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ABSTRACT

Evaluation of the Risks of Collective Dominance in the Audit Industry in France*

The financial crisis drew attention to the crucial role of transparency and the independence of financial certification intermediaries, in particular, statutory auditors. Now any anticompetitive practice involving coordinated increases in prices or concomitant changes in quality that impacts financial information affects the effectiveness of this intermediation. It is therefore not surprising that the competitive analysis of the audit market is a critical factor in regulating financial systems, all the more so as this market is marked by various barriers to entry, such as the incompatibility of certification tasks with the preparation of financial statements or consulting, the expertise on (and the ability to apply) international standards for the presentation of financial information, the need to attract top young graduates, the prohibition of advertising, or the two-sided nature of this market where the quality of financial information results from the interaction between the reputation of auditors and audited firms. Against this backdrop, we propose a legal and economic study of the risks of collective dominance in the statutory audit market in France using the criteria set by Airtours case and, in particular, by analyzing how regulatory obligations incumbent on statutory auditors may favour the appearance of tacit collusion. Our analysis suggests that nothing prevents collective dominance of the auditors of the Big Four group in France to exist, which is potentially detrimental to the economy as a whole as the audit industry may fail to provide the optimal level of financial information.

JEL Classification: D43 and M42
Keywords: *Airtours* criteria, audit industry and collective dominance

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1. Introduction

Many observers and analysts point to the flagrant inefficiency of certain financial intermediaries in identifying high-risk assets and preventing their diffusion throughout the global economy, which is their role, as one of the causes of the magnitude of the financial crisis. Both rating agencies and statutory auditors of major financial institutions supposedly failed to discern the real level of risks inherent to the components of these institutions' balance sheet, which led to dramatic tensions on the interbank credit markets that then spread throughout the financial markets when information on actual risks became available, i.e. after the bankruptcy of Lehman Brothers. These external auditors and rating agencies may not have accomplished their mission due to conflicting incentives: the former are paid by the companies they audit and therefore could have been not inclined to be completely objective, while the latter may have chosen rating systems that were potentially “disconnected” from the value of the audited companies with a view to promoting their reputation or achieving their profitability objectives. Nevertheless, these intermediaries do provide extremely important services to the entire economy by certifying the value of companies for investors on the basis of their analyses. The goal is to make sure they are transparent and able to provide optimal service from the perspective of the economy as a whole, particularly in the current environment. In this context, therefore, an analysis of the industrial organization of this sector with a focus on the competitive conduct of market participants, is worth pursuing.

The statutory audit market in Europe and France has recently experienced a notable wave of mergers. The first major merger between PriceWaterhouse and Coopers & Lybrand in 1998 reduced the Big Six to the Big Five. Although authorized by the European Commission,[1] at the time, this merger already raised certain important questions on its impact on competition. Thereafter, one of the results of the Enron case was Ernst & Young’s purchase of Andersen France when the latter declared bankruptcy in 2002. This acquisition, authorized by the European Commission but as part of the application of the "failing firm defence” theory, emphasized the widespread concentration of market shares in the audit industry in terms of volume, value and market capitalization,[2] as well as the resulting risk of non effective competition on this market. Further to this merger, concentration within this industry in Europe continued to grow, as

[1] Decision of the European Commission dated 20 May 1998 in case No. IV/M.1016 – *Price Waterhouse Coopers & Lybrand*.

[2] Decision of the European Commission dated 5 September 2002 in case No. COM/M.2816 – *Ernst & Young France Andersen France*.

demonstrated in various studies available on the website of the Directorate General "Internal Market and Services" of the European Commission.[3] Over the same period the following mergers took place in France: KPMG/Salustro Reydel[4] in 2004, then Deloitte/BDO Marque et Gendrot[5] in 2006, and, finally, Deloitte/Constantin[6] in 2008, thereby increasing the market share of dominant firms. The resulting increase in concentration in France and in Europe therefore transformed the audit industry into an oligopoly composed of four major players (the "Big Four") with the "blessing" of competition authorities and courts that review their decisions,[7] who now compete with a residual fringe of smaller or larger firms, depending on the country, this fringe, however, shrinking with the waves of mergers between audit firms. To evaluate the economic performance of the audit market, an analysis of competitive conditions is therefore crucial, in particular to assess the risk of coordinated practices emerging in this ever more concentrated industry.

Competition authorities in Europe are focusing considerable attention on the risks of collective dominance. For these authorities, this translates into identifying more particularly two main types of operations when controlling mergers under their jurisdiction. First, operations which change the nature of competition in such a way that companies that until then had not coordinated their actions would be much more likely to do so[8]. Second, operations which increase incentives and which facilitate collusion of companies that already coordinated their actions[9]. It is noteworthy that the collusion referred to in this context is tacit and presumably allows each company to behave independently. To address this issue, competition authorities in Europe refer to the case law of the European Court of Justice. In its *Airtours v. Commission* decision dated 6 June 2002,[10] the Court of First Instance of the European Communities (CFI) defined three cumulative conditions required to establish that a merger could lead to tacit collusion (or collective dominance). First, the market must be transparent to such a degree that dominant companies can draw on this transparency to monitor the commercial aggressiveness of their rivals. Second, dominant companies must be able

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3 See http://ec.europa.eu/internal_market/auditing/index_en.htm.

4 C 2004-157 – Letter of the Minister of State, Minister for the Economy, Finance and Industry dated 19 November 2004 to Counsel for KPMG SA related to a merger in the audit and chartered accountancy sector.

5 C 2006-91 – Letter of the Minister for the Economy, Finance and Industry dated 15 December 2006 to Counsel for Deloitte related to a merger in the audit, chartered accountancy and consulting sectors.

6 To our knowledge, this operation was not notified as part of the merger control ("contrôle des concentrations économiques") process.

7 Decisions of the European Commission in cases No. IV/M.1016 and No. COMP/M.2816, supra; decisions of the Minister for the Economy and Finance in cases C 2004-157 and C 2006-91, supra, Conseil d'Etat ("CE"), 30 June 2006, No. 283479, Fiducial Audit and Fiducial Expertise; CE, 31 July 2009, No. 305903, Fiducial Audit and Fiducial Expertise.

8 Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, point 22 b), OJEU C 31/5, 5 February 2004; Guidelines of the Competition Authority ("Autorité de la Concurrence") on merger control, point 453, at http://www.autoritedelaconcurrence.fr/doc/ld_mergers_dec09.pdf.

9 Ibid.

10 CFI, 6 June 2002, case T-342/99, Airtours v. Commission of the European Communities.

to retaliate commercially if some decide to behave more aggressively than what compliance with a tacit agreement to refrain from aggression on the market would advocate. Finally no operator, be it a competitor, a newcomer or a client, should be able to jeopardize the collusive agreement. The approach adopted by the CFI in *Airtours v. Commission* was upheld by the European Court of Justice (ECJ) in its *Bertelsmann* v. *Impala* decision dated 13 July 2006[11]. In this case, however, the ECJ warned Competition Authorities by indicating that, in the context of applying the *Airtours* criteria, care should be given to avoiding a mechanical approach based on the separate verification of each criterion in isolation, while disregarding the general economic mechanism of potential tacit coordination[12].

Finally, it should be noted that while recent guidelines on mergers in the United States are deemed less strict or more flexible, they take into account subtle forms of coordination based on parallel pricing behaviour, a mechanism that facilitates tacit collusion.[13]

The evaluation of risks relating to coordinated conduct in the audit industry is a key concern, as this behaviour may ultimately affect the transparency and the independence of auditors, thereby damaging the quality of service this industry provides to the economy. Indeed this coordinated conduct usually aims at increasing the margin of oligopolists, and can be obtained through a rise in prices and/or a decline in the quality of service offered in an environment in which quality is a valuable characteristic costly to produce. Coordinated conduct could lead auditors to be overly indulgent in their opinions on the financial statements of audited companies to the detriment of the economy and society, in order to stabilize their market share, gain customer loyalty or prevent rival firms from the fringe from gaining access to or from growing on the market. Whereas the strategy of economic agents investing in a listed company is based in whole or in part of the opinions of auditors or rating agencies, the revenues or losses of these agents are not fully internalized by the financial intermediaries. A difference may therefore arise between what Society as a whole would like to get as an opinion on the financial health of listed companies, and what the financial intermediary provides. Coordinated conduct may therefore jeopardize the auditor's transparency and independence, which are nevertheless key to issuing an accurate, fair opinion on the audited financial statements, and may also induce a divergence between the level of quality of the audit service provided by the industry and the optimal level that Society as a whole, and in

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11 ECJ, 13 July 2006, case C-413/06, *Bertelsmann v. Impala.*

12 ECJ, 13 July 2006, case C-413/06, *Bertelsmann v. Impala, supra,* points 123 to 125.

13 For example, the "Guidelines" indicate that a coordinated action "can involve parallel accommodating conduct not pursuant to a prior understanding. Parallel accommodating conduct includes situations in which each rival's response to competitive moves made by others is individually rational, and not motivated by retaliation or deterrence nor intended to sustain an agreed-upon market outcome, but nevertheless emboldens price increases and weakens competitive incentives to reduce prices or offer customers better terms." See Horizontal Merger Guidelines, US DOJ and FTC, August 2010, page 24.

particular investors, would like, by failing to provide financial markets with an information accurate enough.

This study proposes an evaluation of the risks of collective dominance in the statutory audit market in France following the criteria that resulted from the *Airtours* case.[14] In particular, it analyzes how regulatory obligations governing statutory auditors may favour the emergence of tacit collusion among auditors. We obviously do not disregard the fact that, no less than twice over the recent years, the French Ministry of the Economy, then the Conseil d'Etat, approved mergers in this sector, thereby discounting any risk of collective dominance.[15] However, it seems that the impact of the successive mergers in this market on the risk of collective dominance could call for an in-depth examination. Measuring this impact is not straightforward. First, because the market itself is hard to define and because the legal framework for audit missions, which we describe below, has changed significantly in the past few years. Statutory audit missions are not homogeneous services that can be performed in the same way for different customers: they depend in particular on whether or not corporate shares are traded on a regulated market, as we demonstrate in Section 2. The scope and the complexity of the work required differ in accordance with a company's market capitalization and the extent of its internationalisation. Furthermore, an analysis of how the audit market operates illustrates the degree to which this market's transparency (the first criterion in the *Airtours* case) and the ability of rivals to retaliate (the second criterion) are difficult to pinpoint. In Section 3, we analyze the economic structure of this industry, which is highly concentrated. In particular, we focus on defining the degree of substitution between the audit offers of large firms, the Big Four, and the offers proposed by "alternative" firms. More precisely, we review the *Airtours* criteria in Section 4. The audit market looks transparent. Furthermore, the number and the diversity of the services provided by rival auditors create many opportunities for interaction and thus for retaliation on the market to aggressive pricing behaviour, whether competitive or collusive: retaliation is therefore possible. In any event, in light of the low price elasticity of demand, in particular of the demand coming from major listed companies, there presumably lacks incentives to encourage members of the dominant oligopoly to adopt an aggressive pricing policy. Finally, we do not believe it would be possible for a third party (a client or rival) to challenge an existing coordinated conduct of major audit firms (Ernst & Young, KPMG, PriceWaterhouseCoopers and Deloitte), a crucial point in the analysis of the KPMG/Salustro Reydel and Deloitte/BDO Marque et Gendrot mergers by the French Ministry of the Economy and the Conseil d'Etat. Indeed there are major differences in the quality of services

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[14] CFI, 6 June 2002, case T-342/99, *Airtours*, *supra*.

[15] Decisions of the Minister for the Economy and Finance in cases C 2004-157 and C 2006-91, supra; CE 30 June 2006 No. 283479 and CE 31 July 2009, No. 305903, supra.

offered by major audit firms and audit firms from the fringe in this industry. Furthermore clients (audited companies) have many diverse needs in our globalized world. Finally Section 5 concludes.

2. Legal and institutional framework for the statutory audit industry in France

The legal environment in which chartered accountants/statutory auditors work has changed significantly in France further to international financial scandals (such as the Enron affair) and their consequences on the regulations governing the presentation and the control of financial information. The various missions of chartered accountants/statutory auditors are described below.

Statutory audit

The main text that governs relations between auditors and audited companies is Title III of the Law on Financial Security ("Loi de Sécurité Financière", Loi 2003-706 dated 1 August 2003), on the modernization of the statutory audit of financial statements and transparency. According to these texts, all companies must establish financial statements and provide them to the official registration services (generally at the commercial court, "greffe du Tribunal de Commerce"). However, they are not obliged to hire a chartered accountant, who therefore works on "contracted" missions. Similarly, not all companies are required to have their financial statements audited by a statutory auditor.[16] The appointment of a statutory auditor always requires the appointment of a substitute who only provides services if the statutory auditor in charge fails to meet his obligations. However, the appointment of two statutory auditors is required for all joint stock companies legally bound to publish consolidated financial statements. This primary mission (or mandate) of statutory auditors is therefore a *legal mission.*

Contractual audit

Companies may also call upon the services of a chartered accountant to perform missions that are independent from or complementary to a statutory audit. These are called *contractual missions.* In particular, this may involve consulting services related to management, to financial

[16] The legal forms of French companies that need statutory audit services are: "sociétés anonymes", "sociétés par actions simplifiées", "sociétés en commandite par actions", some "sociétés à responsabilité limitée", some "entreprises unipersonnelles à responsabilité limité", some "sociétés en nom collectif", and some "sociétés en commandite simple".

assistance and taxation, to advisory services for failing firms, or to audit and chartered accountancy services for small and medium-sized companies. Statutory auditors in charge of the legal audit mission for a company may perform a certain number of these missions. However, they may not perform certain missions that fall within the realm of consulting due to the principle of independence that we now detail.

Principle of independence

The principle of independence described in Article L.822-11-II of the French "Code de Commerce" (commercial code hereafter) prohibits the statutory auditor from providing the company for which he audits the financial statements consulting or any other service that is not part of the tasks directly related to the statutory auditor's mission. Therefore, audit and non-audit activities are separated and firms have been restructured to account for these two types of services. This prohibition applies equally to national and international networks. A member of a network cannot certify the financial statements of a company prepared by another member of the same network. Chartered accountancy missions and statutory audit missions are therefore very clearly separated. A mandatory waiting period ("délai de carence" or "délai de viduité") of two years between the conduct of a consulting mission for a company and the performance of a statutory audit for the same company also exists. Furthermore, Article L.822-14 of the commercial code, which has applied since 1 August 2006, prohibits individual statutory auditors from certifying the financial statements of a company whose stock is traded on a regulated market (a listed company) for more than six consecutive fiscal years. The practical consequence of this rule is to force audit firms to have on their payroll a sufficiently large number of statutory auditors (at least two) with signing authority to effectively guarantee a rotation of the legal audit missions within their firm, should their client renew the mandate at the end of the six year period. Finally, Articles L.821-7, L.821-8 and L.821-9 of the commercial code state that statutory auditors may be subject to controls conducted by their various institutions (such as the high council for statutory auditors, the "Haut Conseil du Commissariat aux Comptes", the national order of statutory auditors, the "Compagnie Nationale des Commissaires aux Comptes", and its regional branches) or by the French financial market authority, the "Autorité des Marchés Financiers" or the Ministry of Justice. Penalties for non-compliance vary in accordance with the seriousness of the breach.

IFRS standards

Since 1 January 2005, companies whose shares are listed for trading on a regulated market must, pursuant to the European Directive[17], publish their financial statements in accordance with the format set out in the International Financial Reporting Standards (IFRS), established by the International Accounting Standard Committee (IASC), which includes representatives from the major chartered accountant and audit firms (in particular, the Big Four). The entire profession and its clients have access to the standards, which were adopted pursuant to a vote of the profession's bodies. Operational expertise on the standards is considered greater within the major audit firms, however, than in the smaller ones, which makes their certification more valuable than that of their smaller rivals.

Prohibition of advertising

Articles 36 and 37 of Title VII of Decree 2005-1412 dated 16 November 2005 (the ethics code for the statutory audit profession), included in Article 8-1 of the appendices to the regulatory portion of the commercial code, structure the manner in which the profession may advertise on its offers. Any act that can be considered solicitation is prohibited, and advertising must be "discreet" so as to not "prejudice the independence, dignity and honour of the profession".

The publication of calls for tenders is not mandatory

Companies calling upon the services of a statutory auditor are not bound to publish a call for tenders in the general or the business press. However, statutory auditors submit *a posteriori* an annual business statement to the regional branch of their professional bodies ("Compagnie Régionale des Commissaires aux Comptes"). To our knowledge, this information is not available to the public, but some members of the profession must have access to it. It appears that this information is quite detailed, which may contribute to increase the transparency of commercial offers and, in certain circumstances (e.g., when a small number of statutory auditors are working in a given market), may facilitate tacit collusion. Finally, the profession's internal controls give third parties access to most commercial data. We return to this point later on in the paragraph that refers to controls.

[17] Directive 2003/71/EC of the European Parliament and of the Council of 4 November 2003 on the prospectus to be published when securities are offered to the public or admitted to trading and amending Directive 2001/34/EC.

Audit offers

Major audit firms (essentially the Big Four and their few large rivals) operate on the statutory audit market, along with smaller firms. Within this market, legal requirements cause a distinction between the demand of companies that appoint one statutory auditor only (and his substitute, who never intervenes except when the acting statutory auditor is unable to complete his mission) and the demand of companies that must appoint two statutory auditors who audit the financial statements and therefore who should work on equal footing in terms of the allocation of fees. This market is composed of all joint stock companies who must publish their consolidated financial statements by law, which, in practice, includes all companies listed on the stock exchange in Paris to which French law applies.[18] The statutory audit market for companies whose securities are admitted for trading on a regulated market, which intersects with the "paired" statutory auditor market, is a market on which the Big Four capture more clients as statistics presented in Section 3 show. As explained, for example, in the European Commission's decision in the *Ernst & Young/Andersen France* case, companies that raise equity on financial markets must appoint statutory auditors with three main characteristics: first, skills recognized by the various players in the financial markets and with an international reputation; second, technical expertise that is of sufficient quality to be able to certify that the statements prepared comply with the recent international standards (the International Accounting Standards in effect since 1 January 2005 for companies listed in France); last, a network extensive enough to allow for a client multiple subsidiaries to be audited. Based on the foregoing, companies listed on the CAC40 or SBF120 could constitute a specific market.

Chartered accountancy service offers

By nature, the market for chartered accountancy services is more fragmented. All companies that are bound to establish balance sheets and that do not have the internal skills required must call upon the services of a chartered accountant, who may in fact be hired by any company. However, the laws in force compel auditors to pay particular attention to conflicts of interest and to their impartiality during statutory audits: the same firm cannot provide both chartered accountancy and statutory audit services. Additionally, in light of the waiting period, audit firms are reluctant to offer consulting services before the renewal of a legal mission for which they would like to submit an offer. Finally, the law entrenches the principle of rotating missions

[18] However, in theory, public corporations may not be obliged to publish consolidated financial statements and are therefore not bound to appoint two statutory auditors.

among partners with signing authority within the same firm, if this firm retains the mission when it is renewed every six years (this constraint of term of office of 6 years applying to all companies that must have their financial statements certified by an auditor). This obligation for an auditor of not preparing or presenting and certifying the accounts of a company obviously also applies to situations where there are two statutory auditors. Large companies that do not have a finance department capable of preparing financial statements would therefore necessarily ask an external counsel to provide this type of service, but would need to find firms other than those that employ their co-statutory auditors. The technical skills required in the preparation of financial statements for major companies having remained the same or even grown, legal requirements and industry concentration therefore limit the offer of chartered accountancy services available to major companies.

The structure of audit and chartered accountant firms

As a direct consequence of the changes in the legal environment for their missions, the structure of chartered accountant and audit firms has and continues to change. These firms are most commonly divided into two distinct divisions. The first division hosts the teams responsible for chartered accountancy, with consulting services potentially under a separate structure; the second hosts the teams responsible for statutory audits. We collected information on these audit firms when it was available, i.e.: the total workforce in France and worldwide, the number of managers (partners and statutory auditors) in France and worldwide, the number of offices in France and worldwide, and the number of countries in which the audit firm is present.

The main characteristics of Big Four and "alternative" audit firms from the fringe are described in Table 1 below, which shows substantial differences in sizes. The lack of homogeneity among medium-sized firms is also blatant: their ability to conduct audit missions is much lesser in France than that of the Big Four. The technology to conduct an audit or chartered accountancy mission is one essentially intensive in highly qualified labour. The capacity of a firm to lead a large number of missions depends on the number of qualified employees it has and the speed at which they can adapt to the specific mission. Highly qualified and very flexible labour is therefore required. The main markets in which audit firms are active are therefore service markets (audit and chartered accountancy missions), but also the highly skilled labour market. Audit firms, especially the Big Four, hire their junior auditors from French engineering and business schools. The prestige associated with audit missions conducted by the Big Four, and career perspectives based both on potential partnership and a chance to meet top management of major listed groups, thereby offering

excellent future opportunities in the in-house audit sector, are extremely attractive factors for brilliant graduates in finance or management who are part of the French elite.

Table 1: Size of firms on the audit market in 2007

	France			Worldwide		
	Executives	**Other employees**	**Offices**	**Other employees**	**Offices**	**Country**
Mazars	130	1870	19	13,000	273	55
Grant Thornton	70	806	25	22,066	484	100
Constantin	72	428	26	1,724	39	20
Big 4 (average)	**291**	**4603**	**80**	**126,000**	**703**	**146**

Note: the number of non-executive employees was deduced by subtracting the number of executives from the total workforce.

Source: First, we visited the internet sites of the Big Four (Ernst & Young, Deloitte, KPMG and PWC), Mazars and Grant Thornton. Data on Constantin were drawn from the "*Le Guide des Cabinets d'Audit et d'Expertise-Comptable"* (3rd edition), written by Caura Barszcz and published by Editions du Management, Paris, in 2004.

3. Financial structure of the audit industry

Data on the various audit firms that work for companies listed on the SBF120 are drawn from a number of different sources and in two phases. The sample of listed companies we use includes CAC40 and SBF120 companies present on these indexes in 2006 for the 2004, 2005 and 2006 fiscal years, then the CAC40 and SBF120 listed companies present on these indexes in 2009 for the 2007, 2008 and 2009 fiscal years. The composition of the SBF120 changed during this period, as indicated in Table 8 attached as an appendix.[19]

The data on the number of missions awarded and fees were collected manually from the annual financial information on listed companies available on the web site of the Autorité des Marchés Financiers (http://www.amf-france.org), or the web site of the relevant companies, generally in the "investor" section.

In light of the obligation incumbent on all these companies (except two) to appoint two statutory auditors, 238 missions were at play for 120 companies. The number of missions of companies of the SBF120 held by each large audit firm and the related concentration measures are provided in Table 2 below.

[19] Large movements of capital explain the composition of the index in 2009, including the absorption of Euler Hermes SFAC and AGF by Allianz France, Unibail's purchase of Rodamco, the GDF/Suez merger, the admission for trading of Suez Environnement, PPR's sale of its CFAO securites, and EDF's creation of EDF Energies Nouvelles.

Table 2: Number of audit missions and market concentration (2004 to 2009)

Name	2009 No	2009 C(i)	2008 No	2008 C(i)	2007 No	2007 C(i)	2006 No	2006 C(i)	2005 No	2005 C(i)	2004 No	2004 C(i)
Ernst &Young	56	23.5%	56	23.5%	55	23.5%	57	24.3%	62	26.5%	64	27.4%
Deloitte	46	42.9%	46	42.9%	43	41.9%	39	40.9%	35	41.5%	36	42.7%
KPMG	40	59.7%	40	59.7%	39	58.5%	41	58.3%	38	57.7%	27	54.3%
PWC	32	73.1%	32	73.1%	34	73.1%	31	71.5%	31	70.9%	30	67.1%
Mazars	29	85.3%	29	85.3%	28	85.0%	25	82.1%	26	82.1%	25	77.8%
Grant Thornton	5	87.4%	5	87.4%	5	87.2%	4	83.8%	3	83.3%	3	79.1%
BDO	0	87.4%	0	87.4%	0	87.2%	4	85.5%	4	85.0%	2	79.9%
Constantin	0	87.4%	1	87.8%	1	87.6%	2	86.4%	1	85.5%	2	80.8%
Others	30	100.0%	29	100.0%	29	100.0%	32	100.0%	34	100.0%	45	100.0%
TOTAL	238		238		234		235		234		234	

Note.: The C(i) index shows the cumulated percentage of market share, the companies being ranked by decreasing number of mandates.
Source: Data collected from the annual financial information of SBF120 companies.

Table 3: Market share and concentration in terms of audit fees from 2004 to 2009

Name	2009 F	2009 C(i)	2008 F	2008 C(i)	2007 F	2007 C(i)	2006 F	2006 C(i)	2005 F	2005 C(i)	2004 F	2004 C(i)
Ernst &Young	313.58	30.5	331.96	31.6	318.51	32.2	298.86	29.8	295.13	32.8	297.07	35.1
Deloitte	251.55	55.0	247.37	55.2	203.23	52.7	215.34	51.2	203.72	55.4	177.60	56.1
PWC	208.23	75.3	206.35	74.9	204.89	73.5	222.13	73.4	183.67	75.8	176.43	76.9
KPMG	154.65	90.3	164.91	90.6	166.73	90.3	172.71	90.6	139.56	91.3	110.61	90.0
Mazars	85.17	98.6	82.85	98.5	81.45	98.6	73.40	97.9	60.83	98.1	45.72	95.4
Grant Thornton	4.52	99.1	4.33	98.9	4.89	99.0	4.16	98.3	3.77	98	4.43	95.9
BDO	0.00	99.1	0.00	98.9	0.00	99.0	1.38	98.5	1.14	98.6	0.53	96.0
Constantin	0.00	99.1	3.40	99.2	1.60	99.2	3.18	98.8	0.97	98.7	1.54	96.2
Others	9.43	100.0	8.11	100.0	7.80	100.0	12.14	100.0	11.45	100.0	32.45	100.0
TOTAL	**1027.13**		**1049.29**		**989.10**		**1003.32**		**900.23**		**846.38**	

Note.: The C(i) index shows the cumulated percentage of market share, the companies being ranked by decreasing number of mandates. F is the amount of fees in millions of euros.
Source: Data collected from the annual financial information of SBF120 companies.

Of the Big Four, Ernst & Young lost market share for the 2004-2009 period, stabilizing at 56 missions, thereby incurring a loss of 12.5%. For their part, Deloitte and KPMG saw their market share increase to 46 and 40 missions respectively, which represents respective increases of 27.8% and 48.1%. Finally, PriceWaterhouseCoopers' market share remained relatively stable at 32

missions, with an increase of 6.6%. With regard to the fringe of rivals (which we refer to as "medium-sized firms" below), Mazars increased by 16% to reach 29 missions, a much smaller number than the Big Four's average, while Grant Thornton grew to five missions in 2009 (compared to three in 2004), thereby preserving a much smaller market share than that of its rivals for the SBF120 companies. Finally, BDO Marque et Gendrot and Constantin were acquired by Deloitte during this period, and the largest drop in market share, 33%, hit the smaller firms, declining from 45 to 30 missions.

The evolution of the index covering the concentration of total market share held by auditors on the basis of a ranking of audit firms in decreasing order in 2009 shows a progression of six points in market share of the four largest firms for the period to a total of 73.1%. The greatest proportion of market share therefore remains in the hands of the Big Four. In parallel, the increase in the six largest firms' (including the Big Four and the competitive fringe composed of Mazars and Grant Thornton since 2007) market share was only 8.3 points, most of this growth therefore being attributable to the Big Four's increase.

A similar study on fees – presented in Table 3 – demonstrates that the concentration is extremely high and remained at this level throughout the period under study (with changes in the composition of the SBF120).

While the Big Four's fees increased over the period, like those of Mazars and Grant Thornton, Ernst & Young saw its market share stabilize at 30.5% of total fees in 2009 after three years of consecutive drops from 2004 to 2006, the amount of fees having increased, however. After a period of relative stability, Deloitte saw its market share rise to 24.5% on a market wherein total fees increased, while market share for PriceWaterhouseCoopers and KPMG remained stable for the six years under study. Total market share for the Big Four remained stable throughout the period, close to 90% of the total amount of fees paid by SBF120 companies. A wide variety of situations affected the residual fringe of auditors. While Mazars' market share and total fees increased, the market share and total fees of Grant Thornton remained quite stable. The major losers were the small firms which, while seemingly resisting this upward trend over the last three years, saw their market share and total fees drop significantly during this period.

Vertical differentiation and "Large-Medium-Small" (L-M-S) classification

To investigate further into the differences between audit firms, and pursuant to practices of previous analysis of the audit industry held by various competition authorities, we have defined

three categories of audit firms. The major firms (ranked L) relate solely to the Big Four (Ernst & Young, Deloitte, KPMG and PriceWaterhouseCoopers). The medium-sized firms (ranked M) include Mazars, Constantin, BDO Marque et Gendrot, RSM Salustro Reydel (exclusively in 2004) and Grant Thornton, which constitute an alternative to the Big Four that is relatively credible as they have a similar number of employees as well as international presence so they can audit the subsidiaries of listed companies. Finally, small companies (ranked S) are a group composed of all other firms with statutory auditors that conduct missions within companies listed on the SBF120. The structure of this industry evolved in France further to the takeovers of Salustro Reydel by KPMG in 2004, then BDO Marque et Gendrot and Constantin by Deloitte, respectively in 2006 and 2008. These takeovers were authorized at the time by the Minister for the Economy and Finance under the merger control regime ("contrôle des concentrations économiques"), with the exception of Deloitte's acquisition of Constantin, which, to our knowledge, was not notified to the Minister. This distribution is illustrated in Table 4 below.

Table 4: Distribution by size of audit firms in France

Category	2004	2005	2006	2007	2008	2009
Large firms	Deloitte Ernst &Young KPMG PWC	Deloitte Ernst &Young KPMG PWC	Deloitte Ernst &Young KPMG PWC	Deloitte Ernst &Young KPMG PWC	Deloitte Ernst &Young KPMG PWC	Deloitte Ernst &Young KPMG PWC
Medium-sized firms (national)	Salustro Reyd. Mazars BDO Constantin Grant Thorn.	Mazars BDO Constantin Grant Thorn.	Mazars BDO Constantin Grant Thorn.	Mazars Constantin Grant Thorn.	Mazars Grant Thorn.	Mazars Grant Thorn.
Small firms (regional)	Others	Others	Others	Others	Others	Others

Source: Classification used by the French Ministry of the Economy and Finance in its decision to authorize the Deloitte/BDO Marque Gendrot merger.

Table 5: Market share and concentration of audit missions according to size (2004 to 2009)

	2009		2008		2007		2006		2005		2004	
Category	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
LL	58	48.3	58	48.3	59	49.2	57	47.5	56	46.7	50	41.7
LM	32	26.7	33	27.5	32	26.7	33	27.5	32	26.7	28	23.3
LS	28	23.3	27	22.5	27	22.5	26	21.7	28	23.3	35	29.2
MM	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MS	2	1.7	2	1.7	2	1.7	2	1.7	2	1.7	4	3.3
SS	0	0.0	0	0.0	0	0.0	2	1.7	2	1.7	3	2.5
Total	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0

Source: our database.

The first question that arises is what type of “paired" statutory auditor size combination is the most frequent among the potential pairs unambiguously defined as LL, LM, LS, MM, MS or SS, and the change in this frequency over the period studied. Table 5 presents these results.

The first observation is the preponderance of the Big Four in the size combinations of statutory auditor pairs and the increase in this preponderance over the period, with, in particular, the increase in LL and LM combinations to the detriment of LS-type combinations. The number of combinations in which at least one of the Big Four firms is present thereby increases from 94.2% to 98.3%. No pair of auditors on the SBF120 is composed of two firms from the fringe (MM category), and the same applies throughout the period. Finally, combinations of two small firms (the SS category) disappear completely.

Distribution of fees among L, M and S firms in these combinations

Table 6 below implicitly illustrates the difference in the audit needs of listed companies, by showing the combination of types of statutory auditors that conduct them, as well as by showing the differences in the compensation received by auditors, based on their group and the type of auditor they are associated with. Average fees for L firms in LL combinations are close to twice as high as those they collect when they are in LM combinations, and eight times higher than those they collect in LS combinations. M category firms (and therefore Mazars, for the most part) saw the share of average fees from LM combinations attributed to them for the period increase from 27.6% in 2004 to 33% in 2009. Finally, like L firms that collect the largest portion of fees when they are associated with a smaller sized firm (M or S), M firms, for their part, also collect the major portion of fees when they are associated with S firms.

The differences in fees among these various combinations demonstrate that M firms obviously do not provide the same services to listed companies as L firms, nor are they able to conquer many new clients. L firms are probably free to set the fees they wish for most SBF120-listed companied and leave behind only residual demand that firms from the fringe can attempt to conquer. These M firms however never appear able to access to this market unless associated with a Big Four (L firms).

This in no way prejudges the margin achieved by auditors, as the number of hours worked and billed to clients has not been identified, but this broadly reflects the difference in needs of audited companies, which vary according to their market capitalization, their number of subsidiaries and the countries in which they operate, or their number of employees.

Table 6: Market shares and distribution of audit fees by size combination (2004 - 2009)

	2009		2008		2007		2006		2005		2004	
Category	**F**	**P**	**F**	**P**	**F**	**P**	**F**	**P**	**F**	**P**	**F**	**P**
L/LL	12,169.3	50.0	12,466.7	50.0	11,263.1	50.0	12,005.9	50.0	10,586.4	50.0	10,770.8	50.0
L/LM	5,539.5	67.0	5,619.8	67.8	5,864.3	68.9	5,851.7	70.4	5,350.4	72.2	4,826.9	72.4
L/LS	1,604.3	84.4	1,558.4	85.5	1,525.2	85.4	1,215.4	74.0	2,072.1	84.6	2,514.7	74.8
M/LM	2,734.3	33.0	2,674.6	32.2	2,652.5	31.1	2,462.5	29.6	2,060.6	27.8	1,843.9	27.6
M/MS	1,095.0	66.2	1,161.0	69.9	1,529.0	80.3	433.2	65.7	383.0	67.3	148.8	62.3
S/LS	297.0	15.6	263.3	14.5	261.3	14.6	426.6	26.0	376.4	15.4	847.7	25.2
S/MS	559.0	33.8	500.5	30.1	374.0	19.7	225.7	34.3	186.4	32.7	90.2	37.7
S/SS	0.0	0.0	0.0	0.0	0.0	0.0	301.2	0.0	269.4	0.0	804.7	0.0

Source: our calculations. F is the average amount of fees in thousands of euros by type of firm. P is the average share of the combination's fees.

Correlation between fees and the audited company's market capitalization

At this stage, a statistical ambiguity that could result from an overly superficial reading of the columns in Table 6 requires clarification. At first glance, the average fees of auditors in the L group drop more when they are associated with an M group auditor than with an auditor of a similar size. This does not mean that there is greater competition due the presence of an alternative M-sized firm. This observation simply reflects the differences in the characteristics of the companies being audited: indeed, the category to which the combination of auditors belongs is highly correlated to the average number of employees and the market capitalization of the audited companies, as demonstrated in Table 7. Therefore, moving from a LL combination of auditors to a LM combination of auditors, the average number of employees and the market capitalization of the audited companies can almost be divided by two (from 77, 350 employees to 41,899, and from €23,955K to €11,561K). The human and the financial scopes of the audited companies are very different, which create audit needs with different imperatives in terms of quality, and therefore in terms of cost of production.

Table 7: Correlation between the size of audited companies and the combination of auditors

	Average number of employees in 2006	Average market capitalization in 2006 (€K)
LL	77,350.76	23,955.67
LM	41,899.78	11,561.87
LS	16,711.11	2,990.59
MM	N/A	N/A
MS	7,291.5	1,511.84
SS	1,171.5	647.68

Concluding remarks on the economic structure of the audit industry

The economic structure of the audit industry is characterized by a relatively small number of players and significant segmentation based on size; from economic theory, these factors may favour tacit collusion. The statutory audit market may certainly be considered an "auction-type" market wherein companies invite audit firms to submit offers for statutory audit services, which are then evaluated and compared. The relatively low frequency of new calls for tenders (every six years by law) and the long-term relationship created between the auditor and its client should limit the risks of collective dominance. Winning a call for tenders for a statutory audit mission would secure in theory a revenue over a sufficiently long number of years to ensure that the "bid process" that allocates the mission indeed lowers the fees. Nevertheless, "paired" statutory auditing changes the frequency of interactions and hence increase the risk of tacit collusion. Indeed, if N-1 audit firms can only respond to a call for tenders to renew one co-statutory auditor, the reality of paired co-statutory auditing is that these calls for tenders occur every three years. Furthermore, the number of missions allocated is very high in comparison to the system that requires a single statutory auditor. Again from economic theory, a higher frequency of interactions facilitates tacit collusion. The issue is therefore to assess the risks of collective dominance in this industry, in particular in the statutory audit market.

4. Competitive analysis

In this section, we review arguments and events that tend to confirm the fact that the conditions are present to prove that the successive mergers this sector has experienced recently have led to a situation of collective dominance. We then return to the issue of the audit market operating as an auction market.

The degree of market transparency

Effective coordination of the conduct of companies on a market presupposes that this market is transparent enough, as transparency facilitates the flow of information that will allow competitors to reach a common understanding on how to collude. Therefore it is commonly and logically accepted that when the economic environment is not very complex or unstable, it is easier to tacitly define a joint practice. However, it is also generally accepted by competition authorities that, when the economic environment is complex and unstable, the "mutual understanding of

coordination methods" remains possible if the transparency and the vectors of communication among companies are strong.[20] For example, this is the case when transparency is based on the publication of financial information or exchanges of information on the occasion of meetings between market operators (trade associations and institutions, for example). In line with economic theory, Competition Authorities also consider that transparency may also be greater due to the symmetry of companies present on a market or due to similarities in terms of their cost structure or their production capacity. All these characteristics probably facilitate the adoption of a coordinated conduct.[21]

In this regard, mergers in the audit sector examined by the competition authorities led to diverging conclusions. While, in 1998, the European Commission held that the level of price transparency was high and the costs incurred by audit firms were also transparent,[22] thereafter, in France, the Minister for the Economy and the Conseil d'Etat held that this market was characterized by a low degree of transparency.[23] More recently, when investigating the Deloitte/BDO Marque et Gendrot merger, the Minister conceded the fact that a number of elements tended to show that “major audit firms can easily forecast the behaviour of players in the statutory audit segment” (our translation). Nevertheless, he concluded that “the degree of transparency cannot be established with certainty.”[24] (our translation)

However, in our opinion, based on a thorough analysis of all these elements, there is little doubt about the statutory audit market being transparent. There are two main reasons for this transparency: (i) The obligation of legal publication to which companies, who are the auditors' clients, are subject, and (ii) The “paired” statutory auditor system, which allows any auditor to find out the amount of fees charged by a rival on a shared mission. In the decision rendered in the *Ernst & Young v. Andersen France* case, the European Commission shared this opinion.

An initial factor related to transparency lies in the obligation imposed on listed companies to publish the names, fees and renewal date for their statutory audit missions, among other things.[25]

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[20] Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, point 47, OJEU C 31/5, 5 February 2004; Guidelines of the Competition Authority on merger control, point 461, at http://www.autoritedelaconcurrence.fr/doc/ld_mergers_dec09.pdf.

[21] Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, point 48, OJEU C 31/5, 5 February 2004; Guidelines of the Competition Authority on merger control, point 460, at http://www.autoritedelaconcurrence.fr/doc/ld_mergers_dec09.pdf.

[22] Decision of the European Commission dated 20 May 1998 in case No. IV/M.1016 – Price Waterhouse/Coopers & Lybrand, point 100.

[23] C 2004-157 – Letter of the Minister of State, Minister for the Economy, Finance and Industry dated 19 November 2004 to Counsel for KPMG SA related to a merger in the audit and chartered accountancy sector; CE, 31 July 2009, No. 305903, Fiducial Audit and Fiducial Expertise.

[24] C 2006-91 – Letter of the Minister for the Economy, Finance and Industry dated 15 December 2006 to Counsel for Deloitte related to a merger in the audit, chartered accountancy and consulting sectors.

[25] Article 22-3 of the Autorité des Marchés Financiers regulations.

A study of the annual financial information submitted by companies listed on the SBF120 available on the various web sites (Autorité des Marchés Financiers, listed companies' web sites...), rapidly reveals the series of fees charged since 2004. Transparency is also boosted by the quality control conducted by professional bodies (such as the "Haut Conseil du Commissariat aux Comptes", H3C). Competition authorities who have investigated the mergers that occurred in this sector share this opinion.[26]

A second factor related to transparency, also identified by Competition Authorities when investigating mergers in the audit sector,[27] lies in the "paired" statutory audit system that requires individuals and entities to publish consolidated financial statements.[28] Indeed, in this context, each member of the pair has access to the amount of fees paid to the other as this information is audited as part of the financial statement certification process.

With regard to cost transparency, it seems relatively simple for a sector player to estimate the costs it may incur to audit a specific company. This firm would in fact have a rather broad spectrum of information, such as the number of subsidiaries, employees and countries in which the company conducts business.

When comparing fees paid to auditors, and by identifying the mandate renewal date, an external auditor can make an offer that is in direct competition with the bids submitted by the acting statutory auditors. As the characteristics of listed companies are known at the time of the call for tenders and as the characteristics of the various audit firms as well as their cost structure are known by their various rivals, statutory auditors who are refused a mission are quite able to identify the level of their rivals' aggressiveness, based on their own offer or deducted from the discussions with the potential client, and they can therefore ascertain whether the successful rival bidder has followed a collusive conduct or not.

The sum of all these elements clearly establishes the degree of price transparency on the market. What is less obvious, and this is easy to see, is to prove that market players use this transparency strategically. However, none of the elements we analyzed and present below can deny the fact that audit firms may strategically use the information available to them.

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26 Letter from the Minister for the Economy, 15 December 2006, C 2006-91, *Deloitte/BDO Marque et Dendrot.*

27 C 2006-91 – Letter from the Minister for the Economy, Finance and Industry dated 15 December 2006 to Counsel for Deloitte, related to a merger in the audit, chartered accountancy and consulting sectors. Decision of the European Commission dated 5 September 2002 in case No. COMP/M.2816 – *Ernst & Young France/Andersen France*.

28 Article L. 823-2 of the Commercial Code.

Potential retaliation

Tacit collusion is only possible when companies can observe their rivals' strategy and, if applicable, identify a deviation from the coordinated conduct.

Competition authorities believe that tacit collusion can only be sustained if an effective dissuasive process also exists. In other words, a potential deviation from the coordinated conduct must give rise to a threat of retaliation that is sufficiently serious to ensure members of the dominant oligopoly have no interest in deviating from the collective line. Therefore, uncertain or delayed retaliation[29] is generally seen as insufficient to ensure tacit collusion remains effective. Furthermore, competition authorities and the courts reviewing their decisions acknowledge the fact that this retaliation may occur on a market other than the one on which the deviation took place.[30]

As this form of penalizing process can be deployed on markets other than the one in which the coordination takes place, its application to the audit sector must be specifically examined. Indeed, a review of operations in this sector, taking into account multimarket interactions that take place therein, leads to the conclusion that, far from being simply theoretical, potential retaliation is actually quite likely.

In the present case, if the interactions of the Big Four on the audit market for major companies are sufficiently frequent, or if they maintain relations on multiple markets (for example, when being awarded related or complementary missions for which there is obviously no incompatibility, although this is quite difficult to determine), it is then probable that abnormally high prices can be coordinated, as the Big Four have a sufficiently strong retaliation power to sustain these prices over time. Although no public information of a quantitative nature is available on the market covering missions other than statutory audits, in particular with regard to chartered accountant services that the Big Four provide to major companies, the "paired" statutory auditor system in effect in France multiplies the opportunities for market competition. The frequency of their interactions appears sufficiently high to ensure that large firms keep a retaliation power that is sufficient to sustain abnormally high prices. Furthermore, this is certainly reinforced by competition that occurs among these companies for other missions.

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29 Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, points 52 and 53, OJEU C 31/5, 5 February 2004; Guidelines of the Competition Authority merger control, points 464 and following , at http://www.autoritedelaconcurrence.fr/doc/ld_mergers_dec09.pdf.

30 Decision of the European Commission dated 3 March 1999 in case IV/M.1313, Danish Crown/Vesjyske Slagterier, point 177; CFI, 25 March 1999, case T-102/96, Gencor/Commission, point 281.

To evaluate the risks of collective dominance, the market share for contractual audit services (management consulting, financial assistance, taxation consulting, advisory services for failing companies, audit and chartered accountancy services for small and medium-sized companies) must be studied as it is a potential source of revenue for audit firms and may be of great importance when examining the capacity of audit firms to retaliate. In fact, although they cannot substitute the statutory audit missions from a client's perspective, contractual audit missions collect revenue that is common to the various firms potentially involved in collective dominance. These additional sources of revenue constitute opportunities to retaliate for companies that comply with the tacit agreement. Thus, in reference to the article written by Evans and Kessides and their analysis of multimarket contacts in the air transport sector in the United States,[31] if an hypothetical Washington-Seattle route can obviously not substitute a Los Angeles-Chicago route, from the perspective of air transportation consumers, two airlines competing for these two routes may very well punish the commercial aggressiveness of their rival on one of the routes by pricing aggressively on the other route. Similarly, being aggressive in the context of a call for tenders for a contractual audit mission can provide an opportunity to punish more aggressive conduct on a call for tenders for a statutory audit mission. In this regard, it has been held that, in light of the diversity of players on contractual audit markets and in the absence of the Big Four holding an individual dominant position on these markets, any potential punishment occurring on one of the contractual audit markets is rather remote.[32] However, it appears to us that these markets may have been considered more fragmented than they really are. The effect of this hypothesis is not only to artificially reduce the breadth of the risks of coordination but also, more generally, to lead to an underestimation of the concomitant risk of an increase in prices for missions other than statutory audits, which require the skills of audit and chartered accountancy firms.

Not only the frequency of interaction is large enough to allow for retaliation in case of aggressive pricing, but the legal environment also discourages low prices. Indeed one must understand that the risk of price increases results directly from the rules in place to guarantee the independence of statutory auditors. The effects of these rules must not be underestimated as they support the parallelism in pricing, which potentially helps rival firms to coordinate by reducing incentives to deviate from high prices.

How does this system work? For service providers, statutory and contractual legal audit missions are complementary services: reducing a price to gain a statutory (or contractual) audit

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[31] *"Living by the 'Golden Rule'",* Multimarket Contact in the U.S. Airline Industry, William N. Evans and Ioannis N. Kessides, The Quarterly Journal of Economics, May 1994.

[32] C 2006-91 – Letter of the Minister for the Economy, Finance and Industry dated 15 December 2006 to Counsel for Deloitte related to a merger in the audit, chartered accountancy and consulting sectors.

mission opens the door to identifying the existence or the positioning of the firm on another contractual (or statutory) audit mission. This strategy is only of interest to the extent that the auditor can accept the two missions, the low price for one of these missions becoming a profitable investment on a market wherein some audited companies certainly favour outgoing auditors or, more generally, "insiders."

Precisely, the rules related to the incompatibility of missions prevent statutory auditors in charge from bidding for contractual audit missions (to comply with the auditor's independence principle) and "contractual" auditors from responding to calls for tenders related to statutory audit missions (due to the waiting period). The effect of these rules is therefore to reduce the incentives that encourage auditors to lower their prices. However, the regulations neither prevent a statutory auditor working for a listed company from being very aggressive when bidding for a contractual audit mission, if the missions are not incompatible with each other, and in order to, for example, punish a competitor who bid aggressively in the past (retaliation remains possible), nor prevent the potential for rivals to bid less aggressively for all missions. In that latter case, the benefits gained on the complementary missions disappear in the light of the incompatibility issues, and therefore no longer compensate the drop in revenue related to a low price offered for other missions. The parallelism in prices is therefore increased. In other words, losing a bid (for a statutory or contractual audit) almost always ensures another will be won (for a contractual or statutory audit), which discourages price-related aggressiveness. As the identity of the co-statutory auditor is known (one of the Big Four) for any mission, a Big Four firm could indeed offer a price that is extremely low and win the missions instead of another Big Four firm in order to punish it for having made an aggressive offer that allowed it to become the statutory auditor in its stead.

A potential consequence of the regulations stating that the submission of bids is not allowed for missions complementary to those already awarded could therefore be an increase in prices for all complementary missions which, in turn, could favour coordination.

Furthermore, if one looks at the capacity to manage the workload (mainly performed by employees), it appears that, first, the capacity of firms that merge increases, which can make them more aggressive over the short term to conquer new markets and therefore have a pro-competitive effect. Second, these companies then have greater power to retaliate over the long term, which can allow them to trigger price wars if one of the Big Four firms lowers its price compared to what rivals seek to implement, which creates an anti-competitive effect. It is not clear which effect dominates, as this partially depends on the evolution of workload capacity on the audit market. Can teams that work on accountancy missions be redeployed to audits, and inversely? Probably. Is the

retaliation capacity on this market identical for all Big Four firms? There is no significant difference in the size of workforce among the firms in this group.

In any event, one can ask whether, in light of the low price elasticity of demand acknowledged by competition authorities, in particular in relation to statutory audits of major listed companies, members of the dominant oligopoly would see any incentive whatsoever in pricing aggressively. In this regard, the Minister for the Economy also admitted, at least implicitly, that members of the dominant oligopoly would not benefit from aggressive competition in light of the absence of any hope to significantly increase their market share by so doing.[33] And, in the absence of any incentive to depart from the collective conduct, is it productive to examine whether conduct potentially considered deviant is identifiable, and, even more so, is it productive to examine whether there are potential retaliation measures that could hinder such a conduct? It appears that the European Commission took this position in the *MCI WorldCom/Sprint case.*[34].

Pro-competitive forces

For coordination to be effective, it must not be disrupted by other market players. Indeed, coordination may be jeopardized by potential current rivals (maverick firms) or clients with a strong buyer power that has a compensating effect.[35] With regard to the statutory audit market, however, it appears that none of these forces is strong enough to cause the failure of potential tacit collusion among firms that are dominant in the market.

(i) Absence of a maverick firm

According to the Competition Authority, a maverick firm is an operator within the fringe that can significantly affect the profit of the firms in the dominant oligopoly.[36] A more focused definition would insist on the dissymmetry in terms of costs between the maverick firm and the other companies that may be participating in tacit collusion. The maverick firm would then be

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[33] C 2006-91 – Letter of the Minister for the Economy, Finance and Industry dated 15 December 2006 to Counsel for Deloitte related to a merger in the audit, chartered accountancy and consulting sectors, p. 22.

[34] Decision of the European Commission dated 28 June 2000 in the COMP/M.1741, *MCI WorldCom/Sprint* case.

[35] Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, points 56 and 57, OJEU C 31/5, 5 February 2004; Guidelines of the Competition Authority merger control, point 467, at http://www.autoritedelaconcurrence.fr/doc/ld_mergers_dec09.pdf.

[36] Guidelines of the Competition Authority on merger control, point 467.

defined as follows: *"A maverick firm can be interpreted as a firm with a drastically different cost structure, which is thus unwilling to participate to a collusive action".*[37]

When examining the Deloitte/BDO Marquet et Gendrot merger, it was held that the French firm, Mazars, was able to play the role of a maverick firm. In this regard, the Minister for the Economy noted in particular the recent gain of new missions by Mazars, the competitive nature of its fees, the fact that it was an integrated European organization with international presence, and the likelihood that it increases it international scope.[38]

However, there are other elements that raise doubts on Mazars effectively being a maverick firm within the meaning of the definitions proposed above.

First, it is worth repeating that audit missions are awarded by companies further to bidding processes in which most major audit firms participate. According to economic theory, if Mazars' cost structure were drastically different from that of the Big Four, with Mazars benefiting from a significant cost advantage, this firm would therefore own a larger portion of the market than the Big Four. Yet Mazars' market share in terms of number of missions is at best similar, and in general lower, than that of Ernst & Young, PriceWaterhouseCoopers, KPMG and Deloitte. Therefore, in practice, nothing confirms that Mazar has a cost advantage such that it could directly rival the Big Four.

Second, the information we have confirms that Mazars does not have access to proprietary infrastructures to place it ahead of competition. A simple examination of the size of the firms of the international network on which Mazars relies illustrates once again that the Big Four have the upper hand. As demonstrated in Table 1 at the end of Section 2, Mazars could provide services in 55 countries, while the Big Four can do the same in an average of 140 countries. Similarly, Mazars has a network of 13,000 employees worldwide, while the average number of employees among the Big Four is 126,000 worldwide.

So, if Mazars decided to significantly reduce its prices to conquer new missions, how would it then manage the workload of these files in light of its limited production capacity (i.e., number of employees), which is quite lower than that of the Big Four?

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[37] The Economics of Tacit Collusion, Marc Ivaldi, Patrick Rey, Paul Seabright, Jean Tirole, March 2003, Final Report for DG Competition, European Commission, accessible at http://ec.europa.eu/competition/mergers/studies_reports/the_economics_of_tacit_collusion_en.pdf.

[38] C 2006-91 – Letter of the Minister for the Economy, Finance and Industry dated 15 December 2006 to Counsel for Deloitte related to a merger in the audit, chartered accountancy and consulting sectors.

Third, does Mazars have proprietary technical capacity that would give it a leading position? Again, if this were the case, Mazars' market share would not be similar to or under that of the Big Four, but much greater. No data in Tables 2 and 3 sustain this notion.[39]

(ii) Insufficient Buyer Power

It is generally agreed that major purchasers, in other words, those who have great purchasing power, can cause collusion to fail. According to the European Commission, Buyer Power can be defined as, "the bargaining strength that the buyer has vis-à-vis the seller in commercial negotiations due to its size, its commercial significance to the seller and its ability to switch to alternative suppliers."[40] Buyer power most often exists in concentrated markets characterized by a small number of powerful players and when, for example, suppliers have large excess production capacities.

On the audit market, clients should have buyer power they can use, in particular when renewing missions, by creating competition between the auditor in charge and its competitors. However, there are significantly fewer firms capable of making offers than companies seeking to buy this service, and the European Commission has held that significant barriers to entry exist, so that the structure of the supply side is not likely to change.

On the audit market, the clients' buyer power therefore does not seem to be such that it could jeopardise the tacit collusion on the market.

(iii) Potential competition is hindered by the existence of high barriers to entry

In the present case, for an alternative firm to effectively compete with the Big Four, it would have to employ workers with the same qualifications and in the same conditions as the Big Four, or have a significant number of audit missions for major listed companies or, more likely, both. The disappearance of an alternative firm in favour of the Big Four would deprive other alternative firms of the ability to purchase both a reputation and a team of highly qualified auditors, which would force alternative audit firms who want to enter the statutory legal market for listed companies to do so on the basis of their efforts alone. The cost of gaining a proprietary reputation and acquiring internal human resources without taking over another firm with an established

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39 However a companion paper presents an econometric test of the presence of a maverick on the French audit market. See Ivaldi, M., S. Mitraille and C. Vibes-Muller, "Testing for the presence of a maverick in a concentrated sector: The French Audit industry 2004-2006," Mimeo Toulouse School of Economics.

40 Guidelines on the assessment of horizontal mergers under the Council Regulation related to the control of concentrations between undertakings, point 64, OJEU C 31/5, 5 February 2004.

reputation is excessively high and there is little hope that any internal growth could facilitate entry into the audit market for listed companies.

The audit sector has indeed many characteristics of a two-sided platform on which entry is considered to be extremely difficult for new rivals.[41]

An audit firm may be seen as a platform that brings two markets into contact. On the one hand, large companies for which the quality of audits is extremely important, even crucial, regarding the interactions with the financial markets for example; and on the other hand, experts in accounting, auditing and certification of financial statements, who seek to establish and increase their reputation. The two sides of the market depend on each other and create cumulative network effects. Acquiring a good reputation facilitates the hiring of highly qualified employees. Highly qualified employees facilitate the execution of high quality services. High quality services favour a good reputation. And so on ... Hence entry is only possible on these markets when the critical size of both sides has been reached, which is a competitive constraint.

The repeated auction mechanism

At this stage, a number of indicators tend to demonstrate that the audit market is not risk-free in terms of collective dominance. Nevertheless, as mentioned above, are these risks not compensated by the fixed date bidding system that underpins the operations of this market? While it contributes to greater transparency of market operations, thereby stabilizing market share, this regular bidding system may lead to potential retaliation *in fine* should a rival become excessively aggressive with its pricing. It also provides players with the ability to coordinate to respond to call for tenders in turn. This practice, which economists call “bid-rigging”, is well documented, for example, in the case of call for tenders for the sales of mobile telephone licenses (“spectrum auctions”).[42]

With regard to repeated bids, the coordination mechanism is exceptionally simple. To coordinate, large audit firms may simply make offers ensuring one of the major auditors “wins” a given call for tenders (and the others therefore lose), and then alternate “win” and “lose” positions by adapting their strategy to this collusive structure. In practice, in the context of the four major audit firms working in a paired statutory auditor scheme, this would mean they would “win” one

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41 For a presentation of two-sided markets, see Rochet, J.C. and J. TIrole, "Two-sided Markets: A Progress Report", The RAND Journal of Economics Vol. 35, No. 3, 2006 : p. 645-667.

42 See Paul Klemperer (2004), *Auctions: Theory and Practice*, Princeton University Press. See Chapter 5 in particular.

call for tenders out of four. In other words, each one would belong to one listed company's pair of auditors out of every two.

Coordination can be achieved all the more easily as the frequency of organized auctions is extremely high, which favours coordination among auditors, as a firm that has been deprived of “its turn” is able almost immediately to behave aggressively. Furthermore, the amount of fees at stake is well known for future years, and the details on the terms of office of each auditor are obviously known as well, as they are, for example, available in corporate financial documents. Also, the fact that dates are defined in advance simplifies accounting forecasts of companies that would like to implement a collective conduct: no company would be able to attempt to bid at any given time, as the regulations only allow for the renewal of mandates every six years. The strategic uncertainty that would be constantly present if mandates could be renewed at any time therefore completely disappears, bringing down with it opportunities for rivals to deviate from the joint practice at any time, which simplifies control over the conduct of the oligopoly’s members. Tacit collusion among members of an oligopoly who hold the major portion of the market is more difficult to enforce when monitoring thereof is imperfect or costly, which is not the case herein.

5. Conclusion

In light of the financial crisis causing the European Commission to question future changes to the audit sector within the European Union and, in this environment, in light of the situation in France being at times seen as an example of good practices, we felt we should describe certain characteristics of the audit sector in France, in particular the risk of collective dominance which we believe weighs on this industry.

The risks identified essentially relate to the independence of auditors and the workings of competition of the market. As described above, French regulations set out rules intended to protect the independence of auditors. The effectiveness of this structure, which some find demanding, is still under debate. With regard to how competition works in the audit sector, a certain number of factors indicate that it may not be effective. More precisely, these factors, which have been described herein, show that competition could be distorted by the effects of collective dominance of major audit firms operating in this market.

While the control of the first mergers that occurred at the end of the 1990s in the audit

sector already showed worrying signs of the presence of all the elements required to create a dominant oligopoly, the successive mergers that have occurred since that time have indeed favoured the conditions and stability of tacit collusion among a handful of operators. In France, however, they were authorized by the competition authorities, and the authorization decisions were approved by the Conseil d'Etat. These successive mergers nevertheless may have eliminated any chance of countering this oligopoly and may have set definitive rules of competition that favour a few operators. The greater risk of collective dominance may also lead to price increases and lower service quality in an industrial environment in which quality is expensive to produce. In turn, this could affect the quality of the financial information published. Yet the level of quality of financial information provided by an oligopoly, even when it complies with the law, cannot suffice to satisfy all players, as most of the benefits it creates escape firms in oligopolistic competition or tacit collusion. In other words, the externality exercised on the users of financial information is not internalized. The absence of third party – or more generally of a competitive mechanism – attacks against this dominance therefore cannot solve the issue of substandard quality of service in this industry in relation to what society as a whole aspires to.

While it is somewhat hypothetical to question the mergers concluded over recent years, it is crucial, however, that the risks related to this potential collective dominance over the market are taken seriously whether from a structural perspective or from a behavioural perspective. The former could be analyzed for example on the occasion of future mergers, while the latter could for example consist in the attentive examination of the practices of members of the dominant oligopoly and in the development of new regulations inciting the industry to provide the level of financial information the society as a whole needs.

The monopolization of the audit market goes on increasing, and along with it the risk of not increasing the quality of the financial information delivered to investors above the standard that current regulations impose. This standard is however unlikely to meet the needs of investors, as the recent financial crisis illustrated. To integrate the public good dimension of the audit services that goes way beyond the relationship between the auditors and the companies they audit, it would be appropriate to develop the right regulatory mechanisms. This is obviously the subject of the ongoing policy discussions, but it is also a matter of attention on the agenda of researchers.

Appendix

Table 8: SBF120 changes from 2006 to 2009

Companies listed on the SBF120 between 2006 and 2009	Companies de-listed from the SBF120 between 2006 and 2009
BIOMERIEUX	AGF
BUREAU VERITAS	EULER HERMES SFAC
CFAO	APRIL GROUP
DERICHEBOURG	ASSYSTEM BRIME
EDF ENERGIES NOUV.	ASF
ERAMET	BACOU-DALLOZ
EUROFINS SCIENT.	BUSINESS OBJECTS
FONC.DES REGIONS	CFF RECYCLING
GDF SUEZ	CLARINS
GROUPE EUROTUNNEL	EURONEXT NV
IPSEN	FIMALAC
MERCIALYS	GENERALE DE SANTE
NICOX	GUYENNE GASCOGNE
ORPEA	HAULOTTE GROUPE
SPERIAN PROTECTION	NRJ GROUP
REXEL	OBERTHUR CARD SYS.
STALLERGENES	PIERRE VACANCES
S.E.B.	RODRIGUEZ GROUP
SILIC	SES GLOBAL FDR
SAFT	SPIR COMMUNICATION
SUEZ ENVIRONNEMENT	STMICROELEC.SICO
TECHNICOLOR	THOMSON
SECHILIENNE SIDEC	TRIGANO
UNIBAIL-RODAMCO	GDF
VILMORIN & CIE	SUEZ