North American Journal of Economics and Finance 79 (2025) 102467

Contents lists available at ScienceDirect

North American Journal of Economics and Finance

journal homepage: www.elsevier.com/locate/najef

# The impact of audit fees and auditor tenure on company valuation: An analysis of large U.S. audit firms

José Manuel Santos-Jaén [a,*], María del Carmen Valls Martínez [b,c,*], Gema Martín de Almagro Vázquez [d], Ana León-Gómez [e]

[a] Department of Accounting and Finance, University of Murcia 30100 Murcia, Spain
[b] Mediterranean Research Center on Economics and Sustainable Development, 04120 Almería, Spain
[c] Economics and Business Department, University of Almeria 04120 Almeria, Spain
[d] Sector 3 SAP, Spain
[e] Accounting and Management Department, University of Málaga 29071 Málaga, Spain

ARTICLE INFO

*Keywords:*
Auditor Tenure
Audit Fees
Company Value
Tobin's Q
Panel data regression
Generalized Moment Method

ABSTRACT

This study aims to investigate the impact of audit fees and auditor tenure on company valuation, focusing on large U.S. audit firms. It examines how these factors influence firm value as measured by Tobin's Q, providing insights into the broader implications of financial governance practices on investor perceptions and market dynamics. The research employs a panel data regression methodology and the generalized method of moments (GMM) to analyze data from companies included in the S&P 500 index over the period 2012 to 2021. This approach allows for robust statistical analysis and controls for potential autocorrelation and heteroscedasticity issues in the dataset. The findings indicate that auditor tenure does not have a statistically significant impact on corporate value. This suggests that the length of the audit engagement, in isolation, may not materially influence how investors perceive the reliability of financial reports. However, lower audit fees may indicate efficient cost management, which is positively perceived by the market. This study contributes to the auditing literature by providing empirical evidence on the relationship between auditor tenure, audit fees, and company valuation. It highlights the importance of implementing efficient audit fee structures to enhance firm value, offering practical implications for corporate governance and policy formulation. By demonstrating the positive impact of audit practices on firm value, this study underscores the broader social benefit of financial transparency and integrity, fostering a trustworthy investment environment and contributing to the overall health of the economy. Auditing is increasingly essential in company valuation as it underpins financial integrity and transparency, creating a trustworthy and secure environment for investors that improves the company's value in the market.

## 1. Introduction

In the context of business administration and management, the role of auditing stands out as a crucial element for enhancing and improving the company's value (Alfraih, 2016). This assertion is supported by evidence showing that implementing audits in corporate

* Corresponding authors at: Mediterranean Research Center on Economics and Sustainable Development, 04120 Almería, Spain.
*E-mail addresses:* Jmsj1@um.es (J.M. Santos-Jaén), mcvalls@ual.es (M.C. Valls Martínez), gema.martin@sector3.es (G. Martín de Almagro Vázquez), ana.leon@uma.es (A. León-Gómez).

https://doi.org/10.1016/j.najef.2025.102467
Received 19 February 2025; Received in revised form 16 May 2025; Accepted 17 May 2025
Available online 21 May 2025

structures is directly related to financial integrity and transparency in business operations (Zhang et al., 2022). By promoting an environment of trust and security for investors, this auditing practice significantly contributes to a favorable market valuation (Liang et al., 2018). The underlying reason for this phenomenon is that an audit conducted efficiently and rigorously improves the quality and credibility of financial reports (Dewi, 2005). These reports, being perceived as reliable and transparent, directly impact a company's valuation and perceived company value, thereby influencing its reputation and the trust placed in it by market actors (Cosmulese et al., 2021). Therefore, investigating the impact of auditing on the company value is crucial as it provides insights into the broader implications of financial information and governance practices on investor perceptions and market dynamics.

Analyzing the elements of audit practices that impact company value is crucial, as these elements directly influence investor confidence and the perceived reliability of financial statements (Carp & Georgescu, 2019). Research has shown that auditor tenure and audit fees significantly shape market perception (Hsieh et al., 2020). Firstly, a prolonged tenure at the auditor's firm allows the auditor to gain a deeper understanding of the business's financial system, enhancing their ability to identify strengths and risks (Bratten et al., 2019). This will improve the quality and reliability of the audit, which will benefit the company's valuation (Kamarudin et al., 2021). However, other authors have demonstrated that prolonged auditor tenure negatively influences audit quality (Junaidi et al., 2012), as auditors with extended engagements may become less objective and more reluctant to point out problems, which could have severe implications for the accuracy of financial reports and, therefore, for the valuation of companies (Chia-ah & Karlsson, 2010; Kalabeke et al., 2019).

On the other hand, it is also essential to analyze the impact of the fees received by auditors on the valuation of companies (DeFond et al., 2002). This relationship is complex, as there has yet to be a consensus regarding its nature (Alharasis et al., 2022). Some researchers argue that lower fees benefit profitability and appeal to investors as they enhance the company's value (Lee & Ha, 2021). However, other researchers claim that these reduced fees may result in a lower-quality audit, which could damage the reputation of the company and its long-term value (Xie et al., 2013). In short, to date, there still isn't a definite agreement on the impact of auditor tenure and fees on the value of a company. Published studies offer varied and often ambiguous conclusions, highlighting the need for continued, in-depth research to definitively determine how these variables affect corporate value.

The audit industry in the United States represents a fundamental pillar in the financial integrity and transparency structure of the capital markets. Its essential importance lies in the complexity and dynamism of the nation's financial markets, where the considerable volume and significant value of transactions demand rigorous auditing standards. These standards are crucial to preserve market efficiency and safeguard investor interests (Skinner & Srinivasan, 2012). In this environment, the audit sector emerges as a vital mechanism for detecting and preventing financial fraud and plays a crucial role in ensuring the accuracy and reliability of financial disclosures by current standards (Dyck et al., 2010; Knechel et al., 2015). In the context of a globalized economy, such as that provided by the United States, auditors assume significant responsibility for ensuring that multinational corporations adhere to national and international accounting standards. This function is essential to improve the comparability and reliability of financial information across borders (DeFond & Zhang, 2014). In this context, following the enactment of the Sarbanes-Oxley Act (SOX) in 2002, the role of auditors has been increasingly scrutinized, highlighting their critical role in safeguarding the interests of shareholders and contributing to the overall health of the economy (Cohen et al., 2010).

The role of auditors in today's business is critical, not only in terms of ensuring the quality and integrity of financial reporting but also because of their potential influence on the market value of companies (Soroushyar, 2022). In the United States, a market characterized by dynamism and strict regulations, understanding how auditor tenure and fee fluctuations impact companies' value becomes paramount (Brooks et al., 2022; Cohen et al., 2010). This study examines whether stability in the auditor-firm relationship and the fee policy adopted can be critical indicators of a firm's company value. To this end, we ask the following research questions: How does auditor tenure influence firm value? Does a decrease in auditor fees favor firm value in the market? Do the answers to the above questions change depending on the auditing firm?

To obtain evidence on these issues, the companies included in the most relevant stock market index worldwide, the Standard & Poor 500, were analyzed for the period 2012–2021. The multiple linear regression methodology with panel data was applied, and the results were tested with the second-order generalized moment method, a robust statistical procedure. In addition, a subsequent analysis was performed by differentiating between the Big Four audit firms.

The significance of this study lies in its substantial contribution to academic knowledge and its practical relevance. In the realm of auditing, it provides detailed empirical evidence on how the strategy for determining fees and auditors' tenure affects company value. We found that a longer duration of audit service and lower costs resulting from auditor salaries increase the company's value in the market. These results elucidate the roles of auditor tenure and fee structure in corporate valuation, providing valuable insights for policy formulation and corporate governance, thereby significantly enhancing our understanding of how auditor dynamics influence company value. Practically, this research offers critical implications for various corporate stakeholders, such as investors, regulators, and audit firms. Investors gain deeper insights, aiding in more informed decision-making regarding corporate governance and evaluation of audit practices. Regulatory bodies could leverage these findings to refine auditor rotation policies and fee structures. This knowledge could be pivotal for audit firms in shaping their service approaches and fee-setting strategies, aligning them more closely with client company value enhancement.

To sum up, this research focuses on examining the relationship between audit fees, auditor tenure, and company valuation in the context of business administration. This study is relevant and of interest for several fundamental reasons. Firstly, auditing plays a crucial role in promoting financial integrity and transparency in business operations, which in turn directly influences a company's valuation (Alfraih, 2016; Zhang et al., 2022). Understanding how audit fees and auditor tenure affect this valuation is essential for investors and stakeholders as it can provide valuable insights into the quality and credibility of financial reports. Additionally, previous research has shown that the auditor-company relationship can significantly influence market perception and therefore company

valuation (Hsieh et al., 2020; Bratten et al., 2019). Therefore, this study aims to address this gap in the literature by examining in detail how audit fees, auditor tenure, and company valuation are interconnected, thus providing a more comprehensive understanding of these key aspects of business management.

The rest of this article is organized as follows: first, a literature review is conducted, followed by an explanation of the methodology used in the research and the presentation of the results. This article concludes with a discussion of the findings and the presentation of the conclusions drawn from this research.

## 2. Literature review and establishment of hypothesis

Corporate auditing plays a crucial role in company valuation, ensuring the integrity and reliability of financial records through a thorough and objective examination (Alfraih, 2016; Ibrahim Kawther & Hasan Fattah, 2022). It is vital for accurate valuation and is fundamental to promoting trust and transparency among investors and other stakeholders, significantly influencing the company's perceived value in the market (Liang et al., 2018).

Furthermore, auditing ensures that companies strictly comply with accounting standards and legal requirements, mitigating potential risks that could devalue the entity and demonstrating ethical and responsible business conduct, which is highly valued by investors (Flowerday & von Solms, 2005; Ronen, 2010). Beyond regulatory compliance, auditing is essential for detecting risks and identifying opportunities for improvement, providing crucial information for strategic decision-making and long-term planning, which are essential for increasing the value and competitiveness of the company (Hoffman & Zimbelman, 2012; Simunic, 1980).

It is critical to analyse how various aspects of the audit influence firm value, a topic that has received considerable attention in the scientific literature (Carp & Georgescu, 2019). Auditor tenure, defined as the duration of the relationship between an auditor or audit firm and a specific firm, has significant implications for firm value (Baldwin & Ellison, 2020). According to Agency Theory, longer auditor tenure could mitigate agency conflicts and reduce the associated costs. This is because auditors with in-depth knowledge of the firm can detect and deter opportunistic behaviour more effectively, which could result in a potential increase in firm value (Brooks et al., 2022). Despite this theoretical foundation, no clear consensus exists on whether prolonged auditor tenure increases or decreases firm value. While some studies highlight the benefits of increased auditor familiarity and understanding of the company, such as a more detailed understanding of financial processes and systems (Kalabeke et al., 2019; Kamarudin et al., 2021), others point to significant concerns related to loss of independence and objectivity, which could compromise auditor impartiality (Alajmi & Worthington, 2023; Lee & Ha, 2021).

This advanced familiarity allows auditors to more effectively identify strengths and areas of potential risk, improving audit quality and, thus, company valuation (Bratten et al., 2019; Kamarudin et al., 2021). However, excessive familiarity may make auditors less critical in their assessments, lowering audit quality and eroding investor confidence (Shubita, 2021). In addition, increased auditor tenure may negatively influence the auditor's willingness to issue a going concern opinion, reflecting reduced objectivity and increased reluctance to point out financial problems (Junaidi et al., 2012; Kalabeke et al., 2019). Moreover, other authors such as Brooks et al. (2022) find that in some cases auditor tenure does not have a direct and statistically significant effect on firm value.

The complexity of the relationship between auditor tenure and firm value and the diversity of views in the academic literature makes it essential to formulate a research hypothesis that explores the meaning of this relationship:

$H_1$: *There is a positive relationship between auditor tenure and the audited company value.*

Likewise, audit fees, defined as the fees paid to auditors for the services of reviewing and evaluating a company's financial accounts, have gained significant importance within the elements of the audit, being one of the factors that most influence the value of the company (Coffee, 2019; Wang, 2022). These fees reflect the direct cost of the audit process, critical aspects of the relationship between the company and its auditor, and the perceived quality of the audit services provided (Martinez & da Jesus Moraes, 2014).

One of the most significant debates in the study of auditors' fees is their impact on firm value, a multifaceted relationship (Alharasis et al., 2022). The Efficient Market Hypothesis states that variations in audit fees reflect changes in the perceived risk associated with the firm, thus affecting its market value (H. Chen et al., 2019). However, the scientific literature shows conflicting results on the nature of this relationship. On the one hand, it is argued that reducing auditors' fees can directly decrease firms' audit expenses, thus improving their financial performance by reducing operating costs and increasing profitability, which is conducive to short-term firm value (Coller et al., 2002; Lee & Ha, 2021). This cost reduction frees up resources for other value-generating activities within the firm (Bills et al., 2015; Peecher et al., 2007). Moreover, if a firm can negotiate lower fees without compromising audit quality, this may reflect practical negotiation skills and prudent cost management, positively impacting firm value (Cahyaningati et al., 2022; Yanti & Wijaya, 2020). Moreover, according to the linkage theory, Asthana & Boone (2012) argue that lower audit fees can reduce the client's influence on the audit outcome, thus improving the quality of the audit work performed. A high-quality audit increases the transparency and reliability of financial reporting, raising the company's market value (H. Chen et al., 2019).

On the other hand, some studies suggest that reducing audit fees may compromise the quality of audit work by forcing auditors to decrease the resources allocated to their work (Ishak, 2021; Solomon et al., 2005). This perspective is supported by the segmentation of the audit market, where the quantity of available resources can dictate audit quality (Gandía & Huguet, 2018a). It is essential to recognise that adequate fees are required to maintain high audit quality (Lückerath-Rovers, 2020). Reducing these costs can degrade audit quality, potentially damaging the firm's reputation and negatively affecting its value (Xie et al., 2013). Moreover, under conditions of asymmetric information, reduced audit quality may allow for more excellent manipulation of results by audited firms (Santos-Jaén et al., 2023), which could positively influence the short-term market value of the firm by adjusting earnings to show an appearance of stability or growth (Boachie & Mensah, 2022; Chaney & Lewis, 1995).

The diversity of the findings underscores the complexity of the topic and points to the need for further research to fully understand

**Table 1**
Sample description.

| Auditor | Frequency | Percentage |
|---|---|---|
| Ernst & Young | 1202 | 31.93 |
| Price Waterhouse Coopers | 1162 | 30.87 |
| Deloitte | 779 | 20.70 |
| KPMG | 588 | 15.62 |
| Grant Thornton | 24 | 0.64 |
| BDO International | 9 | 0.24 |

**Table 2**
Definition of variables.

| Nature of the variable | Abbreviation | Variable | Definition |
|---|---|---|---|
| Dependent variables | TOBQ | Tobin's Q | Market capitalization plus debt divided by total assets |
| | MTB | Market to Book | Market value divided by book value of shareholders' equity |
| Independent variables | TEN | Auditor Tenure | Number of years during which the auditor has provided continuous services to the company |
| | FEE | Audit Fees | Logarithm of audit fees |
| Control variables | ACO | Audit Committee | Dummy variable, 1 if the company has an audit board committee, and 0 otherwise |
| | FER | Fees ratio | Non-audit to audit fees ratio |
| | ESG | ESG Controversies Score | ESG score assigned by Eikon, which includes controversy topics and ranges from 0 to 100, where 100 implies no controversies. |
| | SCO | Sustainability Committee | Dummy variable, 1 if the company has a CSR committee or team, and 0 otherwise |
| | SIZ | Size | Logarithm of total sales |
| | IND | Indebtedness | Total debt to total assets |
| | ROA | Return on Assets | Profit to total assets |
| | BET | Beta | Volatility of a stock against the volatility of the broader market |
| | PER | Price Earnings Ratio | The company's stock price divided by the earnings per share |

Note: Monetary amounts are expressed in thousands of dollars.

the nuances of how audit fees influence the value of an audited company. In light of this, we propose the following research hypothesis:

$H_2$: *There is a negative relationship between audit fees and the audited company value.*

Another essential aspect to consider is that the independence of audit firms, and thus their impact on the value of a company, is not only affected by external elements such as seniority and auditors' fees but also by internal characteristics of the firms themselves (Puxty, 1993). Bauer (2015) stresses the importance of investigating mechanisms that preserve auditor independence from these risks. Furthermore, it is argued that cultural and socio-economic factors significantly impact auditor independence (Fitzgerald et al., 2019; Puxty, 1993). This view is echoed in the study that highlights how the culture of an audit firm can influence audit quality (Alberti et al., 2022). In turn, how auditors perceive their independence is analysed, considering personal, organisational and social factors, highlighting the importance of corporate and cultural ethics in companies (Hudaib & Haniffa, 2009).

Ethical culture, a facet of organizational culture, plays a pivotal role in assessing ethical matters within firms, particularly those with ethical implications (Treviño et al., 2001). This culture consists of formal and informal systems that can either encourage ethical or unethical behavior (Svanberg & Öhman, 2016). Auditors tend to lean towards relativism over idealism in ethics due to the practical nature of their profession, potentially impacting their stance on clients' unethical actions. Bauer (2015) suggests that exposure to a robust ethical culture could enhance auditor impartiality, a sentiment supported by Svanberg and Öhman (2016) and echoed by various authors highlighting how cultural ethics promote auditor objectivity. Moreover, factors like formal structures, business practices, and image management within audit firms influence auditor independence beyond cultural aspects (Reiter & Williams, 2004). For this reason, the influence of audit fees and auditor tenure on the value of audited firms can be expected to differ for each audit firm.

## 3. Data and methodology

### 3.1. Dataset and variable description

The veracity of the hypotheses was tested on a sample of companies referenced to the S&P 500 index for the period 2012–2021. The reason for this choice lies in the fact that the U.S. market is a world leader, and the S&P500 index is one of the most representative indexes of this market. In addition, the 10-year period selected is sufficiently broad and current to consider the results relevant. The data were obtained from the Eikon database, whose reliability is proven by its use by both financial professionals and academics. Observations for which there were no data for all variables in the study were eliminated so that the final sample comprised 3,764 observations.

Given the interest of this study in determining whether the effect of auditor tenure and audit fees is different depending on the audit firm, it is interesting to know the weight of each audit firm in the total sample, shown in Table 1. Considering the low relative

importance of Grant Thornton and DBDO International, derived from the few observations in the sample for statistical analysis, the subsequent individualized analysis will be focused on the Big 4 auditors: Ernst & Young, Price Waterhouse Coopers, Deloitte, and KPMG, ranked according to frequency.

Table 2 lists the variables used in the empirical study classified according to their function in the model, their definition, and the abbreviations by which they will be represented in the subsequent results tables.

Tobin's Q will be used as a proxy for the company's market valuation, thus being the dependent variable (TOBQ). Tobin's Q is obtained by adding the value of debt to the company's market capitalization and dividing it by total assets. It is, therefore, a market-to-book value ratio that can be considered objective and free from the subjectivity of the company's self-reported measures of financial performance (Wiggins & Ruefli, 2002). As a market valuation, it includes the company's long-term future expectations, as opposed to accounting measures that reflect the company's past situation (Post & Byron, 2015). Furthermore, Tobin's Q offers the benefit of being a standardized metric that is straightforward to interpret: when the ratio surpasses one, investors perceive the company as using its resources effectively; however, if the ratio falls below one, both material and intellectual resources are seen as being underutilized. Consequently, in numerous prior research studies, Tobin's Q has been extensively employed to measure financial market performance (Adams & Ferreira, 2009; Campbell & Mínguez-Vera, 2008; Gallego-Álvarez et al., 2010; García-Castro et al., 2010; Hou, 2019; Isidro & Sobral, 2015; Jia, 2019; Reguera-Alvarado et al., 2017; Rodríguez Fernández et al., 2013; Sial et al., 2018; Valls Martínez & Cruz Rambaud, 2019).

Market to book ratio (MTB) has traditionally been used in the literature as an independent variable measuring market performance (Barnhart et al., 1994; Bonn et al., 2004; Pucheta-Martínez, 2015; Rehman & Shah, 2013), given its contribution to determining the profitability of the companies (Fama & French, 1995). For this reason, it has been used to test the results' validity, substituting Tobin's Q as the independent variable.

The independent variables, auditor tenure (TEN) and audit fees (FEE), will be used to contrast the research hypotheses; therefore, they are the study's aim, and the expected signs of their relationships with the dependent variable have been discussed in the previous literature review section.

Three groups of control variables will be considered. The first includes internal control tasks, considering whether or not the company has an internal Audit Committee (ACO) since greater control should result in a better market valuation. In addition, the non-audit to audit fees ratio (FER) includes the effects that lower audit fees may be offset by other ancillary consulting work (non-audit fees). Further non-audit services provided by the auditor may be considered, compromising the auditor's independence. However, following the "concentration doctrine", the concentration of service providers would favor performance, so we expect a positive relationship between the FER ratio and Tobin's Q (Hillison & Kennelly, 1988; Palmrose, 1986; Simunic, 1980).

Given the current importance of ESG commitment in market valuation, the second group of control variables includes whether or not the company has a Sustainability Committee (SCO) and the ESG controversy score (ESG) assigned by Eikon. Indeed, previous studies used SCO as a control variable (Valls Martínez et al., 2020; Valls Martínez et al., 2022), finding a significant positive relationship with the company's value measured as Tobin's Q (Isidro & Sobral, 2015). On the other hand, the influence of corporate social responsibility measures on the company's financial performance has been extensively studied, generally finding a positive relationship between both variables. In this sense, the absence of controversies is expected to favor a higher value of Tobin's Q. However, this relationship has not always been verified in the literature, alluding to diverse factors such as the type of industry, the strategic emphasis, the company's competitiveness, etc. (Hou, 2019; Jia, 2019).

Finally, the third group comprises a series of financial variables widely known and used in research: firm size (SIZ), level of indebtedness (IND), return on assets (ROA), beta (BET), and price-earnings ratio (PER).

The company's size is a variable used in practically all studies, considering the total assets of the company or sales volume as a proxy for size. The results obtained are not homogeneous, neither in terms of the relationship's sign nor significance. Indeed, larger companies may be more resilient to market adversities; however, smaller companies are more agile in adapting to market changes. Specifically, considering sales volume, relatively recent empirical studies found a non-significant negative relationship between sales volume and Tobin's Q (Reguera-Alvarado et al., 2017; Valls Martínez & Cruz Rambaud, 2019). Along with size, indebtedness is the most widely considered control variable. The results are not conclusive because while some studies show a direct relationship with Tobin's Q (Gallego-Álvarez et al., 2010; García-Castro et al., 2010), others detect an inverse relationship (Campbell & Mínguez-Vera, 2008; Sial et al., 2018).

ROA is a measure of accounting profitability known and used by the reference article in the literature (Campbell & Mínguez-Vera, 2008), showing a positive and significant relationship so that the market better values more profitable companies. On the other hand, beta measures the volatility of the company's stock relative to the market, so betas greater than one indicate that the stock fluctuates to a greater extent than the market; as for the sign of beta, it reflects whether the stock price moves in the same (positive sign) or opposite (negative sign) direction as the market. Considering that a rational investor will be risk averse, it is logical to think that companies with higher volatility will be lower valued by the market, so a negative relationship between Tobin's Q and beta is expected. However, the literature has not always found a significant relationship (García-Castro et al., 2010), and it has even been claimed to be of little relevance to stock performance (Fama & French, 1993). Finally, considering that the price-earnings ratio influences the average stock return, this variable has been included in the empirical analysis (Fama & French, 1993), expecting a positive relationship with Tobin's Q.

Table 3 presents the means of the dependent and independent variables by auditor company, together with an ANOVA test, which shows that the means are significantly related to the auditing company, so it will be of interest to perform an analysis by auditor.

On the other hand, after dividing the study sample into quartiles according to company size, Table 4 shows the means of the dependent and independent variables by quartile and the ANOVA test indicating that the means are significantly related to size

**Table 3**
Mean of dependent and independent variables by auditor.

| Auditor | Tobin's Q | Market to Book | Auditor time | Audit fees |
|---|---|---|---|---|
| Ernst & Young | 2.44 | 3.11 | 17.28 | 8.90 |
| Price Waterhouse | 2.21 | 2.72 | 15.73 | 9.16 |
| Deloitte | 1.83 | 2.23 | 16.65 | 9.04 |
| KPMG | 2.09 | 2.56 | 16.41 | 8.85 |
| Grant Thornton | 3.73 | 4.29 | 11.67 | 6.99 |
| BDO International | 1.70 | 1.82 | 5.00 | 9.73 |
| ANOVA test | 10.34*** | 9.96*** | 14.75*** | 36.09*** |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) |

*p*-value in parentheses. *** indicates a significance of less than 1%.

**Table 4**
Mean of dependent and independent variables by size.

| Auditor | Tobin's Q | Market to Book | Auditor time | Audit fees |
|---|---|---|---|---|
| Quartile 1 | 3.21 | 4.11 | 15.27 | 8.16 |
| Quartile 2 | 2.04 | 2.57 | 15.97 | 8.71 |
| Quartile 3 | 1.83 | 2.24 | 16.58 | 9.17 |
| Quartile 4 | 1.67 | 1.99 | 18.06 | 9.91 |
| ANOVA test | 113.28*** | 99.67*** | 31.09*** | 1030.91*** |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) |

*p*-value in parentheses. *** indicates a significance of less than 1%.

**Table 5**
Descriptive statistics.

| Panel A. Observed values | | | | | |
|---|---|---|---|---|---|
| **Variable** | **Mean** | **Median** | **SD** | **Minimum** | **Maximum** |
| TOBQ | 2.18494 | 1.59307 | 2.09995 | 0.06439 | 23.46375 |
| MTB | 2.72674 | 1.87503 | 3.03311 | 0.03418 | 52.23165 |
| TEN | 16.47024 | 17.50000 | 6.62667 | 1.00000 | 38.00000 |
| FEE | 8.98847 | 8.95189 | 0.95776 | 6.03068 | 15.68402 |
| ACO | 0.99601 | 1.00000 | 0.06301 | 0.00000 | 1.00000 |
| FER | 0.15567 | 0.08504 | 0.20142 | 0.00000 | 2.51930 |
| ESG | 80.22461 | 100.00000 | 31.41237 | 0.45000 | 100.00000 |
| SCO | 0.67481 | 1.00000 | 0.468506 | 0.00000 | 1.00000 |
| SIZ | 16.14448 | 16.08409 | 1.27211 | 12.32231 | 20.16597 |
| IND | 0.27743 | 0.27536 | 0.164472 | 0.00000 | 0.94697 |
| ROA | 7.85267 | 6.67000 | 6.63272 | −40.42500 | 51.74000 |
| BET | 1.07994 | 1.05820 | 0.49701 | −0.32390 | 3.93200 |
| PER | 24.06032 | 21.05837 | 206.22320 | −5692.18000 | 7113.65600 |

Number of observations: 3764.

(quartile). Thus, it is interesting to conduct a study by size.

### 3.2. Methodology

Multiple linear regression was (Table 5) the statistical technique applied in data analysis to test Hypotheses 1 and 2, using Stata software (v.16.0), with TOBQ as the dependent variable and TEN and FEE as independent variables. As usual, the descriptive statistics of the variables and Pearson's bivariate correlations were previously calculated. Once it was verified that no high correlations could give rise to multicollinearity problems, a panel data regression was first estimated.

The Hausman test was used to select the fixed effects model (Hausman, 1978). In order to test for autocorrelation problems in the panel data model, the Wooldridge test was applied, where the null hypothesis is the absence of serial correlation (Drukker, 2003). In addition, the modified Wald statistic was used to test the heteroscedasticity in the residuals of the fixed effect regression model, with heteroscedasticity as the null hypothesis (Baum, 2001).

Since autocorrelation and heteroscedasticity problems were presented, we proceeded to use the *xtpcse* correction for panel data, assuming panel-level heteroscedastic errors and first-order autocorrelation AR(1) within panels, with the coefficient of the AR(1) process common to all the panels (Blackwell, 2005).

In addition, a second-order generalized moment method (GMM) estimation was applied, which reports more consistency and efficiency than first-order estimation (Arellano & Bover, 1995). The *p*-values of Hansen's test, AR(1), and AR(2) must be greater than 0.05 for the model to be considered correct.

**Table 6**
Pearson's correlation matrix.

| Variable | TOBQ | MTB | TEN | FEE | ACO | FER | ESG | SCO | SIZ | IND | ROA | BET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MTB** | 0.9238*** | | | | | | | | | | | |
| | (0.0000) | | | | | | | | | | | |
| **TEN** | 0.0004 | −0.0039 | | | | | | | | | | |
| | (0.9787) | (0.8087) | | | | | | | | | | |
| **FEE** | −0.2996*** | −0.2597*** | 0.1510*** | | | | | | | | | |
| | (0.0000) | (0.0000) | (0.0000) | | | | | | | | | |
| **ACO** | 0.0057 | 0.0120 | −0.0127 | 0.0062 | | | | | | | | |
| | (0.7280) | (0.4606) | (0.4362) | (0.7020) | | | | | | | | |
| **FER** | 0.1090*** | 0.0925*** | −0.0784*** | 0.0322** | 0.0047 | | | | | | | |
| | (0.0000) | (0.0000) | (0.0000) | (0.0483) | (0.7735) | | | | | | | |
| **ESG** | 0.0450*** | 0.0467*** | −0.1107*** | −0.4473*** | −0.0263 | 0.0721*** | | | | | | |
| | (0.0057) | (0.0042) | (0.0000) | (0.0000) | (0.1068) | (0.0000) | | | | | | |
| **SCO** | −0.1135*** | −0.0915*** | 0.1746*** | 0.3286*** | −0.0169 | −0.0944*** | −0.2126*** | | | | | |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.2998) | (0.0000) | (0.0000) | | | | | |
| **SIZ** | −0.2821*** | −0.2662*** | 0.1800*** | 0.7024*** | 0.0211 | −0.1240*** | −0.5334*** | 0.3418*** | | | | |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.1952) | (0.0000) | (0.0000) | (0.0000) | | | | |
| **IND** | −0.0822*** | 0.1258*** | −0.0524** | 0.0184 | 0.0081 | −0.0089 | 0.0206 | 0.1105*** | −0.0227 | | | |
| | (0.0000) | (0.0000) | (0.0013) | (0.2581) | (0.6177) | (0.5861) | (0.2058) | (0.0000) | (0.1634) | | | |
| **ROA** | 0.5484*** | 0.4755*** | 0.0079 | −0.1925*** | 0.0038 | 0.0823*** | 0.0302* | −0.0615*** | −0.0857*** | −0.1457*** | | |
| | (0.0000) | (0.0000) | (0.6271) | (0.0000) | (0.8134) | (0.0000) | (0.0636) | (0.0000) | (0.0000) | (0.0000) | | |
| **BET** | −0.0751*** | −0.0693*** | −0.0121 | 0.0757*** | −0.0105 | −0.0148 | 0.0186 | 0.0114 | −0.0299* | −0.0564*** | −0.0681*** | |
| | (0.0000) | (0.0000) | (0.4568) | (0.0000) | (0.5183) | (0.3631) | (0.2539) | (0.4855) | (0.0667) | (0.0005) | (0.0000) | |
| **PER** | 0.1159*** | 0.1389*** | 0.0134 | −0.0396** | 0.0004 | 0.0237 | −0.0290* | 0.0103 | −0.0214 | 0.0155 | 0.0591*** | −0.0205 |
| | (0.0000) | (0.0000) | (0.4110) | (0.0152) | (0.9820) | (0.1467) | (0.0748) | (0.5258) | (0.1888) | (0.3433) | (0.0003) | (0.2076) |

*p*-value in parentheses.
Number of observations: 3,764.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively.

**Table 7**
Regressions analysis: Tobin's Q dependent variable.

| Variable | Panel data | Panel data corrected | GMM Model |
|---|---|---|---|
| Intercept | −2.787421** (0.012) | −3.018981* (0.089) | 17.059510*** (0.000) |
| TEN | 0.041717*** (0.000) | 0.039356*** (0.000) | 0.077174*** (0.000) |
| FEE | −0.353533*** (0.000) | −0.269510*** (0.000) | −0.764061*** (0.007) |
| ACO | 0.533530ns (0.124) | 0.584122** (0.031) | 0.333683ns (0.151) |
| FER | 0.231284ns (0.122) | 0.131997ns (0.330) | 1.055717** (0.022) |
| ESG | −0.001478* (0.085) | −0.001103ns (0.107) | −0.005488** (0.011) |
| SCO | 0.166114*** (0.010) | 0.2019633*** (0.005) | 0.420275** (0.016) |
| SIZ | 0.390689*** (0.000) | 0.380045*** (0.001) | −0.597277** (0.031) |
| IND | 0.007785ns (0.977) | −0.229611ns (0.617) | −1.665762** (0.031) |
| ROA | 0.074569*** (0.000) | 0.050572*** (0.000) | 0.121145*** (0.000) |
| BET | −0.002568ns (0.967) | −0.026507ns (0.674) | −0.494123** (0.016) |
| PER | 0.000401*** (0.000) | 0.000304** (0.018) | 0.002699* (0.052) |
| Adjusted $R^2$ | 0.7629 | 0.6993 | |
| *F*-statistic | 36.46*** (0.000) | | |
| Wald Chi2 | | 76861.77 (0.000) | 1075.67 (0.000) |
| Hausman test | 430.54 (0.000) | | |
| Wooldridge test | 160.783 (0.000) | | |
| Modified Wald test | 2.9e + 33 (0.000) | | |
| Hansen test | | | 453.52 (0.283) |
| AR(1) | | | −1.18 (0.238) |
| AR(2) | | | −1.85 (0.065) |

Number of observations: 3764. *p*-value in parentheses. ns denotes non-significance.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively.

Subsequently, in order to test whether the hypotheses were verified by the auditor company, we repeated the previous process, i.e., the three models (panel data, panel data corrected, and GMM estimation), multiplying the variables TEN and FEE by dummies representing each audit firm (Santos-Jaén et al., 2023). Then, in a similar way, the hypotheses were tested according to firm size by multiplying TEN and FEE by dummies representing each of the quartiles into which the sample is divided.

Finally, to test the robustness of the results, MTB was considered the dependent variable. The panel data corrected and GMM estimation models were estimated in the case of the independent variables being TEN and FEE, and in the cases of considering their disaggregation by auditor and by quartile.

## 4. Results

Table 3 shows the descriptive statistics of the variables corresponding to the observed values. Most companies in the sample had a positive market valuation, i.e., above their book value (note that TOBQ and MTB have a median greater than 1). The two independent variables, TEN and FEE, have no notable extreme values and present a non-relevant standard deviation. The fee ratio (FER) indicates that, on average, audit firms charge fees for advisory services of 15.567 % of the audit fees, with an unimportant standard deviation. Practically all the companies (a total of 3,749, i.e. 99.60 %) had an Audit Committee. The majority (2,540, i.e., 67.48 %) had Sustainability Committees and presented an optimal valuation in the ESG controversies score (2,283, i.e., 60.65 %). Regarding financial variables, the median debt level was 27.743 %; the ROA ratio was 7.853 %, BET was on average above 1 (i.e., the volatility of firms was on average higher than that of the market), and more than half of the companies had a PER above 21.

Table 6 reports Pearson's bivariate correlations between the variables. It shows the absence of high correlations that could give rise to subsequent multicollinearity problems in the regression models. Therefore, we decided to keep all the variables in the study.

Table 7 presents the results of the multiple linear regression for the total sample considered in the study. Panel data was estimated with fixed effects, according to the Hausman test. Given autocorrelation problems (Wooldridge test) and heteroscedasticity (modified Wald test), the corrected panel data model was subsequently estimated, achieving an adjusted $R^2$ of 69.93 %. Moreover, a second-order dynamic GMM model was implemented, which was adequate according to the Arellano-Bond test, with a *p*-value $> 0.05$. In all cases, the variables under study were stable. TEN showed a significant positive relationship with TOBQ, confirming $H_1$. Conversely, FEE showed a significant negative relationship with TOBQ, confirming $H_2$.

The literature has not identified endogeneity issues with the independent variables TEN and FEE. However, it would have been appropriate to formally test for the absence of endogeneity in both cases using the Durbin-Wu-Hausman (DWH) test (Wooldridge, 2010). This was not feasible due to the lack of instrumental variables. Specifically, the estimated model is exactly identified, featuring a single instrumented variable (TEN and FEE, respectively) and only one valid instrument in each case—namely, their respective lags. Consequently, the absence of system overidentification precluded the application of the DWH test.

As an alternative, a manual procedure was implemented based on an auxiliary regression: TEN was first regressed on its lag (the instrument) and the other exogenous variables in the model, and the residuals from this regression were obtained. These residuals were then included as an additional regressor in the main fixed effects model. The statistical significance of these residuals allows for an indirect assessment of endogeneity. In this case, the residuals were not statistically significant (p-value = 0.227)), indicating no

**Table 8**
Panel data regressions by auditor (fixed effects). Tobin's Q dependent variable.

| Variable | Panel data | Panel data corrected | GMM Model |
|---|---|---|---|
| Intercept | −2.447776** (0.028) | −6.343006*** (0.008) | 9.580259*** (0.000) |
| TEN*E&Y | 0.063673*** (0.000) | 0.057071*** (0.000) | 0.037358ns (0.342) |
| TEN*PWH | 0.042610*** (0.000) | 0.039189*** (0.000) | 0.100616*** (0.000) |
| TEN*DEL | 0.018149ns (0.104) | 0.018708*** (0.001) | 0.013677ns (0.469) |
| TEN*KPMG | 0.062526*** (0.000) | 0.061202*** (0.000) | 0.111155*** (0.003) |
| TEN*REST | −0.022268ns (0.798) | 0.046520ns (0.689) | −0.015619ns (0.905) |
| FEE*E&Y | −0.815578*** (0.000) | −0.667541*** (0.000) | −0.614037** (0.012) |
| FEE*PWH | −0.016253ns (0.908) | 0.084306ns (0.604) | −0.698873*** (0.004) |
| FEE*DEL | −0.486709*** (0.002) | −0.403173*** (0.000) | −0.604510*** (0.008) |
| FEE*KPMG | −0.762482*** (0.000) | −0.681597*** (0.000) | −0.769833*** (0.002) |
| FEE*REST | −0.038719ns (0.810) | −0.111585ns (0.877) | −0.5761565** (0.041) |
| ACO | 0.471216ns (0.173) | 0.572201** (0.034) | 0.447525*** (0.006) |
| FER | 0.365616** (0.017) | 0.220376ns (0.111) | 1.137408* (0.057) |
| ESG | −0.001328ns (0.121) | −0.001022ns (0.129) | −0.006146*** (0.000) |
| SCO | 0.170236*** (0.008) | 0.203834*** (0.005) | 0.092689ns (0.347) |
| SIZ | 0.436386*** (0.000) | 0.409118*** (0.000) | −0.196277ns (0.102) |
| IND | 0.101624ns (0.708) | −0.159519ns (0.731) | −0.248886ns (0.477) |
| ROA | 0.071612*** (0.000) | 0.048759*** (0.001) | 0.127879*** (0.000) |
| BET | 0.003276ns (0.958) | −0.024750ns (0.695) | −0.420838*** (0.006) |
| PER | 0.000389*** (0.000) | 0.000299** (0.019) | 0.000449ns (0.120) |
| Adjusted $R^2$ | 0.7649 | 0.7008 | |
| *F*-statistic | 23.18*** (0.000) | | |
| Wald Chi2 | | 413535.17 (0.000) | 1076.54 (0.000) |
| Wooldridge test | 161.986 (0.000) | | |
| Modified Wald test | 4.6e + 30 (0.000) | | |
| Hansen test | | | 441.90 (0.763) |
| AR(1) | | | 0.42 (0.678) |
| AR(2) | | | −1.92 (0.054) |

Number of observations: 3,764. *p*-value in parentheses. ns denotes non-significance.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively.

**Table 9**
Panel data regressions by size (fixed effects). Tobin's Q dependent variable.

| Variable | Panel data | Panel data corrected | GMM Model |
|---|---|---|---|
| Intercept | −2.724655** (0.049) | −3.801381* (0.097) | 14.480880** (0.030) |
| TEN*SQ1 | 0.053354*** (0.000) | 0.044937*** (0.003) | 0.014708ns (0.733) |
| TEN*SQ2 | 0.033244*** (0.000) | 0.033151*** (0.000) | 0.064727** (0.011) |
| TEN*SQ3 | 0.044572*** (0.000) | 0.042043*** (0.000) | 0.080283*** (0.002) |
| TEN*SQ4 | 0.038548*** (0.000) | 0.038472*** (0.000) | 0.049412* (0.081) |
| FEE*SQ1 | −0.389323*** (0.000) | −0.284869*** (0.000) | −0.836009*** (0.007) |
| FEE*SQ2 | −0.341540*** (0.000) | −0.267063*** (0.000) | −0.977399*** (0.001) |
| FEE*SQ3 | −0.370275*** (0.000) | −0.294815*** (0.000) | −0.970019*** (0.000) |
| FEE*SQ4 | −0.367099*** (0.000) | −0.294785*** (0.000) | −0.861221*** (0.001) |
| ACO | 0.506799ns (0.144) | 0.570109** (0.035) | 0.421479** (0.029) |
| FER | 0.243676ns (0.104) | 0.142598ns (0.296) | 0.984324** (0.013) |
| ESG | −0.001502* (0.081) | −0.001117ns (0.103) | −0.008250*** (0.000) |
| SCO | 0.156964** (0.015) | 0.196303*** (0.007) | 0.202765ns (0.119) |
| SIZ | 0.395630*** (0.000) | 0.435021*** (0.003) | −0.326928ns (0.377) |
| IND | 0.024533ns (0.928) | −0.224709ns (0.625) | −0.229559ns (0.505) |
| ROA | 0.074383*** (0.000) | 0.051089*** (0.000) | 0.105366*** (0.000) |
| BET | −0.004360ns (0.945) | −0.030073ns (0.631) | −0.479915*** (0.003) |
| PER | 0.000393*** (0.000) | 0.000303** (0.019) | 0.000534ns (0.103) |
| Adjusted $R^2$ | 0.7629 | 0.7025 | |
| *F*-statistic | 23.95*** (0.000) | | |
| Wald Chi2 | | 642321.38 (0.000) | 1514.99 (0.000) |
| Wooldridge test | 161.723 (0.000) | | |
| Modified Wald test | 1.3e + 07 (0.000) | | |
| Hansen test | | | 459.80 (0.916) |
| AR(1) | | | 0.22 (0.829) |
| AR(2) | | | −1.43 (0.152) |

Number of observations: 3764. *p*-value in parentheses. ns denotes non-significance.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively. SQ1 to SQ4 denote the quartiles.

**Table 10**
Panel data corrected regressions. Market to Book dependent variable.

| Variable | Global Model | By Auditor Model | By Size Model |
|---|---|---|---|
| Intercept | −5.187952** (0.019) | −8.724315*** (0.004) | −6.003678** (0.037) |
| TEN | 0.055491*** (0.000) | | |
| FEE | −0.472689*** (0.000) | | |
| TEN*E&Y | | 0.087838*** (0.000) | |
| TEN*PWH | | 0.055685*** (0.000) | |
| TEN*DEL | | 0.027895*** (0.001) | |
| TEN*KPMG | | 0.074620*** (0.000) | |
| TEN*REST | | −0.064168$^{ns}$ (0.618) | |
| FEE*E&Y | | −0.986018*** (0.000) | |
| FEE*PWH | | −0.164338$^{ns}$ (0.450) | |
| FEE*DEL | | −0.665035*** (0.000) | |
| FEE*KPMG | | −1.089659*** (0.000) | |
| FEE*REST | | −0.041814$^{ns}$ (0.618) | |
| TEN*SQ1 | | | 0.066216*** (0.000) |
| TEN*SQ2 | | | 0.048575*** (0.000) |
| TEN*SQ3 | | | 0.055294*** (0.000) |
| TEN*SQ4 | | | 0.055172*** (0.000) |
| FEE*SQ1 | | | −0.491436*** (0.000) |
| FEE*SQ2 | | | −0.473091*** (0.000) |
| FEE*SQ3 | | | −0.494206*** (0.000) |
| FEE*SQ4 | | | −0.492637*** (0.000) |
| ACO | 0.413880$^{ns}$ (0.157) | 0.388789$^{ns}$ (0.191) | 0.409205$^{ns}$ (0.161) |
| FER | 0.328874$^{ns}$ (0.113) | 0.477327** (0.024) | 0.337868$^{ns}$ (0.105) |
| ESG | −0.001287$^{ns}$ (0.208) | −0.001208$^{ns}$ (0.234) | −0.001314$^{ns}$ (0.200) |
| SCO | 0.301752*** (0.003) | 0.308937*** (0.002) | 0.293937*** (0.004) |
| SIZ | 0.542705*** (0.000) | 0.608593*** (0.000) | 0.598867*** (0.001) |
| IND | 5.671380*** (0.000) | 5.801093*** (0.000) | 5.677258*** (0.000) |
| ROA | 0.068766*** (0.000) | 0.066790*** (0.000) | 0.069639*** (0.000) |
| BET | −0.198389* (0.056) | −0.192316* (0.063) | −0.202915** (0.049) |
| PER | 0.000793** (0.025) | 0.000787** (0.026) | 0.000794** (0.026) |
| Adjusted $R^2$ | 0.6890 | 0.6921 | 0.6925 |
| Wald Chi2 | 946018.49*** (0.000) | 1049940.7*** (0.000) | 3866205.90 (0.000) |

Number of observations: 3764. *p*-value in parentheses. $^{ns}$ denotes non-significance.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively.

evidence of endogeneity in the instrumented variable. The same procedure was applied to the variable FEE (p-value = 0.316), yielding identical results (see regression results in Table A1 of the Appendix). Anyway, the dynamic GMM models used in this work are one of the two methods employed (the other being the use of instrumental variables) to address the endogeneity problem (Baum et al., 2007).

According to the auditing company, the results are shown in Table 8. In the Big 4 audit firms, the TEN variable was significant and positive in the corrected panel data model; however, in the GMM model, the TEN variable was not significant in the cases of Ernest & Young and Deloitte. The TEN variable showed a significant negative coefficient for the Big 4 audit firms in all cases except in the corrected panel data model for Price Waterhouse. This results indicate that there are indeed differences between audit firms, as stated at the end of Section 2.

The analysis by size, breaking down the total sample into quartiles, is presented in Table 9. According to the corrected panel data model, the TEN and FEE variables are significant in all quartiles at the 1 % level (positive TEN and negative FEE), that is, for all firm sizes. However, in the GMM model, the TEN variable is not significant for first-quartile companies, and its significance is small (at the 10 % level) for fourth-quartile companies. Therefore, we can consider that H1 is weakly confirmed and H2 is strongly confirmed.

Table A2 in the Appendix presents the regressions when the sample is divided into quintiles, showing similar results.

To test the robustness of the results, MTB was considered the dependent variable instead of TOBQ. The corrected panel data and GMM models were estimated. Tables 10 and 11 show, respectively, the estimates for corrected panel data and GMM model, differentiating in each case the total sample, the breakdown by audit firms, and finally by size. The corrected panel data model (see Table 10) presents the same results as those obtained with the TOBQ variable as the dependent variable. Similarly, with the GMM model, the same results are obtained considering TOBQ and MTB as dependent variables, except in the case of the TEN variable for the Price Waterhouse auditing firm, which is not significant with TOBQ and is significant at the 5 % level with MTB.

With respect to the variables considered as controls in the analysis, ACO, FER, SCO, and PER showed the expected positive sign and BET the negative sign but were not significant in all models. The IND variable presented a negative sign concerning TOBQ but a positive sign concerning MTB. Finally, the ROA variable showed a positive and significant relationship with the dependent variable in all estimations.

Finally, we repeated the regressions including year dummies to capture the fixed effect of each year on Tobin's Q. The results, shown in Tables A3 and A4 of the Appendix, confirm the previous findings regarding audit fees, thus supporting Hypothesis 2. However, Hypothesis 1 is not confirmed.

**Table 11**
GMM regressions. Market to Book dependent variable.

| Variable | Global Model | By Auditor Model | By Size Model |
|---|---|---|---|
| Intercept | 18.244350*** (0.001) | 20.749150*** (0.000) | 16.991080** (0.042) |
| TEN | 0.125701*** (0.000) | | |
| FEE | −1.207583*** (0.006) | | |
| TEN*E&Y | | 0.097821** (0.018) | |
| TEN*PWH | | 0.162038*** (0.000) | |
| TEN*DEL | | 0.034887ns (0.390) | |
| TEN*KPMG | | 0.205437*** (0.000) | |
| TEN*REST | | −0.223444* (0.063) | |
| FEE*E&Y | | −1.254013*** (0.004) | |
| FEE*PWH | | −1.334031*** (0.002) | |
| FEE*DEL | | −1.184733*** (0.003) | |
| FEE*KPMG | | −1.489353*** (0.001) | |
| FEE*REST | | −0.942914** (0.019) | |
| TEN*SQ1 | | | 0.011424ns (0.831) |
| TEN*SQ2 | | | 0.101734*** (0.005) |
| TEN*SQ3 | | | 0.103605*** (0.003) |
| TEN*SQ4 | | | 0.082166** (0.041) |
| FEE*SQ1 | | | −0.970879** (0.034) |
| FEE*SQ2 | | | −1.233188*** (0.005) |
| FEE*SQ3 | | | −1.171312*** (0.004) |
| FEE*SQ4 | | | −1.066386*** (0.005) |
| ACO | 0.556485ns (0.108) | 0.610987** (0.037) | 0.645725** (0.017) |
| FER | 1.918386*** (0.006) | 2.353877** (0.014) | 1.205711** (0.026) |
| ESG | −0.006562* (0.058) | −0.014952*** (0.000) | −0.010135*** (0.001) |
| SCO | 0.331862ns (0.211) | 0.353501* (0.055) | 0.166052ns (0.363) |
| SIZ | −0.537055ns (0.187) | −0.588086* (0.090) | −0.433027ns (0.364) |
| IND | 3.399570*** (0.000) | 3.467077*** (0.000) | 3.563146*** (0.000) |
| ROA | 0.143841*** (0.000) | 0.156576*** (0.000) | 0.136992*** (0.000) |
| BET | −0.701049*** (0.008) | −0.984044*** (0.001) | −0.707017*** (0.002) |
| PER | 0.003544* (0.074) | 0.000849ns (0.226) | 0.001068ns (0.159) |
| Wald Chi2 | 761.23*** (0.000) | 1060.70*** (0.000) | 1162.84*** (0.000) |
| Hansen test | 416.74 (0.207) | 442.63 (0.838) | 461.82 (0.906) |
| AR(1) | −0.93 (0.351) | 0.23 (0.821) | 0.63 (0.527) |
| AR(2) | −1.95 (0.052) | −1.83 (0.067) | −1.77 (0.076) |

Number of observations: 3764. *p*-value in parentheses. ns denotes non-significance.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively.

## 5. Discussion

The main objective of this research was to analyse the impact of the duration of audit contracts and auditors' fees on the market value of firms. To this end, a comprehensive methodology was employed, including panel data regression and the generalised moment method. A representative sample of companies listed in the S&P 500 index from 2012 to 2021 was examined. In addition, a detailed analysis was conducted for each of the big four audit firms. This dual approach allowed for a broad understanding of the phenomenon at the market level and facilitated an in-depth assessment of the particular dynamics of the world's most influential audit firms.

The results of this research, in line with Brooks et al. (2022) indicate that auditor tenure is not significantly associated with the market value of audited companies. This finding contrasts with earlier studies such as Bratten et al. (2019) and Kamarudin et al. (2021), which emphasized the potential benefits of longer auditor–client relationships in improving audit quality, as well as with those of Junaidi et al. (2012), Kalabeke et al. (2019), and Shubita (2021), who warned about the risks of excessive familiarity impairing auditor independence. Our findings suggest that, in the context of our sample, neither the benefits nor the drawbacks of prolonged auditor tenure translate into a measurable impact on firm value. This may indicate that other mechanisms, such as regulatory oversight, internal governance, or audit committee effectiveness, help mitigate potential risks related to long audit engagements.

The results of this study also show that lower audit fees are associated with an increase in the market value of audited firms. This finding contradicts the linkage theory proposed by Asthana y Boone (2012), which argues that lower fees reduce the bargaining power of clients, which should strengthen auditor independence and improve audit quality, which in turn increases the reliability of financial reporting and the market value of the firm (Chen and Li, 2013). However, this study supports the audit market segmentation hypothesis described by Gandía y Huguet (2018), according to which reduced fees limit the resources available to the auditor, thereby reducing audit quality (Ishak, 2021; Solomon et al., 2005). This reduction in quality could allow more excellent manipulation of financial results by firms, potentially increasing their market value in the short term (Boachie & Mensah, 2022; Santos-Jaén et al., 2023).

The relationship between audit fees and auditor tenure with audit quality is crucial to understanding their impact on accounting and auditing practices. As observed in our study and in line with reports by Ishak (2021) and Solomon et al. (2005), lower fees may correlate with lower auditor independence, which could affect audit quality. It highlights the need for regulators and policymakers to consider how the fee structure influences auditor behaviour.

**Table A1**
Regressions analysis: Tobin's Q dependent variable. Inclusion of the residuals of the independent variables to test for endogeneity.

| Variable | Panel data | Panel data |
|---|---|---|
| Intercept | −4.600485*** (0.000) | −4.644893*** (0.000) |
| TEN | 0.044923*** (0.000) | 0.042745*** (0.000) |
| FEE | −0.550441*** (0.000) | −0.603003*** (0.000) |
| ACO | 0.541786ns (0.112) | 0.531983ns (0.118) |
| FER | 0.352621** (0.034) | 0.365073** (0.029) |
| ESG | −0.001856** (0.038) | −0.001911** (0.033) |
| SCO | 0.145462** (0.031) | 0.151290** (0.025) |
| SIZ | 0.615867*** (0.000) | 0.650229*** (0.001) |
| IND | −0.531458* (0.083) | −0.514937* (0.094) |
| ROA | 0.077699*** (0.000) | 0.077039*** (0.000) |
| BET | 0.034389ns (0.624) | 0.041732ns (0.553) |
| PER | 0.000206** (0.033) | 0.000204** (0.035) |
| TEN residuals | −0.012953ns (0.227) | |
| FEE residuals | | 0.915543ns (0.316) |
| Adjusted $R^2$ | 0.8020 | 0.8020 |
| *F*-statistic | 33.21*** (0.000) | 33.17*** (0.000) |

Number of observations: 3076. *p*-value in parentheses. ns denotes non-significance.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively.

**Table A2**
Panel data regressions by size (fixed effects). Tobin's Q dependent variable.

| Variable | Panel data | Panel data corrected | GMM Model |
|---|---|---|---|
| Intercept | −1.667259** (0.260) | −2.928774ns (0.246) | 14.560820** (0.033) |
| TEN*QT1 | 0.051089*** (0.000) | 0.042814*** (0.010) | −0.009528ns (0.844) |
| TEN*QT2 | 0.044169*** (0.000) | 0.038842*** (0.000) | 0.060672* (0.066) |
| TEN*QT3 | 0.034610*** (0.000) | 0.033805*** (0.000) | 0.105153*** (0.004) |
| TEN*QT4 | 0.042191*** (0.000) | 0.041023*** (0.000) | 0.042289* (0.076) |
| TEN*QT5 | 0.039386*** (0.001) | 0.040014*** (0.000) | 0.070498** (0.038) |
| FEE*QT1 | −0.392432*** (0.000) | −0.280245*** (0.000) | −0.738801** (0.019) |
| FEE*QT2 | −0.367796*** (0.000) | −0.272055*** (0.000) | −0.893736*** (0.003) |
| FEE*QT3 | −0.350686*** (0.000) | −0.269354*** (0.000) | −1.015035*** (0.001) |
| FEE*QT4 | −0.356537*** (0.000) | −0.280905*** (0.000) | −0.829114*** (0.001) |
| FEE*QT5 | −0.335504*** (0.000) | −0.263327*** (0.000) | −0.833787*** (0.003) |
| ACO | 0.522337ns (0.133) | 0.578518** (0.033) | 0.433896* (0.069) |
| FER | 0.237979ns (0.112) | 0.133717ns (0.325) | 0.965373*** (0.010) |
| ESG | −0.001473* (0.087) | −0.001090ns (0.111) | −0.007652*** (0.000) |
| SCO | 0.165518** (0.011) | 0.203345*** (0.005) | 0.203869ns (0.091) |
| SIZ | 0.324501*** (0.001) | 0.375656*** (0.019) | −0.364821ns (0.377) |
| IND | 0.034513ns (0.898) | −0.220765ns (0.630) | −0.202403ns (0.555) |
| ROA | 0.074526*** (0.000) | 0.050598*** (0.000) | 0.105395*** (0.000) |
| BET | −0.005104ns (0.935) | −0.026119ns (0.682) | −0.493392*** (0.001) |
| PER | 0.000398*** (0.000) | 0.000304** (0.018) | 0.000551* (0.077) |
| Adjusted $R^2$ | 0.7626 | 0.7002 | |
| *F*-statistic | 21.28*** (0.000) | | |
| Wald Chi2 | | 373041.63 (0.000) | 1515.69 (0.000) |
| Wooldridge test | 159.268 (0.000) | | |
| Modified Wald test | 5.8e + 031 (0.000) | | |
| Hansen test | | | 459.82 (0.906) |
| AR(1) | | | 0.08 (0.939) |
| AR(2) | | | −1.32 (0.186) |

Number of observations: 3764. *p*-value in parentheses. ns denotes non-significance.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively. QT1 to QT5 denote the quintiles.

In this context, reviewing the current rules governing the structuring of audit engagements could be beneficial. This review should focus on promoting policies that balance cost and auditor independence to protect investor interests, as discussed by (Fitzgerald et al., 2019), who highlight the importance of robust regulatory policies that ensure auditor objectivity without imposing unsustainable financial burdens.

## 6. Conclusion

In the current auditing landscape, one of the most pivotal debates focuses on discerning the impact of certain variables that can

**Table A3**
Panel data corrected regressions. Tobin's Q dependent variable.

| Variable | Global Model | By Auditor Model | By Size Model |
|---|---|---|---|
| Intercept | 0.577769$^{ns}$ (0.758) | −2.849648$^{ns}$ (0.246) | −0.037889$^{ns}$ (0.987) |
| TEN | −0.003509$^{ns}$ (0.622) | | |
| FEE | −0.285534$^{***}$ (0.000) | | |
| TEN*E&Y | | −0.000648$^{ns}$ (0.967) | |
| TEN*PWH | | −0.001939$^{ns}$ (0.835) | |
| TEN*DEL | | −0.13819$^{**}$ (0.020) | |
| TEN*KPMG | | 0.014245$^{ns}$ (0.429) | |
| TEN*REST | | 0.008624$^{ns}$ (0.940) | |
| FEE*E&Y | | −0.636008$^{***}$ (0.000) | |
| FEE*PWH | | 0.060052$^{ns}$ (0.705) | |
| FEE*DEL | | −0.457783$^{***}$ (0.000) | |
| FEE*KPMG | | −0.768225$^{***}$ (0.000) | |
| FEE*REST | | 0.007663$^{ns}$ (0.924) | |
| TEN*SQ1 | | | 0.011072$^{ns}$ (0.471) |
| TEN*SQ2 | | | −0.009709$^{ns}$ (0.293) |
| TEN*SQ3 | | | −0.003495$^{ns}$ (0.634) |
| TEN*SQ4 | | | −0.012658* (0.056) |
| FEE*SQ1 | | | −0.317072$^{***}$ (0.000) |
| FEE*SQ2 | | | −0.284602$^{***}$ (0.000) |
| FEE*SQ3 | | | −0.308937$^{***}$ (0.000) |
| FEE*SQ4 | | | −0.297971$^{***}$ (0.000) |
| ACO | 0.715428$^{***}$ (0.009) | 0.714852$^{***}$ (0.008) | 0.697212$^{**}$ (0.011) |
| FER | 0.218959* (0.095) | 0.291750$^{**}$ (0.027) | 0.234718* (0.075) |
| ESG | −0.008112$^{ns}$ (0.226) | −0.000771$^{ns}$ (0.244) | −0.000829$^{ns}$ (0.216) |
| SCO | 0.043539$^{ns}$ (0.545) | 0.051148$^{ns}$ (0.477) | 0.030902$^{ns}$ (0.666) |
| SIZ | 0.144863$^{ns}$ (0.230) | 0.182210$^{ns}$ (0.128) | 0.190252$^{ns}$ (0.204) |
| IND | −0.522597$^{ns}$ (0.278) | −0.465433$^{ns}$ (0.336) | −0.527529$^{ns}$ (0.275) |
| ROA | 0.052050$^{***}$ (0.000) | 0.050604$^{***}$ (0.000) | 0.052319$^{***}$ (0.000) |
| BET | −0.102273$^{ns}$ (0.130) | −0.098284$^{ns}$ (0.145) | −0.108286$^{ns}$ (0.106) |
| PER | 0.000278$^{**}$ (0.026) | 0.000275$^{**}$ (0.027) | 0.000275$^{**}$ (0.028) |
| Year dummies | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.7061 | 0.7094 | 0.7086 |
| Wald Chi2 | 35919.35$^{***}$ (0.000) | 189275.39$^{***}$ (0.000) | 248895.65 (0.000) |

Number of observations: 3764. *p*-value in parentheses. $^{ns}$ denotes non-significance.
$^{***}$, $^{**}$ and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively.

enhance the value of companies. In this scenario, the primary purpose of our research has been to thoroughly examine how the long-term tenure of an auditor and the reduction of their fees affect the value of companies listed on the Standard & Poor's 500 during 2012–2021. This study shows that audit fees, often considered a secondary aspect in financial evaluation, are in fact a significant determinant of corporate market value.

Our findings suggest that lower audit fees are positively associated with firm performance, potentially reflecting efficient audit practices, lower perceived risk, or greater cost discipline. In contrast, auditor tenure does not exhibit a statistically significant relationship with firm value, indicating that the length of the auditor–client relationship alone may not influence market perceptions. These insights point to the importance of managing audit costs effectively and ensuring audit quality through means other than mandatory rotation, such as robust internal governance and external oversight.

Furthermore, our study provides empirical evidence supporting the market's positive view toward efficient cost management in audit services, resulting in a higher business valuation. These findings prompt a profound reflection on standard practices in the hiring and remuneration of audit services, highlighting the importance of aligning these policies with strategies that maximize the market value of companies.

While our general findings provide a broad understanding of the impact of extended auditor tenure and the reduction of their fees on company value, our detailed analysis of each Big Four audit firm in the United States reveals distinctive nuances. This research has enabled us to identify unique patterns and trends within each firm, offering a more granular and contextualized view. These firm-specific results demonstrate how variations in audit practices and fee structures can influence the value of companies differently depending on the audit firm involved. This differentiated approach highlights the importance of considering the individual characteristics of audit firms when assessing their impact on business value.

These results bring clarity to a long-discussed topic in the literature on business valuation and offer practical implications for regulators, companies, and audit professionals. For regulators, these findings suggest the need to review current policies on mandatory auditor rotation, balancing auditor independence with operational efficiency. Moreover, assessing how audit fee structures affect both market perception and the quality of audit work is crucial, promoting an approach that values effectiveness and efficiency. For companies, the findings underscore the importance of reviewing their audit service procurement strategies, with a particular focus on managing audit costs efficiently. Lower audit fees are associated with improved market valuation, which may reflect investor confidence in well-governed, low-risk firms that maintain cost-effective auditing. Therefore, controlling audit expenses, without

**Table A4**
GMM regressions. Tobin's Q dependent variable.

| Variable | Global Model | By Auditor Model | By Size Model |
|---|---|---|---|
| Intercept | 17.668750*** (0.000) | 9.758529*** (0.000) | 13.779810** (0.032) |
| TEN | 0.007362ns (0.757) | | |
| FEE | −0.653476** (0.020) | | |
| TEN*E&Y | | −0.039327ns (0.306) | |
| TEN*PWH | | 0.050209* (0.057) | |
| TEN*DEL | | −0.022672ns (0.228) | |
| TEN*KPMG | | 0.045402ns (0.164) | |
| TEN*REST | | −0.096863ns (0.541) | |
| FEE*E&Y | | −0.572676** (0.016) | |
| FEE*PWH | | −0.728926*** (0.003) | |
| FEE*DEL | | −0.639096*** (0.005) | |
| FEE*KPMG | | −0.764307*** (0.002) | |
| FEE*REST | | −0.737120** (0.027) | |
| TEN*SQ1 | | | −0.078915** (0.050) |
| TEN*SQ2 | | | 0.003850ns (0.876) |
| TEN*SQ3 | | | 0.020672ns (0.405) |
| TEN*SQ4 | | | −0.013028ns (0.630) |
| FEE*SQ1 | | | −0.750394** (0.014) |
| FEE*SQ2 | | | −0.957650*** (0.001) |
| FEE*SQ3 | | | −0.951501*** (0.000) |
| FEE*SQ4 | | | −0.832512*** (0.001) |
| ACO | 0.469046ns (0.101) | 0.631533** (0.013) | 0.543962* (0.061) |
| FER | 1.130812** (0.012) | 1.249130** (0.025) | 0.967347*** (0.006) |
| ESG | −0.006047*** (0.005) | −0.006154*** (0.000) | −0.008008*** (0.001) |
| SCO | 0.434853*** (0.010) | 0.046316ns (0.659) | 0.127261ns (0.272) |
| SIZ | −0.665237** (0.016) | −0.173059ns (0.153) | −0.277207ns (0.438) |
| IND | −2.347295*** (0.006) | −0.558847ns (0.123) | −0.571704* (0.081) |
| ROA | 0.125183*** (0.000) | 0.125144*** (0.000) | 0.105436*** (0.000) |
| BET | −0.608419*** (0.002) | −0.556953*** (0.000) | −0.585982*** (0.000) |
| PER | 0.002516* (0.065) | 0.000459ns (0.126) | 0.000527* (0.093) |
| Year dummies | Yes | Yes | Yes |
| Wald Chi2 | 1491.32*** (0.000) | 2028.92*** (0.000) | 1825.63*** (0.000) |
| Hansen test | 440.19 (0.332) | 436.43 (0.726) | 450.95 (0.918) |
| AR(1) | −1.20 (0.230) | 0.11 (0.914) | −0.08 (0.940) |
| AR(2) | −1.94 (0.053) | −1.89 (0.058) | −1.66 (0.097) |

Number of observations: 3764. *p*-value in parentheses. ns denotes non-significance.
***, ** and * indicate a significance of less than 1 %, less than 5% and less than 10%, respectively.

compromising quality, can be a strategic component of financial and reputational management.

For audit professionals, these results emphasize the relevance of aligning audit fees with client expectations and market perceptions. While maintaining audit quality and professional standards remains essential, auditors should be aware that excessive fees might signal inefficiencies or risk to stakeholders. Striking a balance between fair remuneration and value-added service delivery is key to sustaining credibility and supporting client performance in capital markets.

This study has limitations that open avenues for future research. Its main constraint lies in the sample, which focuses on U.S.-listed companies. While this approach offers a detailed U.S. perspective, it might inadequately represent cultural and legal variations elsewhere. Consequently, the study's findings might not universally apply, considering diverse cultural norms, legal systems, and business practices globally. Future research should encompass a more varied, globally representative sample to comprehensively grasp the relationships between auditor tenure, audit fees, and earnings management on a global scale. Expanding the sample to include companies from emerging economies could offer valuable insights.

Additionally, the study's data collection from 2012 to 2021 might limit its relevance, given substantial global changes post-2021, like the COVID-19 pandemic, geopolitical conflicts, cyberattacks, and climate concerns (León-Gómez et al., 2022). Gathering more current data could maintain the findings' relevance in an ever-evolving economic landscape. It is also interesting that future studies address other possible causes besides manipulating the outcome, which may lead to lower audit fees, resulting in higher value for the audited companies. Moreover, future research should delve into the influence of organizational culture and ethics on outcomes. Understanding these abstract but influential concepts, possibly through surveys, would elucidate their impact on audit report quality and reliability.

## CRediT authorship contribution statement

**José Manuel Santos-Jaén:** Writing – review & editing, Writing – original draft, Validation, Supervision, Investigation. **María del Carmen Valls Martínez:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Conceptualization. **Gema Martín de Almagro Vázquez:** Writing – original draft, Investigation, Data curation. **Ana León-Gómez:** Writing – review & editing, Writing – original draft, Validation, Investigation.

## Funding

PPIT-UAL, Junta de Andalucía-FEDER 2021–2027. Objetivo RS011. Programa: 54A.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Appendix

## Data availability

Data will be made available on request.

## References

Adams, R. B., & Ferreira, D. (2009). Women in the Boardroom and Their Impact on Governance and Performance. *Journal of Fiancial Economics, 94*(2), 291–309. https://doi.org/10.1016/j.jfineco.2008.10.007

Alajmi, A., & Worthington, A. C. (2023). Corporate governance in Kuwait: Joining the dots between regulatory reform, organisational change in boards and audit committees and firm market and accounting performance. *Journal of Financial Reporting and Accounting, ahead-of-print*(ahead-of-print). Doi: 10.1108/JFRA-04-2022-0133.

Alberti, C. T., Bedard, J. C., Bik, O., & Vanstraelen, A. (2022). Audit Firm Culture: Recent Developments and Trends in the Literature. *European Accounting Review, 31*(1), 59–109. https://doi.org/10.1080/09638180.2020.1846574

Alfraih, M. M. (2016). The role of audit quality in firm valuation: Evidence from an emerging capital market with a joint audit requirement. *International Journal of Law and Management, 58*(5), 575–598. https://doi.org/10.1108/IJLMA-09-2015-0049

Alharasis, E. E., Prokofieva, M., & Clark, C. (2022). The moderating impact of auditor industry specialisation on the relationship between fair value disclosure and audit fees: Empirical evidence from Jordan. *Asian Review of Accounting, 31*(2), 227–255. https://doi.org/10.1108/ARA-03-2022-0050

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics, 68*(1), 29–51. https://doi.org/10.1016/0304-4076(94)01642-D

Asthana, S. C., & Boone, J. P. (2012). Abnormal Audit Fee and Audit Quality. *Auditing: A Journal of Practice & Theory, 31*(3), 1–22. https://doi.org/10.2308/ajpt-10294

Baldwin, J., & Ellison, R. (2020). The Impact of Auditor Tenure on Financial Reporting Quality: Evidence from European Firms. *International Journal of Innovative and Applied Finance, 8*(1).

Barnhart, S. W., Marr, M. W., & Rosenstein, S. (1994). Firm Performance and Board Composition: Some New Evidence. *Managerial and Decision Economics, 15*(4), 329–340.

Bauer, T. D. (2015). The Effects of Client Identity Strength and Professional Identity Salience on Auditor Judgments. *The Accounting Review, 90*(1), 95–114. https://doi.org/10.2308/accr-50863

Baum, C. F. (2001). Residual Diagnostics for Cross-section Time Series Regression Models. *The Stata Journal, 1*(1), 101–104. https://doi.org/10.1177/1536867X0100100108

Baum, C. F., Schaffer, M. E., & Stillman, S. (2007). Enhanced routines for instrumental variables/generalized method of moments estimation and testing. *Stata Journal, 7*(4), 465–506. https://doi.org/10.1177/1536867X0800700402

Bills, K. L., Jeter, D. C., & Stein, S. E. (2015). Auditor Industry Specialization and Evidence of Cost Efficiencies in Homogenous Industries. *The Accounting Review, 90*(5), 1721–1754. https://doi.org/10.2308/accr-51003

Blackwell, J. L. (2005). Estimation and Testing of Fixed-effect Panel-data Systems. *The Stata Journal, 5*(2), 202–207. https://doi.org/10.1177/1536867X0500500205

Boachie, C., & Mensah, E. (2022). The effect of earnings management on firm performance: The moderating role of corporate governance quality. *International Review of Financial Analysis, 83*, Article 102270. https://doi.org/10.1016/j.irfa.2022.102270

Bonn, I., Yoshikawa, T., & Phan, P. H. (2004). Effects of Board Structure on Firm Performance: A Comparison Between Japan and Australia. *Asian Business & Management, 3*(1), 105–125. https://doi.org/10.1057/palgrave.abm.9200068

Bratten, B., Causholli, M., & Omer, T. C. (2019). Audit Firm Tenure, Bank Complexity, and Financial Reporting Quality. *Contemporary Accounting Research, 36*(1), 295–325. https://doi.org/10.1111/1911-3846.12427

Brooks, L. (Lily) Z., Gill, S., Wong-On-Wing, B., & Yu, M. D. (2022). Does audit firm tenure enhance firm value? Closing the expectation gap through corporate social responsibility. *Managerial Auditing Journal, 37*(8), 1113-1145. Doi: 10.1108/MAJ-11-2020-2902.

Cahyaningati, R., Miqdad, M., & Kustono, A. S. (2022). Analysis of the Relationship Between Corporate Social Responsibility and Good Corporate Governance on Fee Audit and Firm Value. *IJEBD (International Journal of Entrepreneurship and Business Development)*, *5*(2), Article 2. Doi: 10.29138/ijebd.v5i2.1745.

Campbell, K., & Mínguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics, 83*(3), 435–451. https://doi.org/10.1007/s10551-007-9630-y

Carp, M., & Georgescu, I. E. (2019). The Influence of Audit Opinion on the Degree of Real Earnings Management. The Case of Romanian Listed Companies. *Audit Financiar, 17*(156).

Chaney, P. K., & Lewis, C. M. (1995). Earnings management and firm valuation under asymmetric information. *Journal of Corporate Finance, 1*(3–4), 319–345. https://doi.org/10.1016/0929-1199(94)00008-I

Chen, F., & Li, Y. (2013). Voluntary Adoption of More Stringent Governance Policy on Audit Committees: Theory and Empirical Evidence. *The Accounting Review, 88*(6), 1939–1969. https://doi.org/10.2308/accr-50541

Chen, H., Hua, S., Liu, Z., & Zhang, M. (2019). Audit fees, perceived audit risk, and the financial crisis of 2008. *Asian Review of Accounting, 27*(1), 97–111. https://doi.org/10.1108/ARA-01-2017-0007

Chia-ah, E., & Karlsson, J. (2010). *The impact of extended audit tenure on auditor independence: Auditors perspective*. Umeå School of Business.

Coffee, J. C. (2019). Why do auditors fail? What might work? What won't? *Accounting and Business Research, 49*(5), 540–561. https://doi.org/10.1080/00014788.2019.1611715

Cohen, J., Krishnamoorthy, G., & Wright, A. (2010). Corporate Governance in the Post-Sarbanes-Oxley Era: Auditors' Experiences. *Contemporary Accounting Research, 27*(3), 751–786. https://doi.org/10.1111/j.1911-3846.2010.01026.x

Coller, M., Higgs, J. L., & Wheeler, S. (2002). An experimental market analysis of auditor work-level reduction decisions. *Advances in Accounting, 19*, 53–70. https://doi.org/10.1016/S0882-6110(02)19004-3

Cosmulese, C. G., Socoliuc, M., Ciubotariu, M.-S., Grosu, V., & Dorel, M. (2021). *Empirical study on the impact of evaluation of intangible assets on the market value of the listed companies*. Doi: 10.15240/tul/001/2021-1-006.

DeFond, M. L., Raghunandan, K., & Subramanyam, K. R. (2002). Do Non–Audit Service Fees Impair Auditor Independence? Evidence from Going Concern Audit Opinions. *Journal of Accounting Research, 40*(4), 1247–1274. https://doi.org/10.1111/1475-679X.00088

DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics, 58*(2), 275–326. https://doi.org/10.1016/j.jacceco.2014.09.002

Dewi, R. R. (2005). Manajemen Laba, Kualitas Laba Dan Kredibilitas Laporan Keuangan. *Media Riset Akuntansi, Auditing & Informasi, 5*(1), 25–39.

Drukker, D. M. (2003). Testing for Serial Correlation in Linear Panel-data Models. *The Stata Journal, 3*(2), 168–177. https://doi.org/10.1177/1536867X0300300206

Dyck, A., Morse, A., & Zingales, L. (2010). Who Blows the Whistle on Corporate Fraud? *The Journal of Finance, 65*(6), 2213–2253. https://doi.org/10.1111/j.1540-6261.2010.01614.x

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics, 33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Fama, E. F., & French, K. R. (1995). Size and Book-to-Market Factors in Earnings and Returns. *The Journal of Finance, 50*(1), 131–155. https://doi.org/10.2307/2329241

Fitzgerald, D., Heberlein, N., & Lee, Y. C. G. (2019). A retrospective audit of spontaneous pneumothorax management in a tertiary Australian hospital. *European Respiratory Journal, 54(suppl*, 63). https://doi.org/10.1183/13993003.congress-2019.PA2018

Flowerday, S., & von Solms, R. (2005). Continuous auditing: Verifying information integrity and providing assurances for financial reports. *Computer Fraud & Security, 2005*(7), 12–16. https://doi.org/10.1016/S1361-3723(05)70232-3

Gallego-Álvarez, I., García-Sánchez, I. M., & Rodríguez-Dominguez, L. (2010). The influence of gender diversity on corporate performance. *Revista de Contabilidad-Spanish Accounting Review, 13*(1), 53–88. https://doi.org/10.1016/S1138-4891(10)70012-1

García-Castro, R., Ariño, M. A., & Canela, M. A. (2010). Does social performance really lead to financial performance? Accounting for endogeneity. *Journal of Business Ethics, 92*(1), 107–126. https://doi.org/10.1007/s10551-009-0143-8

Hausman, J. A. (1978). Specification Test in Econometrics. *Econometrica, 46*(6), 1251–1271. https://doi.org/10.1007/978-981-10-5466-2_5

Hillison, W., & Kennelly, M. (1988). The Economics of Non-audit Services. *Accounting Horizons, 2*, 32–40.

Hoffman, V. B., & Zimbelman, M. F. (2012). How Strategic Reasoning and Brainstorming Can Help Auditors Detect Fraud. *Current Issues in Auditing, 6*(2), 25–33. https://doi.org/10.2308/ciia-50283

Hou, T. C. T. (2019). The relationship between corporate social responsibility and sustainable financial performance: Firm-level evidence from Taiwan. *Corporate Social Responsibility and Environmental Management, 26*(1), 19–28. https://doi.org/10.1002/csr.1647

Hsieh, T.-S., Kim, J.-B., Wang, R. R., & Wang, Z. (2020). Seeing is believing? Executives' facial trustworthiness, auditor tenure, and audit fees. *Journal of Accounting and Economics, 69*(1), Article 101260. https://doi.org/10.1016/j.jacceco.2019.101260

Hudaib, M., & Haniffa, R. (2009). Exploring auditor independence: An interpretive approach. *Accounting, Auditing & Accountability Journal, 22*(2), 221–246. https://doi.org/10.1108/09513570910933951

Ibrahim Kawther, B., & Hasan Fattah, N. (2022). The role of auditing in the reliability of financial information (A case study of a telecommunications sector company in Iraq). *Muthanna Journal of Administrative and Economic Sciences, 12*(1). https://www.iasj.net/iasj/article/271864.

Ishak, Z. (2021). Audit Fees Determinants: A Study on the Impact of Key Audit Matters Reporting and other Factors. *Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12*(3), 1695–1704.

Isidro, H., & Sobral, M. (2015). The Effects of Women on Corporate Boards on Firm Value, Financial Performance, and Ethical and Social Compliance. *Journal of Business Ethics, 132*(1), 1–19. https://doi.org/10.1007/s10551-014-2302-9

Jia, X. (2019). Corporate social responsibility activities and firm performance: The moderating role of strategic emphasis and industry competition. *Corporate Social Responsibility and Environmental Management, 27*(1), 65–73. https://doi.org/10.1002/csr.1774

Junaidi, -, Miharjo, S., & Hartadi, B. (2012). Does Auditor Tenure Reduce Audit Quality? *Gadjah Mada International Journal of Business*, *14*(3), Article 3. Doi: 10.22146/gamaijb.5478.

Kalabeke, W., Sadiq, M., & Keong, O. (2019). Auditors Tenure and Financial Reporting Quality: Evidence from a Developing Country. *International Journal of Asian Social Science, 9*, 335–341. https://doi.org/10.18488/journal.1.2019.95.335.341

Kamarudin, K. A., Wan Ismail, W. A., & Ariff, A. M. (2021). Auditor tenure, investor protection and accounting quality: International evidence. *Accounting Research Journal, 35*(2), 238–260. https://doi.org/10.1108/ARJ-07-2020-0179

Knechel, R. W., Vanstraelen, A., & Zerni, M. (2015). Does the Identity of Engagement Partners Matter? An Analysis of Audit Partner Reporting Decisions. *Contemporary Accounting Research, 32*(4), 1443–1478. https://doi.org/10.1111/1911-3846.12113

Lee, E. Y., & Ha, W. (2021). Auditors' response to corporate fraud: Evidence from audit fees and auditor turnover. *Managerial Auditing Journal, 36*(3), 405–436. https://doi.org/10.1108/MAJ-12-2019-2515

León-Gómez, A., Santos-Jaén, J. M., Ruiz-Palomo, D., & Palacios-Manzano, M. (2022). Disentangling the impact of ICT adoption on SMEs performance: The mediating roles of corpo-rate social responsibility and innovation. *Oeconomia Copernicana, 13*(3), 831–866. https://doi.org/10.24136/oc.2022.024

Liang, Y., Marinovic, I., & Varas, F. (2018). The Credibility of Financial Reporting: A Reputation-Based Approach. *The Accounting Review, 93*(1), 317–333. https://doi.org/10.2308/accr-51764

Lückerath-Rovers, M. (2020). *Long-Term Value Creation in Corporate Governance: The Crucial Role for Boards and Auditors* (SSRN Scholarly Paper 3714566). Doi: 10.2139/ssrn.3714566.

Martinez, A. L., & da Jesus Moraes, A. (2014). Association between independent auditor fees and firm value: A study of Brazilian public companies. *Journal of Modern Accounting and Auditing, 10*(4).

Palmrose, Z.-V. (1986). The Effect of Nonaudit Services on the Pricing of Audit Services: Further Evidence. *Journal of Accounting Research, 24*(2), 405–411. https://doi.org/10.2307/2491144

Peecher, M. E., Schwartz, R., & Solomon, I. (2007). It's all about audit quality: Perspectives on strategic-systems auditing. *Accounting, Organizations and Society, 32*(4), 463–485. https://doi.org/10.1016/j.aos.2006.09.001

Post, C., & Byron, K. (2015). Women on Boards and Firm Financial Performance: A Meta-Analysis. *Academy of Management Journal, 58*(5), 1546–1571. https://doi.org/10.5465/amj.2013.0319

Pucheta-Martínez, M. C. (2015). The role of the Board of Directors in the creation of value for the company. *Spanish Accounting Review, 18*(2), 148–161. https://doi.org/10.1016/j.rcsar.2014.05.004

Puxty, A. G. (1993). *The social & organizational context of management accounting*. London: International Thomson Business Press.

Reguera-Alvarado, N., de Fuentes, P., & Laffarga, J. (2017). Does Board Gender Diversity Influence Financial Performance? Evidence from Spain. *Journal of Business Ethics, 141*(2), 337–350. https://doi.org/10.1007/s10551-015-2735-9

Rehman, A., & Shah, S. Z. A. (2013). Board independence, ownership structure and firm performance: Evidence from Pakistan. *Interdisciplinary Journal of Contemporary Research in Business, 5*(3), 832–845.

Reiter, S. A., & Williams, P. F. (2004). The Philosophy and Rhetoric of Auditor Independence Concepts. *Business Ethics Quarterly, 14*(3), 355–376. https://doi.org/10.5840/beq200414329

Rodríguez Fernández, M., Fernández Alonso, S., & Rodríguez Rodríguez, J. (2013). Estructura del consejo de administración y rendimiento de la empresa española cotizada. *Revista Europea de Dirección y Economía de la Empresa, 22*(3), 155–168. https://doi.org/10.1016/j.redee.2012.10.002

Ronen, J. (2010). Corporate Audits and How to Fix Them. *Journal of Economic Perspectives, 24*(2), 189–210. https://doi.org/10.1257/jep.24.2.189
Santos-Jaén, J. M., Martín De Almagro-Vázquez, G., & Valls Martínez, M. D. C. (2023). Is earnings management impacted by audit fees and auditor tenure? An analysis of the Big Four audit firms in the US market. *Oeconomia Copernicana, 14*(3), 899–934. https://doi.org/10.24136/oc.2023.027
Shubita, M. (2021). The Impact of Audit Quality on Tobin's Q: Evidence from Jordan. *Journal of Asian Finance Economics and Business, 8*, 517–523. https://doi.org/10.13106/jafeb.2021.vol8.no7.0517
Sial, M. S., Zheng, C., Cherian, J., Gulzar, M. A., Thu, P. A., Khan, T., & Khuong, N. V. (2018). Does corporate social responsibility mediate the relation between boardroom gender diversity and firm performance of Chinese listed companies? *Sustainability, 10*(10), 1–18. https://doi.org/10.3390/su10103591
Simunic, D. A. (1980). The Pricing of Audit Services: Theory and Evidence. *Journal of Accounting Research, 18*(1), 161–190. https://doi.org/10.2307/2490397
Skinner, D. J., & Srinivasan, S. (2012). Audit Quality and Auditor Reputation: Evidence from Japan. *The Accounting Review, 87*(5), 1737–1765. https://doi.org/10.2308/accr-50198
Solomon, S., Reckers, P. M. J., & Jordan Lowe, D. (2005). The Impact of Management Image and Non-Audit Service Fees on Investors' Perceptions of Earnings Quality. *Advances in Accounting, 21*, 199–216. https://doi.org/10.1016/S0882-6110(05)21008-8
Soroushyar, A. (2022). Auditor characteristics and the financial reporting quality: The moderating role of the client business strategy. *Asian Journal of Accounting Research, 8*(1), 27–40. https://doi.org/10.1108/AJAR-01-2022-0020
Svanberg, J., & Öhman, P. (2016). Does Ethical Culture in Audit Firms Support Auditor Objectivity? *Accounting in Europe, 13*(1), 65–79. https://doi.org/10.1080/17449480.2016.1164324
Treviño, L. K., Butterfield, K. D., & McCabe, D. L. (2001). *The ethical context in organizations: Influences on employee attitudes and behaviors* (pp. 301-337). Doi: 10.1016/S1529-2096(01)03018-8.
Valls Martínez, M. C., & Cruz Rambaud, S. (2019). Women on corporate boards and firm's financial performance. *Women's Studies International Forum, 76*(102251), 1–11. https://doi.org/10.1016/j.wsif.2019.102251
Valls Martínez, M. C., Martín Cervantes, P. A., & Cruz Rambaud, S. (2020). Women on corporate boards and sustainable development in the American and European markets: Is there a limit to gender policies? *Corporate Social Responsibility and Environmental Management, 27*(6), 2642–2656. https://doi.org/10.1002/csr.1989
Valls Martínez, M. C., Martín Cervantes, P. A., & Miralles Quirós, M. M. (2022). Sustainable development and the limits of gender policies on corporate boards in Europe. A comparative analysis between developed and emerging markets. *European Research on Management and Business Economics*, *28*(1), 1-15. Doi: 10.1016/j.iedeen.2021.100168.
Wang, Y.-F. (2022). Audit Fees, Patent Litigation, and Long-Term Performance. *International Journal of Business and Economic Sciences Applied Research (IJBESAR), 15*(1), 7–15.
Wiggins, R. R., & Ruefli, T. W. (2002). Sustained competitive advantage: Temporal dynamics and the incidence and persistence of superior economic performance. *Organization Science, 13*(1), 82–105. https://doi.org/10.1287/orsc.13.1.81.542
Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data* (2nd ed.). London: MIT Press.
Xie, Y., Yi, H. S., & Zhang, Y. (2013). The Value of Big N Target Auditors in Corporate Takeovers. *Auditing: A Journal of Practice & Theory, 32*(3), 141–169. https://doi.org/10.2308/ajpt-50405
Yanti, L. D., & Wijaya, M. D. W. D. (2020). Influence Of Auditor Switching, Audit Fee, Tenure Audit and Company Size To Audit Quality. *eCo-Fin*, *2*(1), 9-15. Doi: 10.32877/ef.v2i1.150.
Zhang, Z., Zhang, Y., & Yan, M. (2022). Product market competition and audit fees: Evidence from the Chinese manufacturing industry. *Pacific Accounting Review, 35*(2), 292–313. https://doi.org/10.1108/PAR-11-2021-0180