with the likelihood of restatement, rather than simple rules of thumb, for example, 5% of net income. Choudhary *et al.* (2017, 2019) confirmed the above results as they found that auditors make materiality judgments using a variety of materiality bases and percentages and apply weights to those bases that are consistent with the application of qualitative and contextual factors specified in the authoritative guidance.

In addition, Nelson *et al.* (2005) indicated that materiality approach influences auditors' adjustment decisions of a detected misstatement and depends on two of the qualitative materiality factors identified by SAB 99, namely, misstatement subjectivity and misstatement precision. Also, Keune and Johnstone (2012) found a negative association between abnormal audit fees and the likelihood of managers waiving either quantitatively material misstatements or qualitatively material misstatements. These results are consistent with the theory of auditor reputation protection, showing that auditors make materiality judgments that are consistent with their incentives concerning regulation, litigation and professional ethics. The importance of materiality judgment and decisions was also linked to agency theory and its costs by Chewning *et al.* (1998, p. 52). They indicated, based on other prior studies, that:

If auditors' materiality thresholds are set higher than users' thresholds, then potentially useful financial information may be omitted from financial reports. In this situation, the audit becomes an ineffective means of controlling agency costs. . .. Conversely, if auditors set materiality at levels lower than do users, the cost of audit testing may be greater than the value of the information provided. Unnecessary detail in financial disclosure may reduce information overload and result in non-optimal decision making.

Moreover, DeZoort *et al.* (2006) using an experiment of 160 auditors found that auditors under higher levels of accountability pressure spent more time on the tasks, produced longer judgment explanations and emphasized more qualitative materiality factors than auditors under lower levels of pressure. Also, Iyer and Whitecotton (2007) found that SEC SAB 99 qualitative factors should influence the assessment of materiality by auditors, rendering quantitatively immaterial amounts material and, therefore, adjusting or modifying the audit report. Manita *et al.* (2011), using a questionnaire conducted in France, confirmed the influence of the SAB qualitative factors (such as motivation and intention of the management using bonus, tendency change and illegal behavior) on materiality's ethical judgments. They also discovered that there are no significant differences in judgment between the auditors of the Big 4 and those of the small audit firms. Furthermore, Brown (2011), using an experiment with four cases manipulating the level of inherent risk and the nature of qualitative information (positive or negative), identified several qualitative factors that auditors considered important when making subsequent revisions on the initial materiality threshold. Those included possible violation of contractual obligations, the reversal of five-year earnings trend, debt covenants, the elimination of management bonus compensation, the nature and magnitude of the misstatements (e.g. 2% above the initial materiality threshold) and the firm's willingness to waive similar types of misstatements in past audit years.

Turning to the effect of materiality judgment on the type of the auditor's report, Messier *et al.* (2005) report that auditors generally agree on the issuance of a qualified opinion because of uncorrected misstatements which, although are lower than the quantitative materiality levels, relate to qualitative factors such as certain characteristics of the clients,

the audit firm or the auditors' personal characteristics. Gutierrez *et al.* (2016), Amiram *et al.* (2017) and Lee *et al.* (2018) found evidence indicating the effects of qualitative materiality measures on the type of the audit report. Similarly, two FRC [FRC Standard (2013) and FRC Consultation Paper (2013)] consultation papers proposed that the auditor's report should address risks of material misstatements, materiality and a summary of the audit scope. The disclosure of materiality threshold sheds light on the quality of the audit and, by extension, the earnings quality (Carcello *et al.*, 2011; IAASB, 2013; PCAOB, 2013; Mock *et al.*, 2013; Lee *et al.*, 2018). Similar results were also found in Doxey's (2013) study, which found that the disclosure of materiality thresholds reduces the expectations gap between auditors and users. The above findings provide some evidence that auditors do consider qualitative factors when making materiality judgments but not in a consistent manner. This is because of the wide variation in the qualitative materiality measures that auditors use. Moreover, auditors tend to be more conservative in their materiality judgments and more likely to consider qualitative materiality factors in situations where earnings might be managed. Auditors may respond rationally in such situations by either setting lower planning materiality values during the planning stage or booking identified audit differences in their audit report, even if such differences are quantitatively immaterial. This conclusion highlights the need for more explicit guidance on the determination of qualitative materiality. Within this context, the first two research questions are derived from the above literature review as follows:

RQ1. Do auditors, guided by SAB 99 considerations and other auditing standards, recognize materiality qualitative factors in practice and classify a quantitatively immaterial item possessing these qualitative factors as material?

RQ2. Are there differences in the appropriate type of the audit report that are attributable to the nature of the qualitative factors involved?

There are a few studies that examined the influence of the auditor's personal characteristics in determining materiality. Holstrum and Messier (1982) indicated that heterogenous groups of preparers, auditors and users are expected to have dissimilar views of materiality and its thresholds because of their different incentives and personal characteristics. Other studies found significant differences in judgment consensus between different Big 8 audit firms (Morris and Nichols, 1988). In addition, partners in non-Big 8 firms have lower materiality thresholds than their Big 8 counterparts (Chewning *et al.*, 1989; Blokdijk *et al.*, 2003). Moreover, Friedberg *et al.* (1989) found that the detailed quantitative and qualitative factors included in the audit manuals differed significantly between audit firms, and Icerman and Hillison (1991) provided evidence that the development and assessment of materiality judgments is firm specific. They suggested that the decision to book or waive errors is a function of relative size of error and audit firm structure. Firms with structured audit approaches booked more errors than less structured firms. Morris and Nichols (1988) indicated a positive relationship between judgments consensus and audit firm structure, with materiality decisions for structured firms showing more consensus for such decisions. Similar results were also found in Acito *et al.*'s (2009) study. Similarly, Krogstad *et al.* (1984) showed that the degree of uniformity and consensus for qualitative factors among partners (and professionals) is greater than the one among seniors (and inexperienced beginners). Estes and Reames (1988) found that the years of experience in external audit did not affect the decisions on materiality, but it enhanced the confidence of the clients in auditors' decisions. Only age and place of employment significantly affected auditors' materiality judgments. For instance, older CPAs were more conservative in qualifying their audit

opinion for obsolete inventory. Carpenter *et al.* (1994) and Bernardi and Arnold (1994) argued that experienced auditors are stricter in evaluating complex transactions with lower materiality than the ones determined by seniors.

On the other hand, Tuttle *et al.* (2002) emphasized the importance of the nature of misstatement but found that the undisclosed misstatements within materiality thresholds that follow the audit practice do not affect market prices. They did not find any association between the level of experience of the auditor and the importance attributed to various qualitative factors when investors form their investment decisions. Also, Keune and Johnstone (2012) showed that the perception of materiality is different among partners and company managers, assigning different importance to the studied factors. Hallman *et al.* (2018) also provided evidence that auditor materiality judgments often deviate from a conventional rule of thumb, because of the auditors' differences in years of experience, competence, level of management within the firm and other related factors. Based on the above discussions, the third research question is formulated as follows:

RQ3. Are the differences in the degree of auditors' reliance on qualitative materiality factors influenced by their personal characteristics (i.e. the type of the audit firm, the length of the audit experience and the auditor's educational qualifications)?

3. Research methodology

Chewning *et al.* (1998) indicated that because of archival data-availability constraints, most empirical evidence on materiality has been obtained through surveys and laboratory experiments, with little evidence on the outcomes of auditors' implied materiality judgments. This study surveyed a sample of auditors in audit firms with international affiliation (including the Big 4) in Egypt. A questionnaire containing developed qualitative materiality factors was presented to the auditors to test their materiality judgments. Also, six case studies were used to address the influence of selected qualitative factors on the materiality assessment by auditors of certain misstatements and omissions and the type of audit reports to be issued in these cases. Fieldwork and case studies provide the opportunity to demonstrate external validity by closing the gap between theory and practice (Smith, 2015). This study is exploratory in nature and provides evidence on the qualitative measures of materiality and helps in assessing and integrating those measures in materiality decision-making.

3.1 The design of the questionnaire

The questionnaire was based on the qualitative factors determined by the authoritative guidance and the literature review regarding materiality. The researchers distributed the questionnaires among most of the audit firms with international affiliation in Egypt including the Big 4. Of 110 questionnaires distributed, 90 were collected. The five-page questionnaire was based on a five-point Likert-style rating scale. The questionnaire was divided into two main sections. The first section relates to the personal information of participants, while the second included the list of the qualitative materiality factors developed and piloted by two practitioners and two professors of auditing in reputable accredited business schools and their suggestions incorporated in the final form of the questionnaire. Each participant was asked to identify the degree to which each of the qualitative factors should influence materiality assessment and, consequently, determine the appropriate type of the audit report. The participants had previously been provided with a brief definition and explanation of materiality with more emphasis on qualitative factors.

3.2 The design of the experiment

To investigate the study's research questions, the researchers got the permission of a principal partner in one of the audit firms in Egypt with international affiliation to undertake an experiment involving the firm's audit managers, senior auditors and auditors with less than five years of experience. In all, 50 participants were selected with two hours allowed for each participant to form his opinion about the six cases presented. Each participant received a booklet containing the following: First, an introductory section highlighting the objective and nature of the experiment, with guidelines for the qualitative and quantitative criteria of materiality; and second, background information related to each case including client's industry, a brief overview of the client's present financial condition, the nature of misstatement or omission found in the client's financial statements (reporting error vs contested estimates), motivation for misstatement (intentional vs unintentional), magnitude of misstatement as a percent of net income and the impact of the cited omission or misstatement on both adjusted and unadjusted statements of the company. Participants were requested to provide personal information including their area of specialization and to provide their opinions about each case including the assessment of materiality of the cited omission or misstatement and the type of the auditor's report.

Real cases were developed from a sample of the misstatements found in the financial statements of the top 30 listed companies in Egypt during the period from 2013 to 2017. The qualitative factors that matched those misstatements were selected for further investigation of the influence of those factors on the auditors' (participants') materiality assessment of certain omissions and misstatements. In each case, participants were informed that the net effect of such misstatements on the client's financial statements was quantitatively immaterial (falling below common materiality threshold of 5% of net income), but certain qualitative factors would make it material. Also, they were informed that the management's motivation and intention were known in certain scenarios and unknown in others.

4. Results and discussion

4.1 Frequency tables and Wilcoxon test

The data gathered was analyzed using descriptive and non-parametric statistical analysis. Table 1 shows that participants strongly agree with the qualitative materiality factors and indicated that 11 of the 16 qualitative factors were important for the assessment of materiality. About 95.6%, 92.3% and 90% of the participants agreed that the assessment of materiality should be influenced by the following, respectively: a misstatement changing the company's profit into loss or vice versa, misstatement affecting a company's trend in profitability and misstatement or omission affecting other information communicated in documents contained in the audited financial statements. Such results are similar to the findings in Messier (1983) and Tuttle *et al.* (2002), where a misstatement changing the company's profit into loss or vice versa or affecting a company's trend in profitability would influence the auditor materiality decisions. At the same time, participants agreed with a very high percentage of acceptance ranging from 84% to 89%, on the influence of the following qualitative factors: incorrect selection or application of an accounting policy, misclassifications between certain account balances, misstatements affecting compliance with debt covenants or other contractual requirements, misstatements that relate to matters involving related parties, misstatements affecting management compensation (satisfying requirements for bonuses or other forms of incentive compensation), misstatements that hide a failure to meet analysts' expectations (such as predicted earnings per share), misstatements involving concealment of unlawful transactions and the motivation of the misstatements or omissions (i.e. intentional manipulation or unintentional error). Moreover,

Table 1.
The frequency table of qualitative factors affecting auditors' materiality assessment

	Strongly disagree		Disagree		Not important		Agree		Strongly agree	
	F	(%)	F	(%)	F	(%)	F	(%)	F	(%)
1. Misstatement or omission changes a loss into income or vice versa	2	2.2	2	2.2			63	70.0	23	25.6
2. The misstatement or omission makes a change in earnings trend			4	4.4	3	3.3	70	77.8	13	14.5
3. The misstatement or omission affects other information that will be communicated in documents containing the audited financial statements; it may reasonably be expected to influence the economic decisions of the users of the financial statements	1	1.1	1	1.1	7	7.8	73	81.1	8	8.9
4. Incorrect selection or application of an accounting policy that has an immaterial effect on the current period's statements but is likely to have a material effect on future period's financial statements			3	3.4	6	6.7	69	76.6	12	13.3
5. Misclassification between certain account balances			4	4.4	6	6.7	68	75.6	12	13.3
6. The misstatement or omission affects compliance with debt covenants or other contractual requirements			4	4.4	7	7.8	70	77.8	9	10.0
7. The misstatement or omission relates to matters involving related parties			7	7.8	4	4.4	72	80.0	7	7.8
8. The misstatement or omission influences management compensation			2	2.2	10	11.1	65	72.2	13	14.4
9. The misstatement or omission hides a failure to meet analysts' expectations) predicted earnings per share) for the firm			3	3.3	10	11.1	67	74.5	10	11.0
10. Misstatement or omission involves concealment of unlawful transactions			3	3.3	11	12.2	61	67.8	15	16.7
11. The motivation of the misstatement or omission (i.e. intentional manipulation or unintentional error)			3	3.3	11	12.2	64	71.1	12	13.3

(*continued*)

	Strongly disagree F	Strongly disagree (%)	Disagree F	Disagree (%)	Not important F	Not important (%)	Agree F	Agree (%)	Strongly agree F	Strongly agree (%)
12. Omission of information not specifically required by the applicable financial reporting framework but, in the judgment of the auditor, is important to the users' understanding of the financial statements	2	2.2	12	13.3	7	7.8	62	68.9	7	7.8
13. Misstatement or omission affects compliance with regulatory requirements			7	7.8	15	16.6	62	68.9	6	6.7
14. A known misstatement or omission is offset by another misstatement of opposite income consequences	2	2.2	13	14.5	12	13.3	57	63.3	6	6.7
15. The misstatement or omission pertains to a division of the firm that has been identified as especially important to the success of the firm			25	27.7	14	15.6	37	41.1	14	15.6
16. The misstatement arises from an item that can be precisely measured or from an estimate (and, if the latter, the degree of imprecision in such estimate)			18	20.0	23	25.6	46	51.1	3	3.3

Table 1.

76.7% of participants agreed that the materiality assessment is affected by omissions of information which is not required by the applicable financial reporting framework but, in the auditor's judgment, is important to the users' understanding of the financial statements of the entity. The above results provide evidence that supports the guidelines provided by SAB 99 as well as the findings by Iyer and Whitecotton (2007) and Brown (2011) concerning qualitative materiality factors. Also, the results are in line with the concepts underlying both the theory of auditor reputation protection and agency theory as auditors tend to consider misstatements and errors affecting the trend of clients' results and/or transactions to related parties as materials to safeguard and protect their branding.

Moreover, a high percentage (70%) of participants agreed that offsetting a known misstatement or omission by another misstatement of opposite income consequences would influence auditor's assessment of materiality, while 16.7% disagreed. However, only 56.7% of participants agreed that the degree to which the misstatement or omission relates to a division of the firm that has been identified as especially important to the success of the firm would influence the auditor's materiality assessment. The lower acceptance of such factor compared to other factors in the study is the subjective judgment related to the determination of the importance of a division within a client structure. Participants' agreement reached its lowest regarding whether the misstatement arises from an item that can be precisely measured or from an estimate (and, if the latter, the degree of imprecision in such estimate). To sum up, there are high percentages of participants who agreed on the influence of the qualitative factors on the auditor's assessment of materiality. Table 1 also shows that auditors give priority to those factors directly affecting the financial results of their clients such as changing a loss into income or vice versa or a change in earnings trend. Then, auditors pay attention to the effects of possible misstatements in specific accounts transactions such as debts covenants, related parties, management compensation and violation of budget targets on the reliability of the financial reports. Finally, auditors assess the risk of fraud and other general misstatements in the financial statements when making their materiality judgment decisions, and it was considered by auditors as a difficult task in making their materiality judgment. At the same time, Appendix 1 shows Wilcoxon test results, indicating that the most acceptable qualitative factors are those with medians 4 and 4.5. These factors are the same as those with the highest acceptable levels in the frequency table.

4.2 Analysis using t-test

Table 2 shows that there are significant differences between sample's mean and population's parameter (μ = 3.4), at significant level less than (0.05) in terms of all qualitative materiality factors that affect auditor's materiality assessment except for qualitative factor (8), qualitative factor (10) and qualitative factor (13). Therefore, we accept that auditors are likely to assess a misstatement as material for a qualitative factor even when the quantitative factor is immaterial, and this validates that there is significant linear relationship between variable (reliance on qualitative materiality factors) and variable (auditor's materiality assessment).

4.3 Analysis of responses variance to personal characteristics of participants

This study was conducted with auditors working in different audit firms (Big 4 and Non-Big 4 with international affiliation), with various educational qualifications (bachelor's degree, master's degree and professional degree) and having different years of experience (less than 5 years, from 5 to 10 years, from 10 to 15 years and more than 15 years). The researchers used *t*- and F-tests to assess the effects of the differences in personal characteristics of

Table 2. The *t*-test to measure the significant differences between sample's mean and population's parameter ($\mu = 3.4$)

No.	Qualitative factor	Mean	SE	*t*-test	Significance level
1	Qualitative factor (1)	4.02	0.063	9.851	0.000
2	Qualitative factor (2)	4.14	0.077	9.706	0.000
3	Qualitative factor (3)	3.74	0.073	4.694	0.000
4	Qualitative factor (4)	3.93	0.063	8.491	0.000
5	Qualitative factor (5)	3.93	0.063	8.491	0.000
6	Qualitative factor (6)	3.99	0.062	9.468	0.000
7	Qualitative factor (7)	3.98	0.069	8.393	0.000
8	Qualitative factor (8)	3.58	0.095	1.876	0.064
9	Qualitative factor (9)	3.94	0.066	8.269	0.000
10	Qualitative factor (10)	3.38	0.089	−2.50	0.022
11	Qualitative factor (11)	4.00	0.061	9.804	0.000
12	Qualitative factor (12)	3.98	0.065	8.874	0.000
13	Qualitative factor (13)	3.44	0.112	0.397	0.692
14	Qualitative factor (14)	3.67	0.093	2.853	0.005
15	Qualitative factor (15)	3.88	0.069	6.968	0.000
16	Qualitative factor (16)	3.96	0.059	9.426	0.000

participants on the participants' responses in relation to the influence of qualitative materiality factors on materiality assessment (Appendix 2 includes the Distribution of auditor's personal characteristics). Table 3 shows that there are no significant differences between Big 4 and non-Big 4 audit firms in relation to the degree of reliance on qualitative materiality factors in materiality assessment decision, at a significant level greater than (0.05). Such results are for all qualitative materiality factors except for qualitative factor (3) "the misstatement or omission affects other information that will be communicated in documents containing the audited financial statements and affecting users' decisions" for non-Big 4 audit firms. A possible interpretation for such results is that non-Big 4 audit firms pay more attention to the information included in documents other than the financial statements compared with Big 4 based on management usual requests for verifying such information from those firms.

Table 4 shows that there are no significant differences among auditors with different years of experience in relation to the degree of reliance on qualitative materiality factors in materiality assessment decision except for qualitative factor (10) "Misstatement or omission involves concealment of unlawful transactions." Auditors with years of experience from 10 to 15 years are more likely to take into consideration the effect of misstatement or omission involves the concealment of unlawful transactions in materiality judgment decisions. A possible interpretation is that the detection of such unlawful transactions requires a certain level of accounting and auditing experience not less than 10 years. Similar results were found in Estes and Reames (1988) study where years of experience in external audit did not affect the decisions on materiality but only enhanced confidence of the client auditors' decisions. The results found are not in line with those found in Messier (1983), Carpenter *et al.* (1994) and Nelson *et al.* (2005), where auditors' experience and firm type were significant for materiality judgment. A possible interpretation might be the presence of major differences in the economic, political and market environment where each study was undertaken.

Finally, Table 5 shows that there are no significant differences among auditors with various educational qualifications in relation to the degree of reliance on qualitative materiality factors in materiality assessment decision except for qualitative factor (13) "Misstatement or omission affects compliance with regulatory requirements." Auditors

No.	Qualitative factor	Audit firm	Mean	Standard error	*t*-test	Significance level
1	Qualitative factor (1)	Big 4	4.05	0.094	0.391	0.696
		Non-Big 4	4	0.086		
2	Qualitative factor (2)	Big 4	4.15	0.122	0.064	0.949
		Non-Big 4	4.14	0.099		
3	Qualitative factor (3)	Big 4	3.55	0.134	−2.435	0.024*
		Non-Big 4	3.90	0.071		
4	Qualitative factor (4)	Big 4	3.90	0.123	−0.437	0.660
		Non-Big 4	3.96	0.057		
5	Qualitative factor (5)	Big 4	3.88	0.109	−0.829	0.424
		Non-Big 4	3.98	0.073		
6	Qualitative factor (6)	Big 4	4.05	0.101	0.878	0.383
		Non-Big 4	3.94	0.078		
7	Qualitative factor (7)	Big 4	3.98	0.110	−0.036	0.971
		Non-Big 4	3.98	0.088		
8	Qualitative factor (8)	Big 4	3.58	0.138	−0.026	0.979
		Non-Big 4	3.58	0.131		
9	Qualitative factor (9)	Big 4	3.90	0.106	−0.602	0.549
		Non-Big 4	3.98	0.083		
10	Qualitative factor (10)	Big 4	3.35	0.127	−0.278	0.781
		Non-Big 4	3.40	0.125		
11	Qualitative factor (11)	Big 4	4.08	0.104	1.097	0.275
		Non-Big 4	3.94	0.072		
12	Qualitative factor (12)	Big 4	4.05	0.124	0.992	0.353
		Non-Big 4	3.92	0.063		
13	Qualitative factor (13)	Big 4	3.63	0.167	1.453	0.150
		Non-Big	3.30	0.149		
	Qualitative factor (14)	Big 4	3.70	0.144	0.317	0.752
		Non-Big 4	3.64	0.124		
15	Qualitative factor (15)	Big 4	3.93	0.104	0.614	0.541
		Non-Big 4	3.84	0.092		
16	Qualitative factor (16)	Big 4	3.98	0.104	0.294	0.770
		Non-Big 4	3.94	0.066		

Table 3.
The *t*-test measuring the significant differences among the type of the audit firms

holding bachelor's degrees are more likely to take into consideration the effects of qualitative factor (13) in materiality judgment decisions than other auditors with different educational qualifications. This may imply that auditors with bachelor's degrees usually have less experience and, therefore, will always be alert to issues related to the violations of laws or regulatory requirements. Such results are not in line with those found in Messier *et al.* (2005) and Mock *et al.* (2013). A possible interpretation is that the above qualitative factor relates to the reputation and legal liability of the audit firms and may pose a risk of litigation to those firms (i.e. theory of auditor reputation protection). Also, users including government bodies may find misstatements material to the reliability of financial reporting (i.e. agency theory).

4.4 Experimental (case study) results

The following section provides an analysis of the results of the experiment which included six case studies (See Appendix 3 for the content of the cases or similar reference) .

4.4.1 Results using frequency tables.

4.4.1.1 Case (1) – Earnings trend. In this case, the qualitative factor addressed is whether the misstatement or omission makes a change in earnings trend. Of the participants, 82% assessed the misstatement as immaterial, while only 18% assessed them as material. Given the

No.	Qualitative factor	Years of experience	Mean	Standard error	F-test	Significance level
1	Qualitative factor (1)	Less than 5 years	3.98	0.107	0.445	0.722
		From 5 to 10 years	4.00	0.085		
		From 10 to 15 years	4.20	0.133		
		More than 15 years	4.11	0.111		
2	Qualitative factor (2)	Less than 5 years	4.02	0.131	1.290	0.283
		From 5 to 10 years	4.38	0.101		
		From 10 to 15 years	4.20	0.133		
		More than 15 years	4.11	0.111		
3	Qualitative factor (3)	Less than 5 years	3.55	0.100	3.250	0.026
		From 5 to 10 years	3.88	0.163		
		From 10 to 15 years	4.20	0.133		
		More than 15 years	3.89	0.111		
4	Qualitative factor (4)	Less than 5 years	3.91	0.105	0.292	0.831
		From 5 to 10 years	3.92	0.103		
		From 10 to 15 years	4.10	0.100		
		More than 15 years	3.89	0.111		
5	Qualitative factor (5)	Less than 5 years	3.96	0.096	0.770	0.514
		From 5 to 10 years	3.79	0.134		
		From 10 to 15 years	4.10	0.100		
		More than 15 years	4.00	0.000		
6	Qualitative factor (6)	Less than 5 years	3.94	0.083	0.526	0.666
		From 5 to 10 years	4.08	0.119		
		From 10 to 15 years	3.90	0.233		
		More than 15 years	4.11	0.200		
7	Qualitative factor (7)	Less than 5 years	3.94	0.103	0.663	0.577
		From 5 to 10 years	4.08	0.133		
		From 10 to 15 years	4.10	0.100		
		More than 15 years	3.78	0.222		
8	Qualitative factor (8)	Less than 5 years	3.40	0.142	1.742	0.164
		From 5 to 10 years	3.63	0.198		
		From 10 to 15 years	4.00	0.149		
		More than 15 years	3.89	0.111		
9	Qualitative factor (9)	Less than 5 years	3.87	0.108	0.444	0.722
		From 5 to 10 years	4.04	0.127		
		From 10 to 15 years	4.00	0.000		
		More than 15 years	4.00	0.000		
10	Qualitative factor (10)	Less than 5 years	3.02	0.131	7.914	0.000
		From 5 to 10 years	3.63	0.132		
		From 10 to 15 years	4.00	0.149		
		More than 15 years	3.89	0.111		
11	Qualitative factor (11)	Less than 5 years	3.91	0.095	0.703	0.553
		From 5 to 10 years	4.08	0.119		
		From 10 to 15 years	4.10	0.100		
		More than 15 years	4.11	0.111		
12	Qualitative factor (12)	Less than 5 years	3.89	0.111	0.651	0.584
		From 5 to 10 years	4.08	0.103		
		From 10 to 15 years	4.10	0.100		
		More than 15 years	4.00	0.000		

(*continued*)

Table 4.
F-test measuring the significant differences among auditors with different years of experience

No.	Qualitative factor	Years of experience	Mean	Standard error	F-test	Significance level
13	Qualitative factor (13)	Less than 5 years	3.19	0.148	2.385	0.075
		From 5 to 10 years	3.79	0.233		
		From 10 to 15 years	3.40	0.400		
		More than 15 years	3.89	0.111		
14	Qualitative factor (14)	Less than 5 years	3.55	0.148	1.176	0.324
		From 5 to 10 years	3.63	0.189		
		From 10 to 15 years	4.00	0.000		
		More than 15 years	4.00	0.000		
15	Qualitative factor (15)	Less than 5 years	3.77	0.115	1.436	0.238
		From 5 to 10 years	3.92	0.103		
		From 10 to 15 years	4.20	0.133		
		More than 15 years	4.00	0.000		
16	Qualitative factor (16)	Less than 5 years	3.87	0.099	0.772	0.513
		From 5 to 10 years	4.04	0.095		
		From 10 to 15 years	4.10	0.100		
		More than 15 years	4.00	0.000		

Table 4.

condition that the adjusted financial statements of the company would not maintain its earnings growth trend, the participants' responses changed to the following: 58% of them assessed it as immaterial, while 42% assessed it as material. Regarding the type of the auditor's report, the participants' responses varied through the two versions of the case. Given the condition that both adjusted and unadjusted financial statements of the company would maintain earnings growth trend, 51.5% of participants suggested unqualified audit report, 27.5% chose the qualified report option and only 20% suggested unqualified report with emphasis of a matter. On condition that the adjusted financial statements of the company would not maintain its earnings growth trend, participants modified their opinions to 42.5% of participants suggested the issuance of qualified audit report, 33.5% selected unqualified audit report with emphasis of a matter and only 24% went for unqualified audit report. These results provide evidence for the importance of this qualitative materiality factor (Table 6).

4.4.1.2 Case (2) – Misstatement that changes income into loss or vice versa. In this case, 48% of participants assessed the misstatement as material, 42% assessed it as immaterial and only 10% assessed as highly material. Given the condition that the unadjusted financial statements report that the company is profitable while the adjusted statements would turn the company's profit into loss, participants' assessment of materiality of misstatement changed to 66% as material, 22% as highly material and only 12% as immaterial. These results show the significance of such qualitative factor on the users' decisions. Regarding the type of the auditor's report, participants' responses differed, given the two versions of the case. On condition that both adjusted and unadjusted financial statements indicate that the company was profitable, participants' opinions were as follows: 64% of participants suggested the issuance of qualified audit report, 28% suggested unqualified audit report and only 8% suggested unqualified audit report with emphasis of a matter. On condition that the unadjusted financial statements report that the company is profitable while the adjusted statements would turn the company's current year income into loss, participants' opinions changed to be 70% suggesting the issuance of a qualified audit report, 16% an unqualified audit report, 8% an adverse opinion and only 6% opted for an unqualified audit report with emphasis of a matter. Combining qualified with adverse opinion selection, participants decisions were affected with the use of this qualitative factor (Table 7).

No.	Qualitative factor	Educational level	Mean	Standard error	F-test	Significance level
1	Qualitative factor (1)	Bachelor's degree	3.95	0.095	1.640	0.200
		Master's degree	4.00	0.000		
		Professional degree	4.21	0.085		
2	Qualitative factor (2)	Bachelor's degree	4.16	0.121	0.243	0.785
		Master's degree	4.00	0.000		
		Professional degree	4.17	0.078		
3	Qualitative factor (3)	Bachelor's degree	3.73	0.088	0.906	0.408
		Master's degree	4.00	0.000		
		Professional degree	3.67	0.187		
4	Qualitative factor (4)	Bachelor's degree	3.91	0.091	0.133	0.876
		Master's degree	4.00	0.000		
		Professional degree	3.96	0.112		
5	Qualitative factor (5)	Bachelor's degree	3.91	0.087	0.133	0.876
		Master's degree	4.00	0.000		
		Professional degree	3.96	0.127		
6	Qualitative factor (6)	Bachelor's degree	3.91	0.083	1.616	0.205
		Master's degree	4.00	0.000		
		Professional degree	4.17	0.130		
7	Qualitative factor (7)	Bachelor's degree	3.93	0.107	0.479	0.621
		Master's degree	4.00	0.000		
		Professional degree	4.08	0.083		
8	Qualitative factor (8)	Bachelor's degree	3.60	0.123	4.329	0.016
		Master's degree	2.91	0.315		
		Professional degree	3.83	0.130		
9	Qualitative factor (9)	Bachelor's degree	3.95	0.102	0.066	0.936
		Master's degree	4.00	0.000		
		Professional degree	3.92	0.083		
10	Qualitative factor (10)	Bachelor's degree	3.16	0.121	5.127	0.008
		Master's degree	3.82	0.122		
		Professional degree	3.67	0.143		
11	Qualitative factor (11)	Bachelor's degree	3.95	0.095	0.795	0.455
		Master's degree	4.00	0.000		
		Professional degree	4.13	0.069		
12	Qualitative factor (12)	Bachelor's degree	3.93	0.097	0.536	0.587
		Master's degree	4.00	0.000		
		Professional degree	4.08	0.103		
13	Qualitative factor (13)	Bachelor's degree	3.45	0.144	14.418	0.000
		Master's degree	2.18	0.182		
		Professional degree	4.00	0.135		
14	Qualitative factor (14)	Bachelor's degree	3.67	0.122	6.403	0.003
		Master's degree	2.91	0.315		
		Professional degree	4.00	0.104		
15	Qualitative factor (15)	Bachelor's degree	3.80	0.102	1.011	0.368
		Master's degree	4.00	0.000		
		Professional degree	4.00	0.104		
16	Qualitative factor (16)	Bachelor's degree	3.89	0.092	1.030	0.361
		Master's degree	4.00	0.000		
		Professional degree	4.08	0.058		

Table 5.
F-test measuring the significant differences among auditors with various educational qualifications

Table 6.
Case (1) – Earnings trend

	Materiality assessment			Type of the auditor's report			
	Immaterial (%)	Material (%)	Highly material	Unqualified (%)	Unqualified with emphasis of a matter paragraph (%)	Qualified (%)	Adverse
Version (1)	82	18	–	51.5	21	27.5	–
Version (2)	58	42	–	24	33.5	42.5	–

	Materiality assessment			Type of the auditor's report			
	Immaterial (%)	Material (%)	Highly material (%)	Unqualified (%)	Unqualified with emphasis of a matter paragraph (%)	Qualified (%)	Adverse (%)
Version (1)	42	48	10	28	8	64	–
Version (2)	12	66	22	16	6	70	8

Table 7.
Case (2) – Misstatement that changes income into loss or vice versa

4.4.1.3 Case (3) – Misstatement that affects compliance with debt or contractual requirements. When participants were informed that adjusting the misstatement related to the client's accounts receivables would not affect the client's compliance with debt and loan requirements, their opinions regarding the assessment of materiality were as follows: 52% of participants assessed the misstatement as immaterial, 42% assessed it as material and only 6% considered it as highly material. On the other hand, when participants were informed that adjusting the same misstatement would make the company in violation of debt and loan requirements, participants' opinions changed to 58% assessing the misstatement as material, 32% immaterial and only 10% of participants as highly material. Such results provide supporting evidence of the importance of such qualitative materiality factor. Regarding the type of the auditor's report and on condition that both adjusted and unadjusted financial statements indicate that the company is complying with debt and loan requirements, 46% of participants suggested the issuance of qualified audit report, 42% went for unqualified audit report and only 12% chose unqualified audit report with emphasis of a matter. However, when participants were informed that adjusting the misstatement would make the company in violation of debt and loan requirements, they modified their opinions as follows: 66% suggested the issuance of qualified report, 24% chose unqualified audit report and only 10% suggested unqualified audit report with emphasis of a matter. (Table 8)

4.4.1.4 Case (4) – the motivation of the misstatement. In this case, the researchers manipulated the intent of the misstatement or omission. When participants were informed that the misstatement was judged to be intentional, their responses were as follows: 60% of participants assessed the misstatement as material, 22% assessed it as immaterial and 18% considered it as highly material. On the other hand, when participants were asked to assess the materiality of the same misstatement if it is judged to be unintentional, their responses changed to 66% of participants assessed the misstatement as material, 28% assessed it as immaterial and only 6% assessed as highly material. Regarding the type of the auditor's report, participants' responses varied through the two versions of the case. On condition that the misstatement was judged to be intentional, 66% of participants suggested the issuance of qualified audit report, 18% went for unqualified report, 10% suggested unqualified with emphasis of a matter and only 6% suggested adverse opinion. On the other hand, when participants were informed that the misstatement was judged to be unintentional, their opinions became as follows: 34% suggested qualified report, 34% suggested unqualified with emphasis of a matter, 28% chose unqualified audit report and only 4% suggested adverse opinion (Table 9).

4.4.1.5 Case (5) – Misstatement that affects management compensation. In this case, when participants were informed that adjusting the misstatement would not affect management's compliance with requirements for bonuses or other forms of compensation, their opinions regarding the assessment of materiality were as follows: 58% assessed the misstatement as immaterial, 36% assessed it as material and only 6% assessed such misstatement as highly material. At the same time, when participants were informed that adjusting the misstatement would not qualify the company's management for bonuses or other forms of compensation, no substantial changes in the materiality assessment were noticed, compared to the above results (Table 10).

4.4.1.6 Case (6) – Misclassification between certain account balances and change of reported results. In this case, when participants were informed that adjusting the misclassification, by recording employees' rewards among the company's expenses, would not affect the company's profit, 66% of the participants assessed the misstatement as immaterial, 30% considered it material and only 4% assessed it as highly material. On the

	Materiality assessment			Type of the auditor's report			
	Immaterial (%)	Material (%)	Highly material (%)	Unqualified (%)	Unqualified with emphasis of a matter (%)	Qualified (%)	Adverse (%)
Version (1)	52	42	6	42	12	46	–
Version (2)	32	58	10	24	10	66	–

Table 8.
Case (3) – Misstatement that affects compliance with debt or contractual requirements

	Materiality assessment			Type of auditor's report			
	Immaterial (%)	Material (%)	Highly material (%)	Unqualified (%)	Unqualified with emphasis of a matter (%)	Qualified (%)	Adverse (%)
Version (1)	22	60	18	18	10	66	6
Version (2)	28	66	6	28	34	34	4

Table 9.
Case (4) – the motivation of the misstatement

	Materiality assessment			Type of the auditor's report			
	Immaterial (%)	Material (%)	Highly material (%)	Unqualified (%)	Unqualified with emphasis of a matter (%)	Qualified (%)	Adverse (%)
Version (1)	58	36	6	34	26	36	4
Version (2)	52	38	10	22	22	54	2

Table 10.
Case (5) – Misstatement that affects management compensation

other hand, when participants were informed that adjusting the misclassification would turn the company's profit into loss, their opinions changed to reflect the importance of such materiality qualitative factor. Accordingly, 48% of participants assessed it as immaterial and 44% classified it as material. Regarding the type of the auditor's report, the participants' responses varied through the two versions of the case. On condition both the adjusted and unadjusted financial statements report that the company is profitable, the participants' opinions were as follows: 48% suggested unqualified audit report, 26% suggested unqualified audit report with emphasis of a matter and 26% chose qualified audit report. On the other hand, when participants were informed that adjusting the misclassification would turn the company's profit into loss, their opinions changed to 46% opted for qualified audit report, 40% suggested unqualified audit report with emphasis of a matter and 14% went for unqualified audit report (Table 11).

4.4.2 Results using Friedman test. The Friedman test is performed to determine whether the differences in the responses of participants across the two versions of each case were significant or insignificant. Table 12 shows that there are significant differences in the responses of participants across the two versions of the first case which is related to earnings trend, with a significant level of less than (0.05). However, the *p*-values of the Friedman test for all other cases indicated that there are insignificant differences in the responses of participants across the two versions of each case, for both the materiality assessment and the type of the auditor report at a significant level greater than 0.05. Such results are not consistent with those found by Doxey (2013) and Lee *et al.* (2018) for the effect of qualitative materiality factors on the type of the auditors' report.

5. Conclusion

In contrast to prior studies, this study investigated the effect of several qualitative materiality considerations, cited in the authoritative guidelines and pronouncements including SAB 99, on auditors' materiality judgment in real practice. The results provided evidence that high percentage of participants agreed on the influence of identified qualitative materiality factors on the auditor's assessment of materiality and the type of the auditor's report. However, auditors do not follow them in a consistent fashion. Such inconsistency may be because of potential ambiguity in the existing auditing standards related to the qualitative materiality factors. The results also revealed that the participants' responses on few of the tested qualitative factors are significantly affected by the type of the audit firm with significant differences in the responses of participants who have different years of experience and educational qualifications, for only two qualitative factors: concealment of an unlawful transaction and compliance with regulatory requirements. Prior studies (Nelson *et al.*, 2005; Iyer and Whitecotton, 2007; Brown, 2011; Keune and Johnstone, 2012), however, had mixed results compared to the current research, especially in relation to the level of experience and qualifications of the auditors when making materiality decisions. The case studies showed significant differences in the responses of participants across the two versions of the first case related to earnings trend with insignificant differences in the sponses of participants across the two versions for the rest of the cases, implying that the selected qualitative factors in these cases were irrelevant to participants when making their judgment about materiality and the type of the auditor's report.

Some important contributions to the auditing literature are achieved by this research. First, we facilitate future research by contributing to detailed and complete understanding of how materiality judgments are formed and integrated in the audit process in practice. We provided a descriptive foundation upon which researchers can build models, design and implement experiments and decision aids. A list of 16 qualitative factors were developed

	Materiality assessment			Type of the auditor's report			
	Immaterial (%)	Material (%)	Highly material (%)	Unqualified (%)	Unqualified with emphasis of a matter (%)	Qualified (%)	Adverse (%)
Version (1)	66	30	4	48	26	26	–
Version (2)	48	44	8	14	40	46	–

Table 11.
Case (6) – Misclassification between certain account balances and change of reported results

and assessed, that may be considered by auditors when assessing materiality and enhancing the investigation of qualitative factors done in prior studies. Second, the research provides further evidence that the most important qualitative factor considered by auditors in determining the materiality of misstatements and the type of the audit report is the degree to which the misstatement could change a company's income into loss or vice versa. They regard it as such even if the misstatement has been classified as quantitatively immaterial. Third, the study supports the application in practice of both the theory of auditors' reputation protection and agency theory in materiality judgment decisions. Fourth, more explicit or standardized qualitative materiality guidelines would lead to a more uniform judgment among auditors. Fifth, there are significant differences in materiality judgment between the auditors of the Big 4 and those of the small audit firms. Also, our additional contribution is the documentation of materiality judgments in relation to qualitative factors as well as the personal characteristics of auditors, highlighting the importance of materiality judgments to auditors, regulators and investors. Sixth, the results from prior studies showed that audit report modifications are issued at much lower percentage (less likely to be issued) when a company is reporting net income. However, the results of the current research demonstrate that in certain situations, auditors considered factors other than the income for assessing a certain misstatement as material and, consequently, included modifications in their audit reports. Finally, our results are important to investors who rely on the auditors' materiality threshold to gain insights into the audit process and to infer the quality of the firm's reported earnings. Our results are also useful to regulators and standard setters who are contemplating whether to impose qualitative materiality threshold disclosure requirements in the new audit reports and the extent of such disclosure.

Some limitations exist in the current research study. First, in analyzing the extent to which Egyptian auditors would rely on qualitative materiality factors, only materiality judgments at the final stage of the audit process (issuance of the audit report) were examined. Second, the research findings were based only on the perception of the auditors in an emerging economy. Therefore, care must be exercised when extending our findings to other auditing firms across the world. Future research should examine how applying qualitative materiality factors mentioned in the auditing standards would change the way in which auditors approach materiality in the planning and execution phases of the client audits. While the current study captures in its data collection what happens in actual practice situations faced by auditors, future studies can extend data collection to a review of audit working papers to determine how the process of materiality judgment is conducted and whether it complies with this study findings.

Table 12.
F-test of differences in participants' responses across the two versions of each case

Case	*p*-value (Materiality assessment)	*p*-value (Audit report determination)
Case (1)	0.001	0.012
Case (2)	0.221	0.09
Case (3)	0.221	0.197
Case (4)	0.564	0.532
Case (5)	1	0.317
Case (6)	0.317	0.248

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Appendix 1

Table A1. Wilcoxon test for the analysis of the responses on qualitative materiality factors

	Median	*p*-value
Qualitative factor 1	4.5	0.003
Qualitative factor 2	4.5	0.000
Qualitative factor 3	4.5	0.001
Qualitative factor 4	4	0.002
Qualitative factor 5	4	0.007
Qualitative factor 6	4	0.000
Qualitative factor 7	4	0.002
Qualitative factor 8	4	0.000
Qualitative factor 9	4	0.002
Qualitative factor 10	4	0.002
Qualitative factor 11	4	0.019
Qualitative factor 12	4	0.002
Qualitative factor 13	4	0.000
Qualitative factor 14	4	0.000
Qualitative factor 15	3.5	0.008
Qualitative factor 16	3.5	0.000

Appendix 2

Table A2. Distribution of auditor's personal characteristics

Characteristic	No/Frequency
Type of audit firm:	
Big 4 auditing firm	40 (45%)
Non-Big 4 auditing firm	50 (55%)
Years of experience:	
Less than 5 years	47 (52%)
From 5 to 10 years	24 (27%)
From 10 to15 years	10 (11%)
More than 15 years	9 (10%)
Educational level:	
Bachelor's degree	55 (61%)
Master's degree	11 (12%)
Professional degree	24 (27%)

Note: The experiment case studies

Appendix 3

Case (1) – Earnings trend: The nature of the misstatement in this case is a reporting error (i.e. application of accounting standards) related to the accounting treatment for certain revenues. In this case, auditors believed that they have discovered an instance of intentional manipulation of financial statements by management. The magnitude of the misstatement, however, is only 2% of net income and, thus, well below the 5% rule-of-thumb. The case further clarifies that, irrespective of whether the financial statements are adjusted for the misstatement or not, the company's statements will show a profit and meet analysts' earnings expectations. Two versions of the case were prepared to

manipulate the qualitative factor as to whether the misstatement or omission makes a change in earnings trend. In each version of the case, participants were asked to assess whether the misstatement or omission was material given the qualitative surrounding circumstances.

Case (2) – Misstatement that changes income into loss or vice versa: The misstatement in this case was a reporting error related to the company's revenues, as the company has incorrectly recorded capital profits resulting from sale of certain 116 fixed assets at amounts exceeding their book values. The magnitude of the misstatement was again below the 5% rule-of-thumb. The motivation for the misstatement was unknown. That is, in contrast to prior case, the participants are not provided any direct input on management's motives. Both adjusted and unadjusted financial statements meet analysts' earnings expectations and maintain earnings growth trend in this case. Two versions of the case were prepared to manipulate the qualitative factor as to whether the misstatement or omission changes a loss into income or vice versa.

Case (3) – Misstatement that affects compliance with debt or contractual requirements: The misstatement was a reporting error related to the company's accounts receivable, as the company has not recorded impairment of accounts receivable resulting in overstatement of such accounts. Participants were informed that such misstatement would affect client's compliance with debt and loan requirements. The magnitude of the misstatement was again below the 5% rule-of-thumb. The motivation for the misstatement was unknown. Both adjusted and unadjusted financial statements meet analysts' earnings expectations and maintain earnings growth trend in this case. Two versions of the case were prepared to manipulate the qualitative factor as to whether the misstatement or omission affects compliance with debt covenants or other contractual requirements. In one version, both adjusted and the unadjusted statements indicated that the company is complying with debt requirements, while in the other version, the unadjusted statement reports the firm is complying with debt requirements, whereas an adjusted statement would make the company in violation of debt and loan requirements.

Case (4) – The motivation of the misstatement: The misstatement in this case is one of the accounting estimates represented in the subjective determination of tax allowance. Past research has shown that auditors are less likely to require adjustments to estimates than to reporting errors, under a rationale of lack of materiality. It is also known that members of management lacking integrity know this and use this to their advantage; that is, they know that manipulated estimates are easier to get past auditors than contested interpretations of authoritative standards. In two versions of the case, the magnitude of the misstatement was again below the 5% rule-of thumb; both adjusted and unadjusted financial statements maintain earnings growth trend. Management's unadjusted figures meet analysts' earnings expectations, while statements adjusted to the auditor's estimates would not meet analysts' earnings expectation. The qualitative factor tested is the motivation of the misstatement or omission.

Case (5) – Misstatement that affects management compensation: The misstatement in this case was a reporting error related to the company's expenses, as the company has not included workers' remunerations within its expenses resulting in overstatement of the company's net profit affecting management incentives. The magnitude of the misstatement was again below the 5% rule-of-thumb. The motivation for the misstatement was unknown. The qualitative factor tested is whether the misstatement or omission affects management compensation.

Case (6) – Misclassification between certain account balances and change of reported results: The misstatement is a reporting error related to misclassification between certain account balances, as the company's financial statements had not shown the financial impacts resulting from selling and delivering certain *n* units to customers. The company incorrectly recorded amounts of such sold units as work-in-progress. The magnitude of the misstatement was only 2% of net income and, thus, well

below the 5% rule of-thumb. The motivation for the misstatement was unknown. Both adjusted and unadjusted financial statements meet analysts' earnings expectations and maintain earnings growth trend in this case. The qualitative factor tested is the misclassification between certain account balances. In one version of the case, both adjusted and unadjusted statements would report that the company is profitable, while in the other version, the company's profit would turn into loss if adjusted figures are reported.

About the authors

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