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Article

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The impact of managerial ownership on audit fees: Evidence from Portugal and Spain

Sandra Alves^{1*}

Abstract: This study examines the impact of managerial ownership on audit fees in a context of concentrated ownership and poor investor protection. Using samples of Portuguese and Spanish listed companies for the period 2010–2021, the results of this research suggest that there is a non-linear relationship between managerial ownership and audit fee which corresponds to a pattern of “alignment-entrenchment-alignment”. In Portugal and Spain, the convergence of interest effect dominates the entrenchment effect in the low and high ranges of managerial ownership, leading to the conclusion that a policy of providing management with amounts of equity within these ranges of managerial ownership should reduce agency costs and decrease audit fees. In contrast, in Spain, the entrenchment effect dominates the convergence of interest effect in the intermediate range of managerial ownership, which have the effect of increasing audit fees.

Subjects: Economics; Finance; Business, Management and Accounting

Keywords: Agency theory; managerial ownership; audit fees; alignment of interest hypothesis; entrenchment hypothesis

1. Introduction

The ownership structure is one of the most recognised forms of corporate governance. In particular, managerial ownership is considered by many as an important internal mechanism governance (Brickley et al., 1988; Dixon et al., 2017). Jensen and Meckling (1976) propose that managerial ownership can help to control agency problems since share ownership provides managers with incentives to reduce private perquisite consumption. Managerial shareholdings encourage managers to improve firm value, since managers bear a proportion of the wealth effects as a shareholder. Therefore, shareholdings held by managers help align their interests with those of shareholders (Jensen & Meckling, 1976), and thus reduces the level of opportunistic behaviour of managers (alignment effect) (Velury & Jenkins, 2006; Warfield et al., 1995). Nevertheless, greater managerial ownership can entitle managers to extract rents from shareholders (entrenchment effect). Thus, too much ownership can induce managers to involve with more opportunistic activities that favour their welfare (Cohen et al., 2008; Darrough et al., 1998).

Managers have wide-ranging authority over the financial accountability and reporting process. Consequently, a key element of the financial reporting process is to guarantee an independent verification of the financial statements prepared by the firm's management. Auditing mitigates agency problems by ensuring the quality of the financial statements, which reduces the manager's ability to manipulate accounting information and thus his or her power to extract rent from shareholders (Chan et al., 1993; Desender et al., 2013; Francis & Wang, 2008). Hence, the financial reporting risk and the risk of managers rent extraction can influence the demand for audit services, and thus audit fees (Duellman et al., 2015; Hope et al., 2012; Whisenant et al., 2003). Given that

managerial ownership influences the quality of the firm's financial reporting, it is possible that managerial ownership affects auditor effort and audit fees. In this sense, Carcello et al. (2011) emphasize the need to incorporate management characteristics as a determinant of audit fees due to management's significant influence on accounting, auditing, and internal control.

Prior literature provides evidence to support the relationship between managerial ownership and audit fees. Some studies find a linear relationship (Gotti et al., 2012; Mitra et al., 2007; Park, 2019) while some find a non-linear relationship (Gotti et al., 2012; Shan et al., 2019). The various forms of the relationship between managerial ownership and audit fees found in the above studies all support the "convergence of interest" hypothesis and/or the "entrenchment of interest" hypothesis. Thus, the results of these studies suggest that the impact of management's equity ownership on audit fees varies, depending upon the level of ownership.

However, the existing studies have mostly been carried out in the UK or the US contexts. No research has been done on this topic using data from Portuguese and Spanish corporations. The ownership structure in Portugal and Spain is characterized by ownership concentration, in contrast to the more diffuse form of ownership structure prevalent in the UK and the US (Claessens et al., 2000; Shleifer & Vishny, 1997). In addition, Portugal and Spain are also characterized by poor investor protection. Consequently, the empirical results based on UK and US data may not be applicable to the Portuguese and Spanish context (Fan & Wong, 2002). This motivates our investigation.

Thus, the empirical study in this paper fills a gap in the academic literature by determining the nature of the relationship between managerial ownership and audit fee under the concentrated ownership structure in Portugal and Spain and poor investor protection. The academic literature suggests that the relationship between managerial ownership and audit fees can take a number of forms. Hence, given that no study has been conducted in Portugal and Spain before, we test three potential hypotheses which might explain the nature of the relationship. As a result, the main issues are therefore: is there any relationship between managerial ownership and audit fees in Portugal and Spain? If there is such a relationship, is it a linear one, or is it non-linear in nature? If it is non-linear in nature, does it take the form of a curvilinear (quadratic form) relationship? Or, is it of a non-linear form with a pattern "alignment-entrenchment-alignment" (or "entrenchment-alignment-entrenchment")? Even if it is non-linear in nature, is the pattern of the relationship the same or different from the findings in the US and UK studies? An empirical study based on a sample of non-financial listed Portuguese and Spanish firms-year from 2010 to 2021 is conducted for the present study to answer the above questions.

This paper contributes to the literature in various ways. Firstly, as aforementioned, no research has been done on the relationship between management ownership and audit fees in Portuguese and Spanish listed firms. This paper fills this gap in the academic literature. Secondly, the ownership structure in Portugal and Spain is characterized by ownership concentration, which is in contrast to the more diffuse form of ownership in the US and the UK (Claessens et al., 2000; Shleifer & Vishny, 1997). Therefore, the empirical results based on US and UK data may not be applicable to the Portuguese and Spanish context (Fan & Wong, 2002). In fact, it is doubtful whether the same sort of relationship between managerial ownership and audit fees exists under a concentrated ownership environment. This study therefore examines the impact of managerial ownership on audit fees in a distinctive context and thereby enrich the literature on this issue. Thirdly, Portugal and Spain also present an interesting context to study because they are two countries with weak investor protection (La Porta et al., 1998). Fourthly, the US and UK auditors when compared to other countries' auditors faced significantly higher litigation risk (Chung et al., 2005; Francis, 2006). Therefore, since Portugal and Spain have a lower litigation risk environment (Beveridge et al., 2018), it is possible that managerial ownership would have little impact on audit fees. That is, whether or not managerial ownership affects audit fees in environments with lower litigation risk and lower demand for accounting quality—in code-law countries

such as Portugal and Spain—remains an open question. Hence, this study contributes to literature by responding to calls to examine if and how the relationship between managerial ownership and audit fees holds across jurisdictions (Gotti et al., 2012; Lennox, 2005; Lin & Liu, 2013), mainly in civil law jurisdictions (Shan et al., 2019). Fourth, the findings of this study can provide useful information for auditors, regulators, standard setters and shareholders, mainly whether managerial ownership affects audit fees, especially in countries with a lower litigation risk environment, which is likely to eliminate the deep pockets incentive for investors, and in firms with highly concentrated equity ownership. Finally, findings based on Portuguese and Spanish data also help build a more expansive international understanding of the effect of managerial ownership on audit fees.

This paper is structured as follows. Section two presents theoretical framework and develops testable hypotheses. Section three describes the sample and research design. Section four presents the regression models used in this study. Section five discusses the empirical results. Finally, section six summarises and concludes this study.

2. Theoretical Framework and testable hypotheses

This section first discusses the theoretical framework about the mechanism of managerial shareholdings and agency costs. Next, it discusses the relation between managerial ownership and audit fee. Finally, it develops predictions about the association between management ownership and audit fee.

2.1. Managerial ownership and agency costs

Agency problems arise because “the decision managers who initiate and implement important decisions are not the major residual claimants and therefore do not bear a major share of the wealth effects of their decisions” (Fama & Jensen, 1983, p. 304). Hence, agency costs can be reduced by increasing the level of managers’ stock ownership, which may permit a better alignment of their interests with those of shareholders. As managerial ownership increases, managers bear a large fraction of the costs of shirking, perquisite consumption and other value-destroying actions. Additionally, larger managerial ownership reduces the problem of different horizons between owners and managers if share prices adjust rapidly to changes in firm’s intrinsic value.

Therefore, managerial ownership is considered an important internal mechanism in the good corporate governance (Jensen & Meckling, 1976). Managerial ownership is expected to reduce the level of agency conflicts because managers bear a proportion of the wealth effects as a shareholder and bear all the costs/benefits associated with the losses/gains in the value of his/her non-diversified human capital (Fama, 1980). Agency theory predicts that at low levels of managerial equity ownership, managers enjoy personal gain from engaging in suboptimal behaviours. However, as managerial ownership stakes increase managers are less likely to engage in opportunistic behaviour (Jelinek & Stuerke, 2009; Jensen & Meckling, 1976). Therefore, the greater the percentage of shares owned by managers; the more likely managers will make decisions consistent with maximizing shareholders’ wealth (the alignment of interest hypothesis).

Contrasting with this positive point of view, an increasing number of authors suggest that managerial holdings may lead to increasing opportunism by managers. In fact, as point out by Demsetz (1983) and Fama and Jensen (1983), managers holding a substantial portion of a company’s equity may have enough voting power to ensure that their position inside the firm is secure. High levels of ownership may lead to increasing opportunism by managers, which can cause them to become entrenched within the firm (the entrenchment hypothesis), and consequently increase agency costs (Fama & Jensen, 1983; McConnell & Servaes, 1990; Morck et al., 1988; Short & Keasey, 1999). Entrenched managers are more likely to consume more perquisites and/or reduce the firm’s risk profile to protect their own interests (Shleifer & Vishny, 1989). This is because, the higher the ownership stake of the manager, the more difficult it is for outside owners to control the management. At some point, management entrenchment occurs (McConnell & Servaes, 1990; Morck et al., 1988). Morck et al. (1988) find a U shape relationship between

managers' alignment and managers' equity holdings. They suggest the existence of managers' entrenchment for stockholdings between 5% and 25%, and convergence of interests below and above those thresholds. Short and Keasey (1999) also find evidence in accordance with entrenchment when analysing the relationship between performance and managerial ownership. They document a positive association at low levels of ownership, followed by a negative relation (the entrenchment region of managerial ownership occurs between 12% and 40%), and a positive one again at higher levels of management ownership. This is consistent with an alignment of interests between managers and shareholders being dominant at the lowest and highest levels of insider ownership, while entrenchment effects become preponderant in the middle range.

2.2. Managerial ownership and audit fee

Audit fee is the price of audit services provided by external auditors. Audit pricing theory suggests that in a competitive audit market, audit fee is a function of audit effort and the auditor's client-specific business risk (Simunic, 1980; Simunic & Stein, 1996). Financial reporting risk is considered one of the most important risk factors that affect audit pricing (Duellman et al., 2015). Auditors can reduce the risk of accounting misstatements or irregularities by increasing effort, which increases audit quality and audit fees. Hence, the higher the audit risk associated with a particular client firm the more time and effort the audit firm is likely to devote to the audit of the client firm's financial statements (Chen et al., 2016; Ghosh & Tang, 2015; Gul et al., 2003). For example, Bedard and Johbstone (2004) find that auditors increased effort and audit fees for clients with earnings manipulation risk. Therefore, high-risk audits result in higher fees by requiring more audit procedures. Managers have wide-ranging authority over the financial accountability and reporting process. Consequently, managerial ownership could impact the financial reporting risk assessment of the auditor as managerial ownership may lead to reduce/increase the opportunistic behaviours of management.

Previous literature postulates two perspectives to explain the relationship between managerial ownership and audit fees: the demand-side and the supply-side perspectives. Agency theory suggests that client demand for audit quality arises from the incentives to reduce agency costs faced by the firm (Jensen & Meckling, 1976). Thus, the demand-side perspective suggests that the demand for high-quality audit services is a function of information asymmetry and interest conflicts between investors and managers (Healy & Palepu, 2001). Lower agency conflicts decrease the demand for higher audit quality, and hence lower audit fees. In addition, the higher the managerial ownership, the lower the demand for assurance because owners are more actively engaged in day-to-day operations (Niemi, 2005).

Supply-side perspective posits that high-risk audits result in higher fees by requiring more audit procedures. Auditors are supposed to consider the potential impact of managerial ownership on the overall financial reporting process and assess their audit risk accordingly. Such risk assessment is likely to influence their planning of audit efforts as well as the audit fees they charge to their clients. Thus, in higher agency cost settings, auditors are more likely to supply greater effort to prevent misstatement associated with moral hazard and adverse selection problems.

2.3. The predicted association between management ownership and audit fees

The alignment of interest hypothesis suggests a lower demand for and supply of audit services because the conflicts of interest between shareholders and managers are less likely to occur when managers own more company shares. Managerial ownership may reduce opportunistic behaviour among managers when their shareholding increases. As a result, managerial ownership reduces agency costs and the inherent risk of material misstatement. This, lead to less demand of audit services and consequently less audit fees. From the supply-side perspective, the alignment of interest hypothesis suggests a lower earnings manipulation risk, leading to reduced audit risk and less audit work. Consequently, auditors are expected to charge lower audit fees as managerial shareholdings increase. Consistent with the alignment of interest hypothesis, for example, O' Sullivan (2000), using UK data, finds that companies with higher levels of executive share

ownership pay lower audit fees. Gotti et al. (2012) and Mitra et al. (2007), using US data, find that managerial stock ownership is negatively related to audit fees. For a sample of Bangladeshi firms, Karim and Hasan (2012) find that managerial ownership is significantly inversely related to audit fees. Hope et al. (2012), using Norwegian data, find that as managerial ownership increases, audit fees decrease. Barroso et al. (2018), using a sample of 19 countries, find that managerial ownership has a significantly negative relation with audit fees. Park (2019), using data from Korea, also finds a negative association between managerial ownership and audit fees.

The entrenchment hypothesis suggests higher demand and higher supply of assurance services in managerial ownership firms. Firms with higher agency cost (entrenched managers) likely have a greater demand to choose a higher-quality auditor to signal the credibility and transparency of their financial statements and will therefore incur high audit fees (Al-Okaily, 2020; Datar et al., 1991). Auditors are likely to supply higher levels of audit services to detect earnings management and consumption of private benefits at the expense of other shareholders (Al-Okaily, 2020). Consequently, auditors are expected to charge higher audit fees as managerial shareholdings increase. Consistent with the entrenchment hypothesis, Yin and Hung (2011), using Hong Kong data, find that managerial ownership has a significantly positive relationship with audit fees. Oktorina and Wedari (2015), using a sample of Indonesian listed firms, find that as managerial ownership increases, audit fees increase. Tee et al. (2017), for a sample of Malaysian listed firms, find that managerial stock ownership leads to higher audit fees. Alqatamin and Ezeani (2020), using a sample of Jordanian companies, also find a positive relationship between managerial ownership and audit fees.

As referred previously, while the ownership of US and UK listed firms is characterized by dispersed ownership, the ownership of Portuguese and Spain listed firms is characterized by concentrated ownership. In addition, most Portuguese and Spain listed firms are owned and controlled by large shareholders. Thus, we anticipate that the entrenchment effect may not take place (or it may be relatively insignificant) when managerial ownership concentration increases. Instead, the alignment effect may be further reinforced since the managers, who are also one of the large shareholders, are more concerned about the economic value of the firm as their levels of ownership in the firm are higher. Thus, high managerial ownership is likely to reduce the inherent risk of material misstatements in financial reporting. Therefore, this low-risk situation leads to lower engagement effort from auditors and a lower risk premium, hence audit fees should decrease in firms with higher managerial ownership. Moreover, Portugal and Spain have a lower litigation risk environment (Beveridge et al., 2018). Therefore, the management and the audit firms operate in a low litigation risk setting. As a result, the low investor protection in Portugal and Spain also provides no incentives to the auditor to incorporate any risk premium. So, we expect that audit fees decrease as managerial ownership increases. Therefore, we test the following hypothesis:

Alternative Hypothesis (H1): Ceteris paribus, managerial ownership in the firm is likely to be negatively related to audit fees.

However, as argued by LaPorta et al. (1999), there are central agency problems associated with high ownership concentration. The concentration of large shareholders also creates agency problem, namely agency conflict between majority and minority shareholders (Faisal et al., 2020; Gonzalez et al., 2017; Iturriaga & Crisostomo, 2010; Shleifer & Vishny, 1997). There is a tendency for the controlling shareholders to expropriate the minority shareholders when there is high ownership concentration. As referred previously, the ownership of Portuguese and Spain listed firms is characterized by concentrated ownership. Consequently, there is a possibility that at high levels of managerial ownership, the managers are exploiting their powers to the detriment of the minority shareholders. In fact, the expropriation risk is higher when the controlling shareholder is

the manager since the private benefits remain within the manager. When this expropriation happens, the entrenchment effect might override the alignment effect.

Additional audit efforts would be needed to protect the interests of minority shareholders and reduce audit risk. Hence, the resultant effect of “entrenchment of interests” will lead auditors to increase audit work, which increases audit fees. In fact, auditors are likely to supply higher levels of audit services to detect earnings management and consumption of private benefits at the expense of other shareholders. Therefore, it is expected that audit fees will increase at high levels of ownership due to the entrenchment effect. If this is true, the relationship between managerial ownership and audit fees will be curvilinear (quadratic form) (alignment followed by entrenchment). For example, Gotti et al. (2012), using US data, find a curvilinear quadratic relationship (“alignment-entrenchment”) between managerial ownership and audit fees.

So, we test the following hypothesis:

Alternative Hypothesis (H2): Ceteris paribus, there is a curvilinear quadratic relationship between managerial ownership and audit fees that is initially negative but eventually increases as managerial ownership increases.

Some studies also suggest that the relationship between managerial ownership and audit fees may be non-linear with a pattern “alignment-entrenchment-alignment” (Gotti et al., 2012; Shan et al., 2019). That is, at low and high levels, managerial ownership can help align the interests of managers with those of shareholders (alignment effect). In contrast, at middle ownership levels, managers may start to behave against the interests of the shareholders (entrenchment effect). For example, Gotti et al. (2012), for a sample of US firms, find a negative effect at low (below 5%) and high (above 25%) levels of managerial ownership on audit fees. Additionally, find a positive relationship between managerial ownership and audit fees at middle ownership levels (between 5% and 25%). Lin and Liu (2013), using a sample of Hong Kong listed firms, find that managerial ownership is negatively associated with audit fees in the low and high regions of managerial ownership, whereas the association is positive in the intermediate region. Shan et al. (2019), for a sample of Australian-listed companies, find that the relationship between managerial ownership and audit fees is positive for companies where managerial ownership is located in the entrenchment region of ownership (between 20% and 55%) but it becomes negative for companies where management ownership is located in the convergence-of-interests regions of ownership (below 20%; above 55%).

At low levels of managerial ownership, there is a possibility that managers will align their interests with the companies (alignment of interest). In contrast, there is also a likelihood that managers will look out for their own interests (entrenchment effect) (Jelinek & Stuerke, 2009; Jensen & Meckling, 1976). Hence, at low levels of managerial ownership, the relationship between managerial ownership and audit fees may be negative (alignment) or positive (entrenchment). However, as managers’ incentives to act opportunistically decrease with an increase in managerial ownership (Lin & Liu, 2013), we expect that audit fees will decrease as managerial shareholdings increase in the low region of managerial ownership. In addition, when ownership is concentrated (high non-manager blockholder ownership levels), at low levels of managerial ownership, management faces additional monitoring by blockholders (Jaggi et al., 2009; Jensen & Meckling, 1976). Previous studies suggest that blockholders’ monitoring of management’s activities is likely to constrain misreporting and earnings management (Bos & Donker, 2004; Chung et al., 2002; Shleifer & Vishny, 1986; Velury & Jenkins, 2006; Xu et al., 2013; Zhong et al., 2007), which may reduce auditors’ work, due to reduced audit risk, which is likely to reduce audit fees (Adelopo et al., 2012). In this sense, for example, AlQadasi and Abidin (2018) find that firms with a higher concentration of ownership are less likely to demand extensive auditing. Therefore, collectively,

in the low region of managerial ownership, we expect a negative relationship between audit fees and managerial ownership.

As non-manager blockholders decrease their shareholdings, they are less likely to constrain misreporting and earnings management. Therefore, at middle ownership levels, managers have stronger control over firms which can enable them to pursue private interests at the expense of other shareholders. It is possibly that managers with significant shareholdings engage in non-value maximizing decisions and opportunistic behaviors to serve their own interests since they are less likely to be disciplined (Lin & Liu, 2013; Shuto & Takada, 2010). As a result, when the risk of entrenchment rises, the need of high audit quality should increase too. In such a situation, the auditor perceives a high level of audit risk, leading to a higher price premium and/or audit efforts and hence higher audit fees. Thus, at middle levels of managerial ownership, we expect a positive relationship between audit fees and managerial ownership. That is, in the intermediate region of managerial shareholding, we expect that the alignment of interests plays an insignificant role, and the effect entrenchment dominates.

At high levels of ownership, managers are more concerned about the wealth consequences of their decisions and, therefore, engage in activities that enhance the firm value. This alignment effect reduces the level of opportunistic behaviour of managers; accordingly, the other shareholders are more likely free of concerns about managerial expropriation. This has the effect of diminishing the inherent risk of material misstatements and therefore the overall audit risk and audit work (Mitra et al., 2007). Therefore, at high managerial ownership, auditors are expected to charge lower audit fees. Niemi (2005) in Finland documents that audit fees are lower for companies majority-owned by their management. Consequently, we expect that at high managerial ownership, the entrenchment effect performances an insignificant role and the alignment of interest effect dominates.

Accordingly, we hypothesise as below:

Alternative Hypothesis (H3a): Ceteris paribus, low levels of managerial ownership in the firm are negatively related to audit fees.

Alternative Hypothesis (H3b): Ceteris paribus, intermediate levels of managerial ownership in the firm are positively related to audit fees.

Alternative Hypothesis (H3c): Ceteris paribus, high levels of managerial ownership in the firm are negatively related to audit fees.

3. Sample and research design

3.1. Sample selection

Our sample includes all the non-financial listed firms of Euronext Lisbon and the Madrid Stock Exchange for the period 2010–2021.

Table 1 details how the selection criteria resulted in a final total unbalanced panel of 1.352 firm-year observations over the 2010 to 2021 period.

The data used in this paper come from the following sources. The Amadeus, a database managed by Bureau Van Dijk and Informa DandB, S.A., the Portuguese Securities Market Supervisory Authority [Comissão de Mercado de Valores Mobiliários (CMVM)] and the Spanish Securities Market Supervisory Authority [Comisión Nacional del Mercado de Valores (CNVM)], which provide the accounting information from annual accounts.

Table 1. Sample selection criteria during the years 2010–2021

Sample selection	Number of firm years		
	Portugal	Spain	Total
Non-financial firms listed	598	1.333	1.931
(-) Football club companies	(45)	-	(45)
(-) Firms with missing data	(141)	(393)	(534)
Number of firm-year observations in the final sample	412	940	1.352

3.2. Research design

3.2.1. Measuring audit fees

Following most audit fee studies (Alkebsee et al., 2021; Barroso et al., 2018; Farooq et al., 2018; Ghafran & O’Sullivan, 2017; Stanley, 2011), the audit fees (Audit_Fee) are measured by the natural log of audit fees paid by the company for audit services during the year.

3.2.2. Measuring managerial ownership

The managerial ownership (MANAG_OWN) is measured as the percentage of shares owned by the manager. As in Gotti et al. (2012), to test the potential curvilinear quadratic relationship between managerial ownership and audit fees, we add the squared term of managerial ownership (MANAG_OWN^2). Finally, as in Gotti et al. (2012), Lin and Liu (2013), and Shan et al. (2019), to address the potential a non-linear form with a pattern “alignment-entrenchment-alignment”, the total managerial ownership is split into three groups: MANAG_OWN_Low , MANAG_OWN_Medium and MANAG_OWN_High . MANAG_OWN_Low equals MANAG_OWN if $0.00 < \text{MANAG_OWN} < 0.05$, and 0.05 if $\text{MANAG_OWN} \geq 0.05$; MANAG_OWN_Medium equals $\text{MANAG_OWN} - 0.05$ if $0.05 < \text{MANAG_OWN} < 0.25$, 0.00 if $\text{MANAG_OWN} \leq 0.05$, and 0.20 if $\text{MANAG_OWN} \geq 0.05$; MANAG_OWN_High equals $\text{MANAG_OWN} - 0.25$ if $0.25 < \text{MANAG_OWN} < 1.00$, and 0.00 if $\text{MANAG_OWN} \leq 0.25$.

3.2.3. Control variables

Given that the managerial ownership is not the only factor affecting audit fees, several control variables are introduced to isolate other factors that may influence the audit fees. Previous research suggests that audit risk, Big 4, free cash flow, board size, ROA, leverage and firm size are associated with audit fees (Al-Okaily, 2020b; Chung et al., 2005; Fleischer & Goettscha, 2012; Francis, 2004; Griffin et al., 2010; Gul & Tsui, 1998; Gull et al., 2021; Habib et al., 2018; Lennox, 2005; Mohammadi et al., 2018; Shailer et al., 2004; Shan et al., 2019, 2020; Simunic, 1980).

Audit risk (Aud_Risk). Audit risk is considered as an important determinant of audit fees (Chan et al., 1993). Certain assets are perceived as being riskier to audit, resulting in higher audit fees. Previous studies suggest that larger amount of inventory and receivables is a signal for higher audit risk (Gandía & Huguet, 2019; Habib et al., 2018; Stanley, 2011). *Audit risk* is calculated as the sum of inventories and accounts receivables divided by total assets.

Free cash flow (FCF). Jensen (1986) asserts that FCF creates agency problems because of the increased likelihood of value destroying investments. Chung et al. (2005) find that managers of firms with high FCF have the incentives to camouflage their activities by increasing reported earnings through income-increasing discretionary accruals. Consequently, auditors may react by judging firms with high FCF as having higher probability of misstatements and require greater effort. As a result, auditors would impose higher level of audit fees. Griffin et al. (2010) and Gul and

Tsui (1998) find that high FCF companies have higher audit fees. *FCF* is the ratio between the operating cash flows and the total assets.

Board size (B_Size). According to Jensen (1993) board size is related to board effectiveness. A higher the number of members on the board lead to a greater the monitoring activity of management. Larger boards seek better monitoring from external auditors. Al-Okaily (2020b), Gull et al. (2021) and Jizi and Nehme (2018) find that firms that have larger boards pay higher audit. *B_Size* is the number of members of the board.

Big 4. Big audit firms earn higher audit fees because of their higher degrees of perceived quality (DeAngelo, 1981). Prior research documents that Big audit firms charge high audit fees (Fleischer & Goettscha, 2012; Francis, 2004; Gandía & Huguët, 2019; Mohammadi et al., 2018; Shailer et al., 2004; Simunic, 1980; Velury & Jenkins, 2006). *Big 4* takes value 1 if the auditor is a Big 4 and 0 otherwise.

ROA. High profitability firms tend to pay more audit fees to their auditors (Simunic, 1980). Highly profitable firms pay more fees because higher profits may require rigorous auditing testing of the validity for the recognition of revenue and expenses which requires more audit time (Joshi & AL-Bastaki, 2000). Alqatamin and Ezeani (2020) and Yin and Hung (2011) find a positive relationship between profitability and audit fees. *ROA* is the net income deflated by total assets

Leverage. High levered firms can rise the likelihood of financial distress. This likelihood increases audit risk. Therefore, the higher the level of leverage, the more the audit risk and thus higher audit fees. Al-Najjar (2018), Joshi and AL-Bastaki (2000), and Velury and Jenkins (2006) find a positive relationship between debt ratio and audit fees. *Leverage* is calculated as the ratio between the book value of all liabilities and the total assets.

Firm Size (Size). Larger firms are normally more complex and difficult to control. Therefore, larger firms require more audit effort, resulting in higher audit fees (Palmrose, 1986; Simunic, 1980). Al-Najjar (2018), Chung et al. (2005), Gandía and Huguët (2019) and Mohammadi et al. (2018) find that larger firms pay larger audit fees. *Size* is measured as the natural logarithm of market value of equity of each firm.

Finally, to control for variations over time and across firms, we also include year and firm fixed effects.

4. Regression models

The association between managerial ownership and audit fees is examined by estimating the following ordinary least squares (OLS) regressions:

$$\begin{aligned} \text{Audit.Fee}_{it} = & \lambda_0 + \lambda_1(\text{MANAG_OWN}_{it}) + \lambda_2(\text{Aud.Risk}_{it}) + \lambda_3(\text{FCF}_{it}) + \lambda_4(\text{B.Size}_{it}) \\ & + \lambda_5(\text{Big4}_{it}) + \lambda_6(\text{ROA}_{it}) + \lambda_7(\text{Leverage}_{it}) + \lambda_8(\text{Size}_{it}) + \text{Year}_t + \text{Firm}_j + \epsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Audit.Fee}_{it} = & \lambda_0 + \lambda_1(\text{MANAG_OWN}_{it}) + \lambda_2(\text{MANAG_OWN}_{it}^2) + \lambda_3(\text{Aud.Risk}_{it}) \\ & + \lambda_4(\text{FCF}_{it}) + \lambda_5(\text{B.Size}_{it}) + \lambda_6(\text{Big4}_{it}) + \lambda_7(\text{ROA}_{it}) + \lambda_8(\text{Leverage}_{it}) \\ & + \lambda_9(\text{Size}_{it}) + \text{Year}_t + \text{Firm}_j + \epsilon_{it} \end{aligned} \quad (2)$$

Table 2. Summary of descriptive statistics

	Mean	Median	Min.	Max.	Std. deviation
Panel A—Portugal: Number of observations: 412					
Audit_Fee	5.606	5.672	1.593	9.032	1.025
MANAG_OWN	0.055	0.003	0.000	0.810	0.962
Aud_Risk	0.054	0.008	0.000	0.714	0.809
FCF	0.032	0.031	−2.997	1.544	0.937
B_Size	8.720	9.000	2.000	24.000	3.913
Big4	0.732	1.000	0.000	1.000	0.449
ROA	2.612	2.207	−56.188	56.412	3.961
Leverage	0.482	0.477	0.001	2.604	0.328
Size	19.103	18.989	11.918	23.598	2.346
Panel B—Spain: Number of observations: 940					
Audit_Fee	5.903	5.633	1.386	11.002	1.823
MANAG_OWN	0.078	0.004	0.000	0.857	0.897
Aud_Risk	0.183	0.159	0.000	0.701	0.622
FCF	0.080	0.067	−1.086	8.225	1.113
B_Size	12.875	13.000	4.000	32.000	4.605
Big4	0.817	1.000	0.000	1.000	0.392
ROA	3.471	3.055	−58.025	91.200	5.547
Leverage	0.592	0.601	0.003	3.789	0.302
Size	21.103	20.801	16.015	25.937	2.439

Audit_Fee represents the natural log of audit fees paid by the firm for audit services during the year; MANAG_OWN is the percentage of shares owned by the manager; Aud_Risk is the sum of inventories and accounts receivables divided by total assets; FCF is the ratio between the operating cash flows and the total assets; B_Size is the number of members of the board; Big4 dummy variable which takes a value 1 if firm is audited by a Big 4 audit firm and 0 otherwise; ROA is the net income deflated by total assets; Leverage represents the ratio between the book value of all liabilities and the total assets; Size represents the firm's size.

$$\begin{aligned}
 \text{Audit_Fee}_{it} = & \lambda_0 + \lambda_1(\text{MANAG_OWN_Low}_{it}) + \lambda_2(\text{MANAG_OWN_Medium}_{it}) \\
 & + \lambda_3(\text{MANAG_OWN_High}_{it}) + \lambda_4(\text{Aud_Risk}_{it}) + \lambda_5(\text{FCF}_{it}) + \lambda_6(\text{B_Size}_{it}) \\
 & + \lambda_7(\text{Big4}_{it}) + \lambda_8(\text{ROA}_{it}) + \lambda_9(\text{Leverage}_{it}) + \lambda_{10}(\text{Size}_{it}) + \text{Year}_t + \text{Firm}_j + \varepsilon_{it}
 \end{aligned}
 \tag{3}$$

5. Results and discussion

5.1. Descriptive statistics and correlations

Table 2 presents the sample descriptive statistics for the variables used in this research. Spearman correlations between the explanatory variables are documented in Table 3. Table 4 presents the variation inflation factors (VIF).

Regarding Portugal, Panel A in Table 2 shows that the mean of audit fee (Audit_Fee) is about EUR 720 million with a minimum of EUR 492 thousand and a maximum of EUR 8.450 million. The mean (median) managerial ownership (MANAG_OWN) is 5.5% (0.3%), with a minimum of 0.0% and a maximum of 81%. The mean (median) audit risk is 5.4% (0.8%), with a minimum of 0.0% and a maximum of 71.4%. FCF variable represents on average 0.032 of the total assets of the company (with a median of 0.032). B_size is comprised of approximately 9 members (with a median of 9 members). Big 4 auditors are used by 73.2% of the sample firms. Panel A in Table 2 also shows that the mean (median) ROA is 2.612 (2.207), with a minimum of −56.188 and a maximum of 56.412. Leverage variable represents on average 0.482 of the total assets of the company (with a median of 0.477). The mean of firm size (Size) is about EUR 1.401 million with a minimum of EUR 300 thousand and a maximum of EUR 16.875 million.

Table 3. Pearson correlation coefficients matrix

	Audit_Fee	MANAG_OWN	Aud_Risk	FCF	B_size	ROA	Leverage	Size
Audit_Fee	1.00							
MANAG_OWN	-0.09	1.00						
Aud_Risk	-0.11	-0.41	1.00					
FCF	0.14	0.22	-0.06	1.00				
B_Size	0.21	0.08	0.03	0.11	1.00			
ROA	0.17	0.45	-0.09	0.17	0.21	1.00		
Leverage	0.21	-0.12	0.02	-0.08	-0.07	-0.32	1.00	
Size	0.43	0.23	-0.11	-0.17	0.21	0.26	-0.07	1.00

Audit_Fee represents the natural log of audit fees paid by the firm for audit services during the year; MANAG_OWN is the percentage of shares owned by the manager; Aud_Risk is the sum of inventories and accounts receivables divided by total assets; FCF is the ratio between the operating cash flows and the total assets; B_Size is the number of members of the board; ROA is the net income deflated by total assets; Leverage represents the ratio between the book value of all liabilities and the total assets; Size represents the firm's size.

Regarding Spain, Panel B in Table 2 shows that the mean of audit fee (Audit_Fee) is about EUR 1.802 million with a minimum of EUR 400 thousand and a maximum of EUR 31.522 million. The mean (median) managerial ownership (MANAG_OWN) is 7.8% (0.4%), with a minimum of 0.0% and a maximum of 85.7%. The mean (median) audit risk is 18.3% (15.9%), with a minimum of 0.0% and a maximum of 70.1%. FCF variable represents on average 0.080 of the total assets of the company (with a median of 0.067). B_size is comprised of approximately 13 members (with a median of 13 members). Big 4 auditors are used by 81.7% of the sample firms. Panel B in Table 2 also shows that the mean (median) ROA is 3.471 (3.055), with a minimum of -58.025 and a maximum of 91.200. Leverage variable represents on average 0.592 of the total assets of the company (with a median of 0.601). The mean of firm size (Size) is about EUR 5.021 million with a minimum of EUR 406 thousand and a maximum of EUR 96.527 million.

The results of the Table 3 show that all the correlation coefficients are, in general, low (below the 0.9 threshold) (Tabachnick & Fidell, 2001), suggesting the absence of serious statistical problems related with multicollinearity. In the Table 4, the highest VIF is equal to 2.01 (below the 10 threshold) (Belsley et al., 1980). Therefore, we can deduce the absence of any multicollinearity problems.

5.2. Regression results

Table 5, Table 6, and Table 7 report the results of models 1, 2, and 3, respectively. Model 1 includes the managerial ownership variables (MANAG_OWN) as a main treatment variable. To test the potential curvilinear quadratic relationship, model 2 includes both MANAG_OWN and the squared ownership variable (MANAG_OWN²). Finally, model 3 includes the three different levels of managerial ownership (MANAG_OWN_Low, MANAG_OWN_Medium, and MANAG_OWN_High), allowing for variations in the slope coefficient on managerial ownership depending on the ownership level. All the continuous variables are winsorized at the 1% and 99% levels to avoid the effect of outliers.

To both Portugal and Spain, the results in Table 5 show that managerial ownership is negatively related to audit fees. This result is in line with our hypothesis (H1) and the findings of Barroso et al. (2018), Gotti et al. (2012), Hope et al. (2012), Karim and Hasan (2012), Mitra et al. (2007), O'Sullivan (2000), and Park (2019). Thus, consistent with the alignment of interest hypothesis, our results show that managerial ownership is associated with lower audit fees, which suggests that managerial equity ownership alleviates agency conflicts and opportunistic accounting earnings management, leading to lower demand for external audit efforts to resolve agency conflicts, therefore, lower audit fees. From the supply side perspective, auditors respond to the alignment of interests by reducing the level of risk of financial reporting and subsequently the audit fees. This

Table 4. Variation inflation factors (VIF)

Variable	VIF
Audit_Fee	1.45
MANAG_OWN	1.91
Aud_Risk	1.01
FCF	1.03
B_Size	1.92
Big4	1.33
ROA	2.01
Leverage	1.81
Size	1.31

Audit_Fee represents the natural log of audit fees paid by the firm for audit services during the year; MANAG_OWN is the percentage of shares owned by the manager; Aud_Risk is the sum of inventories and accounts receivables divided by total assets; FCF is the ratio between the operating cash flows and the total assets; B_Size is the number of members of the board; Big4 dummy variable which takes a value 1 if firm is audited by a Big 4 audit firm and 0 otherwise; ROA is the net income deflated by total assets; Leverage represents the ratio between the book value of all liabilities and the total assets; Size represents the firm's size.

Table 5. Linear regression results (With MANAG_OWN)

	Portugal		Spain		Total sample	
Dependent variable	Audit Fee		Audit Fee		Audit Fee	
Independent variables	Coefficient	t-values	Coefficient	t-values	Coefficient	t-values
Constant	0.017	0.073	-0.083	-0.103	0.077	0.506
MANAG_OWN	-0.229	-2.437**	-0.276	-3.211***	-0.372	-3.723***
Aud_Risk	0.255	1.104	0.288	2.390**	0.401	3.002**
FCF	0.122	1.720	0.135	1.989	0.166	1.787
B_Size	0.152	2.566***	0.223	2.904***	0.352	3.055***
Big4	0.013	1.718*	0.370	2.301**	0.501	4.209***
ROA	0.201	0.910	0.055	1.167*	0.099	0.799
Leverage	0.341	2.037**	0.587	4.553***	0.434	4.088***
Size	0.437	3.108***	0.599	4.721***	0.539	3.988***
Year	Yes		Yes		Yes	
Firm	Yes		Yes		Yes	
Observations	412		940		1.352	
Adjusted R ²	29.88%		37.98%		41.07%	
F-statistic	26.876***		32.604***		44.505***	

Audit_Fee represents the natural log of audit fees paid by the firm for audit services during the year; MANAG_OWN is the percentage of shares owned by the manager; Aud_Risk is the sum of inventories and accounts receivables divided by total assets; FCF is the ratio between the operating cash flows and the total assets; B_Size is the number of members of the board; Big4 dummy variable which takes a value 1 if firm is audited by a Big 4 audit firm and 0 otherwise; ROA is the net income deflated by total assets; Leverage represents the ratio between the book value of all liabilities and the total assets; Size represents the firm's size.

*** Significant at the 1-percent level; ** Significant at the 5-percent level; * Significant at the 10-percent level.

suggests that auditors view managerial ownership as decreasing managerial incentives to misstate the financial statements and thus audit risk. So, in Portugal and Spain audit fees seem to decrease as managerial ownership increases in listed companies.

Table 6. Curvilinear quadratic regression results (With MANAG_OWN and MANAG_OWN²)

	Portugal		Spain		Total sample	
Dependent variable	Audit Fee		Audit Fee		Audit Fee	
Independent variables	Coefficient	t-values	Coefficient	t-values	Coefficient	t-values
Constant	0.200	1.089	0.155	0.877	0.987	0.466
MANAG_OWN	-0.171	-2.055**	-0.312	-2.437**	-0.419	-3.158***
MANAG_OWN ²	0.004	0.489	0.018	0.802	0.023	1.209
Aud_Risk	0.188	0.502	0.303	2.233**	0.347	2.343**
FCF	0.167	0.496	0.201	0.667	0.198	0.609
B_Size	0.287	2.987***	0.367	3.102***	0.355	3.098***
Big4	0.587	3.763**	0.315	2.407**	0.109	4.098***
ROA	0.188	0.663	0.465	2.433**	0.299	1.969**
Leverage	0.591	4.176***	0.565	3.830***	0.355	4.391***
Size	0.499	3.985***	0.501	4.087***	0.563	4.007***
Year	Yes		Yes		Yes	
Firm	Yes		Yes		Yes	
Observations	412		940		1.352	
Adjusted R ²	30.76%		41.90%		45.32%	
F-statistic	21.556***		26.085***		34.631***	

Audit_Fee represents the natural log of audit fees paid by the firm for audit services during the year; MANAG_OWN is the percentage of shares owned by the manager; MANAG_OWN² is the square of the percentage of shares owned by the manager; Aud_Risk is the sum of inventories and accounts receivables divided by total assets; FCF is the ratio between the operating cash flows and the total assets; B_Size is the number of members of the board; Big4 dummy variable which takes a value 1 if firm is audited by a Big 4 audit firm and 0 otherwise; ROA is the net income deflated by total assets; Leverage represents the ratio between the book value of all liabilities and the total assets; Size represents the firm's size.

*** Significant at the 1-percent level; ** Significant at the 5-percent level; * Significant at the 10-percent level.

From the demand side, one alternative explanation of the negative relationship between managerial ownership and audit fees is that managerial ownership firms may demand lower assurance services to reduce auditor scrutiny over consumption of private benefits and aggressive accounting practices (Al-Okaily, 2020; Desender et al., 2013; Duellman et al., 2015).

Another potential explanation for our result is that this study is conducted on the Portuguese and Spanish capital markets, which have a weak legal environment (La Porta et al., 2000). Francis et al. (2003) documented that countries with weaker legal institutions demanded lower quality audits than countries with stronger legal institutions. In addition, Portuguese and Spanish listed firms have high ownership concentration. This ownership structure can result in lower demand for accounting information (Ball et al., 2000) and external audits (DeFond et al., 2000; Francis et al., 2003).

On the supply side, one alternative explanation of the negative relationship between managerial ownership and audit fees is that the weak legal environment, in Portugal and Spain, lead that the auditor's effort will be more aligned with the shareholders' demands, since auditors are more accommodating to clients' needs as the litigation environment weakens (Hwang & Chang, 2010). The low investor protection in countries such as the two under study provides no incentives to the auditor to incorporate any risk premium (Barroso et al., 2018).

Table 7. Piecewise Regression Results (With MANAG_OWN_Low, MANAG_OWN_Medium and MANAG_OWN_High)

	Portugal		Spain		Total sample	
Dependent variable	Audit Fee		Audit Fee		Audit Fee	
Independent variables	Coefficient	t-values	Coefficient	t-values	Coefficient	t-values
Constant	0.045	0.089**	0.178	0.534	0.122	0.378
MANAG_OWN_Low	-0.299	-1.989**	-0.388	-2.087***	-0.403	-3.077***
MANAG_OWN_Medium	0.211	1.082	0.309	2.088**	0.344	2.907***
MANAG_OWN_High	-0.388	-2.899***	-0.491	-2.544***	-0.400	-2.998***
Aud_Risk	0.109	1.463	0.301	2.909**	0.289	2.177**
FCF	0.122	1.309	0.204	1.254	0.178	1.408
B_Size	0.235	2.878***	0.308	2.356***	0.288	2.768***
Big4	0.299	2.099**	0.289	2.078**	0.416	4.798***
ROA	0.099	0.703	0.101	1.998*	0.104	0.698
Leverage	0.409	3.712***	0.489	3.807***	0.413	4.809***
Size	0.411	3.810***	0.459	3.879***	0.409	3.998***
Year	Yes		Yes		Yes	
Firm	Yes		Yes		Yes	
Observations	412		940		1.352	
Adjusted R ²	32.89%		43.97%		53.15%	
F-statistic	30.718***		33.917***		37.387***	

Audit_Fee represents the natural log of audit fees paid by the firm for audit services during the year; MANAG_OWN_Low is MANAG_OWN if $0.00 < \text{MANAG_OWN} < 0.05$, and 0.05 if $\text{MANAG_OWN} \geq 0.05$; MANAG_OWN_Medium is $\text{MANAG_OWN} - 0.05$ if $0.05 < \text{MANAG_OWN} < 0.25$, 0.00 if $\text{MANAG_OWN} \leq 0.05$, and 0.20 if $\text{MANAG_OWN} \geq 0.25$; MANAG_OWN_High is $\text{MANAG_OWN} - 0.25$ if $0.25 < \text{MANAG_OWN} < 1.00$, and 0.00 if $\text{MANAG_OWN} \leq 0.25$; Aud_Risk is the sum of inventories and accounts receivables divided by total assets; FCF is the ratio between the operating cash flows and the total assets; B_Size is the number of members of the board; Big4 dummy variable which takes a value 1 if firm is audited by a Big 4 audit firm and 0 otherwise; ROA is the net income deflated by total assets; Leverage represents the ratio between the book value of all liabilities and the total assets; Size represents the firm's size.

*** Significant at the 1-percent level; ** Significant at the 5-percent level; * Significant at the 10-percent level.

The results of the hypothesis 2 are presented in Table 6. These results show that the coefficient of the variable MANAG_OWN is negative and statistically significant. However, the coefficient of the variable MANAG_OWN^2 is positive but not statistically significant. Thus, the findings show to both Portugal and Spain, “alignment of interest” at low levels of managerial ownership (MANAG_OWN), but not “entrenchment” at high levels of managerial ownership (MANAG_OWN^2). This implies that curvilinear quadratic specification is not suitable for our sample firms. Therefore, the hypothesis 2 is not supported.

Table 7 shows the results of the hypothesis 3. The results indicate that to Spain and the total sample the hypothesis 3 is also supported. The coefficients of the variables MANAG_OWN_Low, MANAG_OWN_Medium and MANAG_OWN_High are all statistically significant. The relationship is found to be of non-linear form. Since the signs of the coefficients of the variables MANAG_OWN_Low, MANAG_OWN_Medium and MANAG_OWN_High are negative, positive and negative respectively, the relationship between audit fees and managerial ownership is “alignment-entrenchment-alignment”. To Portugal, the coefficients of the variables MANAG_OWN_Low and MANAG_OWN_High are statistically significant. However, the coefficient of the variable MANAG_OWN_Medium is positive but not statistically significant. Therefore, at low and high levels of managerial ownership, alignment of interests dominates over entrenchment as a determinant

of audit fees. For Portuguese listed firms in the intermediate range of managerial ownership, neither effect dominates.

In general, managerial ownership is beneficial to firm, due to the alignment of interests, as indicated by the significant negative linear relationship under Hypothesis 1. When the percentage of shares owned by managers in a company increases, audit fee decreases. Regarding the non-linear form of the relationship under Hypothesis (3), the results also show, to Portugal and Spain, that at low and high levels of managerial ownership, the relationship between audit fees and managerial ownership is negative, which is consistent with the alignment of interest hypothesis. Thus, this negative relationship suggests a lower demand for audit services when the agency conflicts are lower. On the supply side, this result also suggests that auditors charge lower fees to clients presenting a lower agency conflicts level. The negative relationship at low levels of managerial ownership is also consistent with the conjecture that in ownership concentrated firms, management faces additional monitoring by blockholders. This is expected to constrain misreporting and earnings management, which reduce auditors' work, due to reduced audit risk, which seems to reduce audit fees. Blockholders may have also lower incentives to use auditing services since they bear most of the costs. Thus, blockholders will demand less from the auditor, which will lower the effort and thus the fees (Barroso et al., 2018).

In Spain, at middle levels of managerial ownership, managers appear to be exploiting their power to the detriment of the other shareholders as the relationship between audit fees and managerial ownership becomes positive. Consistent with entrenchment hypothesis, at middle levels of managerial ownership, there seems to be an increase in the minority shareholder expropriation risk and consequently agency conflict, which leads to higher audit fees. Really, from the demand side, non-controlling shareholders (minority shareholders) demand for better audit effort to minimise agency problems and reduce information asymmetry with managers, which results in higher audit fees. From the supply side, the high expropriation risk situation leads to higher engagement effort from auditors, therefore audit fees increase in entrenched-managers firms. Hence, our results suggest a lower (higher) demand for audit services when the agency conflicts are lower (higher). The findings also indicate that auditors perceive lower (higher) audit risk when manager interests are (are not) aligned, resulting in lower (higher) audit fees.

The overall findings indicate that the relationship between managerial ownership and audit fee has elements of two functional forms: a negative linear relationship as supported by Hypothesis (1) and a non-linear (with a pattern "alignment-entrenchment-alignment") relationship, to Spain and the total sample, as supported by Hypothesis (3). The non-linear pattern of the relationship is the same findings ("alignment-entrenchment-alignment") of Gotti et al. (2012), Lin and Liu (2013), and Shan et al. (2019). Thus, our results do not support the view that studies based on US and UK evidence may not be necessarily applicable to Portuguese and Spanish listed companies due to the differences in the degree of ownership concentration (Fan & Wong, 2002).

The control variables, board size is positively associated with audit fees, suggesting, as in previous studies, that large boards require more extensive auditing, leading to higher audit fees (Alkebsee et al., 2021; Gull et al., 2021; Jizi & Nehme, 2018). Big 4 is positively and significantly associated with audit fees, suggesting that Big audit firms charge high audit fees (Barroso et al., 2018; Francis, 2004; Mohammadi et al., 2018; Shailer et al., 2004). As in other studies (Habib et al., 2018; Stanley, 2011), to Spain, audit risk has a positive and significant effect on audit fees, which is in line with expectations that higher risk firms pay higher audit fees. To Spain, as in Gandía and Hugué (2019), Ghafran and O'Sullivan (2017), and Joshi and AL-Bastaki (2000), ROA is positively associated with audit fees, suggesting that high profitability firms induce more audit fees. To both Portugal and Spain, the results suggest that larger and higher leveraged firms tend to pay greater

Table 8. Regressions results—Alternative entrenchment regions

Dependent variable	Portugal						Spain						Total sample					
	10%-30% threshold			12%-40% threshold			10%-30% threshold			12%-40% threshold			10%-30% threshold			12%-40% threshold		
	Coef.	t-values	Audit Fee	Coef.	t-values	Audit Fee	Coef.	t-values	Audit Fee	Coef.	t-values	Audit Fee	Coef.	t-values	Audit Fee	Coef.	t-values	Audit Fee
Independent variables																		
MANAG_OWN_Low	-0.167	-2.056**		-0.095	-1.986*		-0.207	-2.769**		-0.121	-1.596**		-0.201	-2.023**		-0.197	-2.169**	
MANAG_OWN_Medium	0.099	1.809*		0.109	2.007*		0.126	2.318*		0.099	2.001*		0.209	2.760**		0.200	2.718**	
MANAG_OWN_High	-0.136	-2.167**		-0.105	-1.809**		-0.222	-2.420**		-0.133	-1.393**		-0.217	-2.655**		-0.223	-2.420**	
Control variables	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes
Year	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes
Firm	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes
Observations	412		412	412		412	940		940	940		940	1.352		1.352	1.352		1.352
Adjusted R ²	41.09%		42.06%	42.06%		53.00%	55.07%		55.07%	55.07%		62.09%	62.09%		62.09%	69.20%		69.20%
F-statistic	39.676***		47.986***	47.986***		46.099***	54.643***		54.643***	54.643***		54.643***	54.643***		54.643***	79.885***		79.885***

Table 9. Regression Results—Cubic specification

	Portugal		Spain		Total sample	
Dependent variable	Audit Fee		Audit Fee		Audit Fee	
Independent variables	Coefficient	t-values	Coefficient	t-values	Coefficient	t-values
MANAG_OWN	−0.028	−1.699*	−0.205	−1.989**	−0.311	−2.765***
MANAG_OWN ²	0.163×10 ^{−2}	0.978	0.189×10 ^{−2}	1.897*	0.202×10 ^{−3}	2.002**
MANAG_OWN ³	−0.231×10 ^{−4}	−2.012**	−0.298×10 ^{−5}	−2.176**	−0.298×10 ^{−6}	−2.563***
Control variables	Yes		Yes		Yes	
Year	Yes		Yes		Yes	
Firm	Yes		Yes		Yes	
Observations	412		940		1.352	
Adjusted R ²	20.72%		29.08%		37.73%	
F-statistic	26.053***		30.746***		34.734***	

audit fees consistent with other studies (Fleischer & Goettscha, 2012; Ghafran & O’Sullivan, 2017; Joshi & AL-Bastaki, 2000; Mohammadi et al., 2018; Sellami & Cherif, 2020).

5.3. Supplementary analysis

As observed by Morck et al. (1988), the literature does not define where the intermediate shareholding region lies. Therefore, the ownership thresholds that define the various managerial shareholding regions are “ad hoc”. We therefore test alternative thresholds to check whether our findings are robust. Following Lin and Liu (2013) and Short and Keasey (1999), we test also the thresholds to 10%-30% and 12%-40%, respectively. The regression results (Table 8) for the main variables of interest support Hypothesis 3. However, the coefficients for the regions of managerial ownership become much less significant, suggesting that the most appropriate entrenchment region in the Spain and in the total sample is at 5%-25% with turning points at the significance levels of 5% and 1%, respectively. In the model 3, we predict a non-linear relationship between managerial ownership and audit fees, incorporating three different regions of managerial ownership in a piecewise regression. However, the piecewise linear regression analysis assumes sudden rather than gradual turning points at varied managerial ownership levels (Lin & Liu, 2013). Some studies avoid this problem by using additional cubic form in the regression analysis (Lennox, 2005; Lin & Liu, 2013; Shan et al., 2019; Short & Keasey, 1999). Thus, we re-estimate the model 3 including a cubic specification of MANAG_OWN to check whether our results are robust. The results (Table 9) show that including a cubic specification of MANAG_OWN does not affect main findings. In the models 1, 2 and 3, we assume that managerial ownership is exogenous. However, previous studies suggest that managerial ownership is endogenous (e.g., Demsetz & Villalonga, 2013b; Gugler & Weigand, 2003; Himmelberg et al., 1999; Sellami & Cherif, 2020; Shahveisi et al., 2017; Villalonga, 2019b). Therefore, we investigate whether there is an endogeneity problem for managerial ownership, using the two-stage least squares (2SLS) regression specification. Following the methodology used by Lennox (2005) and Shan et al. (2019, 2020), we estimate an OLS model with managerial ownership as the dependent variable, and use the coefficient estimates to obtain the predicted level of ownership (MANAG_OWN_Predicted). We then include the MANAG_OWN_Predicted as the measure of MANAG_OWN in the models 1, 2 and 3. The results (Table 10) remain qualitatively similar to those reported in the Tables 5, 6 and 7, suggesting that MANAG_OWN_Predicted is endogenous. Thus, the MANAG_OWN variable is exogenous in our sample. Hence, the 2SLS regression results for the main variables of interest support our Hypotheses 1 and 3. However, for Portuguese listed firms in the intermediate range of managerial ownership, neither effect dominates.

Table 10. 2SLS regressions results

Hypotheses	Portugal			Spain			Total sample		
	H1	H2	H3	H1	H2	H3	H1	H2	H3
	Audit Fee			Audit Fee			Audit Fee		
Independent variables	Coef. (t-values)	Coef. (t-values)	Coef. (t-values)	Coef. (t-values)	Coef. (t-values)	Coef. (t-values)	Coef. (t-values)	Coef. (t-values)	Coef. (t-values)
MANAG_OWN_Predicted	-0.189 (-2.262**)	-0.152 (-2.008**)	-	-0.201 (-3.079***)	-0.289 (-2.356**)	-	-0.211 (-3.508***)	-0.298 (-3.673***)	-
MANAG_OWN ² _Predicted	-	0.098 (0.627)	-	-	0.267 (2.156**)	-	-	0.388 (2.679***)	-
MANAG_OWN_Low_Predicted	-	-	-0.201 (-1.798**)	-	-	-0.289 (-2.001**)	-	-	-0.353 (-3.001***)
MANAG_OWN_Medium_Predicted	-	-	0.179 (0.989)	-	-	0.291 (1.989**)	-	-	0.325 (2.799***)
MANAG_OWN_High_Predicted	-	-	-0.278 (-2.687***)	-	-	0.298 (3.001***)	-	-	-0.307 (-2.760**)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	412			940			1,352		
Adjusted R ²	27.39%	26.97%	28.07%	38.44%	40.92%	41.87%	41.08%	45.06%	53.83%
F-statistic	21.098***	19.576***	24.736***	29.780***	22.908***	30.273***	37.902***	33.987***	38.098***

6. Conclusion

Using samples of Portuguese and Spanish listed companies for the period 2010–2021, this paper explores the impact of managerial ownership on audit fees. Managerial ownership is considered an effective mechanism to address agency problem (align management with shareholders). Agency theory predicts that when managers hold low levels of equity ownership in a firm, their incentives to shirk and consume perquisites rise. However, as managerial ownership stakes increase, managers are less likely to engage in opportunistic behaviour (Jensen & Meckling, 1976). Audit pricing theory suggests that auditors might charge lower fees to less riskier clients.

Our results show that managerial ownership firms incur lower audit fees, which is driven by firms' lower demand for external auditing services (due to the less severe agency problems) and auditors perceived lower audit risk for managerial ownership firms. The results also show that, to Portugal and Spain, when managerial ownership is low (<5%) and high (>25%), the convergence-of-interest dominates, thereby resulting in a negative relation between managerial ownership and audit fees. In Spain, the entrenchment effect dominates the alignment of interest effect in the intermediate (5%–25%) range of managerial ownership, which have the effect of increasing audit fees. For the total sample and Spain, the relationship between managerial ownership and audit fees has elements of the two functional forms: a negative linear form and a non-linear form ("alignment-entrenchment-alignment").

Hence, consistent with prior literature, this study indicates that in Portuguese and Spanish listed firms the alignment effect is very strong, as managerial ownership increases (a negative linear relationship). There are also alignment effects at both ends of the managerial ownership levels (negative relationships at low and high levels of managerial ownership). This suggests that managerial ownership (low and high levels) reduces agency problems in financial reporting and decrease the risk of accounting misstatements or irregularities, consequently, the scope of audit work becomes lower leading to lower audit fees. At the same time, to Spain and the total sample, at middle levels of managerial ownership the entrenchment effects become dominant, as denoted by the entrenchment ranges in the non-linear relationship.

The results of this study make the following contributions. First, this study contributes to the literature in corporate governance by showing that managerial ownership affects audit fees. Therefore, this paper contributes to understanding how managerial ownership can influence auditors' perceptions of client risk and, in turn, affects audit fees. Second, this study also contributes to the literature by showing that managerial ownership affects audit fees in environments with lower litigation risk in code-law countries such as Portugal and Spain. Third, this paper has also implications for cross-national governance and auditing price research. Fourth, the findings are relevant for countries with an institutional environment similar to that of Portugal and Spain.

Finally, the results of this study are likely of interest to policymakers by offering useful feedback to consider managerial ownership during their rulemaking processes. It also helps financial market participants with making better-informed investment decisions and aids other interested parties in gaining a better understanding of the role played by managerial ownership in audit fees.

This study has certain limitations as well. Firstly, we focus exclusively on the impact of managerial ownership on audit fees. Consequently, this study neglects the impact of other corporate governance mechanisms on audit fees. Secondly, the sample of this study is constituted only of listed companies. Hence, our findings may not be generalized to small and non-listed firms. Lastly, our sample is restricted to Portugal and Spain. So, the evidence provided might not necessarily generalize to other environmental contexts.

For future research, it would be of interest to examine the impact of other governance mechanisms on audit fees. This research might be also extended towards other European countries. Small and medium-sized enterprises (SMEs) are the backbone of Europe's economy. Thus, in this vein, for future research it would be also interesting to replicate the analyses using data from Portuguese/Spanish/European SMEs.

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