# Analysis of the influence of the internal audit function on audit fees

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ABSTRACT

The aim of this paper is to analyse the relationship between the internal audit function and auditorś fees using a sample of Spanish listed companies between 2003 and 2011. We use the audit fees model that was proposed by Simunic (1980). Our results indicate that fees are greater in those companies that have an internal audit function. In addition, if there are meetings between the audit committee and the internal audit function, this is statistically significant with audit fees. This paper contributes to literature in several ways. Firstly, there are no previous papers in Spain, unlike other contexts, on the relationship between internal audit and auditor fees. Secondly, the empirical results detected in previous studies are conflicting; therefore, there is a need to complement them. Finally, the findings have practical implications for companies, external auditorś and regulatory agencies themselves.

## Análisis de la influencia de la función de auditoría interna en los honorarios de auditoría

RESUMEN

El objetivo de este trabajo es analizar la relación existente entre la función de auditoría interna y los honorarios del auditor sobre una muestra de empresas que cotizan en el mercado continuo español entre 2003 y 2011. Utilizando el modelo de honorarios de auditoría propuesto por Simunic (1980), los resultados indican que los honorarios de auditoría son mayores en aquellas compañías que cuentan con la existencia de un departamento de auditoría interna. Asimismo, la existencia de reuniones entre el comité de auditoría y la función de auditoría interna es estadísticamente significativa con los honorarios. Este estudio contribuye a la literatura de diversas formas. En primer lugar, no existen trabajos anteriores en España, a diferencia de otros contextos, sobre la relación entre auditoría interna y honorarios. En segundo lugar, los resultados empíricos detectados en estudios previos resultan contradictorios por lo tanto lleva a la necesidad de complementarlos. Finalmente, los resultados tiene implicaciones prácticas para la empresa, los auditores externos y los propios organismos reguladores.

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## Introduction

This paper analyse the relationship that exists in Spain between the presence and the independence of internal audit function and audit fees. Research on the determinants of the audit fees has been intense (Hay et al., 2006 for a review), but the empirical evidence about the effect that internal audit (IA) has on audit fees are limited because the impossibility of traditionally having data concerning the IA. This relationship is important not only because, as pointed out by Hay et al. (2006), by not taking it into account there would be a specification problem with the estimation models for fees, but also because it is a relevant economic relationship. In effect, the association that might exist between an IA and audit fees makes it possible to obtain indirect evidence about the way in which IA and external audit (EA) interact within a company's control structure and governance, which can potentially affect both the effectiveness and quality of the control within the company, as the total of control costs (Prawitt et al., 2011).

The relationship between the IA and audit fees has been treated in literature in the context of two different interpretations about the way in which IA and EA interact, which predict opposite results. In one hand, prior research suggests that both functions interact on the basis of substitution relationships (Felix et al., 2001), while another part of literature argument that these functions interact on the basis of complementarity relationships (Hay et al., 2008).

The relation of substitution between IA and EA is based on the fact that one of the main objectives of the IA is to review the internal control system and other facets of the financial information, thereby acquiring a relevant role to increase the quality of financial information (Prawitt et al., 2011). Given that these issues also fall within the scope of EA, both functions can cooperate by coordinating their activities to achieve synergistic results. In this sense, this substitute vision seems to be the one maintained by audit regulatory bodies, which recommend that EA assess the possibility of making use of the activities carried out by the IA. If the IA can substitute, at least in part, the activities of EA, this could reduce audit costs by avoiding unnecessary duplication of control activities (Morrill and Morrill, 2003). If the audit market is sufficiently competitive, part of the reduction in costs would be transferred to the audited companies, which audit fees may be reduced (Felix et al., 2001).

The other interpretation suggests that the functions of the IA and EA could be complementary in order to maximise the overall control in the company. The existence of IA may reflect the company's commitment to strengthen its organisational control structure. In this situation, the company would also be motivated to demand high quality for EA, which would increase audit fees. Hence, the IA and EA could interact in a complementary manner to maximise the overall control within the company and signal a strong commitment to the market to create an environment for control and transparency of information. In short, the largest investment made by the company in the IA will not decrease investment in the EA (Hay et al., 2008).

This paper analyse for the Spanish case the association between IA and audit fees in order to understand the way in which IA and EA functions interact. This paper contributes to literature in several ways. First, prior empirical evidence is conflicting, which justifies the need to complement the empirical evidence about the way the IA and EA interact. In this sense, Singh and Newby (2010) point out that literature's assessment seems to reveal that while the first studies carried out in the United States found a negative association between IA and audit fees, which suggest a substitutive relationship between IA and EA, more recent studies and those from other geographical contexts detect a positive association, which leads to the conclusion that the internal and external audits act on the basis of complementary relationships. This change in the trend of the empirical evidence may be explained by the importance attributed to IA in recent governance codes issued in various countries. This has caused the connecting points between the internal and external audit to be reduced, and therefore they will act complementarily in the control environment of the company. Although in Spain the IA is not a long-standing tradition, the various governance codes that are being issued give it functions related to both more traditional issues, such as internal control, as well as to those related to risk analysis and management of companies, that is, functions far from the traditional ones that this function had been assuming. This makes the relations between the IA and EA to be complementary in nature in Spain.

Secondly, as revealed by La Porta et al. (2000), the quality of the legal system for the protection of investors differs between countries, with the legal environment for the protection of investors in Spain being weak (Martínez-Ferrero et al., 2015; Larrain et al., 2017). As suggested by Francis et al. (2003), in weak legal environments, internal mechanisms of corporate control may have little credibility in the performance of their functions, an aspect that could affect the trust the external audit places on the internal audit. In fact, if the external audit considers that the internal audit is not complying with its functions, there will not be any relationship between the two audit functions.

Thirdly, like in many other countries, the audit market is highly concentrated, which can reduce competition between firms (Ruiz Barbadillo et al., 2016). Specifically, economic industrial theory suggests that collusion is more likely to occur when, among other issues, the number the firms in a market are small. Given that the fewness of competitors reduces the coordination problem and it raises the awareness of mutual interdependence between leading audit firms, we should expect collusion to take place most often when the size of the market is reduced. In this sense, competition among audit firm may be less pronounced in Spanish audit market due to audit market size. In spite of this argument, as suggested by Sharma (2011), the need to attract and maintain clients in small markets is very high, which may lead to a price reduction strategy. In addition, we must add the stagnation of this market is high, which has made audit firms develop aggressive strategies reducing prices to retain clients (De Fuentes and Pucheta, 2009). Consequently audit firms in Spanish audit market have strong incentives to reduce their costs, which they can do by making use of IA, giving rise to relations of substitutability between the two functions.

To summarise, the Spanish case is of interest in order to examine which of the following three factors: functions assigned to the internal audit by the Codes of Good Governance (complementary relationship), the weakness of the legal environment for the protection of investors (no relationship) or the aggressive competition in the audit market (substitutive relationship), prevails in the relationships that occur between the EA and IA.

To verify the relationship between the internal audit and audit fees, we use a sample of companies listed on the Madrid Stock Exchange between 2003 and 2011. In particular, we study two aspects that have acquired interest in literature: firstly, the effect that the presence of the company's internal audit has on the audit fees and, secondly, the existence of

meetings between the audit committee and the internal audit department related to the audit fees. The first aspect under consideration in this paper is justified because the internal audit in Spain has not been a widespread practice, although, in the unified governance code (CNMV, 2006; 2013; 2015) considers the need for an internal audit function to increase the effectiveness of organisational control. In this sense, it is interesting to examine how internal audit departments have begun to be implemented in Spanish companies, and how this function has possibly contributed to the reduction of audit costs. In relation to the second phenomena being studied, that is, the possible effect the meetings between the audit committee and internal audit department have on audit fees, this is of interest given that the responsibility for improving the status of the internal audit function within company lies in the audit committee, an aspect that will increase the independence and objectivity of this function (Schneider, 2010). However, as previous studies reveal, the level of control the audit committee has on the internal audit can vary significantly between companies, with the meetings that maintain control resources being one of the main indicators that literature has used to highlight the intensity of control of the audit committee (Raghunandan et al., 2001; Goodwin and Yeo, 2001; Fernández and Arrondo, 2007; García-Sánchez et al., 2012). In this way, the more intense the control of the audit committee, the greater will be the objectivity of the internal audit, which will affect the value that the auditor gives it. If the relationship between the external and internal audits in Spain were substitutive, it would be expected that audit fees were lower in those situations where there is an internal audit function and there is an intense monitoring of that function by the audit committee. If, on the contrary, relations are complementary, the relationship with the fees would be positive. Our results show that both the existence of an internal audit function, as well as the intensity of the audit committee's control of this function, are associated positively with the fees. From this evidence, it can be inferred that the internal audit and the external audit, rather than being alternative mechanisms, seem to act as complementary mechanisms in Spanish companies.

The empirical evidence may have practical implications for companies, external auditors and regulators. Given that we can assume that companies are motivated by the reduction in costs that arise from the organisational control, so that an understanding of the way that external and internal auditors interact would enable them to optimise the investments made in the control of information. This would also be significant for external auditors because, if there were substitution relationships, this would allow them to gain efficiency, by reducing unnecessary effort, and therefore increasing their competitiveness in the market. The knowledge of the relationship between the IA and EA can be equally valuable for regulators, to the extent that the evidence obtained can provide information on the issues from which EA make their decisions about IA, which could facilitate additional guides for auditors to assess the quality of the IA.

After this introduction, our work is structured in the following way. In the second section, we review the theoretical foundations on which the possible relationship between the internal audit and fees lies, as well as the empirical evidence detected in previous studies in order to formulate hypotheses that can be contrasted for the Spanish case. The third section deals with the methodological aspects of our study, in particular, a description of the sample, specification of the models for the contrast of the hypothesis and the definition of variables. Epigraph four is devoted to the description of

the results obtained, while, in the last epigraph, we include the conclusions obtained and the limitations of our work.

## Backgrounds and formulation of hypotheses

### *The relationships between the internal audit and the external audit*

The EA and the IA are two control mechanisms within the governance structure of companies that assume very similar responsibilities in relation to financial information. The IA is one of the internal governance mechanisms of companies amongst whose functions is the assessment of the internal control and ensuring the quality of the financial information (Ho and Hutchinson, 2010). Whether IA contribute to mitigate the problems related to the quality of the information, it is important to analyse the relationship between IA and EA.

The IA could contribute to the EA because both have very similar objectives in relation to quality of financial information, which would enable substitution relationships between both functions (Felix et al., 2001). In this sense, both functions acting in a coordinated way could both increase the effectiveness of the control over financial information, due to the differentiated specialisation of both functions, as well as have an effect on the reduction of control costs. The way in which the internal audit can contribute to the external audit is, for example, by making it easier for the external auditor to understand the internal control system and its compliance levels, the inherent risk assessment and allowing a reduction of substantive tests (Felix et al., 2001). All these aspects could reduce duplication of the work, which would reduce unnecessary amount of time, effort and reduce the audit costs (Elliott and Korpi, 1978; Wallace, 1984; Turpin, 1990; Felix et al., 2001; Chen et al., 2016).This reduction in costs can be absorbed by the auditor, thus increasing the profitability of the engagement or, on the contrary, can be translated to the client in the form of a reduction in audit fees. As suggested by Felix et al. (2001), given the intense competition in the audit market, audit firms have important incentives to make use of the experience and work of the IA, in order to increase their competence via reduction of prices.

However, prior research has also suggested that the relationship between AI and AE may be complementary (Mat Zain et al., 2015). Singh and Newby (2010) argument that the responsibilities of the IA has evolved significantly in recent times to becoming a valuable mechanism within the governance structure of companies with new features that transcend to those traditionally taken into account and which include responsibilities for risk management in the company, general organisational control and governance processes of the company. In this sense, the new functions that the governance codes in many countries allocate to the internal audit are different from the legal obligations of the audit, limiting in this way that both functions can act as a substitute company (Soh and Bennie, 2011). Hence, as suggested by Gray and Manson (2008), the existence of an internal audit function within the company may reflect the high commitment of the company to establish a strong culture of control and develop effective corporate governance mechanisms to increase transparency towards the information users (Quick and Henrizi, 2018). In this regard, the investment made by the company in a control resource, such as the IA, can mean a greater investment in another control resource, such as the EA, so that both control mechanisms are maintained independently to ensure the quality of the financial information (Hay et al., 2008). In order to give out external signals on the control

environment, companies, will be motivated by making a significant investment in the IA and also willing to pay high fees for a high quality external audit, which may explain a positive associations between the IA and audit fees (Al-Twaijry et al., 2004)[1].

*Formulation of hypotheses*

In regards to the Spanish case, the Unified Governance Code (CNMV, 2006; 2013; 2015) points out that listed companies should have an internal audit function, although this is a recommendation of a voluntary nature, which makes it likely that there is a high variability across company compliance. The scarce tradition of the internal audit function in Spanish companies could lead us to think that the IA and the EA could maintain substitution relationships, which could reduce the audit costs. In addition, Professional external audit standards (for example, SAS 65, NIA 610) seem to support this vision of substitute resources between the external audit and internal audit, to enable the auditor to use the work of internal auditors, either as an assistant under the management and supervision of the external auditor to perform certain audit tasks, or by making use of the previous work undertaken by the internal auditor based on the arguments we issue the following hypothesis:

H1: The Audit Fees will be lower in companies that have an internal audit function

The second empirical issue is to examine whether the independence of the IA are associated with audit fees. Given that there may be a wide diversity in relation to the quality of the internal audit in companies (Felix et al., 2001), it is not enough to take into account the presence of an IA function in the company, but also the external auditor's assessment of the internal audit function. While higher be the independence of AI, the greater will be the confidence of EA in IA (Felix et al., 2001).

In this sense, international audit standards indicate that EA, in order to assess the IA, must examine certain features of it and, in particular their ability to act independently. In this sense, the independence with which the IA can act, for example, the ability to perform their duty without influences of the managers, becomes a fundamental criterion to increase the confidence of the external auditor (for a review see Gramling et al., 2004). A fundamental aspect to assess the independence of the IA is the status of this function within the organisation and, who determines its functions, who monitors its activity and who the IA must report to. In this sense, the relationship between the audit committee and the IA are of great importance to preserve the environment of corporate control (Alzeban and Sawan, 2015). In this regard, the IIA (2003) recommends that the internal audit be supervised and have only responsibilities before the audit committee.

Previous research has shown that, in practice, the level of supervision exercised by the audit committee on the IA can vary considerably. In this sense, the number of meetings that

both internal control resources maintain is one of the main indicators that will highlight the intensity of the control exercised by the audit committee (Abbott et al., 2012). A significant number of meetings will allow the audit committee to stay informed about the activities undertaken by the IA. This will enable the audit committee to acquire knowledge on the intention of the senior managers to interfere in the control activities of the IA (Raghunandan et al., 2001). Hence, the contribution of the IA on the EA, and therefore the effect on audit fees, will be greater when the audit committee hold meetings with IA. The hypothesis is issued in the following terms:

H2: Audit fees will be lower in companies where the internal audit function meets with the audit committee.

## Empirical Study

*Sample*

To carry out our research, we have focused on companies listed on the Madrid Stock Exchange for two reasons. In the first place, Law 44/2002, of 22 November, obliges these companies to disclose the fees received by the auditors. In the second place, it is these companies that are required not only to have an audit committee, but also to present the corporate governance report since 2003, both of which are essential to obtain the necessary information to contrast the hypothesis. The period under study covers from 2003, the first year in which it was mandatory to submit the corporate governance report, to 2011. From 2012, the effects of the financial crisis stopped being felt in Spain, which has affected the fees charged by the auditors. To avoid this dramatic effect, we have considered it appropriate to use 2011 as the last year of our study.

Financial companies have been eliminated due to the special characteristics that they present and the supervision to which they are subjected, which could affect the empirical results of this study. The final sample consists of 965 observations (see Table 1), of a maximum total of 116 companies (in 2007) and a minimum of 98 in the years 2003 and 2004.

**Table 1**
Sample by years

| YEAR | Number of Observations | Percentage |
|------|------------------------|------------|
| 2003 | 98 | 10.2 |
| 2004 | 98 | 10.2 |
| 2005 | 99 | 10.3 |
| 2006 | 107 | 11.1 |
| 2007 | 116 | 12.0 |
| 2008 | 114 | 11.8 |
| 2009 | 113 | 11.7 |
| 2010 | 112 | 11.6 |
| 2011 | 108 | 11.2 |
| **Total** | **965** | **100.0** |

The sectorial affiliation of our sample is reflected in Table 2. We take the basic sectorial classification of the Madrid Stock Exchange (www.bolsademadrid.es). As shown in this table, 29.2% of the companies belong to the consumer goods sector followed with 27.5% in the basic materials, industry and construction sector, while the technology and communications sector is the least representative (5.8%).

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[1]It should also be highlighted that other studies have not found any association between the existence of the internal audit, or some quality attribute of this, and external audit fees (Chung and Lindsay, 1988; Gist, 1995; Raman and Wilson, 1992; Anderson and Zeghal, 1994; Stein et al., 1994; Gerrard et al., 1994; Ettredge et al., 2000; Ezzamel et al., 2002; Willekens and Achmadi, 2003). This evidence could be interpreted in two ways. The first of these is that the auditor does not make use of the internal audit due to a lack of confidence in it (Al-Twaijry et al., 2004). The second could be that, even when there is reduction in costs due to the fact the external auditor makes use of the internal audit; this reduction is not transferred to customers in the form of lower fees (Prawitt et al., 2011).

**Table 2**
Sample by sectors

| SECTOR | Number of Observations | Percentage |
|---|---|---|
| Oil and energy | 91 | 9.4 |
| Basic materials, industry and construction | 265 | 27.5 |
| Consumer goods | 282 | 29.2 |
| Consumer services | 122 | 12.6 |
| Real estate | 149 | 15.4 |
| Technology and telecommunications | 56 | 5.8 |
| **Total** | **965** | **100.0** |

Finally, we have to point out that various sources have been used in order to obtain the necessary information, in particular, the DATASTREAM database for financial variables, as well as the CNMV website (www.cnmv.es), to obtain the corporate governance reports and websites of companies.

*Models and variables*

We use the audit fees model that was proposed by Simunic (1980). This model considers that, in a competitive market, the audit fees must be equal to the costs incurred in the audit (plus a normal profit). Audit costs depend primarily on the complexity of the audit and the customer's risk level. We introduce two experimental variables: the presence of the internal audit function (IAF) and the meetings between the audit committee and the audit internal (MEETINGS).

To examine the possible relationship between the audit fees and the existence of an internal audit department, the following mode is proposed:

Model 1: $AUDIT\ FEES_{it} = \beta_0 + \beta_1\ IAF_{it} + \beta_2\ REPUTATION_{it} +$

$\beta_3\ OPINION_{it} + \beta_4\ SIZE_{it} + \beta_5\ ROA_{it} + \beta_6\ LEVERAGE_{it} +$

$\beta_7\ LOSSES_{it} + \beta_8\ RECEIVABLES_{it} + \beta_9\ \sum_{i=1}^{6} ij + \beta_{10} \sum_{i=2003}^{2011} ij + \varepsilon_{it}$

To examine the possible relationship between the audit fees and the independence of the internal audit department, the following mode is proposed:

Model 2: $AUDIT\ FEES_{it} = \beta_0 + \beta_1\ MEETINGS_{it} +$

$\beta_2\ REPUTATION_{it} + \beta_3\ OPINION_{it} + \beta_4\ SIZE_{it} + \beta_5\ ROA_{it} +$

$\beta_6\ LEVERAGE_{it} + \beta_7\ LOSSES_{it} + \beta_8\ RECEIVABLES_{it} +$

$\beta_9\ \sum_{i=1}^{6} ij + \beta_{10} \sum_{i=2003}^{2011} ij + \varepsilon_{it}$

It must be pointed out that, for this second model, we have used only those observations that have an internal audit department, so the final sample for this second model is 742 observations.

The dependent *AUDIT FEES* variable includes the remuneration paid to audit firm. To calculate this variable and in order to avoid problems of scale, we have taken the logarithm of external audit fees (Hay et al., 2006).

In relation to the experimental variables, we have introduced the *IAF* variable in Model 1, which aims to include the relationship between the existence of an internal audit function in the company and the fees. The IAF variable has been measured as a dichotomous variable that takes the value 1, when the company has an internal audit department and 0 otherwise (Hay et al., 2008; Singh et al., 2014). If AI and AE act in a complementary way, we expect that the presence of an internal audit department should reduce audit costs, so that the expected relationship between this variable and the audit fee is negative.

Secondly, Model 2 has introduced the *MEETINGS* variable that tries to capture the effect that the independence of internal audit function could have on audit fees. This variable takes value 1 if the Internal Audit department meets with the audit committee and 0 otherwise (Raghunandan et al., 2001; Zaman and Sarens, 2013). We expect that while there is more interaction between the audit committee and IA, the higher the value that the auditor gives to the IA, and, therefore, the greater the contribution in reducing the audit costs. This is why a negative relationship between this variable and the prices of the audit is expected.

On the other hand, several control variables have been introduced in both Model 1 and Model 2 that are intended to capture other audit cost factors related to the audit risk and complexity of the audit (Simunic, 1980; Goodwin-Stewart and Kent, 2006; De Fuentes and Pucheta, 2009; Prawitt et al., 2011; Messier et al., 2011; Mohamed et al., 2012; Serrano Madrid et al., 2013, among others). The size reflects the complexity of the audit (Hay et al., 2006). The *SIZE* variable is measured as the logarithm of total assets. The *RECEIVABLES* variable has been included to control the complexity of the audit. This variable is measured as the sum of stocks and debtors divided by the total assets (Ho and Hutchinson, 2010). A positive relationship is expected between this variable and the fees (De Fuentes and Pucheta, 2009; Ho and Hutchinson, 2010).

To capture the audit risk, we control the effect of the potential financial problems that may affect companies, since the greater the financial risk to the company, the greater the prices auditors will charge in order to cover such risk (Prawitt et al., 2011). In this sense, four variables have been introduced in our models to control the effect of client risk. The *LEVERAGE* variable has been measured as total of debts between the total of assets (Wu et al., 2016; Sierra-Garcia et al., 2012). A positive relationship is expected, due to the fact that the auditor will increase their fees for those companies that have high indebtedness (Messier et al., 2011). The *ROA* variable is measured as profits before taxes divided by total assets, expecting a negative relationship with the fees (Velte, 2018). The *LOSSES* variable is a dichotomous variable that takes the value 1 if the company has incurred losses in the previous year, and zero otherwise (DeFond and Zang, 2014). Given that loss-making companies have a higher level of risk for the auditor, a positive relationship is expected between this variable and the external auditor's fees (Zaman et al., 2011). Finally, we have introduced the *OPINION* variable that takes the value 1 when the audit report is clean and 0 otherwise. This variable reflects the conflict between the auditor and the audited company in relation to the preparation of the information that can ultimately affect the audit risk that the auditor bears. It is expected that the relationship of this variable with the fees will be negative.

The *REPUTATION* variable has also been introduced to control possible premiums in prices charged by large auditors, due to the high reputation they have. This variable takes value 1 if the auditor belongs to a BIG-4 and 0 otherwise. In addition, to control the effect of the activity *SECTOR* in the fees, we have introduced various categorical variables taking the basic sectorial classification of the Madrid Stock Exchange, mentioned above. Finally, we have introduced the *YEAR* variable in order to control the possible temporary effect of the data, for which we have created categorical variables for each year under study. A full description of the variables introduced in our model and the form of measurement is shown in Table 3, which specifies the expected relationship with the variable fees.

**Table 3**
Description of the variables

| VARIABLES | DESCRIPTION | EXPECTED SIGN |
|---|---|---|
| AUDIT FEES | Logarithm of total fees for the External Auditor | N/A |
| IAF | 1 when the company has an Internal Audit Department, and 0 otherwise | - |
| MEETINGS | 1 if the Internal Audit department meets with the Audit Committee, and 0 otherwise. | - |
| SIZE | Logarithm of the Assets' total | + |
| ROA | Return on Assets (Profit before tax divided by the total assets) | - |
| LEVERAGE | Long-term debts divided by total assets | + |
| RECEIVABLES | Stocks and receivables divided by the total of assets | + |
| LOSSES | 1 when the company suffered losses in the previous financial year, and 0 otherwise | + |
| REPUTATION | 1 if the auditor belongs to a BIG-4 and, 0 otherwise. | + |
| OPINION | 1 when the audit report is clean, and 0 | - |

Table 4 shows the descriptive statistics that are commonly used in literature to describe the sample, although it is only done for continuous variables. As shown in this table, in connection to the auditor's fee, there is a minimum value of 2,000 euros and a maximum of 7,049,520 euros with an average of 214,577.27 euros and a standard deviation of 560,933.51 euros. Due to the variability of this variable, it has been transformed into logarithm. With regards to total assets at an average is almost 8 million euros. It has a minimum of 14,000 euros and a maximum of more than 480 million euros. The average profitability of the company is around 3 per cent, and there is also a high variability in relation to this variable. As can be seen, the financial leverage is high. Finally, complex items to audit, such as stock and debtors form approximately 18 per cent of the asset.

**Table 4**
Descriptive statistics continuous variables

| Variables | Average | Standard deviation | Minimum | Maximum |
|---|---|---|---|---|
| AUDIT FEES | 214,577.27 | 560,933.508 | 2,000 | 7,049,520 |
| SIZE | 7,837,532.53 | 31,313,693.613 | 14,043 | 482,403,000 |
| ROA | 3.1264 | 31.81023 | -811.77 | 164.99 |
| LEVERAGE | 35.0000 | 22.41753 | .00 | 99.66 |
| RECEIVABLES | 0.1853 | 0.24555 | 0.00 | 1.98 |

N: 965
AUDIT FEES: Total fees (€)
SIZE: Total assets (€)
ROA: Return on assets (Profit before tax divided by the total assets)
LEVERAGE: Long-term debts divided by total assets
RECEIVABLES: Stocks and receivables divided by the total of assets

With regard to the dichotomous variables (Table 5), we observed that almost 80% of the companies have an internal audit department. In addition, approximately 60% of times, there are meetings held with the audit committee. Furthermore, nearly 90% of companies are audited by one of the big 4 audit firms. There are 12% of the observations that does not offer a clean opinion on the audit report and, finally, more than 80% of our observations have not had losses in the past year.

For further information about fees, Table 6 reflects the average fees per year. As can be seen, there is an increase of more than double the average fees from 2003 (28,748 euros) until 2010 (64,459 euros), and, in 2011, there is a reduction (62,553 euros), although not very significant. The application of the Kruskal-Walis test reveals that there are significant differences in the audit fees over time, which makes the control of this variable necessary (Chi-square = 42.646; p= 0.000).

In connection to the average fees by sector (See Table 7),

**Table 5**
Dichotomous variable frequencies

| Variables | | Frequency | Percentage |
|---|---|---|---|
| IAF | YES | 742 | 76.9 |
| | NO | 223 | 23.1 |
| MEETINGS | YES | 581 | 60.2 |
| | NO | 384 | 39.8 |
| REPUTATION | YES | 868 | 89.9 |
| | NO | 97 | 10.1 |
| OPINION | YES | 852 | 88.3 |
| | NO | 113 | 11.7 |
| LOSSES | YES | 166 | 17.2 |
| | NO | 799 | 82.8 |

IAF: 1 when the company has internal audit department, and 0 otherwise
MEETINGS: 1 if the internal audit department meets with the audit committee, and 0 otherwise.
REPUTATION: 1 if the auditor belongs to a BIG-4, and 0 otherwise.
OPINION: 1 when the audit report is clean, and 0 otherwise
LOSSES: 1 when the company suffered losses in the previous financial year, and 0 otherwise

**Table 6**
Distribution of audit fees per year

| YEARS | Audit Fees |
|---|---|
| 2003 | 28,748.09 |
| 2004 | 31,247.94 |
| 2005 | 41,800.81 |
| 2006 | 50,287.03 |
| 2007 | 56,141.65 |
| 2008 | 59,402.06 |
| 2009 | 59,552.55 |
| 2010 | 64,458.81 |
| 2011 | 62,552.76 |

we can observe that the oil industry and energy show the highest average fees for the auditor with 54,424 euros, which suggests that this sector can be more complex when it comes to the audit. The service and consumer sector is the one that shows the lowest fees with 46,518 euros, suggesting that it is easier to review the processes by auditors and thus offer lower fees. The application of the Kruskal-Walis test reveals that there are significant differences in fees with the different activity sectors (Chi-square = 131.957; p= 0.000).

**Table 7**
Distribution of audit fees per sector

| SECTOR | Audit Fees |
|---|---|
| Oil and Energy | 54,423.94 |
| Basic materials, industry and construction | 47,162.44 |
| Consumer goods | 49,143.83 |
| Consumer services | 46,518.32 |
| Real estate | 49,947.51 |
| Technology and Telecommunications | 48,315.74 |

Tables 8 and 9 reflect the distribution by years of there being an internal audit department, such as the existence of meetings between the audit committee and the internal audit department. The data that appear in Table 8 reveals that the existence of an internal audit department has increased by almost 50% from 2003 to 2011, which may be reflecting the greater sensitivity of Spanish companies to organisational control. Furthermore, the relationship between this department and the audit committee (see Table 9) has also increased, rising from 4.3% for 2003 up to 15.7% in 2011, which implies that, as time has passed, the control the audit committee exercised on the internal audit has been increased.

Finally, Table 10 shows the Pearson correlations between

**Table 8**
Distribution of internal audit department per year

| | | EXISTENCE OF AN INTERNAL AUDIT DEPARTMENT | | Total |
|---|---|---|---|---|
| | | YES | NO | |
| | 2003 | 49 (50%) | 49 | 98 |
| | 2004 | 61 (62%) | 37 | 98 |
| | 2005 | 65 (66%) | 34 | 99 |
| | 2006 | 69 (65%) | 38 | 107 |
| YEARS | 2007 | 93 (80%) | 23 | 116 |
| | 2008 | 101 (89%) | 13 | 114 |
| | 2009 | 103 (91%) | 10 | 113 |
| | 2010 | 102 (91%) | 10 | 112 |
| | 2011 | 99 (92%) | 9 | 108 |
| Total | | 742 | 223 | 965 |

**Table 9**
Distribution of meetings between the audit committee and the internal audit department per year

| | | MEETINGS BETWEEN THE AUDIT COMMITTEE AND THE INTERNAL AUDIT DEPARTMENT[1] | | Total |
|---|---|---|---|---|
| | | YES | NO | |
| | 2003 | 25 (51.02%) | 24 | 49 |
| | 2004 | 36 (59.02%) | 25 | 61 |
| | 2005 | 43 (66.15%) | 22 | 65 |
| | 2006 | 54 (78.26%) | 15 | 69 |
| YEARS | 2007 | 62 (66.67%) | 31 | 93 |
| | 2008 | 88 (87.13%) | 13 | 101 |
| | 2009 | 91 (88.35%) | 12 | 103 |
| | 2010 | 91 (89.22%) | 11 | 102 |
| | 2011 | 91 (91.92%) | 8 | 99 |
| Total | | 581 | 161 | 742 |

[1] Only those observations that have audit departments are included.

the independent variables. In this table, we can see that even though there were significant correlations, these do not seem to be high enough to offer multicollinearity problems in the estimation of the proposed price model, even when analysis of variance inflation (VIF) will be subsequently carried out.

*Multivariate Results*

Table 11 shows the results obtained in the estimation of Model 1. The results reveal the goodness of fit of Model 1 and the statistic F of the significant model. They also reveal there are no multicollinearity problems, since the higher inflation factor of the variance is 1.454 (SIZE).

The coefficient of *IAF* variable *is* positively related to audit fees, so that audit fees are higher in those companies that have an internal audit function. Therefore, this result is contrary to what was expected, which leads us to reject Hypothesis 1. However, the outcome is consistent with prior research (Hay et al., 2008; Singh and Newby, 2010) which found that the existence of the audit function appears to be demonstrating a strong commitment of the company for control and also leads it to demand a quality audit for which a higher price is paid. Therefore, and in relation to the variable *IAF*, the conclusion that we infer is that the IA and EA relationships maintain complementarity in Spain.

In relation to the rest of the control variables, the *SIZE* of the company, as predicted, has a positive association with the fees so that the larger the size of the company, the greater the audit fees. The *LEVERAGE* variable is significant but opposite to that expected, so that those companies that have greater financial leverage paid less audit fees. The *RECEIVABLES* variable, as we predicted, is significant and positive so that companies that have certain items with greater complexity, at the time of the audit, pay higher fees. Finally, the *REPUTATION* variable is positive and significant, which implies that the large auditors charge higher premiums for repu-

tation.

Table 12 shows the results obtained in the estimation of Model 2. The F statistic is significant. The inflation factor (VIF) variance was calculated for each variable to see if there are multicollinearity problems in our sample. The highest VIF in our sample is 1.454, so that there are no multicollinearity problems in the estimation of the model.

The *MEETINGS* variable is statistically significant and its relationship with the fees is positive and, therefore, contrary to what was expected. This shows that, in those situations where the audit committee carries out a strong control of the internal audit through maintenance of meetings, the auditors charge higher fees. This result suggests that in those companies most committed to controlling their internal mechanisms, that is to say, the audit committee and the internal audit, there are also incentives to demand a higher quality audit at a higher price, which confirms that the IA and EA are conceived by Spanish companies as complementary resources that increase the company's' overall tone of control. The results obtained in relation to the rest of the control variables are consistent with those obtained in Model 1, so we shall not go into them again.

## Other analyses

In order to verify that the results obtained are robust we have carried out a number of additional analyses that seek to control aspects that may affect the audit fees. This is necessary because the conclusions we have reached in this study on the relationship between the IA and EA are due to the association between the internal audit and the audit fees, which there can be any number of factors related to the audit fees that may affect the conclusions reached. In this case, we studied the complexity of the audit, the demand for audit quality and the level of competition in the audit market.

In the first place, we examined the different level of complexity of the audit. One of the main variables that determine the audit fees is the complexity of the audit, which explains a high proportion of variance of the fees in empirical studies (Hay et al., 2006). The complexity of the audit is determined by aspect such as the volume of activities developed by the company, their geographical diversification, and the complexity of the organisational structure. However, companies with more complex structures will also have greater incentives to create internal audit departments, implying that the complexity of the audit shall jointly determine the fees and the formation of the internal audit function. As consequence whether audit complexity is not controlled the results of our study could be affected by the endogeneity of the Internal Audit variable (the same argument can be used for the meetings with the audit committee variable). To control this issue, we shall divide the sample according to the size of the company, which is used en numerous studies as a proxy of audit complexity, based on the median value of the asset. If the results, in both segments do not change regardless of the complexity of the audit, we might conclude about the robustness of our results.

Table 13, panels A and B, shows the results obtained for the estimation of the Models 1 and 2, both in the sub-sample of large companies (high complexity of the audit), as in the sub-sample of small companies (low complexity of the audit). When it comes to larger companies, both the variable *IAF* as well as the variable *MEETINGS* are significant and have a positive sign. In the sub-sample of small companies, that is, those where the complexity is low, the results we achieve are

**Table 10**
The Pearson Correlation Matrix

| Variables | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| A. IAF | 1 | .074 *** | .087 *** | .167 *** | .406 *** | .020 | .065 ** | .022 | -.184 *** |
| B. MEETINGS | | 1 | .221 *** | .138 *** | .441 *** | .039 | .078 ** | .006 | -.174 *** |
| C. REPUTATION | | | 1 | .071 ** | .255 *** | .179 *** | -.042 | -.049 | -.030 |
| D. OPINION | | | | 1 | .127 *** | .160 *** | -.033 | -.159 *** | -.070 ** |
| E. SIZE | | | | | 1 | .123 *** | .221 *** | -.125 *** | -.343 *** |
| F. ROA | | | | | | 1 | -.313 *** | -.244 *** | .112 *** |
| G. LEVERAGE | | | | | | | 1 | .171 *** | -.127 *** |
| H. LOSSES | | | | | | | | 1 | .059 |
| I. RECEIVABLES | | | | | | | | | 1 |

The statistical significance is expressed in asterisks, at levels greater than 99% (***) and 95% (**) of probability
IA: 1 when the company has an internal audit department, and 0 otherwise.
MEETINGS: 1 if the internal audit department meets with the audit committee, and 0 otherwise.
REPUTATION: 1 if the auditor belongs to a BIG-4, and zero otherwise.
OPINION: 1 when the audit report is clean, and 0 otherwise.
SIZE: Logarithm of total assets.
ROA: Return on Assets (Profit before tax divided by the total assets).
LEVERAGE: Long-term debts divided by total assets.
LOSSES: 1 when the company suffered losses in the previous financial year, and 0 otherwise.
RECEIVABLES: Stocks and receivables divided by the total of assets.

**Table 11**
$$\text{AUDIT FEES}_{it} = \beta_0 + \beta_1\,\text{IA}_{it} + \beta_2\,\text{CONTROL VARIABLES}_{it} + \varepsilon_{it}$$

| Variables | Coefficient | Statistics. | Significance level | VIF |
|---|---|---|---|---|
| IAF | .080 | 2.918 | .004 ** | 1.349 |
| SIZE | .611 | 21.323 | .000 *** | 1.454 |
| ROA | .005 | .183 | .854 | 1.094 |
| LEVERAGE | -.063 | -2.483 | .013 ** | 1.149 |
| RECEIVABLES | .190 | 7.540 | .000 *** | 1.124 |
| LOSSES | .040 | 1.539 | .124 | 1.223 |
| REPUTATION | .149 | 5.985 | .000 *** | 1.095 |
| OPINION | .003 | .123 | .902 | 1.110 |
| YEAR CONTROL | | | YES | |
| SECTOR CONTROL | | | YES | |

$R^2 = 0.465$
F = 51.554 (0.000***)
N= 965
The statistical significance is expressed in asterisks, at levels greater than 95% (**) and 99% (***) of probability.
IAF: 1 when the company has internal audit department, and 0 otherwise
SIZE: Logarithm of total assets
ROA: Return on Assets (Profit before tax divided by the total assets)
LEVERAGE: Long-term debts divided by total assets
RECEIVABLES: Stocks and receivables divided by the total of assets
LOSSES: 1 when the company suffered losses in the previous financial year, and 0 otherwise
REPUTATION: 1 if the auditor belongs to a BIG-4, and 0 otherwise.
OPINION: 1 when the audit report is clean, and 0 otherwise

**Table 12**
$$\text{AUDIT FEES}_{it} = \beta_0 + \beta_1\,\text{MEETINGS}_{it} + \beta_2\,\text{CONTROL VARIABLES}_{it} + \varepsilon_{it}$$

| Variables | Coefficient | Statistics. | Significance level | VIF |
|---|---|---|---|---|
| MEETINGS | .107 | 3.499 | .000 *** | 1.145 |
| SIZE | .581 | 18.100 | .000 *** | 1.273 |
| ROA | .006 | .197 | .844 | 1.094 |
| LEVERAGE | -.047 | -1.529 | .000 *** | 1.176 |
| RECEIVABLES | .192 | 6.487 | .000 *** | 1.083 |
| LOSSES | .037 | 1.198 | .231 | 1.167 |
| REPUTATION | .110 | 3.606 | .000 *** | 1.148 |
| OPINION | .014 | .341 | .231 | 1.084 |
| YEAR CONTROL | | | YES | |
| SECTOR CONTROL | | | YES | |

$R^2 = 0.407$
F = 62.945 (0.000***)
N= 742
The statistical significance is expressed in asterisks, at levels greater than 99% (***) of probability.
MEETINGS: 1 if the internal audit department meets with the audit committee, and 0 otherwise
SIZE: Logarithm of total assets
ROA: Return on Assets (Profit before tax divided by the total assets)
LEVERAGE: Long-term debts divided by total assets
RECEIVABLES: Stocks and receivables divided by the total of assets
LOSSES: 1 when the company suffered losses in the previous financial year, and 0 otherwise
REPUTATION: 1 if the auditor belongs to a BIG-4, and 0 otherwise.
OPINION: 1 when the audit report is clean, and 0 otherwise.

similar. These results allow us to conclude that the complementary relationships that have been detected in our study are not influenced by the complexity of the audit.

Secondly, an issue that must be analysed is how affects the companies' demand for audit quality. In fact, various aspects, such as agency costs of the company, the shareholding structure, the level of capitalisation, etc., mean that not all companies have the same incentives to contract the same quality of service, which obviously affects the audit fees. In effect, prior research has that audit quality is priced in audit market, which it is necessary to control the effect that the varying quality demand could be have in audit fees. The quality of the audit is proxied in previous research by the brand name of the Big-Four firms compared to the rest. The underlying assumption is that large audit firms have a network of international resources, a brand name and a level of expertise that enables them to offer a quality service that is higher than the rest of the auditors. In this sense, empirical evidence reveals that large firms tend to charge higher prices than those of other auditors, which can be considered as empirical evidence of the quality difference existing in the market (Hay et al., 2006). Therefore, and to verify that our empirical results are not affected by the varying quality of the audit firm,

we are going to segment the sample between the companies audited by a Big-Four and the rest of audit firms and we re-estimate the Models 1 and 2. Whether the results of our experimental variables remain similar in both segments, could consider that the results obtained are robust to the quality demand difference. The results found are reflected in Table 13, panels C and D.

As we can see, for those companies that are audited by one of the Big Four, both the presence of the internal audit (IAF), as well as the control that the audit committee performs of this (MEETINGS) are significant and are associated positively with the fees, which confirms that, in this sub-sample, the relationships between the IA and EA are complementary. On the contrary, in Panel B of Table 14, we can see that the IAF variable is not associated with fees. This, however, is consistent given that in this sub-sample the companies have little incentive to increase the tone of the company's general control, both by contracting an auditor other than the Big-Four, as well as when setting up an internal audit department. On the contrary, once the company creates an internal audit department, the MEETINGS variable does acquire statistical significance and is positive. Therefore the relationships between the internal and external audit are not affected by the quality of the service offered.

**Table 13**

AUDIT FEES$_{it}$ (Model 1)= $\beta_0 + \beta_1$ IAF$_{it} + \beta_2$ CONTROL VARIABLES$_{it} + \varepsilon_{it}$

AUDIT FEES$_{it}$ (Model 2) = $\beta_0 + \beta_1$ MEETINGS$_{it} + \beta_2$ CONTROL VARIABLES$_{it} + \varepsilon_{it}$

| | LARGE COMPANIES | SMALL COMPANIES |
|---|---|---|
| **Panel A: Model 1** | | |
| Variables | Coefficient (p-value) | Coefficient (p-value) |
| IAF | .648 (0.01)*** | .227 (.001)*** |
| | $R^2$ = 0.240 | $R^2$ = 0.354 |
| | F = 17.264 (.000)*** | F = 34.798 (.000)*** |
| | N= 447; D-W= 1.987 | N= 518; D-W= 2.032 |
| **Panel B: Model 2** | | |
| Variables | Coefficient (p-value) | Coefficient (p-value) |
| MEETINGS | .338 (.079)* | .264 (.002)*** |
| | $R^2$ = 0.204 | $R^2$ = 0.370 |
| | F = 11.050 (.000)*** | F = 27.777 (.000)*** |
| | N= 354; D-W= 2.016 | N= 388; D-W= 2.083 |
| | **BIG-4** | **NON BIG-4** |
| **Panel C: Model 1** | | |
| Variables | Coefficient (p-value) | Coefficient (p-value) |
| IAF | .293 (.000)*** | 0.169 (.514) |
| | $R^2$ = 0.405 | $R^2$ = 0.332 |
| | F = 83.662 (.000)*** | F = 6.036 (.000)*** |
| | N= 868; D-W= 1.957 | N= 97; D-W= 1.718 |
| **Panel D: Model 2** | | |
| Variables | Coefficient (p-value) | Coefficient (p-value) |
| MEETINGS | .214 (0.23) | 1.051 (.000)*** |
| | $R^2$ = 0.365 | $R^2$ = 0.462 |
| | F = 54.981 (.000)*** | F = 6.866 (.000)*** |
| | N= 678; D-W= 2.010 | N= 64: D-W= 2.038 |
| | **COMPETITIVE MARKET** | **NO COMPETITIVE MARKET** |
| **Panel E: Model 1** | | |
| Variables | Coefficient (p-value) | Coefficient (p-value) |
| IAF | .233 (.000)*** | .318 (.000)*** |
| | $R^2$ = 0.724 | $R^2$ = 0.637 |
| | F = 153.954 (.000)*** | F = 104.811 (.000)*** |
| | N= 479; D-W= 2.021 | N= 486; D-W= 1.976 |
| **Panel F: Model 2** | | |
| Variables | Coefficient (p-value) | Coefficient (p-value) |
| MEETINGS | .304 (.000)*** | .363 (.000)*** |
| | $R^2$ = 0.703 | $R^2$ = 0.560 |
| | F = 107.718 (.000)*** | F = 65.536 (.000)*** |
| | N= 373; D-W= 2.082 | N= 369; D-W= 1.973 |

The statistical significance is expressed in asterisks, at levels greater than 99% (***) and 90% (*) of probability.

D-W: Durbin- Watson

IAF: 1 when the company has internal audit department, and 0 otherwise

MEETINGS: 1 if the internal audit department meets with the audit committee, and 0 otherwise.

Finally, we control the level of competitiveness in the audit market. Two aspects justify the need to control this issue. Firstly, the audit market can be divided into different segments in which the level of competitiveness and the barriers to entry differ (Gramling and Stone, 2001). Secondly, the greater the level of competition in the market, the lesser the price of the service will be. For this reason, the different level of competitiveness in the market may influence the audit fees with independence of the existence of internal audit department, suggesting the necessity to control the market competence. To segment the sample according to the greater level of competitiveness of the market, we will use unexpected fees (Asthana and Boone, 2012). The unexpected audit fees are calculated by the residues of the audit fees model. In fact, if the residues are positive the audit fees are higher than expected which may be due to the low level of competition in the market. On the contrary, if the residues are negative, the prices received will be lower than expected. This can be explained by the high competition in the market and the existence of aggressive pricing policies. To verify this issue, we have segmented the sample in a highly competitive market (negative unexpected fees) and a less competitive market (positive unexpected fees), including the results of the estimation of the Models 1 and 2 in Table 1, panels E and F.

As can be seen, in those markets where competition is lower and firms can generate market power, both the *IAF* variable as well as the *MEETINGS* variable are positive and with a positive sign. This leads us to conclude that, in this segment of the market, the relationships between the IA and EA are complementary. The same result is reached in the greater market competition section (i.e., where the residues of the pricing model are negative), and therefore he IA and EA maintain complementary relationships in Spain regardless of the level of competitiveness in the different segments of the market.

## Conclusions

The aim of this study was to examine, in a sample of Spanish companies, the relationship between the presence of the internal audit and the intensity of control that the audit committee carried out in this function and the external audit fees. The knowledge of this relationship is significant, due to the potential contribution that an internal audit can make to the external audit, which could reduce the costs of the external audit and if these reductions are transferred to the client company, reduce audit fees. This way, the analysis of this relationship allows indirect inferences to be obtained about how the internal audit interacts with the external audit in practice.

In this way, two diametrically different perspectives on the way in which both control functions interact have been raised in specialist literature. On the one hand, the trend in research is that both functions can act on the basis of substitution, which means that the external audit can make use of different forms of the internal audit, and this will increase the effectiveness of control over the financial information, and reduce audit costs. On the other hand, another part of literature considers that the scope of both functions, particularly in recent times, is very different in such a way that the possibilities for interaction of both are limited. In this way, the relationships are complementary. From what has been deduced, the companies that carry out a strong investment in the internal audit also have incentives to demand high quality in the external audit, from which can be derived that the relationship between the internal audit and the fees is positive.

In the study carried out for the Spanish listed companies, we have detected that the internal audit and external audit interact in a complementary way. In fact, companies that have established internal audit departments are charged higher fees than those companies that do not have this department. On the other hand, companies where the audit committee exerts a strong control of the internal audit function, subrogated by the existence of meetings between the two, pay higher fees than those in which the control is weaker. These results may lead us to conclude that Spanish companies are committed to creating a strong control environment by investing in both an internal audit and an external quality audit. Our results are robust to the complexity of the audit, the audit quality and the competitiveness of the audit market.

However, our work has a number of limitations that we have to emphasise. Firstly, as we deal with data from Spanish companies, our results cannot be extrapolated to other geographical contexts. Secondly, like the rest of studies with archival data, there may be variables omitted in the specification given to the models. Thirdly, due to the limitation of data that we have in this paper, we have focused only on one of the traits that can explain that external auditors make use of the work of the internal audit as is the objectivity and independence of the internal audit.

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