

# INVENTORY MATERIALITY DETERMINATION AND AUDITOR’S OPINION

Sabiha TURGUT GENÇ\*

## ABSTRACT

Our study explores the significance of materiality levels in inventory audits and their influence on independent auditors’ opinions, a crucial aspect of financial reporting and decision-making. Specifically, our study investigates how factors such as gender, age, education level, audit experience, and the number of files audited influence materiality assessment, audit planning, participation in audit techniques, and ultimately, auditors’ opinions on inventory audits. We employ an online survey methodology, targeting auditors from firms authorized by the Public Oversight Authority in Istanbul. Our findings reveal notable variations in audit practices, particularly regarding materiality levels, audit approaches, planning strategies, and inventory auditing techniques. Furthermore, incorrect materiality assessments appear to contribute to inaccurate audit opinions, underlining the importance of precise evaluation methods. Finally, the techniques applied in inventory auditing play a crucial role in shaping auditors’ final conclusions.

**Keywords:** Auditing, Materiality Level, Auditor’s Opinion, Inventories

**JEL Classification:** M

## Öz

Çalışmamız, stok denetimlerinde önemlilik seviyelerinin önemi ve bu seviyelerin bağımsız denetçilerin görüşleri üzerindeki etkisini incelemektedir; bu da finansal raporlama ve karar alma süreçleri açısından kritik bir konudur. Özellikle, cinsiyet, yaş, eğitim düzeyi, denetim tecrübesi ve denetlenen dosya sayısı gibi faktörlerin önemlilik değerlendirmesi, denetim planlaması, denetim tekniklerine katılım ve nihayetinde denetçilerin stok denetimi konusundaki görüşleri üzerindeki etkisini araştırıyoruz. Çalışmamızda, Kamu Gözetimi Kurumu tarafından yetkilendirilmiş İstanbul’daki denetim firmalarında görevli denetçilere yönelik çevrim içi anket yöntemi kullanılmıştır. Bulgularımız, özellikle önemlilik seviyeleri, denetim yaklaşımları, planlama stratejileri ve stok denetim teknikleri açısından denetim uygulamalarında dikkate değer farklılıklar olduğunu ortaya koymaktadır. Ayrıca, hatalı önemlilik değerlendirmelerinin yanlış denetim görüşlerine yol açtığı görülmekte olup, bu durum doğru değerlendirme yöntemlerinin önemini vurgulamaktadır. Son olarak, stok denetiminde uygulanan teknikler, denetçilerin nihai görüşlerinin şekillenmesinde önemli bir rol oynamaktadır.

**Anahtar Sözcükler:** Denetim, Önemlilik Düzeyi, Denetçinin Görüşü, Stoklar

**JEL Kodu:** M

---

\* Dr., Istanbul Okan University, E-mail: sabihaturgutgenc@gmail.com, ORCHID ID: 0000-0002-3714-7829

## 1. INTRODUCTION

Materiality is a significant concept affecting the entire accounting process (Gordeeva, 2011). Therefore, it attracted significant interest in academia (Zhu et al., 2024). As it can be clearly understood from the title of Oesterle (2011), materiality is overused but underdefined. Definitions can be clustered around economic decision-making (see, among others, Christensen et al., 2020, and Masiulevičius, 2024). Materiality can be defined as the impact of misstatement which may change the economic decision of a knowledgeable financial statement user (Christensen et al., 2020).

Materiality is a multi-dimensional concept with three major pillars: planning materiality, tolerable misstatement, and assessment materiality (Messier et al., 2005). These dimensions add complexity to the concept. Messier et al. (2005) define these pillars as follows: i) planning materiality is determined at the outset of the audit to establish the overall scope, ii) tolerable misstatement represents the allocation of planning materiality to specific account balances or transactions, and iii) assessment materiality is the threshold at which identified misstatements require adjustments in financial statements.

During the auditing process, an auditor is responsible for making materiality judgments (Zhu et al., 2024) which play a crucial role in risk assessment and ultimately shape the auditor's opinion. Although materiality is the major determinant of the audit quality (Zhu et al., 2024), it hugely remains subjective. To illustrate, the Judgement of an auditor is affected by quantitative and qualitative factors, in addition to professional experience (Messier et al., 2005; Kristensen, 2015). We may proliferate these elements by also considering client-specific characteristics, accounting policies, and external economic conditions, which -as a whole- lead to a very complex materiality determination (Chong, 2008). Additionally, materiality assessments differ not only among audit firms and auditors but also among jurisdictions (Messier et al., 2005), industries (Azad et al., 2022; Carpenter & Dirsmith, 1993), and regulatory environments (Vance, 2022). All these indicate the non-static and non-rigid aspect of materiality.

By considering the aforementioned significance of materiality, its application for different financial statement items gains greater significance. As inventories are one of the critical factors in determining costs, they play a significant role in the performance of entities. Given the significant share of inventory costs in total expenses and their impact on production continuity, inventory management has become a vital aspect of corporate strategy (Ertuğrul & Tanriverdi, 2013), especially from the perspective of efficient supply chain management. In other words, since inventories often constitute a significant portion of total assets, their misstatement can directly affect financial reports, influencing materiality assessments and auditor judgments. Inventories are also very significant items for auditors -like firms- from different Angles, as they may be subject to profit (or earnings) manipulation and financial misstatements. Such outcomes, which may be more apparent in firms with weak internal control mechanisms, may spring from fraudulent activities and errors directly inducing audit risk (Ceran & Bezirci, 2011). From that perspective, the correct evaluation of inventories is not enough for independent auditors without correct determination of the materiality level.

Our literature review shows that the extant research overwhelmingly analyses the concept by considering manufacturing firms and documents evidence based on that industry. By analyzing audit reports of companies operating in the Borsa Istanbul (BIST) manufacturing sector, Uzay

and Köylü (2018) and Kalıpçı Çağırın and Varıcı (2019) document that inventories are the most frequently reported key audit Matters, while Gökgöz (2018) documents similar outcomes for a sample, forty percent of which is comprised of manufacturing firms. Inventories are classified as a key audit matter due to the risks associated with impairment, allocation of provisions, and calculation of provisions (Tazegül, 2021). All these risks require significant judgments about materiality. Furthermore, as Turkey has been experiencing a high level of inflation since the onset of the pandemic, the inflation accounting has become necessary as of 2023 (Akçay, 2024), which may inherently induce additional risks on inventories, and thus on materiality. All in all, given the high-risk related to inventories, the aforementioned materiality considerations play an important role in audit engagements. Hence, factors influencing this determination, which is directly related to the auditor's opinion, represents an intriguing research phenomenon.

To our knowledge, the existing literature has a very limited number of studies analyzing the effect of various characteristics of independent auditors on the level of materiality of inventories and auditor's opinion. Our study aims to fill this gap in the literature by shedding light on the impact of several factors - including gender, age, education level, audit experience and number of files audited - on the auditor's level of agreement with materiality levels, approach, planning and audit techniques in inventories. Furthermore, our study documents evidence for i) the impact of incorrect determination of the materiality level, and ii) the impact of techniques applied in inventory audit, on auditor's opinion. To perform research, an online survey is conducted to a sample consisting of auditors working at audit firms authorized by the Public Oversight Authority in Istanbul province. Our outcomes suggest that auditors should develop an effective materiality determination approach and ensure that appropriate audit techniques are employed. By addressing these research gaps, our study aims to enhance the understanding of materiality determination in inventory audits and contribute to improving audit quality and financial transparency.

## **2. THEORETICAL DISCUSSION**

Materiality is one of the significant dimensions of audit quality despite its subjectivity yields a complex concept. It can be considered from different perspectives including institutional theory and contextual factors, yet none is fully helpful to illustrate its complexity.

From the perspective of contextual factors, Azad, Salehi, and Lari Dashtbayaz (2022) investigate materiality determination at the financial statement level. They conclude that international standards-based auditing practices result in higher materiality thresholds than local (Iranian) auditing practices. They further for a more dynamic materiality framework by concluding that both quantitative and qualitative factors should be considered for effective materiality assessment.

Through the lens of institutional theory, Carpenter and Dirsmith (1993) explore how materiality determination impacts auditors' opinions. They first conclude that auditors' materiality judgments are influenced by both formal standards and informal institutional factors, which i) may shape their final opinions on misstatements, and ii) lead to variability in materiality thresholds and, hence, differences in audit conclusions. They also suggest that auditors' decisions are not based only on objective criteria, which should be interpreted as follows: organizational norms and professional practices shape auditors' decisions, eventually affecting the consistency and reliability of their opinions.

By comparing various quantitative benchmarks, Chewning and Higgs (2002) analyse the most effective accounting measure of materiality for predicting audit adjustments. They conclude that no single metric universally superior to the others simply because of the fact that the effectiveness of materiality measures differs based on industries, client risk profiles, financial statement components, as well as audit context. They also reveal that auditors' judgments on materiality directly affect their assessment of misstatements, with different measures potentially leading to different audit opinions. Overall, they suggest that auditors should consider both quantitative and qualitative factors to enhance audit effectiveness.

DeZoort, Holt, and Stanley (2023) explore the differences in materiality judgments between unsophisticated and sophisticated investors and auditors. Their findings indicate that investors tend to adopt a lower materiality threshold, perceiving smaller misstatements as more impactful on decision-making compared to auditors. They also conclude that enhanced guidance is necessary to help auditors better assess qualitative materiality factors and align their judgments with investor expectations, as investors prioritize precisely measurable accounting areas more than auditors.

Eilifsen and Messier (2015) analyze the materiality guidance provided by major public accounting firms, highlighting variations in their approaches. They find that while firms generally follow a similar quantitative framework, materiality assessment differences arise in qualitative considerations and professional judgment: Qualitative factors play a significant role in materiality judgments and audit conclusions, and firms differ in their approaches to assessing uncorrected misstatements and potential undetected errors. They also suggest a need for greater standardization to ensure that auditors' opinions are both reliable and comparable across different firms and audit contexts.

Vance (2022) conducts a meta-analysis of materiality studies, synthesizing key findings from prior research and emphasizing the lack of a definitive threshold as courts reject bright-line tests. His findings indicate significant inconsistencies in materiality thresholds which makes jurors (most of them have limited expertise compared to investors and financial statement users) to comprehend reasonable materiality.

Samiole, Spence, and Toh (2024) investigate how the technological improvements in the fourth industrial revolution will affect auditors' judgments, questioning the narrative that low-level tasks, often seen as ripe for automation, require minimal judgment. They argue that automating these tasks could erode essential elements of judgment, deliberation, and reflexivity crucial for early-career auditors; however, technology may exert new uncertainties, requiring auditors to apply judgment to reconcile technology outputs with existing knowledge. They further highlight the risk of losing practical knowledge as auditors rely more on automated processes.

The existing literature provides substantial evidence on the relationship between materiality and audit judgments, emphasizing the necessity of a more structured framework to examine this association. Building on the discussion of inventory audits in the introduction section, our study aims to further explore this relationship. From experience and formal education to gender, the association between several sectors and materiality level is analysed in the extant literature. As the name of their article, *Do Individual Auditors Affect Audit Quality?*, implies, Gul et al. (2013) reveal that auditor characteristics affect audit outcomes.

Formal education enhances the ability to convert theory into practice and improves general knowledge (Che et al., 2018), which may yield higher judgment. For instance, having a masters degree is strongly associated to reporting aggressively (Gul et al., 2013) and more audit effort Che et al. (2018). Similarly, Li et al. (2017) find that having a higher education is strongly associated with lower audit failure. As formal education influences auditor's judgmental abilities, we take education levels into account in our analyses.

Professional experience is another dimension of materiality (Kristensen, 2015). For this dimension, not only materiality judgments but also efficiency come into the scene (Che et al., 2018). As highlighted by Hasan et al. (2021), the association between experience and materiality judgment is not abundantly studied in the literature. The major groundbreaking research of Messier (1983) document evidence for the positive impact of professional experience on accurate materiality decisions. Another earlier study by Carpenter and Dirsmith (1992) provides a similar outcome. Overall, professional experience should be considered in our analyses. It can be inferred from Che et al. (2018) that the literature proxies experience by age and length of time working in the audit field. We also take the number of files audited into account.

Last, despite being studied very limited, the gender difference is another aspect of materiality (Hasan et al., 2021). Hasan et al. (2021) further underline that Estes and Reames (1988) is the only study documenting evidence for the association between gender and materiality. Although Estes and Reames (1988) report no significant difference between males and females, Hasan et al. (2021) conclude that this difference is significant in favor of females. Given its documented impact on materiality decisions, we include gender in our analyses.

To recap, to determine the relationship between the level of materiality, approach, planning and audit techniques in inventories and various factors and the auditor's opinion, first, the effects of demographic factors such as gender, age, education level, length of time working in the audit field and number of files audited on the behavior of the participants in inventory management and audit processes are examined. Hence, our major aim is to assess the impact of these factors on the significance of inventories for auditors, approaches and planning techniques preferred by auditors, and active participation of auditors in the audit processes.

Furthermore, we explore the effect of the techniques performed in the audit of inventories, which may affect auditor's assessment and opinion on inventories. From this point of view, we examine how different techniques are reflected in the audit process. We expect to document evidence for the impact of such techniques on auditors' opinions, and their effectiveness. Last, the impact of materiality on the auditor's opinion is explored. Inventories which are considered to be material may require more auditors' attention, as well as resources to be allocated for audit. Therefore, the accuracy and precision in determining the materiality level may shape auditors' opinions on inventories.

All in all, by systematically examining the interplay between materiality, audit techniques, and auditor demographics, our study seeks to bridge the existing gap in the literature and offer practical insights for both auditors and regulatory bodies.

### **3. SAMPLE SELECTION & METHODOLOGY**

In our study, we employ the convenience sampling method, a non-probability sampling technique that is particularly effective in minimizing time and cost constraints (Etikan, Musa,

& Alkassim, 2016). Although this technique may lead to the misrepresentation of the whole population (selection bias) (Marshall, 1996), it allows for quick and efficient data collection (Etikan, Musa, & Alkassim, 2016).

The population of independent auditors in Turkey registered with the Public Oversight Authority comprises 19,062 individuals. Among this population, 7,088 auditors based in Istanbul are selected as the sample to represent the target group. We select Istanbul due to several reasons. First, the share of Istanbul in total Gross Domestic Product (GDP) is slightly above 30% in 2022 and 2023 according to Turkish Statistical Institute, which makes Istanbul the economic heart of Türkiye. Second, Istanbul is also located at the center of the Marmara region, which produces more than the half of the national GDP in 2022 and 2023. Auditors based in Istanbul often provide services outside the city, particularly in the surrounding Marmara region, thus ensuring a relatively representative sample and increasing the generalizability of our findings. We exclude auditors who are not actively engaged in auditing or whose primary source of income is derived from sources other than independent audit services from our sample.

Certain descriptive statistics of our sample are discussed in this paragraph. Among all 637 participants,

- 143 are female while the remaining 494 are male.
- 169, 190, 186, 70 and 22 are respectively classified under 25-34, 35-44, 45-54, 55-64, and above 65 age groups.
- 360 have a Bachelor's Degree while 230 and 47 respectively hold a Master's Degree and PhD Degree.
- 242 have a length of employment to 5 years, 152 (87) [62] have a length of employment between 6 (11) [16] and 10 (15) [20] years and the remaining 94 have a length of employment above 20 years.
- 187 have a number of audits to 5 years, 87 (54) [27] have a number of audits between 6 (11) [16] and 10 (15) [20] years and the remaining 282 have a length of employment above 20 years.

Based on Krejcie and Morgan's (1970) formula, the required sample size for a population of 19,062 auditors should be at least 365. However, in order to account for the internal consistency of the survey instrument, the sample size is recalculated using the gPower test. This recalculation is crucial to check the internal reliability, as well as to ensure the robustness of outcomes (Faul et al., 2007). As a result, a sample size of nearly 700 auditors is assumed to be appropriate for our study.

Our study performs the descriptive survey method, which is a usually used in the first phase of complex or under-researched topic. Questionnaire statements are determined by examining the extant literature. The survey is conducted online using SurveyMonkey, and is designed based on a 5-point Likert scale (1 – Strongly disagree, 2 – Disagree, 3 – Undecided, 4 – Agree, 5 – Strongly agree). Participants are selected from the professional and academic circles or via the *LinkedIn* platform. The survey process is completed by establishing one-to-one communication the participants to ensure response quality.

A questionnaire consisting of 20 questions is performed to the sample; however, 6 questions that do not have sufficient significance for analyses are excluded. Hence, we proceed with the

remaining 14 questions, 5 of which pertain to demographic information while the rest measure the level of materiality in inventories, allow for a deeper understanding of auditors' perspectives on materiality in inventories and ensure that the data used in the analysis are relevant and meaningful.

#### 4. RESULTS

First, we assess the distribution of data and present relevant statistics in Table 1 the results of the Kolmogorov-Smirnov Normality Test, alongside the analysis of the mean-median proximity and the kurtosis and skewness values (which fall within the acceptable range of  $\pm 1$ ), indicate that the data conform to a normal distribution across the variables. Hence, parametric tests, which are convenient for normal distribution, are performed in our study.

**Table 1.** Results of data distribution

| Variables        | Kolmogorov-Smirnov Test Statistics | p-val | Mean | Median | Min. | Max. | Skewness | Kurtosis |
|------------------|------------------------------------|-------|------|--------|------|------|----------|----------|
| SDSS Scale       | 0.081                              | 0.00  | 3.94 | 3.93   | 3    | 5    | 0.307    | 0.00     |
| Materiality      | 0.266                              | 0.00  | 4.18 | 4      | 3.33 | 5    | 0.419    | -0.282   |
| Approach         | 0.136                              | 0.00  | 4.21 | 4.25   | 2.5  | 5    | -0.652   | 0.632    |
| Planning         | 0.167                              | 0.00  | 3.79 | 4      | 2    | 5    | -0.313   | -0.164   |
| Audit Techniques | 0.126                              | 0.00  | 3.62 | 3.5    | 2.25 | 5    | 0.217    | -0.491   |

In Table 2, we present the outcomes of mean difference tests to assess whether there is gender-based differences in the level of agreement regarding the determination of materiality, approach, planning, and independent auditor's opinions. The findings indicate that while the levels of materiality, approach and planning do not exhibit statistically significant differences between genders, the level of agreement with audit techniques differs significantly according to gender at 99% confidence level. Specifically, female participants demonstrate a higher level of engagement with audit techniques compared to their male colleagues. This outcome is in line with Hasan et al. (2021) reporting a significant gender-based difference while the earlier research of Estes and Reames (1988) document no significant association.

**Table 2.** Gender differences in materiality and audit perceptions

|                  | Gender | Mean | St. Dev. | t-val  | p-val |
|------------------|--------|------|----------|--------|-------|
| Materiality      | Woman  | 4.15 | 0.45     | -1.073 | 0.284 |
|                  | Male   | 4.19 | 0.41     |        |       |
| Planning         | Woman  | 4.22 | 0.52     | 0.423  | 0.673 |
|                  | Male   | 4.20 | 0.50     |        |       |
| Approach         | Woman  | 3.62 | 0.73     | 1.312  | 0.19  |
|                  | Male   | 3.52 | 0.81     |        |       |
| Audit Techniques | Woman  | 3.72 | 0.46     | 2.617  | 0.009 |

|       |       |      |      |       |       |
|-------|-------|------|------|-------|-------|
|       | Male  | 3.58 | 0.57 |       |       |
| Scale | Woman | 3.98 | 0.31 | 1.448 | 0.148 |
|       | Male  | 3.93 | 0.34 |       |       |

In Table 3, we present the outcomes of ANOVA tests to examine whether there are significant differences in respondents' levels of agreement with the determination of materiality in inventories, approach, planning, and independent auditor opinions based on their age groups. The findings indicate that i) participants aged 55-64 exhibit significantly lower approach levels compared to those aged 25-34, ii) participants aged 55-64 exhibit significantly lower level of participation in audit techniques compared to those aged 25-34, 35-44 and 45-54, iii) there is no statistically significant differences in the levels of materiality and planning based on age groups, iv) participants aged 55-64 demonstrate lower levels of agreement with both the materiality determination and auditor opinions compared to those in the 25-34, 35-44, and 45-54 age groups.

**Table 3.** Age differences in materiality and audit perceptions

|                  | Age   | Mean | St. Dev. | F     | P     | Tukey | Tamhane |
|------------------|-------|------|----------|-------|-------|-------|---------|
| Materiality      | 25-34 | 4.14 | 0.46     | 0.906 | 0.46  |       |         |
|                  | 35-44 | 4.20 | 0.43     |       |       |       |         |
|                  | 45-54 | 4.21 | 0.39     |       |       |       |         |
|                  | 55-64 | 4.18 | 0.35     |       |       |       |         |
|                  | 65 +  | 4.12 | 0.41     |       |       |       |         |
| Planning         | 25-34 | 4.24 | 0.53     | 1.298 | 0.269 |       |         |
|                  | 35-44 | 4.24 | 0.47     |       |       |       |         |
|                  | 45-54 | 4.20 | 0.51     |       |       |       |         |
|                  | 55-64 | 4.13 | 0.54     |       |       |       |         |
|                  | 65 +  | 4.05 | 0.47     |       |       |       |         |
| Approach         | 25-34 | 3.93 | 0.60     | 3.206 | 0.013 | 1>4   |         |
|                  | 35-44 | 3.78 | 0.57     |       |       |       |         |
|                  | 45-54 | 3.75 | 0.66     |       |       |       |         |
|                  | 55-64 | 3.65 | 0.63     |       |       |       |         |
|                  | 65 +  | 3.73 | 0.43     |       |       |       |         |
| Audit Techniques | 25-34 | 3.73 | 0.54     | 6.978 | 0.00  | 1>4   |         |
|                  | 35-44 | 3.63 | 0.51     |       |       | 2>4   |         |
|                  | 45-54 | 3.56 | 0.54     |       |       | 5>4   |         |
|                  | 55-64 | 3.36 | 0.59     |       |       |       |         |
|                  | 65 +  | 3.83 | 0.56     |       |       |       |         |
| Scale            | 25-34 | 4.00 | 0.36     | 4.031 | 0.003 |       | 1>4     |
|                  | 35-44 | 3.95 | 0.29     |       |       |       | 2>4     |
|                  | 45-54 | 3.92 | 0.35     |       |       |       | 5>4     |
|                  | 55-64 | 3.82 | 0.32     |       |       |       |         |
|                  | 65 +  | 3.93 | 0.36     |       |       |       |         |

In Table [4], we present the outcomes of ANOVA tests to assess whether respondents' levels of agreement with the determination of materiality in inventories, approach, planning, audit

techniques, and independent auditor opinions differ based on their length of employment. The results indicate that there are no statistically significant differences in any of these variables across different employment durations at the 95% significance level.

**Table 4.** Length of employment differences in materiality and audit perceptions

|                  | <b>Length of Employment</b> | <b>Mean</b> | <b>St. Dev.</b> | <b>F</b> | <b>P</b> |
|------------------|-----------------------------|-------------|-----------------|----------|----------|
| Materiality      | 1-5                         | 4.13        | 0.40            | 1.938    | 0.103    |
|                  | 6-10                        | 4.20        | 0.43            |          |          |
|                  | 11-15                       | 4.21        | 0.45            |          |          |
|                  | 16-20                       | 4.20        | 0.41            |          |          |
|                  | 21 and above                | 4.25        | 0.41            | 2.005    | 0.092    |
| Planning         | 1-5                         | 4.14        | 0.53            |          |          |
|                  | 6-10                        | 4.25        | 0.54            |          |          |
|                  | 11-15                       | 4.29        | 0.42            |          |          |
|                  | 16-20                       | 4.19        | 0.45            |          |          |
|                  | 21 and above                | 4.25        | 0.50            |          |          |
| Approach         | 1-5                         | 3.76        | 0.64            | 1.181    | 0.318    |
|                  | 6-10                        | 3.89        | 0.63            |          |          |
|                  | 11-15                       | 3.75        | 0.59            |          |          |
|                  | 16-20                       | 3.79        | 0.55            |          |          |
|                  | 21 and above                | 3.77        | 0.60            |          |          |
| Audit Techniques | 1-5                         | 3.65        | 0.54            | 1.235    | 0.295    |
|                  | 6-10                        | 3.55        | 0.52            |          |          |
|                  | 11-15                       | 3.60        | 0.50            |          |          |
|                  | 16-20                       | 3.69        | 0.60            |          |          |
|                  | 21 and above                | 3.58        | 0.59            |          |          |
| Scale            | 1-5                         | 3.92        | 0.34            | 0.633    | 0.639    |
|                  | 6-10                        | 3.96        | 0.34            |          |          |
|                  | 11-15                       | 3.96        | 0.30            |          |          |
|                  | 16-20                       | 3.96        | 0.33            |          |          |
|                  | 21 and above                | 3.96        | 0.35            |          |          |

In Table 5, we present the outcomes of ANOVA tests to examine whether respondents' levels of agreement with the determination of materiality in inventories, approach, planning, and independent auditor opinions vary based on the number of audits they have participated in. The findings indicate that participants with experience in 21 or more audits exhibit significantly higher planning levels, higher approach levels, higher levels of agreement with both the determination of materiality in inventories and independent auditor opinions, than those with 1-5 audits.

**Table 5.** Number of audit differences in materiality and audit perceptions

|                  | Number of Audits | St. Dev. | F     | P     | Tukey |
|------------------|------------------|----------|-------|-------|-------|
| Materiality      | 1-5              | 4.22     | 2.026 | 0.089 |       |
|                  | 6-10             | 4.08     |       |       |       |
|                  | 11-15            | 4.22     |       |       |       |
|                  | 16-20            | 4.23     |       |       |       |
|                  | 21 and above     | 4.17     |       |       |       |
| Planning         | 1-5              | 4.10     | 4.174 | 0.002 | 5>1   |
|                  | 6-10             | 4.22     |       |       |       |
|                  | 11-15            | 4.29     |       |       |       |
|                  | 16-20            | 4.10     |       |       |       |
|                  | 21 and above     | 4.27     |       |       |       |
| Approach         | 1-5              | 3.61     | 7.95  | 0.00  | 5>1   |
|                  | 6-10             | 3.79     |       |       |       |
|                  | 11-15            | 3.76     |       |       |       |
|                  | 16-20            | 3.75     |       |       |       |
|                  | 21 and above     | 3.93     |       |       |       |
| Audit Techniques | 1-5              | 3.61     | 1.942 | 0.102 |       |
|                  | 6-10             | 3.53     |       |       |       |
|                  | 11-15            | 3.54     |       |       |       |
|                  | 16-20            | 3.83     |       |       |       |
|                  | 21 and above     | 3.63     |       |       |       |
| Scale            | 1-5              | 3.88     | 3.749 | 0.005 | 5>1   |
|                  | 6-10             | 3.90     |       |       |       |
|                  | 11-15            | 3.95     |       |       |       |
|                  | 16-20            | 3.98     |       |       |       |
|                  | 21 and above     | 3.99     |       |       |       |

Above findings, which are listed in Tables 3 to 5 are on audit experience, are in line with the literature. Similar to Messier (1983), Carpenter and Dirsmith (1992), and Hasan (2021), we conclude that more accurate materiality Judgment is positively related to audit experience. In other words, professional experience enhances judgment accuracy.

In Table 6, we present the outcomes of ANOVA tests to assess whether there are significant differences in respondents' levels of agreement with the determination of materiality in inventories, approach, planning, and independent auditor opinions based on their educational background. The findings reveal that i) participants holding PhD exhibit significantly higher levels of importance than those with a bachelor's degree, ii) participants holding PhD show significantly higher planning levels compared to those with a bachelor's degree, iii) participants holding PhD and master's degrees show significantly higher levels of agreement with the determination of materiality level in inventories and auditor's opinions than those with a bachelor's degree, and iv) no statistically significant differences are reported in the levels of agreement with the approach and audit techniques based on educational background. In other words, higher academic qualifications give significantly greater importance to materiality assessments and they have more structured planning behaviors. These findings are consistent with Che et al. (2018), Gul et al. (2013), and Li et al. (2017), documenting positive evidence for formal education.

**Table 6.** Educational differences in materiality and audit perceptions

|                  | Education Status | St. Dev. | F     | P     | Tukey | Tamhane |
|------------------|------------------|----------|-------|-------|-------|---------|
| Materiality      | License          | 4.14     | 4.136 | 0.016 |       | 3>1     |
|                  | Master's Degree  | 4.21     |       |       |       |         |
|                  | PhD              | 4.31     |       |       |       |         |
| Planning         | License          | 4.17     | 4.382 | 0.013 | 3>1   |         |
|                  | Master's Degree  | 4.23     |       |       |       |         |
|                  | PhD              | 4.39     |       |       |       |         |
| Approach         | License          | 3.75     | 1.894 | 0.151 |       |         |
|                  | Master's Degree  | 3.84     |       |       |       |         |
|                  | PhD              | 3.86     |       |       |       |         |
| Audit Techniques | License          | 3.58     | 1.774 | 0.17  |       |         |
|                  | Master's Degree  | 3.65     |       |       |       |         |
|                  | PhD              | 3.68     |       |       |       |         |
| Scale            | License          | 3.90     | 6.38  | 0.002 | 3>1   |         |
|                  | Master's Degree  | 3.98     |       |       | 2>1   |         |
|                  | PhD              | 4.05     |       |       |       |         |

Table 7 demonstrates correlation analyses. The results of the correlation analysis are listed below:

- There is a positive low strong ( $r=.284$ ,  $p<.01$ ) association between participants' level of importance and their level of planning.
- There is a positive low strong ( $r=.114$ ,  $p<.01$ ) association between participants' level of importance and their level of approach.
- There is a positive low strong ( $r=.254$ ,  $p<.01$ ) association between participants' level of materiality and their level of audit techniques.
- There is a positive medium strong ( $r=.554$ ,  $p<.01$ ) association between the level of materiality of individuals and the level of independent auditor opinions.
- There is a positive low strong ( $r=.278$ ,  $p<.01$ ) association between planning levels and approach levels.
- There is a positive low strong ( $r=.202$ ,  $p<.01$ ) association between participants' level of planning and their level of control techniques.
- There is a positive high strong ( $r=.711$ ,  $p<.01$ ) association between the planning levels of the individuals and the level of independent auditor opinions.
- There is a positive low strong ( $r=.110$ ,  $p<.01$ ) association between the approach levels of the individuals and their level of control techniques.
- There is a positive medium strong ( $r=.595$ ,  $p<.01$ ) association between the approach levels of the individuals and the level of independent auditor opinions.
- There is a positive medium strong ( $r=.665$ ,  $p<.01$ ) association between the level of audit techniques and the level of independent auditor opinions.

This analysis indicates that individuals who perceive inventories as more material tend to exhibit higher levels of planning, approach, and audit techniques. Additionally, independent auditor opinions are positively influenced by the greater importance attributed to inventories. These results suggest that inventory management and audit considerations are interrelated with other key factors.

**Table 7.** Correlation matrix

|                    | <b>Materiality</b> | <b>Planning</b> | <b>Approach</b> | <b>Audit Tech.</b> | <b>Scale</b> |
|--------------------|--------------------|-----------------|-----------------|--------------------|--------------|
| <b>Materiality</b> | 1                  |                 |                 |                    |              |
| <b>Planning</b>    | .284*              | 1               |                 |                    |              |
| <b>Approach</b>    | .114*              | .278*           | 1               |                    |              |
| <b>Audit Tech.</b> | .254*              | .202*           | .110*           | 1                  |              |
| <b>Scale</b>       | .554*              | .711*           | .595*           | .665*              | 1            |

\* $p < .01$

Last, the linear regression analysis comes into the scene. Before regression analysis, the necessary conditions are controlled. The analysis confirms that the assumptions of correlation among the variables in the regression model are met. The normal probability plot (P-P) and scatter plot indicate that the standardized residuals align closely with a diagonal pattern and are evenly distributed, suggesting no significant deviations from normality. Additionally, no extreme outliers are detected, ensuring that the dataset fully satisfies the assumptions required for regression analysis. Then, we employ a linear regression analysis to predict the level of auditor opinions based on audit techniques. Our findings indicate that audit techniques serve as a significant predictor of auditor opinions ( $F(1,635) = 503.47$ ,  $p < .001$ ), explaining 44% of the variance ( $\beta = .665$ ). Based on the regression analysis, the equation for predicting auditor opinions is formulated as follows: Auditor's Opinion =  $2.471 + (.665 \times \text{Audit Techniques})$ . Regression outcomes are available and presented in Table 8.

**Table 8.** Regression outcomes

| <b>Variable</b>      | <b><math>\beta</math></b> | <b>Sh.</b> | <b><math>\beta</math></b> | <b>t</b> | <b>p</b> | <b>R<sup>2</sup></b> | <b>F</b> | <b>p</b> |
|----------------------|---------------------------|------------|---------------------------|----------|----------|----------------------|----------|----------|
| Constant Coefficient | 2.471                     | 0.066      |                           | 37.254   | 0.00     | 0.442                | 503.465  | 0.00     |
| Audit Techniques     | 0.407                     | 0.018      | 0.665                     | 22.438   |          |                      |          |          |

## 5. CONCLUSION

By carrying out through a survey with the participation of independent auditors actively working in audit companies authorized by the Public Oversight Authority in Istanbul, our study investigates the role of materiality assessment in inventory audits and its impact on independent auditors' opinions. The motivation behind our research stems from the increasing complexity of inventory auditing and the subjectivity inherent in materiality judgments. Our outcomes highlight the impact on demographic factors (including gender, age, education level, and audit experience) on auditors' perceptions of materiality determination, audit planning, and engagement in audit techniques. Furthermore, our study emphasizes the role of audit methodologies in auditor opinions, which indicates the need for consistency in materiality assessments.

Our analyses reveal that although gender and age are significant determinants of materiality assessments and planning approaches, experience and education level are more strongly associated. To illustrate, higher education levels and extensive experience lead to greater audit involvement and such auditors exhibit a more structured approach to audit planning. Hence, by combining both qualitative and quantitative factors to reduce audit judgment inconsistencies, which would eventually be expected to improve audit quality, our study points out the need for

standardized materiality frameworks. This is our suggestion for and practical contribution to regulators and standard-setters. As our sample is comprised of Istanbul-based auditors, our outcomes directly reflect an insight for the most economically active region of Türkiye which means that they may serve a convenient reference point for developing national auditing guidance. Moreover, not only the increasing adoption of inflation accounting but also the alignment with international standards amplifies the local relevance of our outcomes.

In this study, we expand theoretical discussions on audit judgment. Future research may build on our findings by documenting evidence from different jurisdictions to increase the generalizability of their findings and to enhance understanding of materiality assessments in different regulatory contexts. This may also provide a good research setting to see the impact of different regulatory interventions on materiality judgments. Furthermore, future research may employ different methods like interviews or case studies to provide a different perspective. Last, the generalizability of our outcomes is limited as our outcomes is limited to Istanbul, which means that the rest of Türkiye is uncovered. Future research may also address this limitation by expanding the unexplored regions of Türkiye.

## 6. REFERENCES

- AKÇAY, S. (2024). Türkiye’de yeniden yüksek enflasyon nedeniyle enflasyon muhasebesi süreci ve bir uygulama. *Malatya Turgut Özal Üniversitesi İşletme ve Yönetim Bilimleri Dergisi*, 5(1), 104-123.
- AZAD, A., Salehi, M., & Lari Dashtbayaz, M. (2022). An empirical study on the materiality calculation at financial statements level. *Journal of Public Affairs*, 22(4), e2608.
- CARPENTER, B. W. ve DIRSMITH, M. W. (1992). Early debt extinguishment transactions and auditor materiality judgments: A bounded rationality perspective. *Accounting, Organizations and Society*, 17(8), 709-739. [https://doi.org/10.1016/0361-3682\(92\)90001-9](https://doi.org/10.1016/0361-3682(92)90001-9)
- CARPENTER, B. W., & DIRSMITH, M. W. (1993). Sampling and the abstraction of knowledge in the auditing profession: An extended institutional theory perspective. *Accounting, Organizations and Society*, 18(1), 41-63.
- CHE, L., LANGLI, J. C. ve SVANSTRÖM, T. (2018). Education, experience, and audit effort. *Auditing: A Journal of Practice & Theory*, 37(3), 91-115.
- CERAN, Y., & Bezirci, M. (2011). Stok hesaplarının denetiminde iç kontrol sistemi ve iç denetimin önemi. *Sosyal Ekonomik Araştırmalar Dergisi*, 11(22), 507-536.
- CHEWNING JR, E. G., & Higgs, J. L. (2002). What does “materiality” really mean?. *Journal of Corporate Accounting & Finance*, 13(4), 61-71.
- CHONG, H. G. (2008). Materiality in auditing definitions and benchmarks. *International Journal of Business, Accounting and Finance*, 2(1), 83-96.
- CHRISTENSEN, B. E., Eilifsen, A., Glover, S. M., & Messier Jr, W. F. (2020). The effect of audit materiality disclosures on investors’ decision making. *Accounting, Organizations and Society*, 87, 101168.
- DEZOORT, F. T., Holt, T. P., & Stanley, J. D. (2023). How do investor and auditor materiality judgments compare?. *Current Issues in Auditing*, 17(1), 1-10.
- EILIFSEN, A., & Messier Jr, W. F. (2015). Materiality guidance of the major public accounting firms. *Auditing: A Journal of Practice & Theory*, 34(2), 3-26.

- ERTUĞRUL, İ., & Tanrıverdi, Y. (2013). Stok kontrolde ABC yöntemi ve AHP analizlerinin iplik işletmesine uygulanması. *Uluslararası Alanya İşletme Fakültesi Dergisi*, 5(1), 41-52.
- ESTES, R. ve REAMES, D. (1988). Effects of personal characteristics on materiality decisions: A multivariate analysis. *Accounting and Business Research*, 18(72), 291-296. <https://doi.org/10.1080/00014788.1988.9729376>
- ETIKAN, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4.
- FAUL, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2007). GPower 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39(2), 175–191.
- GORDEEVA, M. (2011). Materiality in accounting. *Economics & Management*, 16, 41-47.
- GÖKGÖZ, A. (2018). Kilit denetim konularının bağımsız denetçi raporunda bildirilmesi ve Borsa İstanbul’da işlem gören işletmeler üzerine bir araştırma. *Journal of Accounting, Finance and Auditing Studies*, 4(2), 126-138.
- GUL, F. A., WU, D. ve YANG, Z. (2013). Do individual auditors affect audit quality? Evidence from archival data. *The Accounting Review*, 88(6), 1993-2023.
- HASAN, B. T., CHAND, P. ve LU, M. (2021). Influence of auditor's gender, experience, rule observance attitudes and critical thinking disposition on materiality judgements. *International Journal of Auditing*, 25(1), 188-205.
- KALIPÇI ÇAĞIRAN, F., & VARICI, İ. (2019). Bağımsız Denetim Standardı (BDS) 701 çerçevesinde kilit denetim konuları: Borsa İstanbul’daki işletmelerin denetim raporları üzerine bir analiz. *Uluslararası İktisadi Ve İdari İncelemeler Dergisi*, (22), 193-208
- KREJCIE, R. V., & MORGAN, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.
- KRISTENSEN, R. H. (2015). Judgment in an auditor’s materiality assessments. *Danish Journal of Management & Business*, 79(2), 53-65.
- LI, L., QI, B., TIAN, G. ve ZHANG, G. (2017). The contagion effect of low-quality audits at the level of individual auditors. *The Accounting Review*, 92(1), 137-163. <https://doi.org/10.2308/accr-51407>
- MARSHALL, C. (1996). Sampling for qualitative research. *Family Practice*, 13(6), 522-525.
- MASIULEVIČIUS, A. (2024). Quantitatively immaterial audit misstatements matter qualitatively. *Journal of accounting and taxation*, 16(1), 15-25.
- MESSIER JR, W. F., MARTINOV-BENNIE, N., & EILIFSEN, A. (2005). A review and integration of empirical research on materiality: Two decades later. *Auditing: A Journal of Practice & Theory*, 24(2), 153-187.
- MESSIER, W. F. (1983). The effect of experience and firm type on materiality/disclosure judgments. *Journal of Accounting Research*, 21(2), 611-618. <https://doi.org/10.2307/2490795>
- OESTERLE, D. A. (2011). The overused and under-defined notion of "material" in securities law. *University of Pennsylvania Journal of Business Law*, 14(1), 167-208.
- SAMIOLO, R., SPENCE, C., & TOH, D. (2024). Auditor judgment in the fourth industrial revolution. *Contemporary accounting research*, 41(1), 498-528.

- VANCE, D.E. (2022). A meta analysis of materiality studies. *Accounting and Finance Research*, 11(1),1-12.
- TAZEGÜL, A. (2021). An analysis of the Borsa Istanbul manufacturing companies on the key audit matters. *Kafkas Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 12(24), 753-780.
- UZAY, Ş., & KÖYLÜ, Ç. (2018). Kilit denetim konuları: Borsa İstanbul üzerine bir araştırma. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, (52), 47-70.
- ZHU, L., ZHENG, Q., & LI, Y. (2024). Is audit materiality informative? Evidence from China. *China Journal of Accounting Research*, 100373.