

## FRANCE'S JOINT-AUDIT REQUIREMENT AND AUDIT FEES: THE INFLUENCE OF OWNERSHIP AND GOVERNANCE

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### Abstract

Besides the size of the external auditor, which is a major determinant, audit fees depend also on audit market characteristics, corporate governance and ownership. On the basis of a sample of 130 French listed companies during the 2004–2006 period, we present evidence of a “Big” auditor premium. The results highlight that the presence of a “Big” among auditors has a positive and significant effect of the level of audit fees. This impact is more important in the case of joint audit by two “Big” auditors. The choice of a “Major” auditor also increases the level of audit fees. Finally, we find that governance and ownership characteristics act in different ways on auditor's selection involving complementarity or substitution with external audit.

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### 1. Introduction

With the globalization of the economy and the international openness of companies, a number of audit firms have set up as networks to adapt to changes in their clients. Over the past 20 years, there was a decrease in the number of major players because of mergers, down to four these days (PricewaterhouseCoopers, KPMG, Ernst & Young and Deloitte). At the same time, the spectacular downfall of one of the largest audit firms, namely the Arthur Andersen network, following the bankruptcy of Enron, forced people to revisit the concept of auditor independence, which is a fundamental characteristic for ensuring audit quality. To protect this independence, lawmakers in many countries took steps to require the separation of audit activities and consulting activities, and to improve transparency in the relationship between the auditor and client by publishing audit fees. Studies on audit fees are relatively old and numerous in English-speaking countries; they generally reveal a set of consistencies for creating models for defining audit fees (Simunic, 1980; Palmrose, 1986; Chan et al., 1993; Anderson and Zéghal, 1994; Hay et al., 2006).

In the French context, the means of publishing audit fees are relatively specific. It was only with Regulation COB no. 2002-06, applicable as of January 1, 2003, that companies listed on the New

Market and companies issuing securities throughout the year were required to disclose the amount of the audit and consulting fees paid to each external auditor in their reference documents and prospectus. In 2003, the French Financial Security Act (FSA) set forth an obligation for all companies to make information available to shareholders regarding the fees paid to external auditors. Subsequently, starting in the 2005 fiscal year, the obligation to publish audit fees was extended to all publicly traded companies.

The publication of audit fees falls under a framework of regulatory changes, which aim to improve the relationship between auditors and client, and enable those using financial statements to have an idea about auditor independence and evaluate the quality of audits and financial statements. Given the specifics of the field in question and the relaxing of restrictions for disclosing fees, works in this area are ever-expanding and varied. In France, we primarily note the recent works of Gonthier-Besacier and Schatt (2007), Broye (2009) and Audoussert-Coulier (2014). The study by Gonthier-Besacier and Schatt (2007) was limited to the study of the relationship in 2002 between using a “Big Four” firm and the audit fees without integrating the governance aspects. The study by Audoussert-Coulier (2014) integrates governance characteristics, but is based on relatively old data (2002–2003). Broye's study (2009) uses most recent data (2005), but focuses on the relationship between

the characteristics of the audit committee and audit fees.

Our purpose is to finish these studies in order to better understand the audit market in France by providing additional explanations regarding the drivers of audit fees. In our study, audit fees are related to characteristics of the French audit market, namely the predominance of the “Big” auditors, the principle of joint auditing and the length of the relationship between the auditor and company. We also integrate ideas of ownership and governance. While the governance and ownership structure affect the choice of auditor, the implementation of effective control mechanisms and the presence of certain categories of shareholder may determine the control effort carried out by the external auditors and therefore influence audit fees (Audoussert-Coulier, 2014). The governance mechanisms selected for our study are primarily related to the functioning of the board of directors (combination of duties of the CEO and board chair, level of independence of board of directors and audit committee). Property characteristics are related to managerial ownership, to the presence of controlling shareholders and to institutional ownership.

Our article is structured as follows. In the first section, we present the conceptual framework and develop hypotheses related to the impact of the characteristics of the audit market, the governance mechanisms and ownership characteristics for audit fees. The second section shall focus on methodological aspects (sampling, analysis period, definition and measurement of variables, and model development). In the third and final section, we present and discuss the results. Based on a sample of 130 companies listed on the Paris Stock Market between 2004 and 2006, our results show the presence of an audit bonus for the larger auditors. The presence of the “Major Four” firms is not to the advantage of French companies when it comes to audit fees.

## 2. Conceptual framework

### 2.1 Audit market and audit fees

As part of the French audit market, we are mainly studying the predominance of the “Big” auditors, the principle of joint auditing, the presence of the large national firms known as the “Majors” and the length of the relationship with the external auditor.

#### 2.1.1 Membership of the “Big” auditors and audit fees

Large auditors, in particular the large international firms belonging to the “Big” group, have substantial human and material resources. They are recognized by their systemic and structured auditing approach, especially in evaluating internal control (Piot, 2001) and generally charge very high fees for their expertise

and knowledge (Palmrose, 1986; O’Sullivan, 2000). In general, an in-depth investigation, conducted by the “Big” auditors, requires much time and more specialized managers, which means higher fees. This work appears to indicate the presence of an audit bonus for the “Big” auditors. Based on a sample of 401 Australian listed companies in 2000, Goodwin-Stewart and Kent (2006) find a positive and significant impact of the size of the audit firm, measured by membership of the “Big Five” group regarding audit fees. Based on British data on 132 firms in 1992, Peel and Clatworthy (2001) also find a positive relationship between the “Big Six” variable and audit fees. As for the French data, Gonthier-Besacier and Schatt (2007), Broye (2009) and Audoussert-Coulier (2014) also confirm the presence of an audit bonus for the presence of one or two “Big Four” firms.

According to Broye (2007), the audit market concentration is high in France<sup>17</sup>. Based on a sample of 428 French listed companies, Broye find that, in 2005, the “Big Four” firms held 86% of the market shares in terms of fees versus only 45.06% of mandates, thus justifying the costliness of the audit carried out by these “Big” auditors. A survey conducted in 2007 by the financial market authorities (FMA) reveals that all companies in the CAC 40 had at least one “Big” firm among the external auditors. It also showed that audit fees have continued to increase since 2004. This increase could be a consequence of adopting the Financial Security Act (FSA), which imposes new requirements for external auditors in their jobs<sup>18</sup>. Taken together, these arguments lead to our first hypothesis.

*H1: There is a positive relationship between the amount of audit fees and membership of to one of the “Big” networks of auditors.*

#### 2.1.2 Joint audit system and audit fees

Since 1966, French regulations have obliged companies with consolidated accounts to be audited by at least two auditing firms. As part of this analysis, Le Maux (2004) explores the issue of payment to auditors in France and notices a major difference in fees between the two auditors, this difference being explained by the fact that there is a main auditor, and then another auditor with a more secondary role. Gonthier-Besacier and Schatt (2007) however refute these conclusions based on a sample of 127 French listed companies in 2002. They look at the use of one large firm, or the use of two or three large firms simultaneously by French companies and conclude that there were reduced audit fees for firms jointly audited by two “Big Four” firms. This reduction can

<sup>17</sup> However, the author notes that this concentration remains lower than what is seen in the United Kingdom.

<sup>18</sup> Other factors could also explain this increase in audit fees for some companies, such as the adoption of the IFRS standards in 2005 or the application of the Sarbanes-Oxley Act in 2002 regarding the internal control of companies listed in the United States (AMF, 2007).

be explained through the shared qualifications and skills between the two firms, as well as the inherent risk in carrying out their profession. The study by Audoussert-Coulier (2014) complements previous work done in the French context. Using a sample of 126 French listed companies in 2002 and 130 in 2003, the author find that an audit conducted by two “Big” firms increased the amount of audit fees. It should be noted however that Gonthier-Besacier and Schatt (2007) do not take into account ownership and governance characteristics in their explanation of audit fees. They also use the relationship between the amount of audit fees and total assets to indicate the level of audit fees incurred by French companies<sup>19</sup>. Our second hypothesis can then be expressed as follows.

*H2: Audit fees increase with the number of “Big” auditors.*

### **2.1.3 The presence of “Major” firms and audit fees**

There is another French specificity linked to the presence of major national auditing firm, known as “Majors”<sup>20</sup>. These firms are likely to provide differentiated means of intervention versus other smaller firms (Piot, 2008), and therefore hold a larger share of the mandates offered by listed companies. Despite it being heavily concentrated, the audit market in France allows for a certain rivalry between the “Big” and “Majors” auditors, considering that the French Financial Security Act (FSA) requires that each external auditor participate and contribute in a balanced manner in carrying out the audit mission. Broye (2007) provides the example of Mazars, a firm that in 2005 had 72 mandates, right behind Ernst & Young with 75. The survey conducted in 2007 by the AMF showed that, although Mazars competed with certain “Big” cabinets in terms of the number of mandates, there remains however a huge gap in terms of fees. Piot (2005b) argues that the presence of the “Majors” is, coming from a context of a joint audit system, to the advantage of companies since it combines a “Big” firm with a “non-Big” firm, which tends to reduce the external audit fees versus those made by two “Big” auditing firms. We thus develop the following hypothesis.

*H3: The presence of a “Majors” audit firm among external auditors adversely affects audit fees.*

### **2.1.4 Length of relationship with auditors and audit fees**

Another specific aspect of the audit market in France is the length of mandate. Indeed, auditors are selected

for a renewable period of six years<sup>21</sup>. The longevity of the relationship may impede the independence of the auditor given the personal ties that develop between the two parties. Carey and Simnett (2006) notice that external auditors who established long-term relationships (more than seven years) have fewer reservations regarding the financial health and longevity of Australian companies undergoing difficulties. The auditor could thus become complacent and less thorough in detecting potential sources of risk (Deis and Giroux, 1996). According to these authors, audit fees are only low the first year of the relationship, and increase little by little over the following years. In this case, a positive association is expected between the length of the relationship and external audit fees. In our study, calculating this term starts with the signature of the first mandate, and, in order to take into account the joint audit context, the average length of both relationships is taken into consideration. These arguments lead to formulate our fourth hypothesis.

*H4: There is a positive relationship between the length of a relationship with the external auditor and audit fees.*

## **2.2 Governance characteristics and audit fees**

Several studies have shown the relationship between the demand for external audits and certain governance mechanisms (O’Sullivan, 2000; Abbott and Parker, 2000; Carcello et al., 2002; Abbott et al., 2003; Gul et al., 2004; Broye, 2009). Three characteristics of the board of directors that caught our attention were its level of independence, the separation of the duties of CEO and board chair, and the presence of an independent audit committee.

### **2.2.1 Independence of the board of directors**

So-called independent directors<sup>22</sup> help improve the quality of the audit process by requiring, in particular, a more stringent audit. In support of this reasoning, O’Sullivan (2000) shows that the proportion of non-managing directors had a positive impact on auditor compensation. Independent directors run a higher risk than other managers when it comes to deviant behaviour of directors. By thus wanting to relieve themselves of their controlling role and clear themselves of responsibility should major problems arise, independent directors make greater use of

<sup>21</sup> Note at this stage that the FSA has imposed since 2003 the principle of rotation of signatory associates for a maximum of every six years for companies that are publicly listed.

<sup>22</sup> Here we are referring to the definition in the Bouton Report (2002): “a director is independent when he or she has no relationship of any nature with the Company, the Group or its management, which could compromise the exercise of his or her free judgment”.

<sup>19</sup> The natural logarithm is the most often used in academic research to indicate the level of audit fees.

<sup>20</sup> According to La Profession Comptable magazine, no. 290 (March 2007), the “Majors” are Mazars, Thornton, Secafi Alpha, Constantin Associés, Fiteco, Scacchi & Associates, SAS Strego.

external audit services (Carcello et al., 2002). This is also a way for them to reduce their liability without directly bearing the cost. Apart from the legal constraints, independent directors are seeking to preserve their prestige and protecting the interests of the shareholders while requiring substantially higher audit services, which suggest a complementary relationship between board independence and the external audit in controlling managers. We therefore formulate our third hypothesis as follows.

*H5: The independence of the board of directors positively impacts audit fees.*

### **2.2.2 Separation of duties of the CEO and board chair**

In addition to the presence of independent directors, the separation of the duties of the CEO and the board of directors' chair is a major aspect of board of director independence. Indeed, the combining of these two sets of duties reduces the oversight of the board of directors (Eisenhardt, 1989). Given the potential risks of suboptimal decisions, shareholders would need a more in-depth audit in the event of combining these two sets of duties. Here, Gul et al. (2004) find by using 1998 data for 246 Australian companies a positive relationship between combining these duties and the level of audit fees. According to these authors, this duality of roles entails a growing need for an external audit, leading to increased fees. This analysis leads us to formulate our sixth hypothesis as follows.

*H6: Combining the duties of CEO and board chair positively impacts audit fees.*

### **2.2.3 Independence of the audit committee**

It has been only since June 2008, and pursuant to the eighth European directive that French companies had to have an independent audit committee with at least one member having some expertise in accounting and finance. Before this date, France left it up to companies to decide whether or not to set up an audit committee and to define, if applicable, the missions given to said committee. Indeed, the Viénot reports in 1995 and 1999 and Bouton Report of 2002, as well as the New Economic Regulations (NER) of 2001 and FSA of 2003 do not set common rules to be respected. All texts were limited to formulating recommendations that were more or less followed by companies. This freedom granted to companies has given rise to a certain number of recent studies on the relationship between the existence of an audit committee and audit fees.

If the audit committee does not systematically participate in choosing the external auditor, it remains important that it must ensure that the legal auditor implements the investigations required to fulfill his mission based on professional standards, hence the assumption of the existence of a relationship between

the presence of an audit committee (or its characteristics) and audit fees. The results found in the previous studies have however been mixed and no consensus has been established in this regard. An effective audit committee may require additional effort from the external auditors as a complement to their in-house work, which may mean an increase in fees. Many authors, such as Carcello et al. (2002), Abbott et al. (2003), Lee and Mande (2005), and Vafeas and Waagelein (2007) in the American context, and Collier and Gregory (1996), and Goddard and Masters (2000) in the British context, link the amount of professional fees to the effectiveness of the audit committee measured primarily by its level of independence and/or level of expertise in accounting and finance of its members. These studies also support the idea that the audit committee, and external audit are two complementary mechanisms to monitor managers. This same result was found by Broye (2009) in the French context. Based on a sample of 150 French listed companies in 2005, the author found that the existence and level of independence of an audit committee are linked to higher fees<sup>23</sup>. We draw on this analysis to suggest that independence of audit committee is positively related to the audit fees. We thereby develop the following hypothesis.

*H7: There is a positive relationship between audit committee independence and audit fees.*

### **2.3 Ownership characteristics and audit fees**

The relationship between the structure of ownership and external audit fees is a relatively unexplored zone (O'Sullivan, 2000; Peel and Clatworthy, 2001; Mitra et al., 2007). In our study, we examine three aspects of the ownership structure: managerial ownership, the presence of reference shareholders, and institutional ownership.

#### **2.3.1 Managerial Ownership**

Jensen and Meckling (1976) assume that, when managerial ownership increases, diverging interests of shareholders and managers are reduced. Managerial ownership prompts managers to act in accordance with the interests of other shareholders and be involved in projects that maximize the value of the firm. The demand for external audit services and fees are thus also reduced. O'Sullivan (2000) and Mitra et al. (2007) find that, in the British and American context respectively, there is a negative impact of the proportion of shares held by managers on the amount of audit fees. For their part, Gul et al. (2004) assume the presence of a non-linear relationship between

<sup>23</sup> Note that other authors, such as Yatim et al. (2006) and Muniandy (2007) for the case of Malaysia and Goodwin-Stewart, and Kent (2006) for the case of Australia, do not find any significant relationship between level of independence of audit committees and audit fees.

managerial ownership and external audit fees. Two antinomic situations can support this hypothesis: the first is that of diverging interests of the shareholders and managers when the percentage of capital held by the managers is low, and the second is that of rooting when the managers have high controlling power over the company and greater latitude to act in their own interests. Following the thesis of converging interests, we assume that, when managerial ownership increases, conflicts between the shareholders and managers may be limited and could consequently reduce audit fees. We then express the following hypothesis.

*H8: There is a negative relationship between managerial ownership and audit fees.*

### **2.3.2 The Presence of reference shareholders**

Ownership structure is relatively concentrated in France (Nekhili and Cherif, 2011). In their study of 402 companies that came onto the stock market in France between 1986 and 2000, Broye and Schatt (2003) specify that the main shareholder held an average of 48.83% of shares (with a median of 50.64%) versus 14.02% of shares (with a median of 12.13%) for the second shareholder, who was often a member of the same family or the co-founder of the company. They also report that 64.82% of the firms were controlled by families alone versus only 14% with dispersed ownership. Audousset-Coulier (2014) find that, for the 2002–2003 period, approximately 61% of companies had a majority shareholder, and that the weight of the reference shareholders was relatively large with an average of about 60% of voting rights held by shareholders having more than 5% of voting rights.

Even if they did not exert absolute control, reference shareholders were able to exercise strong influence over the company. They accessed internal information more easily and their presence in the shareholders makeup led to a reduced demand for audit services (Chan et al., 1993). Out of a sample of 132 British listed firms in 1992 (therefore before the publication of the Cadbury Report), Peel and Clatworthy (2001) conclude that there was no relationship between the presence of reference shareholders and audit fees. This same result is also founded by Audousset-Coulier (2014) in the French context. For their part, Mitra et al. (2007) find a negative relationship between the presence of blockholders in capital (holding more than 5%) and the level of audit fees. Indeed, the authors explain that, insomuch there are the main beneficiaries, the reference shareholders are strongly encouraged to invest in the active monitoring of the management of the firm, which in itself reduces the demand for external audit services, and, in turn, audit fees. Compared with minority shareholders, they play a greater role in the control of managers to the extent

that they have greater power in the general assemblies. These arguments lead to formulate the following hypothesis.

*H9: There is a negative relationship between the percentage of capital held by reference shareholders and audit fees.*

### **2.3.3 Institutional Ownership**

Institutional investors (especially banks, insurance companies, retirement funds, mutual funds and pension funds) may play an active role in corporate governance. They are considered influential partners for the company since their financial means, which are generally considerable, allow them to become active investors in controlling the management of the firm (Jensen and Meckling, 1976). However, the issue of substitutability or complementarity between the level of participation of institutional investors in capital and audit fees still has not been addressed. Jensen and Meckling (1976) attribute the activism of the institutional investor to the conflict of interests between shareholders and directors. This activism is all the greater when ownership is concentrated in the hands of a very few. It follows that, with an increase in the concentration of ownership rights, they would be more inclined to actively control the financial reporting process, resulting in lower requirements regarding the operations conducted by the external auditor. Mitra et al. (2007) however do not find any significant relationship between the capital held by institutional investors and audit fees. In our study, we measured institutional ownership using the percentage of capital held by institutional investors. Our last hypothesis can then be expressed as follows.

*H10: There is a negative relationship between institutional ownership and audit fees.*

## **3. Methods**

### **3.1 Sample**

The empirical study is on companies listed on the SBF 250 Index of the 250 largest French companies listed on the Paris Stock Market between 2004 and 2006. The data on ownership and governance characteristics were collected manually from annual reports and reference documents. Accounting and financial information are available in the *Worldscope* database. We excluded foreign companies that were not subject to joint auditing (11), banking institutions, insurance companies and real-estate companies given their specific accounting presentation and audit regulations (33), as well as companies for which certain data were unavailable (76). This selection procedure allowed us to have a sample of 130 companies over three years, i.e., 390 observations.

### 3.2 Dependent variables

Audit fees (*FEES*) were measured using a metric variable equal to the natural logarithm of the amount of audit fees. This measurement was adopted in most of the previous studies. To perfectly convey the specific aspects in the French system requiring two statutory auditors, we felt it useful to operationalize the choice of external auditor with an ordinal variable having values 0, 1, or 2 based on the “Big” number making up the board of external auditors. Explained primarily by the characteristics of ownership and governance, this variable will serve to explain the amount of audit fees. In our study, we also compared the impact of the presence of a “Majors” auditing firm versus the presence of one or two “Big” auditors on auditing fees.

### 3.3 Control variables

We have used the following control variables in our study:

*The Debt Ratio (DEBT).* A high debt ratio increases the risk of bankruptcy for a company as well as the requirement for an external audit (Simunic, 1980). From the perspective of agency theory, the use of debt financing may be a solution to the conflicts between shareholders and directors (Jensen and Meckling, 1976). Indeed, by increasing the risk of bankruptcy, debt prompts the director, who feels threatened by the loss of pay and benefits in kind, to manage more effectively and be more in line with the interests of shareholders. In this way, debt is a means of disciplining directors. However, with debt, the director, as a representative of the shareholders, may be induced to give precedence to the interests of shareholders to the detriment of creditors. Based on a sample of 102 companies studied from 1998 to 2002, Piot (2008) found that the debt ratio was one of the parameters with significant explanatory power regarding the presence of the “Big Five” among external auditors. According to Piot (2001, 2008), debt is measured in relation to financial debt and total assets.

*The complexity of the audit mission.* The complexity of the audit mission is measured using three variables: the international dimension of the company by considering its sales carried out outside of France (*SAL\_OUT*), sectorial diversification (*DIVERS*) and the importance of costly items to assess, such as stocks and receivables on the balance sheet (*COST*). A company with a strong international presence requires very specific attention from external auditors, especially in terms of differences in tax and accounting standards between countries. Thus, a large-scale auditor can also be more in demand (Piot, 2001 and 2005a). To take this dimension into account, we measure it like Piot (2001, 2005a) using the percentage of consolidated sales made outside of France. The number of sectors in which a company

operates tells us the level of organizational complexity and requires differentiated auditing work (Chan et al., 1993; Carcello et al., 2002). The major international networks are recognized for their allocation of resources needed to manage this complexity (Piot, 2001). For his part, Audoussert-Coulier (2014) found that the amount of audit fees is positively related to the number of sectors in which the company operates. Lastly, stocks and receivables generally represent assets that are costly to certify, requiring sometimes sophisticated audit techniques, which are a guarantee of accuracy of the financial information disclosed to third parties (Abbott et al., 2003; Piot, 2001; Kane and Velury, 2004). This dimension is measured by the weighting of stocks and receivables within total assets.

*Performance (ROA).* The directors of productive companies are more like to point out the quality of information provided given the choice of a renowned auditor (Kane and Velury, 2004; Lennox, 2005). The economic rate of return or Return on Assets (*ROA*) is measured by the ratio of net current income before financial charges to total assets.

*Market-to-book ratio (MTB).* This is expressed as the relationship between the market value and the book value of shareholders’ equity, the Market-to-book ratio is an indicator of the potential future opportunities for growth (Gaver and Gaver, 1993). Although opportunities for growth represent a high portion of the company’s value, the company will have greater risks and levels of uncertainty than another company whose value is primarily made up of its assets currently in place. Therefore, the need to reassure current shareholders and potential investors may come by choosing an external auditor with a very high reputation (Piot, 2001). To calculate the book value of shareholders’ equity, we used, similarly to Gaver and Gaver (1993) and Piot (2001), the average high and low share prices for the year. This helps limit the problems of asynchronization for companies that do not close their financial year on December 31, and lessens the impact of market trends on this date (Piot, 2001).

*Commercial performance measured by changes in sales percentage (CROISS).* In high - growth companies, control procedures must constantly be re-examined to keep track of changes in the number of company transactions, which explains the use of large international firms. Using Gonthier-Besacier and Schatt (2007), we measured growth by the average variation in company sales over the past three years.

*Size of company (SIZE).* Large companies generally do a greater number of transactions, requiring more auditing work and additional effort by the auditor. Size is measured using the natural logarithm of total assets.

Table 1 summarizes the variables used in our study, as well as their definitions and measurements.

**Table 1.** Variables: Definitions and Measurements

Variable	Definition	Measurement
FEES	Audit fees	Metric variable equal to the natural logarithm of the amount of audit fees
BIG	Number of “Big” auditors making up of the board of external auditors	Ordinal variable that takes the value of 0 if the company does not use a “Big” auditor, 1 if it has one “Big” auditor, and 2 if it has 2 “Big” auditors.
1BIG	Use of a single auditor from the “Big” group	Binary variable that takes the value of 1 if the company uses only one Big auditor; 0 otherwise.
2BIG	Use of two auditors from the “Big” group	Binary variable that takes the value of 1 if the company uses two “Big” auditors; 0 otherwise.
MAJOR	Use of a “Majors” auditor	Binary variable that takes the value of 1 if the company uses a “Majors” auditor; 0 otherwise.
LENGTH	Length of the auditing relationship	Average length of relationship of both auditors.
BOARD_IND	Independence of the Board of Directors	Relationship between the number of independent directors and the total number of directors
DUAL	Duality of CEO and board chair	Binary variable that takes the value of 1 when combining the duties of CEO and chair of the board of directors; 0 otherwise.
AUDCOM_IND	Independence of the auditing committee	Percentage of independent directors within the auditing committee.
MAN_OWN	Managerial ownership	Percentage of capital held by directors and executive members of the board of directors.
INST_OWN	Institutional ownership	Percentage of capital held by institutional investors.
REFSH	Reference shareholders	Accumulated percentage of capital held by reference shareholders of more than 5% of voting rights.
DEBT	Debt ratio	Relationship between financial debts and total assets.
SAL_OUT	Sales outside France	Percentage of consolidated sales carried out outside of France.
DIVERS	Industry diversification	Number of sectors in which the company operates.
COST	Items that are costly to assess	Relationship between the sum of the stocks and receivables, and total assets.
ROA	Return on assets	Relationship between the net current income before financial charges (economic result) and total assets.
MTB	Market-to-book	Relationship between the number of existing shares * the average high and low share prices or the year and shareholders’ equity of the group.
GROWTH	Growth in sales	Average variation in sales percentage over the past three years.
TAILLE	Size of company	Natural logarithm of total assets.

### 3.4 Model

The question that we are asking in our study is to know whether there is a relationship between the size of the auditing firm and audit fees, while taking into account the characteristics of the audit market, as well as those related to the ownership and governance of French companies. To this end, we develop a two-step Heckman type model that integrates into the *Inverse Mills Ratios* fees model based on the auditor selection model<sup>24</sup>. We chose the Heckman type model given the problem of endogeneity that exists with the BIG-fees ratio. Indeed, in the second step, our model introduces two binary variables indicating the choice of a “Big” auditor (1BIG) or two “Big” auditors (2BIG). Auditors are considered to be assigned to the company in a random fashion. Companies choose external auditors based on their needs, size and other specific characteristics. Therefore, the decision to select (or not) one or two “Big” auditors from among

the statutory auditors can be the expression of the decision to increase or decrease audit fees. Consequently, there is a risk of co-determination, and, therefore, endogeneity, between the choice on auditor and audit fees.

This risk cannot be eliminated by a simple ordinal least squared (OLS) regression model. Instead we need to use the Heckman (1979) model, which is carried out in two steps. As part of an initial step, we build a probit ordinal model to explain the choice of 0, 1 or 2 “Big” auditors based on the variables related to the Board of Directors, the ownership structure and other control variables. The works of Beasley and Petroni (2001), Carcello et al. (2002), Lennox (2005) and Goodwin-Stewart and Kent (2006) show a positive relationship between the presence of independent directors within the Board of Directors, and the selection of “Big” auditors. Piot (2005a) concludes that there is no relationship between the proportion of independent directors within the Board of Directors of French companies and the presence of a “Big” auditor among external auditors. Moreover, Piot (2008) and Audoussset-Coulier (2014) find a

<sup>24</sup> For more information on this modelling and its use in the measured choice of an ordinal variable (0, 1, 2), see Audoussset-Coulier (2008).

positive and significant relationship between the existence of an audit committee and the choice of a “Big” auditor. Regarding ownership structure, studies from Velury et al. (2003) and Kane and Velury (2004) reveal a positive relationship between institutional ownership and the choice of a “Big” auditor. We can however call into question the control capacity of institutional investors in a French context. Very often informal relationships are formed with directors through which institutional investors can carry out occasionally profitable business. In order to reap private benefits, institutional investors may not give preference to large external auditing firms.

As part of a second phase, we built a model to determine audit fees. In addition to the control variables, this model integrates the two binary variables explaining the choice of one “Big” auditor (1BIG) and two “Big” auditors (2BIG), derived from the first model. Therefore, this second equation can be used to correct the self-selection of auditors, which calls into question the exogenous nature of the choice of auditors by companies. The dual individual and temporal dimension prompts us to use panel data techniques and to specifically control fixed and random effects of the terms of the error. The Hausman Test allows us to choose between the fixed-effects model and random-effects model.

The model may be described as follows:

Step 1: Model for selecting auditors

$$\text{BIG} = \alpha_0 + \alpha_1 \text{BOARD\_IND} + \alpha_2 \text{DUAL} + \alpha_3 \text{AUDCOM\_IND} + \alpha_4 \text{MAN\_OWN} + \alpha_5 \text{INST\_OWN} + \alpha_6 \text{REFSH} + \alpha_7 \text{DEBT} + \alpha_8 \text{OUTSIDE} + \alpha_9 \text{COST} + \alpha_{10} \text{DIVERS} + \alpha_{11} \text{ROA} + \alpha_{12} \text{MTB} + \alpha_{13} \text{GROWTH} + \alpha_{14} \text{SIZE} + \varepsilon$$

Step 2: Model of the determinants of audit fees

$$\text{AUDITFEES} = \beta_0 + \beta_1 \text{1BIG} + \beta_2 \text{2BIG} + \beta_3 \text{IMR1} + \beta_4 \text{IMR2} + \beta_5 \text{MAJOR} + \beta_6 \text{LENGTH} + \beta_7$$

$$\text{BOARD\_IND} + \beta_8 \text{DUAL} + \beta_9 \text{AUDCOM\_IND} + \beta_{10} \text{MAN\_OWN} + \beta_{11} \text{INST\_OWN} + \beta_{12} \text{REFSH} + \beta_{13} \text{DEBT} + \beta_{14} \text{SAL\_OUT} + \beta_{15} \text{COST} + \beta_{16} \text{DIVERS} + \beta_{17} \text{SIZE} + \varepsilon$$

## 4. Results

### 4.1 Descriptive statistics

Table 2 presents the descriptive statistics for the variables used in the analysis. Regarding governance structures, the average proportion of independent directors is 42.59% within boards of directors, and 43.16% within audit committees for the companies in our sample. As for the ownership structure, the average percentage of capital held by directors and executive members of the board of directors is 21.49% and that held by reference shareholders (*REFSH*) is 52.82%. Institutional ownership is relatively low in the companies in our sample with an average ownership level of 11.12%. The average debt rate for the total sample is 22.61%, which shows that the weighting of financial debts is relatively slow for the entire sample. The descriptive analysis also reveals that the length of the relationship between the auditor and his client is an average of 8.3977 years. The weighting of client stock and credit accounts represents an average of 32.11% of total assets. Regarding the international dimension of their activities, the companies in our sample carried out 45.39% of their sales abroad. In terms of performance measurements, observations reveal that the return on assets (*ROA*) and sales growth (*GROWTH*) are 6.36% and 8.60%, respectively. Note here that there is greater variability in growth of sales. The average “Market-to-book” of the companies in our sample is 2.4436, with values ranging from –8.5713 to 24.4665.

**Table 2.** Descriptive Statistics for Continual Variables

	Average	Standard Deviation	Minimum	Maximum
FEES (in millions of euros)	4.100	0.4082	0.028	52.400
LENGTH	8.3977	0.2534	0.5050	29.6360
BOARD_IND	0.4259	0.0118	0	1
AUDCOM_IND	0.4316	0.0199	0	1
MAG_OWN	0.2149	0.0138	0	0.9824
REFSH	0.5282	0.0131	0	0.9976
INST_OWN	0.1112	0.0119	0	0.9800
DEBT	0.2261	0.0075	0	0.7887
COST	0.3211	0.0086	0.0062	0.8534
SAL_OUT	0.4539	0.0153	0	0.9989
ROA	0.0636	0.0049	- 0.5927	0.6010
GROWTH	0.0860	0.0182	- 0.9621	0.9361
MTB	2.4436	0.1145	- 8.5713	24.4665
DIVERS	3.1513	0.0735	1	8
SIZE (Total assets in millions of euros)	2,841.321	514.720	4.041	80,443.100



Table 3 presents the results of tests for the differences in averages for variables selected for our analysis between companies using a single “Big” auditor (1BIG = 1) and others (1BIG = 0), on the one hand, and companies using two “Big” auditors (2BIG = 1) and others (2BIG = 0), on the other hand. This table reveals that the audit fees paid by the firms in our sample increased considerably with the number of “Big” auditors. Indeed, the average fees for firms audited by a single “Big” auditor (1BIG = 1) was 2.4739 million euros and was 9.7879 for companies audited by two “Big” auditors (2BIG = 1). Differences in averages with other firms in the sample are significant in the two segmentations. The length of the relationship is also more important in companies audited by two “Big” auditors (2BIG = 1). It is on average 9.875 years versus 7.772 for other firms in our sample. No significant difference was seen between companies audited by a single “Big” company and other firms.

The proportion of independent directors on the Board of Directors or on the Audit Committee also seems to be increasing duties of the number of “Big” auditors. The level of independence of the Board of Directors is 50.49% in firms audited by two “Big” auditors (2BIG = 1) and is 39.25% for other firms audited by none or a single “Big” auditor. For the Audit Committee, the differences are even greater. The level of independent is 68.61% in the first group, versus only 32.38% in other firms (2BIG = 0).

The segmentation carried out based on the number of “Big” also shows us a notable difference in managerial ownership between the firms with a high proportion in companies audited by a single “Big” (1BIG = 1), 25.15%, versus only 12.77% in those audited by two “Big” auditors (2BIG = 1). The proportion of the capital held by institutional investors however is more apparent in this last category of companies. On average, it is 19.85%, and drops to 7.42% in other firms.

**Table 3.** Averages and Tests of Differences for Average Continuous Variables

Variables	1BIG		Student's T Value	2BIG		Student's T Value
	0	1		0	1	
Number of observations	184	206		274	116	
FEES (in millions of euros)	6.3170 (0.7995)	2.4739 (0.2681)	4.762***	1.9582 (0.2092)	9.7879 (1.1527)	-9.608***
LENGTH	8.8256 (0.3843)	8.0154 (0.3339)	1.599	7.7722 (0.2812)	9.8750 (0.5099)	-3.860***
BOARD_IND	0.4294 (0.0169)	0.4228 (0.0166)	0.277	0.3925 (0.0147)	0.5049 (0.0176)	-4.447 ***
AUDCOM_IND	0.4644 (0.0289)	0.4023 (0.0275)	1.558	0.3238 (0.0233)	0.6861 (0.0263)	-9.138***
MAN_OWN	0.1739 (0.0182)	0.2515 (0.0201)	-2.831***	0.2518 (0.0169)	0.1277 (0.0215)	4.199***
REFSH	0.5255 (0.0190)	0.5306 (0.0180)	-0.195	0.5312 (0.0146)	0.5210 (0.0272)	0.356
INST_OWN	0.1335 (0.0191)	0.0912 (0.0147)	1.776	0.0742 (0.0113)	0.1985 (0.0284)	-4.911***
DEBT	0.2163 (0.0109)	0.2348 (0.0105)	-1.224	0.2245 (0.0093)	0.2298 (0.0125)	-0.319
COST	0.3133 (0.0123)	0.3282 (0.0120)	-0.865	0.3507 (0.0104)	0.2512 (0.0130)	5.501***
SAL_OUT	0.4535 (0.0216)	0.4543 (0.0215)	-0.027	0.4262 (0.0182)	0.5195 (0.0272)	-2.820***
ROA	0.0696 (0.0072)	0.0583 (0.0067)	1.157	0.0610 (0.0061)	0.0697 (0.0080)	-0.813
GROWTH	0.1185 (0.0257)	0.0569 (0.0257)	1.691*	0.0915 (0.0212)	0.0729 (0.0356)	0.465
MTB	2.4707 (0.1720)	2.4193 (0.1532)	0.224	2.6329 (0.1532)	1.9964 (0.1220)	2.560***
DIVERS	3.2283 (0.1209)	3.0825 (0.0878)	0.989	3.0985 (0.0864)	3.2759 (0.1394)	-1.103
SIZE (Total assets in millions of euros)	13158.67 (1823.958)	4126.091 (678.722)	4.838***	3268.034 (519.909)	20480.420 (2669.16)	-9.016***

The values in parentheses represent standard deviations.

The ratio between the sum of stocks and receivables and total assets (*COST*) is lower in companies audited by two “Big” auditors (2BIG = 1). However, the latter companies have more than half (51.95%) of their sales abroad and are generally larger in size. They have total assets of 20,480.420 million euros versus only 4,126.091 million euros for those audited by a single “Big” auditor. The companies audited by two “Big” auditors have a Market-to-book ratio (*MTB*) lower than that of other companies. Lastly, note that the proportion of capital held by reference shareholders (*REFSH*), the debt ratio (*DEBT*), the return on assets (*ROA*), the rate of growth in sales (*GROWTH*) and the number of sectors

of activity (*DIVERS*) do not reveal significant differences between companies that are audited by one or two “Big” auditors.

Table 4 presents the frequency of the single binary variable “*DUAL*”. The table analysis shows that, out of 390 observations, with companies in 122 cases (i.e., 31.28% of the total sample) combining the duties of CEO and chair of the Board of Directors when they are audited by a single “Big” auditor, versus only in 75 cases (19.23%) when they are audited by two “Big” auditors. Note, however, that the differences seen regarding the combining of these two sets of duties between the companies audited by a single “Big” auditor on the one hand, and by two “Big” auditors on the other hand, and others are not significant.

**Table 4.** Descriptive statistics for the binary variable “*DUAL*”

Variables		1BIG		Chi square	2BIG		Chi square
		0	1		0	1	
DUAL	0	63 (16.15%)	84 (21.54%)	1.7687	106 (27.18%)	41 (10.51%)	0.3874
	1	121 (31.03%)	122 (31.28%)		168 (43.08%)	75 (19.23%)	
Total		184 (47.18%)	206 (52.82%)		274 (70.26%)	116 (29.74%)	

#### 4.2 Analysis of the results for the auditor selection model

Table 5 sets out the results of the explicative model for choice of auditor<sup>25</sup>. Among all the representative variables for Board of Director characteristics, the level of independence for the Audit Committee is the only variable determining the choice of a “Big” auditor. The table shows that the coefficient related to this variable is positive (1.002) and statistically significant at 1%. This result, in line with that of Abbott and Parker (2000), de Chen et al. (2005), can be explained by the willingness of independent members of the Audit Committee to impose a more stringent external audit by the appointment of at least an auditor of international renown. Regarding the independence of the Board of Directors, we do not find any significant association with the choice of auditor. Our results thus run contrary to those of Piot (2008) who find a positive and significant effect for the independence of the Board of Directors on the choice of “Big” auditor. Unlike Piot (2008) and Audoussert-Coulier (2014), our results show a positive effect of the presence of a reference shareholder. However, this effect is significantly low with a threshold of 10%. There is no significance regarding the impact of institutional ownership on the choice of auditors.

Stock market performance, measured using the *Market-to-book* ratio, according to our results, negatively and significantly affect (at the threshold of 10%) the choice of “Big” auditors. This is also true

for the economic performance of companies or return on assets (*ROA*), but with a slightly lower significance (5%). The less profitable firms show a higher risk of manipulating accounting and management information. In this way, these companies were more likely to call upon the “Big” auditors to reassure shareholders and potential investors about the quality of the information disclosed.

Unlike Piot (2008), we find that the debt ratio is not conducive to using “Big” auditors. The impact of debt on the “Big” variable is negative and significant at the threshold of 5%. Note as well that Audoussert-Coulier (2014) does not find any significant relationship between the rate of debt of French companies and the choice of “Big” auditors. Piot (2001, 2005a) looks at the long-term debt rate and also does not find a significant relationship with the selection of “Big” auditors. In Piot (2005a), the long-term debt rate becomes significant only when he looks at the choice between “Big” and “Majors” auditors. The banks can discipline directors and exert external control over the company, and the issue of substitutability with the external audit can be raised.

In line with the previous literature, Table 5 shows a positive relationship between the size of the company and the size of the auditing services. The diversity of their sites at the national or even international level, and the requirements for harmonizing their accounting systems force large firms to choose a “Big” auditor. However, we do not find any significance regarding the variables related to the complexity of the audit mission (sales outside France, weight of client stocks and receivables on the balance sheet and the number of sectors of activity).

<sup>25</sup> The matrix of correlations detected no problem in terms of multicollinearity between the explicative variables.

**Table 5.** Endogeneity test for auditor choice (Step 1)

Variables	Model for auditor's selection (BIG = 0, 1, 2)	
	Coefficient	z-stat
BOARD_IND	0.130	0.34
DUAL	-0.011	-0.08
AUDCOM_IND	1.002	4.12***
MAN_OWN	0.241	0.87
REFSH	0.497	1.76 *
INST_OWN	0.139	0.41
DEBT	-1.030	-2.24**
SAL_OUT	-0.062	-0.29
COST	-0.518	-1.34
DIVERS	-0.026	-0.54
GROWTH	-0.021	-0.12
ROA	-1.796	-2.26**
MTB	-0.063	-1.78*
SIZE	0.257	6.05***
Intercept 1	0.530	1.066
Intercept 2	2.975	5.036***
N	390	
Chi <sup>2</sup>	199.05	
Prob > Chi <sup>2</sup>	0.0000	
Pseudo R <sup>2</sup>	0.2272	

\*, \*\* and \*\*\* : significance at thresholds of 10%, 5% and 1% respectively.

### 4.3 Analysis of the results of the explicative model for audit fees

The results of the first model were used to determine the probabilities of choosing or not choosing one or two “Big” auditors. These probabilities serve as a basis for calculating *Inverse Mills Ratios* (*IMR1* and *IMR2*), which will then be introduced into the second model as explicative variables. In Table 6, we present the results found when incorporating *IMR1* and *IMR2*. The coefficients related to variables *IMR1* and *IMR2* were not significant, which shows the absence of an endogeneity problem related to selecting a single “Big” auditor or two “Big” auditors. Whatever the estimating method used (fixed or random effects), Table 6 shows a clearly positive and statistically significant effect at the threshold of 1% of the audit conducted by one or two “Big” auditors on the amount of audit fees (*FEES*). However, only the results of the fixed effects model were used in the rest of our text. The value provided in the Chi-square test ( $\text{Prob} > \text{Chi}^2 = 0.0002$ ) enabled us to accept the MCO estimator for the fixed-effects model and to reject the MCG estimator provided by the random-effects model. The result provided in Table 6 for the ratio between the presence of a “Big” auditor in the external auditor board and the level of audit fees allows us to accept our Hypothesis H1. In line with our Hypothesis H2, the impact is relatively greater in the case of an audit conducted jointly by two “Big” firms. Our results are consistent with those found by

Audoussert-Coulier (2014). However, they contradict those found by Gonthier-Besacier and Schatt (2007), who conclude in the French context that there is a positive relationship between using a single “Big” audit firm and audit fees, and a negative relationship when two “Big” audit firms are used. Contrary to our expectations, auditing by “Major” firm has a positive effect on audit fees. Therefore, we cannot consider, as assumed by Piot (2005b), that their presence benefits French firms regarding reduced external audit fees. Henceforth, our Hypothesis H3 is rejected.

Unlike our Hypothesis H4, the length of the relationship with auditors (*LENGTH*) is not likely to increase audit fees. The impact of length of relationship between the firm and auditor is not significant on the amount of fees<sup>26</sup>. This same result was found by Audoussert-Coulier (2014) in the French context.

Variables related to ownership and governance characteristics do not in any way affect the amount of audit fees and thus refute the hypotheses made. As shown in the results of our first equation, it appears that these characteristics, and in particular the presence of an independent audit committee, explain in part the selection of auditors, but in no case the level of audit fees. With the exception of the firm size

<sup>26</sup> We have not been able to test the impact of length of the relationship with each audit board (one “Big” auditor, two “Big” auditors and one “Majors” auditor on audit fees. Problems of multicollinearity were also found.

variable, no control variable had a significant effect on the amount of audit fees. The size of the audited firm acts, in accordance with the results of previous works, positively and significantly at the threshold of

1% on the amount of audit fees. A large company requires greater auditing efforts and therefore higher fees.

**Table 6.** Results of the Explicative Model of Audit Fees and the Endogeneity Test for Choosing Auditors (Step2)

Variables	Expected Sign	Fixed-Effects Model		Random-Effects Model	
		Coefficient	t-Student	Coefficient	t-Student
1BIG	+	0.417	3.06***	0.434	4.55***
2BIG	+	0.654	3.38***	0.671	4.87***
IMR1	?	0.013	0.22	-0.168	-0.34
IMR2	?	-0.033	-1.07	-0.013	-0.47
MAJOR	-	0.504	3.34***	0.344	3.66***
LENGTH	+	0.004	0.44	-0.007	-1.71*
BOARD_IND	+	0.304	1.54	0.431	2.69**
DUAL	+	-0.085	-1.06	0.025	0.39
AUDCOM_IND	+	-0.105	-0.56	-0.005	-0.03
MAN_OWN	-	-0.203	-0.92	-0.038	-2.62***
REFSH	-	0.244	1.31	-0.095	-0.66
INST_OWN	-	-0.061	-0.40	0.042	0.31
DEBT	+	-0.098	-0.45	-0.080	-0.42
SAL_OUT	+	-0.159	-0.75	0.326	2.45**
COST	+	0.270	0.69	0.322	1.32
DIVERS	+	0.016	0.34	0.039	1.46
SIZE	+	0.786	10.78***	0.644	18.82***
Intercept		-6.209	-9.57***	-5.361	-15.41***
F			10.72		
Prob > F			0.0000		
Chi2				1520.72	
Prob > Chi2				0.0000	
R <sup>2</sup> (Within)		0.4297		0.3839	
R <sup>2</sup> (Between)		0.8752		0.9179	
R <sup>2</sup> (Total)		0.8665		0.9078	

\*, \*\* and \*\*\* : significance at the thresholds of 10%, 5% and 1% respectively.

## Conclusion

The objective for this study is to test the relationship between the size of the external auditor and the amount of audit fees. The choice of auditor and audit fees are mainly determined by the company's ownership and governance characteristics. To provide a basis for resolving our study question and take into account the problem of endogeneity between the choice of external auditor and audit fees, we developed a two-step Heckman type model with a bias as to auditor selection integrated into the fees model. The study results reveal that the presence of one "Big" auditor among external auditors exerts a positive and significant effect on fees. Using a "Majors" firm only increases audit fees. However, this effect is greater when two "Big" auditors are jointly used.

Although the presence of an independent audit committee is an important determining factor of the

presence of a "Big" auditor among external auditors, its impact on audit fees is not significant. In our opinion, independence is not sufficient to come to any conclusion regarding the complementarity or substitutability of the Audit Committee with the control exercised by external auditors. Independence and skill are the two main attributes contributing to the effectiveness of audit committees in improving the quality of the audit process. A more advanced study, integrating, in addition to the question of independence of audit committees, the level of expertise and the level of studies in the field of accounting and finance of members should enable us to measure the scope of these characteristics with regard to external audit demand, selection and compensation of auditors in French companies.

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