



# Curbing opportunistic use of managerial materiality discretion: The impact of investor horizon and board gender diversity

Ilaria Martino<sup>1</sup> · Alessandra Allini<sup>1</sup> · Adele Caldarelli<sup>1</sup>

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## Abstract

This study explores the factors influencing managers' discretionary materiality decisions in financial reporting, focusing on the role of institutional investors and Board of Directors (BoD) gender diversity. Given the judgmental nature of materiality assessments and the difficulty in detecting them, the study examines how different monitoring factors affect managers' accuracy in classifying information as material. Using a 2 × 2 between-participants experimental design, we collected data involving 160 managers from four European countries. The experiment is based on the implementation of IAS 36 "Impairment of Assets", and participants were asked to make materiality decisions under four conditions, varying institutional investors' investment horizons (long-term vs. short-term) and BoD gender diversity (high vs. low women directors' presence on the board). The results show that institutional investors with long-term investment horizons enhance managers' willingness to consider information as material, due to their stronger monitoring. Furthermore, higher gender diversity on the board is associated with a greater likelihood that managers will judge information as material. Additionally, the results show that the positive effect of long-term institutional investors on materiality judgments is more pronounced when BoD gender diversity is low. By focusing on managers as key yet underexplored actors in the materiality decision-making process, this study contributes to the materiality literature and provides new insights into how institutional monitoring and board composition shape discretionary financial reporting choices.

**Keywords** Financial materiality · Institutional investors · Investment horizons · BoD gender diversity · Experiment

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Extended author information available on the last page of the article



## 1 Introduction

Materiality judgments play a fundamental role in ensuring that corporate financial information is relevant for decision making, as they determine which information is sufficiently important to influence the decisions of primary users (Hicks, 1964; Bernstein, 1967; Frishkoff, 1970). However, the discretionary application of materiality in financial reporting remains a crucial concern among scholars (e.g., Acito et al., 2019; Wellmeyer et al., 2022; Hegazy & Salama, 2022; Bolt & Tregidga, 2022; Livne et al., 2024). The lack of a clear definition by major standard-setting bodies prevents its uniform application among professionals, hindering the establishment of a standardized process for its assessment (e.g., Rose et al., 1970; Iskandar & Iselin, 1999; Hasan et al., 2021; IFRS Foundation, 2021).

Consequently, professionals continue to apply materiality differently, which may imply that accounting information is not accurate, thus compromising the quality of financial reporting (Thompson, 2023). While literature almost unanimously agrees that the discretionary application of materiality stems from this lack of standardized procedures, it remains unclear which factors may influence its discretionary application (Keune & Johnstone, 2012).

We build on the key idea that the two main actors involved in the process of setting financial materiality are managers and auditors (Brennan & Gray, 2005)<sup>1</sup>. Although many studies analyzed the materiality process, identifying determinants and consequences of auditors' materiality decisions (e.g., Christensen et al., 2022; Hegazy & Salama, 2022), little attention has been devoted to the role of managers. Therefore, this study aims to fill this literature gap by identifying possible determinants that can influence managers' materiality decisions when preparing financial statements.

It is noteworthy that managers might use their discretion in making materiality decisions of accounting items opportunistically (Jensen & Meckling, 1976) to achieve personal goals, which in turn will reduce the quality of reported financial information with a detrimental effect on the accuracy of investment decisions (e.g., Hogan & Jonas, 2016). Unlike accounting choices, manipulation of materiality primarily involves subjective judgments that affect the reporting process without altering the reported financial outcomes.

Supported by evidence from the literature and framed by the agency theory, we argue that the presence of institutional investors with long-term (vs. short-term) investment horizons is a corporate mechanism capable of influencing managers' decision-making (Burns et al., 2010). This is due to the different monitoring (more vs. less stringent) conducted by institutional investors because of their different investment horizons (Ward et al., 2020). Therefore, if the firm is largely owned by institutional investors with a long-term investment horizon, their monitoring is expected to be less biased, leaving fewer roots for ex ante opportunistic managerial behavior (Ward et al., 2020; Lewellen & Lewellen, 2022). This type of monitoring

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<sup>1</sup> Both managers and external auditors should independently determine the level of materiality to be used in the financial statements, respectively. While managers are responsible for applying materiality during the preparation of the financial statements, auditors are responsible for applying materiality when conducting the audit of the financial statements (Brennan & Gray, 2005).

can incentivize managers to adopt materiality decisions more accurately (Chen et al., 2015; Switzer & Wang, 2017).

The study further explores whether the characteristics of the Board of Directors (BoD), particularly the extent of women's presence on the board, could influence financial materiality. This aspect is especially relevant considering the evidence on the effects of board gender diversity on firm outcomes across diverse institutional settings. Many authors suggest that female board diversity is a robust governance mechanism that contributes to more effective monitoring (Francis et al., 2015; Ho et al., 2015; Davis & Garcia-Cestona, 2023) and is associated with enhanced oversight, richer cognitive variety, and greater challenge to managerial assumptions (Nguyen et al., 2015; Brahma et al., 2021; Singh et al., 2023).

Thus, materiality assessments – which are inherently discretionary and sensitive to ethical and risk considerations (Nelson et al., 2005; Messier et al., 2005; IASB, 2017) – may be shaped by such a board attribute. If women directors on the board foster deeper scrutiny and broader perspectives, it may strengthen monitoring mechanisms, encouraging more managers' accuracy to classify information as material, thereby improving the transparency of financial reporting. These cross-context findings motivate our analysis of whether—and how—board gender diversity influences managers' materiality judgments.

The recent EU Directive 2022/2381, which establishes targets to increase gender presence on corporate boards, provides an important institutional context for this investigation. Even in regulated environments, firms exhibit substantial heterogeneity in the extent to which gender diversity translates into effective participation, influence, and monitoring within the boardroom (Liu et al., 2016; García-Sánchez et al., 2019). Thus, examining BoD gender diversity becomes crucial, as it captures variations in board effectiveness beyond mere compliance with formal quotas.

According to the agency theory, the relationship between managers and shareholders is characterized by information asymmetry and potential opportunistic behavior (Jensen & Meckling, 1976), which can be mitigated through effective monitoring and incentive mechanisms.

Based on this assumption, women directors on the board may influence the effectiveness of such monitoring mechanisms. Empirical studies support this view, showing that more gender-diverse boards tend to foster wider cognitive variety, enhanced ethical awareness, and greater attention to long-term firm outcomes (e.g., Liu et al., 2016; García-Sánchez et al., 2019). In this sense, the higher female representation in the BoDs can be interpreted as an organizational attribute that strengthens the monitoring function envisioned by agency theory, thereby constraining managerial discretion in settings where subjective judgment is required, such as materiality assessments.

By jointly examining investor horizons and board gender diversity, we aim to capture both the external (ownership-based) and internal (board-based) governance mechanisms that may shape the accuracy of materiality assessments. Building on Bedford (2020), we conceptualize these two governance mechanisms as part of a broader management control package, creating a bundle of corporate governance practices that may operate interdependently in influencing managerial discretion. In particular, we examine whether the effect of institutional investors' investment horizons on materiality decisions is affected by the extent of

women directors on the BoD, expecting that the effect of strict monitoring by institutional investors with long-term investment horizons will play a stronger role in the accuracy with which materiality decisions are adopted in the context of low-BoD gender diversity.

To address these questions, we run a 2 (institutional investors with long-term investment horizon vs. institutional investors with short-term investment horizon) x2 (*high* level of women directors in the BoD vs. *low* level of women directors in the BoD) between-participants design experiment. This research engaged 160 managers from four European countries, possessing prior accounting knowledge and experience and being familiar with the concept of materiality. The experimental task on materiality decision concerned the implementation of IAS 36 “*Impairment of Assets*”.

Participants received two scenarios where institutional investors with either long- or short-term investment horizons held the higher percentage of firms’ ownership. Within these scenarios, participants were asked to take the role of preparers of the financial statement and to demonstrate their willingness to consider the assumptions used for the impairment of corporate assets as material information. Additionally, we looked at the different approaches adopted by participants in making materiality decisions based on the (high vs. low) presence of women on the BoD.

Results show that the presence of institutional investors with a long-term investment horizon increases the willingness of managers to consider accounting information as material due to their monitoring role. Also, when the BoD gender diversity is high, managers are more willing to consider accounting information as material than when the BoD gender diversity is low.

Finally, the monitoring by institutional investors with a long-term investment horizon enhances the preparers’ willingness to consider information as material, thereby reducing agency conflicts, particularly in the low presence of women directors on the board.

This study makes several contributions. It enriches the debate on financial materiality by offering novel empirical insights into its discretionary application (e.g., Eilifsen et al., 2021; Edgley & Holland, 2021; Festa et al., 2023). Given that financial materiality is one dimension of the double materiality, this study also contributes to increasing our understanding of its role in non-financial disclosures (e.g., Baumüller & Sopp, 2021; Dragomir et al., 2024). It clarifies how governance characteristics, i.e., BoD diversity and institutional investor influence, can either encourage or hinder the accurate application of the outside-in perspective of materiality. Additionally, it complements existing literature on materiality decisions, particularly those examining the role of auditors (e.g., Choudhary et al., 2019; Christensen et al., 2022; Hegazy & Salama, 2022; Livne et al., 2024), by extending the focus on the role of managers as key decision-makers, an area that remains underexplored. Lastly, the study enriches the academic debate of both the beneficial effects of BoD gender diversity (Amorelli & García-Sánchez, 2021; Khan et al., 2021; Martinez-Garcia et al., 2024; Das & Hossain, 2025) and the role of institutional investors with a long-term investment horizon as effective governance monitoring mechanisms (Ward et al., 2020; Lewellen & Lewellen, 2022).

The rest of this paper proceeds as follows. Section 2 reviews the literature on the concept of financial materiality, highlighting the determinants and consequences of its discretionary application. Section 3 provides evidence from previous studies

that support the development of hypotheses. Section 4 describes the experiment conducted. Section 5 presents the main statistical results of the research. Section 6 illustrates the additional analysis conducted to robust the results. Section 7 discusses the findings, while the conclusions are in the last section.

## 2 Literature review

The concept of materiality has been interpreted differently by scholars over time (e.g. Hicks, 1964; Bernstein, 1967), highlighting its judgmental nature. In the absence of a proper definition, global guidelines are likely to be used for making material decisions. In this regard, Frishkoff (1970, pp. 116–129) emphasized the importance of quantitative factors to assess the materiality of financial information for decision-making by users. Later, Moriarity and Barron (1976) introduced a new approach that perceived materiality from the perspective of an ordinal variable, rather than a nominal variable.

Scholars have also sought empirical evidence on how it is operationalized. Earlier studies especially focused on examining the measures used by firms to assess the level of materiality of accounting information (e.g., Gleason & Mills, 2002). In a review study, Brennan and Gray (2005) documented that two approaches were commonly used for evaluating quantitative thresholds. The first approach has been referred to as the income statement approach, where an item is considered material or immaterial by comparing it with net income for the period. The second approach is the balance sheet approach, which is based on evaluating the items with the cumulative amount of net income at the end of a period to determine whether it is material or not. Thus, the discretion involved in defining both methodology and quantitative thresholds for measuring the materiality of items raises concerns about its complexity.

Based on this line of research, Gleason and Mills (2002) analyzed confidential Internal Revenue Service (IRS) audit data and financial statement footnotes of 100 large industrial firms from 1987 to 1995. For the loss-making firms and firms with low income, they identified alternative benchmarks against which materiality was assessed, and they included total assets, income for profit-making firms, and 5% of assets. They conclude that firms determine materiality concerning stable measures rather than only current-year income. Extending this research, studies evaluated the role of different variables in making materiality decisions and highlighted that discretion in setting materiality is also related to individuals who take part in the decision process (e.g., Goh et al., 2023; Quick et al., 2023). For example, Keune and Johnstone (2012), who focused on the materiality decision about detected misstatement under SAB108 for the 2003–2006 period, reported that the analyst following increased and the audit committee with financial expertise reduced managers' incentives to wave qualitative material misstatements. Choudhary et al. (2019) showed that auditors' materiality assessments are related to the reliability of financial reporting proxied by audit outcomes. Hasan et al. (2021) reported that female auditors preferred qualitative information in assessing materiality, while auditors with low rule observance attitudes, high critical thinking disposition, and greater audit experience were more likely to provide an accurate materiality judgment.

Other studies investigating the impact of auditors' materiality judgments presented that the type of audit firm (Big4 or not), years of experience, and educational qualifications are not relevant in materiality assessment (i.e., Hegazy & Salama, 2022). Moreover, Christensen et al. (2022) found that corrections were perceived as less material when auditors' risk was higher concerning reputational and legal sanctions.

Empirical evidence confirmed that the existence of numerous rules in setting materiality inevitably increased the level of discretion. Therefore, a few scholars pointed out that professionals opportunistically relied on materiality decisions to achieve personal goals (e.g., Thompson, 2023; Wellmeyer et al., 2022). In this regard, a recent study by Thompson (2023) examined firms' adoption of materiality discretion by managers to report revisions instead of restatements over the period of 2004–2015. It showed that managers opportunistically use such discretion to avoid restatements when facing strong incentives.

This literature review suggests that the variety of options to measure materiality may lead professionals to misuse discretion when making materiality decisions. Existing studies, however, are mainly focused on auditors; instead, materiality judgments made by managers remain underexplored. Therefore, managers may exercise discretion in judging materiality, as its manipulation shapes the information ultimately reported to users. Grounded on the strand of literature that suggests a link between managerial discretion and the possible misuse of materiality (e.g., Black et al., 2023), this study questions whether some governance mechanisms may reduce managerial opportunism.

### 3 Hypotheses development

#### 3.1 The role of institutional investors' investment time horizons

Unethical managers may have an incentive to manipulate financial materiality to intentionally reduce ex-ante the quality of financial reporting, possibly achieving personal benefits (Wu & Wang, 2018). Theoretically, the proponents of the agency theory (Jensen & Meckling, 1976) argue that managerial opportunism is at play to influence managers' decisions to realize their personal goals. However, this type of behavior could be inconsistent with the corporate shareholders' interests, which creates agency conflicts. Several mechanisms have been proposed to mitigate agency problems, and among them, one of the most important is the monitoring of managerial behavior and actions by institutional investors (i.e., Burns et al., 2010). This beneficial effect is supported by empirical evidence based on the differences between the roles of individual and institutional investors in monitoring managerial decisions. It has been argued that individual investors' decisions are more influenced by liquidity concerns or speculation, and the monitoring of manager behavior is not likely to attract individual investors' attention (Callen & Fang, 2013). Moreover, given the short-term investment horizon of individual investors, they are not likely to have a strong motivation to spend resources on monitoring managerial behavior.

It has also been reported that even institutional investors with short-term investment horizons generally contribute to investors' impatience. Chen et al. (2015), in particular, found that institutional investors who frequently changed their portfolio

holdings pressured managers to reduce R&D investments, providing evidence that investors with short-term investment horizons exacerbated the managerial myopia. Similarly, Switzer and Wang (2017) confirmed that short-term institutional investors exerted influence on the prices that elevated credit risk, which contributed to higher agency costs, especially during a crisis period.

On the other hand, institutional investors who have a typically long-term interest in the firm are expected to behave differently compared to investors with short-term interest. Indeed, they are likely to be more sophisticated in analyzing financial statements, especially in evaluating the degree of accounting conservatism used in financial reporting (e.g., Lin et al., 2018). Additionally, institutional investors' substantial investments in the firm may provide them with higher access to management insights.

Given these characteristics of institutional investors with a long-term interest in the firm, they will be in a better position to provide effective monitoring of managerial behavior and actions for detecting biases in materiality judgments, and they may also be more inclined to undertake this responsibility (e.g., Ward et al., 2020; Lewellen & Lewellen, 2022). Thus, it is argued that firms' institutional investors having long-term interests are likely to be more effective in monitoring managers' opportunistic behavior and activities, which will reduce agency problems.

Prior studies confirmed that institutional investments' characteristics, such as the time horizon of investments, may attract different levels of monitoring of managerial behavior and actions. For instance, Kim et al. (2019) reported that institutions with long investment horizons tend to engage in monitoring managerial investment behavior more effectively to promote policies that would enhance benefits by firms in which investors and bondholders have long-term interests. Ghaly et al. (2020) emphasized the misreporting aspects of reporting, and they interpreted their results to indicate that institutional investors with long-term-oriented investments were able to provide the level of monitoring that reduced misreporting.

However, while the positive role of monitoring by institutional investors is well documented in the literature, how they act as outsiders of the reporting process to uncover a bias in materiality judgments by managers is still unknown. This is because managers' judgments on materiality made at the start of the reporting process are "largely invisible to investors" (Black et al., 2023, p. 4).

We argue that institutional investors with long-term investment interests in the firm, in contrast to those with short-term interests, may provide effective monitoring of managerial evaluation about the materiality of information that is less easily detectable compared to the reported financial figures. This monitoring would mitigate ex-ante managerial materiality opportunism (Harford et al., 2018). Moreover, supervision by these institutional investors will have lower monitoring costs because they will be able to use the firm- and manager-specific knowledge they would have accumulated over time.

These arguments suggest that the materiality judgment will be positively impacted by the presence of institutional investors with long-term horizons in the firm. Based on these arguments, we develop the following hypothesis:

**Hp1:** When a firm has institutional investors, mainly with long-term investment horizons, among their shareholders, managers are more willing to consider information as material.

### 3.2 The board's gender diversity

Empirical research suggests that certain board attributes, such as gender diversity, can strengthen the monitoring function envisioned by the agency theory. Specifically, the presence of women directors on corporate BoDs has been empirically associated with a more effective safeguarding of shareholders' interests, thereby contributing to a reduction in agency conflicts (Adams & Ferreira, 2009; Barua et al., 2010).

The impact of gender diversity at the top management level has long been debated in academic literature, given its implications for strategic decision-making, corporate performance, and the quality of corporate reporting (Srinidhi et al., 2011; Abbott et al., 2012; Habib & Hossain, 2013; Liu et al., 2016). Literature generally interprets these findings as evidence that women directors on the board tend to engage in more comprehensive discussions, greater ethical scrutiny, and enhanced oversight, features that ultimately improve monitoring effectiveness and constrain opportunistic behavior in decision-making processes.

For instance, in the realm of financial reporting quality, Srinidhi et al. (2011) demonstrated that the presence of women directors is linked to higher earnings quality, as women are generally less tolerant of opportunism. Likewise, Habib and Hossain (2013) and Liu et al. (2016) reported that female executives are less inclined to engage in unethical or overly aggressive accounting practices, which enhances reporting quality and mitigates agency conflicts.

Consistent evidence also shows that gender diversity is associated with more conservative and risk-sensitive decision-making. Among others, Huang and Kisgen (2013) found that female executives are generally more conservative in financial decisions, being more likely to reduce leverage. Similarly, Francis et al. (2015) reported that female executives exhibit higher sensitivity to litigation, default, and turnover risks when making financial choices. Sun et al. (2019) added that female leadership is associated with higher ethical standards and a lower incidence of fraudulent reporting.

Based on these results, other authors further analyzed the positive impact of female presence in the BoDs on firms' outcomes. For example, Abbott et al. (2012) found that gender diversity on the board enhances the board's independence, thereby lowering the likelihood of financial misreporting. Liao et al. (2015) found that boards with higher female representation are more likely to promote ethical corporate conduct and social responsibility. Khaireddine et al. (2020) empirically highlighted that gender-diverse boards are associated with more extensive and transparent ethical, governance, and environmental disclosure. Hence, because of their greater caution and ethical sensitivity, female board members may limit opportunistic behavior and foster more conservative accounting practices (Nadeem, 2022).

These patterns can be interpreted as determinants of more stringent monitoring rather than as inherent gender traits. In the frame of agency theory, this stronger monitoring mechanism may lead to a more comprehensive processing of information, which may be particularly relevant in areas that involve subjective judgments, such as materiality assessments.

In this regard, additional studies explicitly indicate that BoD gender diversity not only impacts ethical conduct but also enhances monitoring mechanisms.

For example, Nguyen et al. (2015) further support this idea, showing that female gender diversity in boardrooms of transitional economies improves monitoring and performance, contributing to more ethical business practices and decisions. Brahma et al. (2021) found that women directors on boards in the UK are more likely to engage in proactive governance and improve overall firm performance. Similarly, Singh et al. (2023) demonstrated that female gender diversity in Indian IT sector BoD improves financial performance. Jérôme et al. (2025) concluded that female leadership is positively associated with more rigorous corporate practices, given their more risk-averse approach. Das and Hossain (2025) documented the moderating influence of women directors on boards in the relationship between firm performance and CEO compensation in emerging markets, like Bangladesh.

These results support the positive effect of the presence of women directors on board composition in fostering effective monitoring and thereby reducing opportunistic behavior.

Considering the recent EU Directive 2022/2381 aimed at increasing female representation on corporate boards, it is reasonable to expect that a higher female representation in the BoD acts as a monitoring mechanism also in the context of ex ante financial reporting decisions (i.e., materiality assessment), where manipulation is more difficult to detect.

Therefore, building on agency theory, we argue that when the level of female representation on the board is high, preparers expect the BoD to exert stronger monitoring, hence they are less willing to behave opportunistically in their materiality decisions. In contrast, when the level of female members on the board is low, the discretion inherent in materiality judgment may be used opportunistically by managers, since the monitoring mechanism by the BoD is expected to be weaker. Accordingly, we posit that a higher presence of women directors on the board may play a critical role in shaping accurate materiality judgments. This reasoning leads us to the formulation of our second hypothesis.

Hp2: When the share of female board members is high (low), preparers are more (less) willing to consider information as material.

### **3.3 The interaction effect of institutional investors' time horizons and bods' gender diversity**

The investment horizon of institutional investors and the gender composition of the BoD represent two distinct governance mechanisms for enhancing oversight over opportunistic behavior in materiality judgments. According to prevailing literature, firms are encouraged to adopt multiple governance mechanisms to ensure effective monitoring (Oyotode-Adebile et al., 2022). Building on this view, such governance mechanisms should also be examined as part of a broader system of controls in which internal and external mechanisms interact to shape managerial behavior, creating a bundle of corporate governance practices (Rediker & Seth, 1995; Aguilera et al., 2012). Therefore, we conceptualize institutional investors' investment horizons and the BoD's gender composition as elements jointly forming an interdependent model of monitoring mechanisms designed to reduce managerial discretion. Consistent with

Bedford (2020), their combined effect can take different forms of interdependence - complementary or substitutive - depending on whether one control strengthens or compensates for the other in achieving the same oversight function.

When internal board monitoring is weaker - typically in boards with low female representation as empirical research has shown such boards to be associated with more risk-prone reporting managerial behavior (Ibrahim et al., 2009; Francis et al., 2015; Hanlon et al., 2022) - the presence of long-term institutional investors may serve as a stronger external control mechanism. In these contexts, the vigilant oversight of long-term investors can help restrain opportunistic materiality judgments that might otherwise be driven by the more aggressive approach of the higher presence of men directors in the BoDs.

Conversely, boards that include more women directors are expected to already promote more cautious and accurate materiality assessments, since female board members are associated with greater risk aversion and a lower tolerance for opportunistic financial reporting behavior (Barua et al., 2010; Liu et al., 2016). Hence, the effect of the more stringent monitoring by institutional investors with a long-term investment horizon is expected to be marginal when the presence of women in the BoD is higher, as the enhanced monitoring from women directors already ensures more accurate and ethical decision-making in materiality assessments. In Bedford's (2020) terms, and from a corporate governance bundle perspective, this pattern reflects a substitutive (buffering) interdependence between the two controls: both the long-term orientation of institutional investors (external monitoring) and the higher gender diversity of the board (internal monitoring) serve the same control objective - curbing managerial opportunism - but the effectiveness of one mechanism decreases as the strength of the other increases. In other words, long-term investors' monitoring compensates for the weaker internal oversight of less diverse boards, whereas in highly diverse boards, the incremental value of external monitoring is expected to become less critical.

Hence, the effect of long-term institutional investors' monitoring is expected to be stronger in boards with lower female representation in the BoD, where male-dominated boards may require additional oversight to counteract the more risk-prone and aggressive financial reporting behaviors typically observed in such environments. We, therefore, empirically test this expectation and formulate the following hypothesis.

Hp3: The presence of institutional investors with long-term investment horizons in a firm's ownership increases preparers' willingness to consider accounting information as material, more when the share of female board members is low.

## 4 Methodology

### 4.1 Experimental design

The experiment has a 2 (institutional investors with long-term investment horizon vs. institutional investors with short-term investment horizon) x2 (high level of women directors in the BoD vs. low level of women directors in the BoD) between-partic-

ipants design. This approach has been considered appropriate to explore the behavioral aspect of materiality judgments (e.g., Messier et al., 2005; DeZoort et al., 2019). The experimental scenario was divided into two sections.

In the first part, participants are presented with a case study about the implementation of IAS 36 “*Impairment of Assets*”. Specifically, we adapted an example provided by the Practice Statement n.2 (IASB PS2, 2017). The appendix describes the experimental task.

## 4.2 Participants and procedures

The initial population is defined via LinkedIn following some previous studies (e.g., Du et al., 2022). We used the mailing list of a financial manager of a firm located in Italy who supported us in this first step of the process. Starting from the LinkedIn list, we filtered the search to select European listed companies headquartered in France, Germany, Italy, and Spain, which represent the four countries with mandatory adoption of IFRS grouped in the area of the most developed Continental European System of Accounting, according to Gray’s classification (1988).

Thus, we adopted a second filter using keywords such as *CFO*, *financial management accountant*, *financial manager*, *accounting manager*, and *accounting specialist* in order to involve individuals with a background aligned with the required knowledge. We obtained approximately 504 individuals to be contacted. Of these, 201 individuals showed a willingness to participate in the experiment. We subsequently deleted those who did not consent to participate (2.5%) and those who accepted but provided incorrect responses to the manipulation checks (15%). Hence, we obtained 167 validated responses. Table 1 shows sample characteristics, and the appendix provides its description.

The experiment was conducted online. Participants were contacted and received the link to the experimental task. Firstly, we provided the participants with some preliminary information to make them aware of the activity they were about to carry out. We briefly described the phases of our experiment, specifying that it was only in the English language, and the estimated time needed to carry it out. We also acknowledged the absence of risks, the anonymity of their data, and the voluntary nature of their participation. We concluded by providing our contact details to request further information and by requesting consent to consider the information provided in our study. Once consent was given, participants had access to the first section of the experiment. They could start on the second questionnaire only after completing the first one.

The post-experimental questionnaire (PEQ) comprised manipulation checks and questions related to process variables and demographics that we discuss in the following sections. Specifically, we asked for participants’ level of confidence with the concept of materiality (*MATCONF*) and the importance of both quantitative (*QUANFACTREL*) and qualitative (*QUALFACTREL*) factors in making materiality judgments on a scale of 1 (not at all) to 7 (totally). In this way, we validated participants’ responses, ensuring that their answers were based on a good knowledge of the materiality concept (mean=6.193; std. dev.=0.961) and the importance of both types of qualitative (mean=5.9; std. dev.=0.979) and quantitative (mean=5.86; std. dev.=0.840) factors in materiality judgments.

**Table 1** Sample characteristics

	Freq.	Percent
Gender		
- Male	103	64.38
- Female	57	35.63
Age		
- 25–35	42	26.25
- 35–50	91	56.88
- 51 or more	27	16.88
Firm type		
- Financial firm	70	43.75
- Non-financial firm	90	56.25
Country		
- France	40	25
- Germany	40	25
- Italy	40	25
- Spain	40	25
Degree		
- Master's degree	140	87.50
- PhD	20	12.50
Graduation type		
- Accounting and Finance	136	85
- Others	24	15
Year of experience		
- Less than 5 years	52	32.50
- 5–15 years	71	44.38
- More than 15 years	37	23.13
Total	160	100%

The table describes the sample characteristics used in the study, consisting of 160 participants. For each characteristic, the number of participants showing it and the corresponding percentage related to the total are specified

### 4.3 Manipulations and the dependent variable

In this study, we particularly set up the presence of institutional investors in the firms' ownership with different investment horizons (long-term investment horizons vs. short-term investment horizons). Under the long-term investment horizon conditions, participants were informed that the corporate ownership was held by pension funds, which are typically considered institutional investors with a long-term investment horizon (e.g., Yan & Zhang, 2009). On the other hand, in the short-term investment horizon condition, participants were told that the corporate ownership was held by mutual funds, which are typically institutional investors with a short-term investment horizon (Chen et al., 2015; Ghaly et al., 2020).

With respect to the effect of gender diversity on the BoD, we manipulated it by adjusting the level of female representation on the board, using high (3 women directors over 5) vs. low (1 female director over 5) female presence. This manipulation is based on the idea that gender diversity refers to the level of female representation on the board (Nguyen et al., 2015; Brahma et al., 2021; Singh et al., 2023) which can influence board dynamics, particularly with respect to the more ethical and risk-averse behavioral approach associated with women directors compared to their male counterparts

Institutional investors' Investment horizon BoD Gender diversity	SHORT-TERM	LONG-TERM
HIGH	Condition 1	Condition 3
LOW	Condition 2	Condition 4

**Fig. 1 Experimental design.** This figure, developed by the authors, illustrates the 2x2 experimental design used in the study, which manipulates two independent variables: the level of gender diversity on the Board of Directors (BoD) (high vs. low) and the investment horizon of institutional investors (short-term vs. long-term). Each combination corresponds to a distinct experimental condition (Conditions 1–4).

(Wahid, 2019; Seebeck & Vetter, 2022). Therefore, manipulating the two independent variables on two levels, we obtained four different conditions, as shown in Fig. 1.

Instead, the dependent variable is the willingness to consider the assumptions under which the asset was impaired as material information (*MATWILL*)<sup>2</sup>.

We measured the dependent variable on a 7-point Likert scale from low to high, with 1 being the lowest and 7 being the highest willingness. Table 2 shows the descriptive statistics of the dependent variable *MATWILL* for each condition.

## 5 Results

### 5.1 Manipulation checks

We used some questions to assess the efficacy of the manipulations to understand which variables may affect participants' decision processes and to validate their responses. First, participants were asked to indicate to what extent they agreed with the following sentence, on a scale of 1 (strongly disagree) to 7 (strongly agree):

*“Most shareholders of ABC have a long-term investment horizon”.*

The non-tabulated results indicate that participants, in the condition where corporate ownership is held more by institutional investors with a long-term investment horizon, are more in agreement with this statement than participants in the condition where corporate ownership is held more by institutional investors with a short-term investment horizon (mean=5.68; std. dev.= 0.988 vs. mean=1.91; std. dev.= 1.081;  $t = -23.045$ ;  $p < .01$ ).

Secondly, to test the effectiveness of the manipulation regarding the high presence of women directors on the board, participants were presented with a statement and asked to indicate the extent to which they agreed with it on a scale from 1 (strongly disagree) to 7 (strongly agree):

*“The board of directors is essentially composed by male directors”.*

<sup>2</sup>To better understand how we posed the question to participants, see the Appendix.

**Table 2** Descriptive statistics of the dependent variable by conditions

	Obs.	Mean	Std. Dev.	Min.	Max.
Institutional investors with short-term investment horizon and high BoD gender diversity MATWILL	40	2.212	.895	1	4
Institutional investors with short-term investment horizon and low BoD gender diversity MATWILL	40	1.872	.797	1	3
Institutional investors with long-term investment horizon and high BoD gender diversity MATWILL	40	5.675	.951	4	7
Institutional investors with long-term investment horizon and low BoD gender diversity MATWILL	40	5.517	.990	3	7
Total	160				

The table presents descriptive statistics for the dependent variable, MATWILL, segmented by each experimental condition

Untabulated results reveal that participants who were presented with conditions in which the low presence of women directors on the board expressed stronger agreement with this statement compared to those who were presented with conditions where women directors were high (mean=6.36; std. dev.=0.8855; vs. mean=2.4; std. dev.=0.6315;  $t=24.0343$ ;  $p<.01$ ).

Additionally, we asked the participants, “Which kind of decision is required to make?”. This allowed participants to choose whether or not it was a materiality decision. The results showed that most of the participants were aware that this was a materiality concern (which is only subsequent but not relevant to this case). Particularly, the participants whose responses indicated that it was a non-materiality decision (7%) were eliminated from the sample.

Third, participants were asked, “Is it mandatory to disclose assumptions used to determine the recoverable amount of a coal-fired power station in the financial statement, since no goodwill or intangible assets with an indefinite useful life were included in the cash-generating unit?”.

This question allowed them to choose between yes or no. In this way, we filtered only the participants who understood that it was a case of judgment. The ones who answered the “yes” option (8%) were deleted from our sample because they didn’t perceive the discretionary nature of such a decision, where a material assessment was needed<sup>3</sup>.

<sup>3</sup>To better explain the mechanism by which independent variables affect the dependent variable, the experiment includes process variables. Appendix shows the details.

## 5.2 Hypotheses test

We used the independent t-test to compare and understand whether the presence of institutional investors with different investment horizons (short vs. long) leads to a statistically significant difference between the means of the *MATWILL* variable between the two groups of participants.

The results shown in Table 3 confirm our first hypothesis, revealing statistically significant differences among the means of the participants' willingness to consider information as material between the two groups. Particularly, it seems that when institutional investors have long-term investment horizons, there is an increased and statistically significant intention to consider information as material compared to the condition when institutional investors have a shorter investment horizon (mean=5.675; std. dev.=0.951 vs. mean=2.2125; std. dev.= 0.895;  $t = -23.6964$ ;  $p < .01$ ). The corresponding standardized mean difference (Hedges'  $g$ )=3.73 (95% CI [3.21, 4.25]) indicates an extremely large effect size, suggesting a substantial behavioral difference between the two experimental conditions.

Additionally, looking at the different approaches implied by the board gender diversity in the reporting process (Barua et al., 2010; Srinidhi et al., 2011; Abbott et al., 2012; Habib & Hossain, 2013; Sun et al., 2019), we analyzed whether this leads to a statistically significant difference in the managers' willingness to consider information as material. Table 4. highlights how *MATWILL* behaves differently depending on the high (vs. low) presence of women directors in the firm's BoD.

As expected, the Table reveals that in the high presence of women directors in the BoD, managers generally show a higher willingness to consider information as material, achieving higher average scores (mean=4.701; std. dev.= 1.375) than in the low presence of women directors in the BoD (mean=3.854; std. dev.= 2.035). This difference is statistically significant ( $t=2.8060$ ;  $p < .01$ ); hence, the second hypothesis is confirmed. The effect size is moderate (Hedges'  $g=0.49$ ; 95% CI [0.15, 0.83]), indicating a meaningful but not extreme increase in managers' willingness to classify information as material under higher board gender diversity.

**Table 3** Independent T-test by institutional investors' investment horizon

	Obs.	Mean	Std. Err.	Std. Dev.	T	<i>p</i> -value
Institutional investors' investment horizon:						
short-term						
MATWILL	80	2.2125	.1001	.895		
Institutional investors' investment horizon:						
long-term						
MATWILL	80	5.675	.1064	.951		
Diff.		-3.4625	.1461		-23.6964	0.000***

The table shows the results of an independent t-test comparing *MATWILL* scores between institutional investors with short-term and long-term investment horizons conditions

\*\*\* Denotes significance at 1%

**Table 4.** Independent T-test by BoD gender diversity

	Obs.	Mean	Std. Err.	Std. Dev.	T	p-value
Women in the BoD: HIGH MATWILL	80	4.701	.1821	1.375		
Women in the BoD: LOW MATWILL	80	3.854	.2006	2.035		
Diff.		.8473	.3019		2.8060	0.0056***

Table 4. displays the results of an independent t-test comparing the mean value of MATWILL between high vs. low BoD gender diversity conditions

\*\*\* Denotes significance at 1%

**Table 5** Two-way independent ANOVA

	Sum of Squares	df	Mean Square	F	p
Model	440.373	3	146.791	199.61	0.000***
IINV_HOR	319.706	1	319.706	434.75	0.000***
GENDIV	50.929	1	50.929	69.26	0.000***
IINV_HOR x GENDIV	15.948	1	15.948	21.69	0.000***
Error	114.719	156	.7353		
Total	555.093	159	3.491		

This table presents the results of a two-way independent ANOVA. Specifically, related to the interaction between the two monitoring mechanisms identified (i.e., institutional investors' long-term investment horizons and BoD gender diversity), the results suggest that the effect of monitoring exerted by institutional investors with long-term investment horizons depends on BoD gender diversity

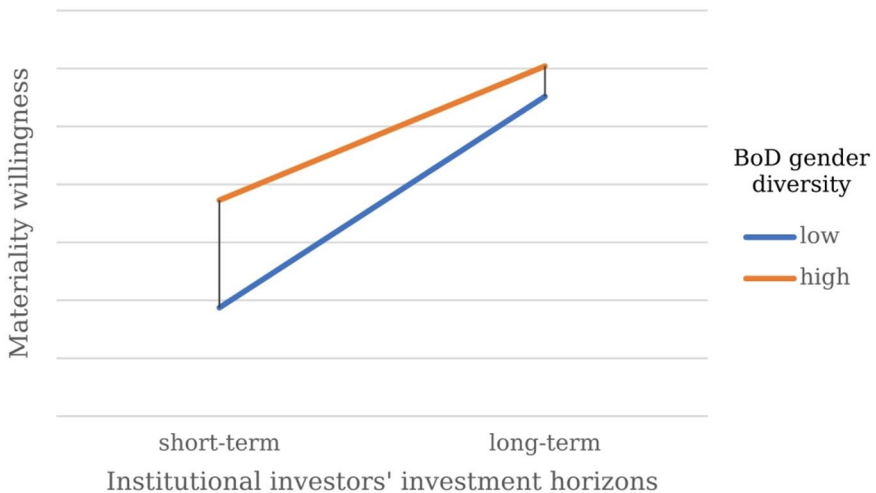
\*\*\* Denotes significance at 1%

Lastly, expecting that the monitoring carried out by institutional investors with long-term investment horizons may have a higher effect on conditions where the BoD gender diversity is low, we tested the interaction effect between the two independent variables (i.e., *IINVHOR* and *GENDIV*) on *MATWILL* with two-way independent ANOVA. Table 5 reveals a statistically significant interaction between *IINVHOR* and *GENDIV* ( $F = 21.69$ ;  $p < .01$ ), implying that the effect of *IINVHOR* on *MATWILL* varies depending on the level of *GENDIV*. Consistent with a planned-contrasts approach to interactions (Rosenthal & Rosnow, 1985), we tested the difference-in-differences using the contrast with weights +1, -1, -1, +1 across the four cells; the resulting test is equivalent to the 1-df interaction and yields  $t = \sqrt{F} = 4.66$  ( $df \approx 156$ ,  $p < .01$ ). The corresponding effect size for the interaction contrast is  $r_{\text{contrast}} \approx 0.35$  (i.e.,  $\eta^2 \approx 0.12$ ; Cohen's  $f \approx 0.37$ ), corroborating a medium-to-large interaction effect<sup>4</sup>.

<sup>4</sup> The 1-df contrast is algebraically equivalent to the omnibus F-test but offers a more focused and interpretable assessment of the expected pattern of means. For completeness, we also report the associated t-value, p-value, and standardized effect size (r or  $\eta^2$ , with Cohen's f) as recommended by Rosenthal and Rosnow (1985)

To aid interpretation, we also report simple-effect contrasts of investor horizon within each level of BoD gender diversity. When gender diversity is low, long-term (vs. short-term) investors are associated with a markedly higher MATWILL (Hedges'  $g \approx 4.02$ ); when gender diversity is high, the simple effect remains very large (Hedges'  $g \approx 3.71$ ), yet comparatively smaller than in the low-diversity condition. This simple-effects pattern aligns with the theoretical expectation that external monitoring from long-horizon investors is more consequential when internal board monitoring is weaker.

Although the ANOVA test provided us with relevant information about the presence of an interactive effect between the independent variables, it did not provide us with detailed information on the specific nature of this interaction. To address this, we present the results in Fig. 2, which illustrates that the presence of institutional investors with a long-term investment horizon has a greater influence on managers' willingness to consider information as material when the presence of women directors is low on the board, compared to when it is high. Therefore, the third hypothesis is confirmed. The planned-contrast and simple-effect evidence reported above provides a complementary, focused test of this profile, making the locus of the interaction explicit.



**Fig. 2 Experimental results.** Notes- The figure shows the experimental results related to the dependent variable *MATWILL* in relation to the short-term and long-term investment horizon conditions of institutional investors. The blue and orange lines represent the data for the two BoD gender diversity conditions (low vs. high female presence)<sup>7</sup>.

<sup>7</sup>The colors of the figure should be used in print.

## 6 Robustness tests

To validate the robustness of our ANOVA results, we use a multiple linear regression analysis similar to Hasan et al. (2021).

The model is as follows:

$$DV_i = \alpha + \beta_1 IV_{1,i} + \beta_2 IV_{2,i} + \beta_3 IV_{1,i} * IV_{2,i} + \beta_4 controls + \epsilon_i \quad (1)$$

Where DV is the dependent variable *MATWILL* and  $IV_1$ ,  $IV_2$  are the two independent variables *IINVHOR* and *GENDIV*.  $IV_1 * IV_2$  is the interaction variable between the two independent variables. *Controls* include variables of GENDER, AGE, GRADUATION, DEGREE, EXPERIENCE, FIRMTYPE, and COUNTRY since previous studies suggest that these variables can influence materiality decisions (Estes & Reames, 1988; Hasan et al., 2021; Hegazy & Salama, 2022). Appendix shows the description of variables used for the regression model.

Table 6 reports the results of the multiple linear regression model (Eq. 1). Particularly, our predictions made in the first hypothesis are confirmed since *IINVHOR* statistically significantly affects *MATWILL* (coefficient=3.698;  $p<.01$ ). Moreover, the second hypothesis about the effect of *GENDIV* on *MATWILL* is also supported (coefficient=0.469;  $p=.030$ ).

**Table 6** Regression results

Variables	Coefficient	Std. Error	t-statistic	p-value
IINVHOR	3.698	0.173	21.32	0.000***
GENDIV	0.469	0.214	2.19	0.030**
IINVHOR*GENDIV	-1.440	0.295	-4.88	0.000***
GENDER	1.242	0.157	7.88	0.000***
AGE	0.209	0.159	1.31	0.192
FIRMTYPE	-0.328	0.143	-2.29	0.023**
COUNTRY	0.015	0.032	0.49	0.628
EXPERIENCE	-0.026	0.091	-0.29	0.775
DEGREE	-0.078	0.228	-0.34	0.731
GRADUATION	0.152	0.196	0.77	0.440
Constant	1.799	0.308	5.84	0.000***
N				160
R <sup>2</sup>				0.80

This table presents the regression results examining the impact of various predictors on the dependent variable *MATWILL*. The results confirm what has already been predicted with the previous tests. Particularly, by keeping control of some personal characteristics that may influence preparers' decision-making, *MATWILL* is statistically significantly affected by the investment time horizons of institutional investors and by BoD gender diversity. Additionally, the interaction effect is also statistically significant, meaning that the effect of *IINVHOR* depends on *GENDIV*

\*\*\* Denotes significance at 1%

\*\*Denotes significance at 5%

Lastly, we find that the coefficient of the interaction term between IINVHOR and GENDIV is statistically significant (coefficient =  $-1.440$ ;  $p < .01$ ). This finding suggests that the effect of the investment horizons of institutional investors depends on BoD gender diversity.

## 7 Discussion of the results

In the frame of the agency theory and supported by empirical evidence from the previous literature (Burns et al., 2010; Ghaly et al., 2020; Wang et al., 2023), we found that the presence of institutional investors with long-term (vs. short-term) investment horizons is a factor capable of influencing the materiality decisions of managers. This is probably due to their different monitoring (more or less stringent) of managerial behavior. Specifically, the results show that the presence of institutional investors with a long-term investment horizon implies more effective monitoring of managers, thereby providing fewer opportunities for them to abuse discretion in making materiality judgments. Likely, this type of mechanism does not incentivize managers to decide opportunistically on the materiality of accounting items, which would result in incomplete information to users. These findings are consistent with the idea that the long-term orientation of institutional investors plays a pivotal role in reducing agency problems by preventing opportunistic behavior in financial reporting. Consequently, this result suggests that institutional investors with a long run may mitigate potential biases in the estimation of materiality at the beginning of the financial reporting process by managers, using their monitoring power.

Additionally, we align with previous research providing evidence about the crucial role of the higher representation of women in the BoDs in the materiality decision process (Brahma et al., 2021; Seebeck & Vetter, 2022; Singh et al., 2023; Das & Hossain, 2025). Specifically, the agency problems related to potentially opportunistic materiality judgments appear to be reduced due to a more stringent monitoring mechanism implied by a larger presence of women directors on the board, who tend to adopt a more ethical and holistic approach to behavior.

Finally, the results document that the two monitoring mechanisms could also jointly operate as part of corporate governance bundle, combining both an external and an internal control mechanism (Rediker & Seth, 1995; Aguilera et al., 2012). Specifically, the monitoring conducted by institutional investors with a long-term investment horizon tends to neutralize the less accurate materiality decisions adopted by managers when the level of women directors on the board is low. This evidence is consistent with the substitution logic emphasized in the governance bundle literature, whereby alternative governance mechanisms compensate for another one, when one form of control is relatively weak (Fernandez & Arrondo, 2005; Filatotchev, 2008).

Especially in male-dominated boards, which are often more prone to risk and aggressive financial reporting behaviors, the monitoring of long-term institutional investors serves as an external control mechanism to curb managerial opportunism. In contrast, when women's representation on the board is high, the effect of long-term institutional investor monitoring is less pronounced, as the ethical decision-making and risk-averse nature of women directors already provides a strong internal monitoring system.

According to the corporate governance bundle perspective, this interaction suggests that these governance mechanisms should not be examined in isolation, but rather as interdependent elements of a broader governance system (Aguilera et al., 2012; Melis & Rombi, 2021). While both mechanisms work independently to improve materiality judgments, their combined effect is particularly powerful in boards with low women's representation on the BoD, where external monitoring is needed to counterbalance the more risk-prone behavior of male-dominated boards.

From a management control perspective (Bedford, 2020), these findings can be interpreted as evidence of a substitutive relationship between two governance controls operating within the same monitoring system.

Consistent with a governance bundle perspective (Rediker & Seth, 1995; Aguilera et al., 2012), the long-term orientation of institutional investors (external control) and board gender diversity (internal control) both pursue the same objective - reducing managerial discretion - but their relative influence varies depending on the strength of the other mechanism. In this sense, the presence of long-term investors compensates for weaker internal oversight, while in more female-diverse boards, the added value of external monitoring becomes less crucial.

Overall, our results suggest that the interaction of these two monitoring mechanisms helps reduce opportunism in assessing materiality - a setting where manipulation is based on subjective and less detectable judgments.

By explicitly adopting a corporate governance bundle perspective, the findings highlight how institutional investors with a long-term investment horizon can complement the ethical and cautious decision-making of women board members, leading to more accurate materiality judgments that ultimately reduce information asymmetry and enhance the quality of financial reporting.

## 8 Conclusions

This research identifies two factors capable of driving the discretionary component of managers' financial materiality judgments. Through an experiment, this study offers insight into the decision-making process of managers when preparing financial statements and having to decide whether accounting information is material. We tested and found that both monitoring by institutional investors with a long-term investment horizon and a higher presence of women directors on the board influence the behavioral approach adopted by managers in making more accurate materiality decisions, both independently and through a substitutive interaction within the firm's governance system.

These findings contribute to the ongoing academic debate on financial materiality. While most studies relied on decisions made at the end of the financial reporting process (e.g., Acito et al., 2019; Thompson, 2023), we add to this debate by investigating materiality decisions made at the beginning of this process. This study also provides unique insights by investigating the behavior of managers who are typically firm inside decision-makers, up-to-date, and underexplored. Appreciating managers' behavior is a complex matter and considering that their materiality decisions precede those of auditors, to some extent, whether managerial materiality

decisions influence auditing materiality decisions are open issue. Thus, we call for future research.

This study also has several important implications.

Our results are helpful for the IASB standard setter, which has called for a greater understanding of the beneficial effects, if any, of its efforts to clarify the materiality concept for managers and to develop a more standardized materiality process. The findings highlight that the problem of discretion in the application of financial materiality does not solely arise from the lack of globally accepted definitions and procedures, but it can also originate from individuals making materiality decisions. From a broader perspective, insights from financial materiality can help standard setters also to uncover one boundary of the double materiality, a principle under a fervent debate due to its ambiguity and practical implications for non-financial disclosure.

This study could also be beneficial to policymakers. It clarifies which factors can affect decisions on materiality assessment and to what extent it helps identify further determinants from which the discretionary component in material judgments depends. Thus, we provide policymakers with additional understanding when issuing guidelines to neutralize the effect that both different institutional investors' monitoring and the BoD gender diversity may have on the quality of financial reporting. In addition, results can assist them in the context of the EU Directive n. 2022/2381 on board gender balance by confirming how a higher presence of women directors on the board contributes to more effective oversight, also in the earlier stages of financial reporting.

The findings also underline that governance mechanisms should not be designed or evaluated in isolation (Bedford, 2020) but rather understood as part of a corporate governance bundle in which internal and external controls interact and substitute for one another. The interaction between ownership structure and board composition reveals that control mechanisms can either reinforce or offset each other, depending on the context. This means that firms and regulators should consider the overall monitoring system, ensuring that internal and external governance mechanisms operate in balance rather than redundantly. For instance, in organizations with low female representation on boards, the presence of long-term institutional investors may serve as a compensating external control mechanism.

We also offer firms the opportunity to assess why they should incentivize both the presence of institutional investors with long-term investment horizons within their ownership structure and the enforcement of women directors in their governance structure.

Lastly, whether it is true or not that investors are the primary users of financial statements, this study implicitly suggests that some firms' governance characteristics are crucial in influencing, at the very beginning of the reporting process, the quality of information that they, then, will receive to support their investment decisions.

Despite the research making several important contributions and implications, it is not without limitations. Therefore, the adoption of the experimental methodology does not guarantee a complete generalization of the results. Furthermore, other factors may influence individuals who measure materiality. Future research could expand the evidence by identifying further corporate determinants, as well as the role played by managerial incentives. Additionally, this research considers the investments' time horizon as a possible characteristic of institutional investors that can lead to a different level of monitoring accuracy, which can exacerbate or mitigate managerial opportunism.

However, future studies could consider other characteristics of such types of investors, which typically can affect the accounting decisions of managers. Lastly, we only refer to financial materiality in financial statements. Considering the recent developments in the concept of materiality of non-financial disclosure, future studies could compare the discretionary application of financial materiality with that of impact materiality.

## Appendix

### Experimental design

We provide our participants with specific information about the company and the context in which it operates:

*“Imagine yourself as the manager of ABC Electric, a company engaged in energy production. The primary operations of this company are situated in a nation that, as part of a global agreement, has committed to implementing regulations aimed at reducing the reliance on carbon-based energy sources. ABC Electric possesses a coal-fired power station within this country. Consequently, during the specified reporting period, the company registered an impairment loss on its coal-fired power station. This results in a reduction of the power station's carrying amount to its recoverable amount, even though the regulations had not yet been incorporated into the national legislation by the end of the reporting period”.*

We specified that the company, as an IFRS adopter, referred to the concept of materiality as defined by IASB (IASB, 2018) when applying IAS 36 “Impairment of Assets”.

Since paragraph 132 of IAS 36 leaves discretion in providing information on the assumptions used to determine the recoverable amount of a tangible asset, unless goodwill or intangible assets with an indefinite useful life are included in the carrying amount of the cash-generating unit, we also specify that:

*“No goodwill or intangible assets with an indefinite useful life were included in the cash-generating unit”.*

In this way, we provided our participants with the clue that this was the case when applying paragraph 132 of IAS 36.

At this point, we asked our participants to imagine themselves as managers who prepare the financial statement and decide to what extent they would be willing to consider these assumptions as material, which could, in turn, affect the financial reporting quality.

In this case, the information on the likelihood of national enactment of regulations to reduce the use of carbon-based energy could influence decisions of primary users, based on the entity's financial statements. Consequently, such information could be judged as material being useful for primary users to understand the impact of impairment on the entity's financial position, financial performance, and cash flows (IASB,

PS2, 2017). However, this is at the discretion of managers who may decide to disregard the interests of the primary users of the financial statement and, thus, will constrain the financial reporting quality.

## Participants and Procedures

The distribution of valid responses across countries was not entirely balanced. Specifically, for Italy, we obtained 40 valid responses, while for Spain, France, and Germany, we obtained respectively 43, 41, and 43 valid responses. Therefore, to ensure fairness in representation, consistent with Bornstein et al. (2013) we adopt a quota sampling method involving chronologically, up to 40 responses per country, with 25% of participants from Italy, Spain, France, and Germany<sup>5</sup>. This approach helps us to create a balanced sample for each cluster while ensuring sufficient responses for statistical analysis. Table 1 shows a description of our sample's characteristics.

It reveals that 64.38% of the participants identified as male and 35.63% as female. Moreover, the largest age group in the sample falls between 35 and 50 years old, representing 56.88% of the participants. The age group of 25-35-year-olds comprises 26.25% of the sample, while those aged 51 or more make up 16.88%. The sample includes a slightly higher proportion of managers from non-financial firms (56.25%) compared to financial firms (43.75%). We also asked about participants' backgrounds, and the vast majority of them hold a Master's degree (87.50%), while only a minority had a PhD (12.50%). As we expected, most participants graduated with a degree in Accounting and Finance (85%), while the remaining 15% graduated in other fields. In terms of experience in their role, managers with 5-15 years of experience represent the largest group in the sample, comprising 44.38% of participants. Those with less than 5 years of experience make up 32.50% of the sample, while those with more than 15 years of experience represent 23.13%.

## Manipulations and dependent variable

Considering the two independent variables, we proposed to the participants the following sentences:

*“The ownership ABC Electric Company is held by a pension fund (mutual fund), and the Board of Directors consists of 5 members, 3 of whom are female directors (1 of whom is a female director).”*

Regarding the measurement of the dependent variable, we stated that:

*“In this role, you face the decision of whether the assumptions employed in determining the recoverable amount of the coal-fired power station are important information for primary users of financial reporting. How willing would you be to consider this information as material?”*

<sup>5</sup>Despite adopting this method, the results were skewed, considering the initially unbalanced sample of 167 responses.

## Process variables

The mechanism by which we expect a different willingness of participants to consider material information is the different monitoring made by institutional investors with different investment horizons, i.e., maximizing shareholders' value in the long horizon condition (Harford et al., 2018) vs. indulging the impatience of individual investors in the short horizon condition (Chen et al., 2015). Therefore, to get more clues about the theoretical assumptions, we investigated the participants' decision-making process. Particularly, we asked to what extent the two process variables (i.e., ownership investment horizons and BoD's monitoring) contribute to their willingness to consider information as material on a scale of 1 (strongly decrease) to 7 (strongly increase) using two different sentences.

With the sentence:

*“The corporate ownership alignment with a specific investment horizon”*

we conclude that the ownership investment horizon contributed to participants' willingness to consider information as material (mean=5.1; std. dev.=1.323). Additionally, by conditions – short vs. long-term investment horizons - there is not a statistically significant difference between groups ( $t=.238$ ;  $p>.01$ ). These results explain why, for each condition, we found different levels of willingness to consider information as material related to institutional investors' investment horizons.

Looking at the BoD's monitoring process variable, with the sentence:

*“How female directors monitor reporting decisions”*<sup>6</sup>

We tested that the way by which corporate ownership monitors reporting decisions (*MONIT*) seems to be a relevant variable overall, which leads to a different level of willingness to consider information as material (mean= 5.081; std. dev.= 1.400). Also, in this case, there is not a statistically significant difference between the two groups of the different conditions (mean= 4.9; std. dev.= 1.506 vs. mean=5.262; std. dev.= 1.27;  $t= -1.645$ ;  $p>.01$ ). Hence, participants in each condition perceived the BoD monitoring as a relevant factor in their materiality decisions. Therefore, it is likely that, based on the monitoring role, participants show a different level of willingness to consider information as material.

<sup>6</sup>This post-experimental question was not designed to test gender differences in monitoring directly, but rather to verify whether participants perceived the board's monitoring function—operationalized through its female vs male composition—as relevant in shaping their materiality judgments after answering the question related to the dependent variable measure. The reference to “female directors” served as a contextual cue consistent with the manipulation, helping participants connect the monitoring construct to the experimental scenario.

## Description of variables

Variable	Description
MATWILL	The willingness to consider the information as material on a 7-point Likert scale.
IINVHOR	The institutional investors' investment horizon is equal to 0 for short-term conditions and equal to 1 for long-term conditions.
GENDIV	It is equal to 0 when the BoD has a low presence of women directors (1 over 5 members) and 1 if the BoD has a high presence of women directors (3 over 5 members).
GENDER	It is equal to 0 if participants indicate that they are male, and it is equal to 1 if participants indicate that they are female.
AGE	It takes the value of 1 if participants indicate the 25-35 range; it takes the value of 2 when participants indicate the 35-50 range, and it takes the value of 3 when participants indicate the 51 or more range.
FIRMTYPE	It is equal to 0 if the participant works in a non-financial firm, and it is equal to 1 if the participant works in a financial firm.
COUNTRY	It refers to the countries of origin of the participants (i.e., Italy, France, Germany, Spain).
EXPERIENCE	It takes the value of 1 if participants indicate less than 5 years of experience; it takes the value of 2 when participants indicate the 5-15 range, and it takes the value of 3 when participants indicate they have more than 15 years of experience.
DEGREE	It takes the value of 0 if participants have Master's degrees and 1 if participants have PhD.
GRADUATION	It takes the value 0 if participants have graduated in "Accounting and Finance" and 1 if participants have other types of graduation.

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**Ilaria Martino** is Research Fellow in Accounting at the Department of Economics, Management, Institutions of the University of Naples “Federico II” where she received the Ph.D. degree in Management. Her areas of research include Accounting Standards, Materiality Judgments, Financial Reporting practices, Sustainability Reporting and Managerial Behavioral Dynamics.

**Alessandra Allini** is full Professor of Accounting at the Department of Economics, Management, Institutions of the University of Naples “Federico II” where she teaches International Accounting and Financial analysis. Her research interests cover the areas of Accounting standards, Earnings management, Risk disclosure, and Sustainability reporting.

**Adele Caldarelli** is full Professor of Accounting at the Department of Economics, Management, Institutions of the University of Naples “Federico II”, where she actively undertakes teaching activities and advises students of the Master Degree in Accounting and Management Accounting. Her research broadly looks at accounting, management accounting, and risk management.

## Authors and Affiliations

**Ilaria Martino**<sup>1</sup>  · **Alessandra Allini**<sup>1</sup>  · **Adele Caldarelli**<sup>1</sup> 

✉ Ilaria Martino  
ilaria.martino@unina.it

Alessandra Allini  
alessandra.allini@unina.it

Adele Caldarelli  
adele.caldarelli@unina.it

<sup>1</sup> Department of Economics, Management, Institutions University of Naples “Federico II”, Via Vicinale Cupa Cintia, 26, Napoli 80126, NA, Italy