

Role of regulatory framework and restrictions on entry and expansion

Introduction

1. This appendix considers various ways in which the regulatory framework might act to restrict entry and expansion. In particular, we considered:
 - (a) independence rules on client size;
 - (b) audit firm ownership rules;
 - (c) rules on component or joint audits; and
 - (d) influence of the Big 4 firms on standard setting.

'Independence' rules on client size

2. There were regulations in place designed to protect auditor independence because this was an important dimension of audit quality. We set out these regulations in more detail in Appendix 8. In this appendix we considered whether aspects of these regulations might have the effect of restricting entry or expansion.

Size of client—relative size of audit fees to size of firm

3. There were regulations in place to ensure that an audit firm or audit partner within the firm did not become over-reliant on a sole audit client, or small number of audit clients, and that audit fees were not influenced or determined by the provision of non-audit services to the audit client (the APB's Ethical Standard 4 (Revised)—Fees, remuneration and evaluation policies, litigation, gifts and hospitality (ES4)). The relationship between audit and non-audit services and fees has been reviewed in Appendix 20.
4. There were specific restrictions governing the proportion of fees an audit firm might receive from one audit client (relative to the annual fee income of the audit firm or the part of the firm by reference to which the audit engagement partner's profit share was

calculated). Where the total fees for both audit and non-audit fees receivable from a listed company by the audit firm regularly exceeded 10 per cent of the annual fee income of the audit firm (or 15 per cent for non-listed companies), the firm could not act as auditor and had to either resign or not stand for reappointment, as appropriate. Where the proportion was between 5 and 10 per cent for a listed company (or between 10 and 15 per cent for non-listed companies), the audit engagement partner had to consider appropriate safeguards to eliminate or reduce the threat to the auditor's objectivity and independence. Appropriate safeguards might include reducing the non-audit work undertaken (in the case of a listed company), or applying independent internal quality control reviews (in the case of a listed or unlisted company).

5. There were also specific restrictions where an audit engagement partner was employed exclusively or principally on an audit engagement, and was remunerated on the basis of the performance of part of the firm which was substantially dependent on fees from that audited entity. In this case, the audit firm had to assess the self-interest threat and apply safeguards, which might include reducing the dependence of the partner or others in a position to influence the conduct and outcome of the audit by reallocating the work within the practice, and a review by an audit partner who was not involved with the audit.
6. Each of these specific restrictions might create difficulties for smaller audit firms, by requiring the audit firm to resign or not to stand for reappointment, by restricting the amount of non-audit fees, by restricting the amount of work an audit engagement partner could do for a particular audit client, or by increasing the cost of carrying out the audit due to the requirement for an independent quality control review.

Paragraph 41 of ES4 acknowledged this difficulty:

A new audit firm seeking to establish itself may find the requirements relating to economic dependence difficult to comply with in the short

term. In these circumstances, such firms would: (a) not undertake any audits of listed companies, where fees from such an audited entity would represent 10% or more of the annual fee income of the firm; and (b) for a period not exceeding two years, require external independent quality control reviews of those audits of unlisted entities that represent more than 15% of the annual fee income before the audit opinion is issued. The firm might also develop its practice by accepting work from entities not audited by the firm so as to bring the fees payable by each audited entity below 15%.

7. We considered the effect of the regulations on one of the larger Mid Tier firms. GT's 2012 firm level revenues were £417 million.¹ For GT to be caught by the restrictions set out above, total audit and non-audit fees for its largest client would need to exceed £40 million.² As noted in Appendix 11, the median total fee in 2010 for audit and audit-related services was £579,000 for FTSE 350 companies. We inferred from this that the regulations would be unlikely to prevent a larger Mid Tier firm from taking on the majority of FTSE 350 audits.
8. However, the current rules on fees and independence would prevent larger Mid Tier firms from auditing the very largest clients in the FTSE 100. We noted (see Appendix 11) that BDO suggested that there were around 35 FTSE 100 companies that it would currently be unable to audit due to the companies' significant international and global dimensions and/or the degree of specific-sector knowledge required. Hence, it would appear that there were other reasons preventing the Mid Tier firms from taking on the largest FTSE 350 audit clients that were unrelated to this aspect of the regulatory framework.

¹ GT Transparency Report 2012, p34.

² Subject to the level of firm revenue and the profit-sharing arrangements for partners.

SEC requirements

9. In 2011, there were 30³ UK companies which had their securities traded on a US market and were registered with the SEC.⁴ SEC regulations on auditor independence were more stringent than UK Ethical Standards in a number of ways, including the nature of non-audit services firms could provide their clients.⁵
10. There were a number of UK banks registered with the SEC.⁶ 'Covered persons' were not allowed to be issued with loans by audited entities.⁷ The SEC interpreted overdraft facilities to be a loan, regardless of whether the facility was used.⁸ As UK current accounts typically had an overdraft facility, this meant that the audit team was not allowed to have a banking relationship with the client and prior to appointment would need to 'cleanse' themselves. UK Ethical Standards allowed auditors to have arm's length banking relationships with their audit clients.

Audit firm ownership rules

11. In order to protect the independence of audit firms, there were restrictions on who could own, control and manage an audit firm, and these differed depending on whether the firm was a partnership or a 'body corporate' (which included a limited liability partnership).⁰⁰
12. All the audit firms were originally set up as partnerships, with each individual partner being jointly and severally liable for claims against the partnership. Following the Limited Liability Partnerships Act 2000, limited liability partnerships were available as

³ Twenty-three are constituents of the FTSE 100, one is a member of the FTSE 250 and three are subsidiaries of FTSE 100 companies which are also SEC registered.

⁴ www.sec.gov/divisions/corpfin/internat/foreignsummary2011.pdf.

⁵ PwC said that there was a much stricter interpretation in the SEC rules compared with the UK Ethical Standards. The SEC rules had identified five absolutely prohibited types of NAS and a further five conditionally prohibited types of NAS which were applied without any concept of materiality in relation to the services' input to the financial statements and in particular, the SEC rules also involved a stricter definition of what comprised a management function.

⁶ Barclays, HSBC, Lloyds Banking Group, NatWest, RBS and Santander UK.

⁷ Covered persons included the audit engagement team, any partners more senior than the AEP, any partners in the same office as the AEP and any partners or managers who provided 10 hours or more of NAS.

⁸ Based on definitions determined by the American Institute of Certified Public Accountants.

a new form of corporate entity with a separate legal personality, thus reducing the individual exposure of the partners. All the Big 4 firms, and all the Mid Tier firms (with the exception of RSM Tenon Group PLC), were now structured as limited liability partnerships.⁹

13. Schedule 10, Part 2, of the Act contained the rules governing ownership of audit firms which differed depending on whether the firm was a partnership or a 'body corporate'. These were also in the ICAEW Audit Regulations and Guidance.
14. For bodies corporate, the majority of shareholders' voting rights must be held by qualified individuals or registered auditors;¹⁰ the majority of the management board, committee or other body must also be qualified individuals or registered auditors. There was no restriction on who might own the shares. For partnerships, the partners must be chartered accountants (or affiliates of a registering institute), and the majority of the voting rights must be held by qualified individuals, registered auditors or combination of both.
15. KPMG told us that such restrictions could in theory make it less attractive for a third party to provide a majority of the capital without having commensurate voting rights.
16. Oxera (which during this investigation acted on behalf of BDO and GT) published a report for DG Internal Market and Services in October 2007 entitled *Ownership rules of audit firms and their consequences for audit market concentration*. It concluded that restrictions on access to capital represented one of several potential barriers to entry into the market for large audits: in general, the analysis revealed that financial

⁹ There were two minor details to note: (a) KPMG provided audit services out of KPMG Audit Plc, which was owned by KPMG LLP; and (b) the parent body for Baker Tilly was Baker Tilly UK Holdings Ltd, owned by current or former partners of Baker Tilly UK, with each service line incorporated as a limited liability partnership, with the partners responsible for that service line being members of the relevant LLP. For more detail, see Appendix 9.

¹⁰ That is, a member of the ICAEW, ICAS and/or the ICAI, or a member of the ACCA.

capital was often of limited use for the majority of audit firms that had limited investment plans, but that capital was found to be critical for firms seeking to expand into the market for larger audits. The report concluded that the relaxation of the current ownership and/or management rules could give firms the possibility of access to cheaper capital and that this could create new entry opportunities, albeit the impact of any change in this area would need to be considered alongside the impact of other barriers to entry. Oxera considered that the potential negative effects on independence from changes to ownership rules could be mitigated.¹¹

17. GT told us that to date the ownership rules for audit firms had not constrained their capital funding structure, citing its win of a £41 million per year contract in respect of the transfer of work from the Audit Commission in the current financial year and its transaction with RSM Robson Rhodes in 2007 as just two examples of its ability to make significant investment. In recent years, the firm had also acquired a number of large Individual Voluntary Arrangement portfolios.
18. BDO told us that restrictions on the methods by which audit firms could raise capital and attract investment had not restricted its expansion to date.¹²
19. We have not seen evidence that, in practice, access to capital was a factor that restricted entry or expansion. Whilst we accepted that if a small audit firm wanted to make a significant investment in capacity and capability before going to the market it could require external financing, the larger Mid Tier firms told us that they did not need to make additional significant investments.¹³

¹¹ 'Ownership rules of audit firms and their consequences for audit market concentration', Oxera, prepared for DG Internal market and Services, October 2007.

¹² [BDO response to the issues statement, 13 January 2012](#).

¹³ See also Oxera's paper on 'Entry Profitability of a mid-tier firm', which assumes that no significant additional investment is required to enter the FTSE 350 audit market for the larger Mid Tier firms.

20. We also considered whether partner investment horizons might be affect the partnerships' appetite to undertake investments that had a long pay-off. The evidence we received on this point did not suggest this to be the case. PwC pointed out that the equity markets were capable of short-termism and that partners' incentive arrangements were designed to ensure that they took a sufficiently long-term view of the partnership's success.

Rules on component or joint audits

21. For a group audit where there were overseas entities, the audit engagement team might not always carry out all the audit work itself, instead commissioning another audit firm to carry out the audit work for part(s) of the group. In this situation, the audit engagement team would rely on what was termed a 'component auditor' to carry out the work on its behalf. A component auditor expressed an audit opinion on the financial statements of a component, which was a business or entity whose financial information was included in the group financial statements. International Standard on Auditing (UK and Ireland) 600 (ISA (UK and Ireland) 600) 'Special Considerations—Audits of Group Financial Statements (including the work of component auditors)' applied to group audits. A component auditor may or may not be another audit firm in the same firm network as the audit engagement team (ISA (UK and Ireland) 600 was silent on this).
22. ISA 220—Quality Control for an Audit of Financial Statements stated that the group engagement partner was required to be satisfied that those performing the group audit engagement, including component auditors, collectively had the appropriate competence and capabilities, and that the group engagement partner was also responsible for the direction, supervision and performance of the group audit engagement. As a result, the auditor's report on the group financial statements was not allowed to refer to a component auditor, unless required by law or regulation (in

which case the report should indicate that the reference did not diminish the group engagement responsibility for the group audit opinion).

23. Audit risk was a function of the risk of material misstatement of the financial statements and the risk that the auditor would not detect such misstatements (ISA 200 Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing (UK and Ireland)). In a group audit, this included the risk that the component auditor might not detect a misstatement in the financial information of the component that could cause a material misstatement of the group financial statements, and the risk that the group engagement team might not detect this misstatement.
24. The group engagement team must be in a position to obtain 'sufficient appropriate audit evidence' on which to base the audit opinion on the group financial statements, and when determining the nature, timing and extent in its involvement in the risk assessment procedures and further audit procedures performed by the component auditors on the financial information of the components, it must consider certain matters which were set out in ISA 600.
25. In order to gain an understanding of the component auditor, the group engagement team needed to obtain an understanding of the following:
 - (a) whether the component auditor understood and would comply with the ethical requirements, and was independent;
 - (b) the component auditor's professional competence;
 - (c) whether the group engagement team would be able to be involved in the work of the component auditor to the extent necessary to obtain sufficient appropriate audit evidence; and

(d) whether the component auditor operated in a regulatory environment that actively oversaw auditors.

Evidence from firms

26. Group A told us that it was concerned that although joint or shared audit was permitted under the International Standards on Auditing, ‘misperceptions can abound that it is not’.¹⁴

27. However, we noted that no case study company cited the misperception mentioned by Group A. Case study clients tended to prefer a single auditor. The reasons given for this were that generally the communication and coordination was better:

(a) The GFC at Company G said that with regard to the joint audit of the [redacted] subsidiary, the challenge was making sure that there were no gaps or overlaps in the two audit firms’ work. He saw joint audit as an added complication rather than an added assurance.¹⁵ Company G’s AEP said that the joint audit in [redacted] cost the company at least [redacted] £[redacted] million more than would be the case if PwC were the sole auditor.¹⁶

(b) The Company C CFO expressed a preference for one audit firm conducting audits of all subsidiaries. He said that the benefits of this were that it was easier to manage, to coordinate and to control. His only concern would be if the audit firm was not able to provide adequate competency in a particular territory. This was not an issue for the company. He described joint audits as twice the coverage but half the value and considered that the idea of better assurance was an illusion, as it was easy for issues to slip between the gaps in the firms. This view

¹⁴ Letter, 27 March 2012 from the Group A firms to CC. www.competition-commission.org.uk/assets/competitioncommission/docs/2011/statutory-audit-services/group_a_firms_initial_submission.pdf

¹⁵ Appendix 2, Case Study G, paragraph 15.

¹⁶ Appendix 2, Case Study G, paragraph 110.

was based on his experience as an auditor on a joint audit rather than as a CFO purchasing a joint audit.¹⁷

(c) At Company I, the Group FD said that the company used the same auditor for all its subsidiaries where a statutory audit was required. The FD thought that this had positive aspects from a coordination and communication point of view. The FD thought that the process was generally much easier with only one auditor, but this would not stop the FD changing a particular subsidiary's auditor if there was a serious issue.¹⁸

28. Company A provided an example of communication difficulties between two different audit firms at parent and subsidiary level.¹⁹ In particular:

(a) The Company A CFO thought it was too complex. It resulted in one firm reporting to the other firm which then reported back to the first firm (sometimes this involved reporting back to the same people). Given this, it was sensible to have just one auditor to make the process more efficient (and cheaper).²⁰

(b) The Company A former AEP had no doubt that with one firm conducting the audit there would be better dialogue between group and divisional auditors.²¹

29. Company A saved 10 per cent off the audit fee when the current auditor took on the audit in full: there were some cost savings in relation to the consolidation process, as using just one audit firm removed some duplication of effort.²² We were aware of one instance of a company that used a shared audit arrangement for its group audit: that of [X]: GT audits [X]; [X] audits [X] ([X] is a component of [X]). GT told us that the shared audit example of [X] had created service improvements and cost savings

¹⁷ Appendix 2, Case Study C, paragraph 10.

¹⁸ Appendix 2, Case Study I, paragraph 8.

¹⁹ Appendix 2, Case Study A, paragraph 32.

²⁰ Appendix 2, Case Study A, paragraph 32.

²¹ Appendix 2, Case Study A, paragraph 125.

²² Appendix 2, Case Study A, paragraphs 40 & 104.

over using a Big 4 auditor for 100 per cent of the group audit, without a loss of quality.²³ It also told us that it was currently promoting shared audits.

30. Deloitte told us that although ISA 600 was 'network neutral' in that the requirements of the standard did not distinguish between the steps to be taken for component auditors with which a firm had a relationship and those with which it did not, the practical application of the requirements could be dealt with more easily with member firms. GT told us that it believed there was a misunderstanding by many companies regarding the application of ISA (UK and Ireland) 600, with companies being misinformed that the ISA 'requires' the use of the same auditor for all companies within a group.²⁴ This might lead to a 'winner takes all mentality' and might show that auditing a significant part of a larger group might not be credible entry strategy: without the opportunity to audit a large client in a particular sector, it was difficult for a Mid Tier auditor to develop recognition and knowledge of the business and for a company to quality test an auditor outside the Big 4 firms.
31. Big 4 firms said that there were practical advantages of using the same audit firm network for a group audit, particularly if the group was international, possibly resulting in a higher-quality and more efficient audit than would otherwise be the case. The first factor would be clearly visible by the audit client, whereas the other factors listed below might be visible only to the group audit engagement team itself, but all might contribute to a reduced cost of carrying out the audit:
- (a) Reduced administrative burden for the audit client. The audit client effectively outsourced the administrative burden for managing the audit to the group auditor instead of having to manage multiple audit relationships itself. Deloitte told us that

²³ GT response to the issues statement, 12 January 2012.

²⁴ GT response to the issues statement, 12 January 2012.

the majority of its clients expected it to use member firms for the purpose of a group audit.

- (b) More straightforward communication process. (i) With the trend towards shared service centres for large groups, audit work had become more centralized, resulting in more inefficiency if the client asked more component auditors to carry out audit work on group-wide control system. (ii) Increasingly, firms were using electronic systems to manage the volume of communication between group and component auditors—while it was possible to provide non-member firms with access to the secure collaboration site, it was easier for member firms to use it as they were familiar with it.
- (c) More able to assess the competence of the component auditor.
- (d) Shared understanding of a common audit approach.
- (e) Use of an established network of individuals.
- (f) Greater cooperation and trust. (i) Greater openness in sharing findings because of the expectations that had built up as a result of being part of a network of firms. (ii) More straightforward interaction with member firm component auditors, particularly where the component auditor considered their position to be under threat due to the group audit relationship.
- (g) Issue of access to audit working papers. There was no requirement in ISA 600 for component auditors to provide unrestricted access to their working papers. PwC said that each individual request for access to a component auditor's working papers by a group engagement team was assessed, taking into consideration the relevant legal requirements and risk to the firm. The component auditor may typically permit a group engagement team conditional access and to restrict this to those audit working papers that the parent company auditors had requested and that it considered reasonable.

32. Control of risk was cited by Big 4 firms as a very important consideration: as mentioned above, the group audit engagement team was not allowed to refer to a component auditor in its audit opinion on the group audit. Some of the largest four audit firms told us that they placed restrictions and additional controls on the extent to which they would share a group audit:
- (a) PwC told us that a group audit appointment was usually only accepted or continued if the part of the group examined by PwC firms represented at least 60 per cent of the group. There would be a risk concern in providing the group audit opinion if member firms of the PwC international network did not have direct oversight over the financial statements of at least this proportion of the overall group in question. Any exceptions to this principle required the approval of the UK assurance Risk Management Partner.
 - (b) KPMG told us that its policy required that when it was appointed as group auditor, but where the audit of more than 30 per cent (as measured by consolidated assets or consolidated gross revenues) of a group was carried out by component auditors who were not member firms, approval was required from the Quality and Risk Management Partner. Such approval was generally only given where the situation was expected to be temporary and the group auditor had extensive direct involvement in the relevant component audits so that it could be confident in the overall quality of the work. If not using a member firm, further work would be needed before concluding on competence, independence, adherence to regulatory and legal requirements, etc, because KPMG could not rely on a common audit methodology and quality control systems and monitoring policies and procedures.
 - (c) Deloitte told us that it was willing to rely on the work of any component auditor (whether a member firm or otherwise) provided that it was able to obtain the necessary understanding and confidence in the quality of their work and it was able to pass on the additional costs that this additional work entailed. Conversely

it was also willing to act as component auditor and report to any other group auditor provided that its requests were reasonable, it was able to comply and it met the appropriate independence requirements. It also told us that, from a risk perspective, it had concerns if it was a subsidiary/component auditor, but not if a parent/group auditor: it was not always possible to see all aspects of transactions as the subsidiary/component auditor. If Deloitte were to be appointed as component but not group auditors, where a non-member firm auditor was the group auditor, it might not take the appointment if it were unable to gain assurance and comfort on this matter.

Discussion

33. From the evidence that we had seen, it was not apparent to us that the regulations in this area restricted entry or expansion. There was no regulatory restriction on joint or shared audits. Whilst joint or shared audits were very rare in the UK, [redacted] was an example of how the regulations could allow shared audits in practice. The evidence pointed to the preference of company management to deal with a single firm as the reason for the infrequency of these types of arrangements rather than regulation.

34. We have not concluded on the accuracy of the statements made by Big 4 firms regarding the additional costs and risks involved in shared and joint audit arrangements, although we note that the views of the Big 4 firms could have an influence on company preferences. For example, the reluctance of the incumbent auditor to enter into a shared or joint audit arrangement could raise doubts about the success of any arrangement of this nature.

Influence of the Big 4 firms on standard setting

35. We note that there had been disquiet in the profession that accounting standards, particularly US standards, were more complex than necessary.²⁵ This was considered by some to play into the hands of the larger firms and increase the barriers to entry for smaller firms.
36. For example, at a hearing with investors, one Professional Pension Trustee told us that the growth in standards seemed to suit the Big 4's business model.
37. We note that the Big 4 firms had greater resource to be represented at regulatory forums, and to engage with standard setters and other regulatory agencies. Each of the Big 4 firms provided us with examples of the activities it carried out and the contact it had with regulators and legislators, and the resource it committed each year to these activities. (We have not listed these activities here.)
38. We considered the possibility that larger firms had influenced the standard-setting process in the past to their own advantage.
39. PwC told us that meetings of the IASB, IAASB and IESBA were held in public, agenda papers were posted online, and the meetings themselves were observed by representatives of other regulatory bodies. When government departments, regulatory bodies and standard-setting bodies consulted publically on their proposals, they generally posted the comment letters on their websites and provided feedback statements explaining how comments had been dealt with, thus making it possible for any interested party to evaluate the extent to which the final requirements had been 'influenced' by any particular organization.

²⁵ See for example PwC <http://www.pwc.com/us/en/point-of-view/reducing-complexity.jhtml>; Memorandum to HoL Inquiry of Professor Vivien Beattie, Professor Stella Fearnley and Tony Hines, 3 October 2010, Section 2.2.; and Auditors: Market Concentration and their role—Economic Affairs Committee—Supplementary memorandum by Professor Stella Fearnley (ADT 51) Section 3 www.publications.parliament.uk/pa/ld201011/ldselect/ldeconaf/119/10101204.htm.

40. PwC also cited examples of proposals where its views had not been accepted, including the European Commission's Green Paper on audit.
41. Deloitte also stated that its ability to influence changes in audit regulation was 'limited at best': the FRC was structured as an independent body where the firms' representation and influence were low. 'There is no untoward influence'.
42. We considered the current influence of the Big 4 firms on the FRC. We noted that a significant number of members of FRC committees were Big 4 partners, staff or alumni; however, this was to be expected. We did not think that the proportion of Big 4 partners, staff and alumni (around 50 per cent) appeared to be inappropriately high given the number of representatives from other institutions. We note that no members of the main board are practising auditors. However, we note that there were few representatives of the larger Mid Tier firms, but we considered that it was difficult to benchmark this. We also note that of those members of FRC committees with accounting expertise, a large proportion were Big 4 alumni.
43. In summary, we considered that it was possible that influence of the Big 4 firms on standard setting may be a factor tending to favour increased complexity, but that there were likely to be other, more fundamental, factors at work, such as increased complexity and globalization of reporting organizations.

Evidence of tacit coordination

Introduction

1. This appendix considers whether tacit coordination by the Big 4 audit firms restricts competition in the supply of statutory audit services to FTSE 350 companies. This theory was contained in our issues statement.¹
2. Tacit coordination may arise when market conditions are sufficiently stable and rival firms interact repeatedly so that they may be able to anticipate each other's future actions, allowing them to establish an internally and externally sustainable coordinated course of action, without resorting to direct communication and information sharing or agreeing expressly to align incentives and expectations. Such tacit coordination can emerge when competitors are able to arrive at a common perception of how coordination, focused on a particular aspect of competition, should work and, in particular, of what competitive dimension can serve as a focal point.²
3. Direct communication or information sharing among competitors which leads to an agreement to fix prices, share markets or allocate customers is prohibited by competition law,³ and investigation and enforcement of these matters are the responsibility of the European Commission and/or the OFT, not the CC. The CC is able to consider varieties of coordination as part of its investigation into the relevant features of a market under the terms of reference.
4. The structure of this appendix is as follows. We:
 - (a) set out the theory of harm we have considered;

¹ www.competition-commission.org.uk/assets/competitioncommission/docs/2011/statutory-audit-services/111207_issues_statement_final.pdf.

² CC draft Guidelines for Market Investigations (June 2012), paragraph 226: www.competition-commission.org.uk/assets/competitioncommission/docs/2012/consultations/market_guidelines_main_text.pdf.

³ By section 2(1) of the Competition Act 1998, and by Article 101(1) of the Treaty on the Functioning of the European Union.

- (b) summarize the firms' relevant responses; and
- (c) explain our approach to the assessment of this theory and set out and assess the relevant evidence we have gathered.

Theory of harm

5. In the issues statement we said that conditions conducive to tacit coordination of behaviour appeared to exist in the supply of audit services to FTSE 350 companies, including: high concentration; significant barriers to entry; limited competitive constraint by Mid Tier firms; price transparency (since audit fees are publicly disclosed in a company's annual report and accounts); existence of switching costs; stable demand due to the statutory requirement for an audit; and stable market shares.
6. We also said that audit and accounting standards and other regulatory requirements may reinforce similarity in business models and cost structure and reinforce the conditions in which tacit coordinated behaviour may take place.
7. We said that some of the characteristics of the market detailed in paragraph 9 of the issues statement could be a result of tacit coordination, which can take place with respect to price and/or geography or industry sector. In particular, we noted the following characteristics: stable market shares; not all of the Big 4 firms were present in certain industries, such as banking, mining and utilities; and companies switched auditor and tendered their auditing services infrequently.
8. We considered that since the appointment of auditors was made by the audited companies, either following a negotiation or tender, tacit coordination on prices was perhaps less likely than some form of tacit coordination with regard to geography or industry sector. The latter would arise if firms chose not to compete for certain customers or if they decided not to enter the audit market in specific sectors.

The firms' response

9. The firms' responses to the issues statement are summarized in [Annex 1](#) to this appendix. We consider the key points to be as follows.
10. BDO generally agreed with the points made in the issues statement and urged the CC to look at the pricing behaviour of the Big 4 firms following competitive tenders.
11. GT argued that features of the market were conducive to tacit coordination, in particular that:
 - (a) The market was highly concentrated, which made it easier for firms to monitor the behaviour of their competitors; the independence rules, conflicts and regulations further limited choice; and the market had remained highly concentrated for a significant period of time.
 - (b) Not all the Big 4 firms were present across all sectors, which meant that in certain sectors/industries there were even fewer rivals to monitor.
 - (c) The name of a company's auditor and the audit fee paid was publicly disclosed, which meant that it was easy to determine the auditor for every FTSE 350 company and audit fees could be readily compared.
 - (d) Specific minimum standards meant that there was a high degree of transparency with regard to the audit services provided.
 - (e) Demand for audit services was stable given the statutory requirement for audits.
 - (f) Aggressive price cuts in the market for audit or non-audit services would be an effective punishment strategy as this would have had a large detrimental impact on revenue and profitability given that lower prices would not increase demand and the costs were largely fixed in the short term.
 - (g) There were significant barriers to entry and expansion in the audit market and limited existing competitive constraint by Mid Tier firms.

12. BDO and GT have also encouraged the CC to consider evidence of tacit coordination between the Big 4 firms to reinforce barriers to entry and in relation to the regulatory framework.

13. The Big 4 firms (in separate but similar submissions) argued that market conditions were not conducive to tacit coordination. In particular, they variously argued that:
 - (a) Audits were not homogenous products but bespoke services tailored to the specific needs and complexities of large companies, and those needs commonly changed from year to year.
 - (b) There was not full transparency on fees: audit fees were individually negotiated with each company management and approved by its ACs; the fee disclosed related to the relevant financial year and so might not be current; and the level of fees paid would vary from company to company, reflecting its size, the nature of its business, the particular issues encountered in the audit, the nature of the audit carried out, etc.
 - (c) There were only a small number of sectors in which only a limited number of large audit firms were currently providing audit services to large companies, and all the largest firms were capable of making a competitive offer in all market segments.
 - (d) Audit firms differed materially with respect to their size in terms of revenues and number of clients, their strategies for growth, the relative size of different practice areas, international organization, their client base, and their experience. It was also said that audit relationships were likely to be valued differently by different firms depending on the benefits that an audit was likely to bring in terms of learning by doing, reputation and other factors.

(e) Market shares had not been stable and differed between large audit firms, and the scope of the audit services provided to its audit clients had changed as their businesses had grown and changed.⁴

(f) FTSE 350 companies were strong, well-informed purchasers.

14. The Big 4 firms also argued that they had a strong incentive to compete to win tenders when these happened as: client relationships were long term and high value; tenders for FTSE 350 audits were infrequent⁵ and unpredictable as to timing; a refusal to tender would damage an audit firm's relationship with a company and its reputation; and successful firms would invest heavily among other things in their expertise, reputation and international capability and would want to realize economies of scale. Coordination was also said to be unsustainable given uncertain pay-offs from not competing aggressively for a particular engagement.

15. The Big 4 firms also said that there was no evidence of tacit coordination (see [Annex 1](#)).

Our approach and evidence of conditions conducive to coordination

16. We first considered the evidence in relation to the conditions in the supply of audit services to FTSE 350 companies that might have been conducive to tacit coordination as set out in the issues statement (see paragraph 5). We also considered additional points made by the parties in relation to the ability and incentives for audit firms to coordinate behaviour in the supply of audit services to FTSE 350 companies, and the sustainability of such behaviour.

⁴ KPMG also said that there was great uncertainty about the length, and therefore the value, of the audit relationships. They may be terminated not only because of poor performance, but also because of external reasons such as mergers and other changes at the client outside the control of the audit firms.

⁵ KPMG said that tendering and other market testing was becoming more frequent.

17. We then considered whether there was evidence that the Big 4 firms had in fact adopted coordinated strategies.

Market conditions for tacit coordination

18. The three general conditions for tacit coordination set out in our draft guidance⁶ were (a) whether firms have sufficient awareness of each other and the ability to anticipate rivals' actions, (b) tacit coordination has internal sustainability (ie it is in firms' individual interests to coordinate) and (c) external sustainability (ie coordination is unlikely to be undermined by competition from outside the coordinating group or from the reactions of customers).
19. We assessed whether the conditions which would support tacit coordination were present, considering in particular:
- (a) concentration and stability of market shares;
 - (b) stability of demand;
 - (c) price transparency;
 - (d) barriers to entry;
 - (e) competition from non-Big 4 firms; and
 - (f) switching costs.
20. We also considered (g) other arguments put by the parties.

Concentration and stability of market shares

21. Statistics on market shares in the supply of audit services to the FTSE 350 companies are given in Appendix 5.

⁶ www.competition-commission.org.uk/assets/competitioncommission/docs/2012/consultations/market_guidelines_main_text.pdf, paragraph 233.

22. These results showed that over the period 2002 to 2010 the Big 4 firms had consistently carried out the audits for more than 90 per cent of FTSE 350 companies, and that these audits accounted for more than 95 per cent by total value of FTSE 350 audit fees.
23. These results also showed that:
- (a) There were differences between the Big 4 firms in the shares they had had of FTSE 350 audits (measured by number of clients and audit fees). This was the case when we looked at the shares across all FTSE 350 companies and shares by industrial sector. The relative size of the audit firms was relevant to the incentives to coordinate and the ability to identify coordinated strategies.
 - (b) The shares each of these firms had had of FTSE 350 audits (measured by number of clients and audit fees) had changed over time, both the overall shares and shares by industrial sectors. We considered the stability of the market to be relevant to the ability of firms to monitor deviation from coordinated strategies.

Stability of demand

24. A statutory audit was a legal requirement for FTSE 350 audits. The level of assurance a statutory audit provided was also specified by regulation (see law and regulation working paper).⁷ However, the work required in carrying out a particular audit engagement and demands of audit clients may have changed over time. In addition, the movement of companies in and out of the FTSE 350 meant that the particular companies to which this requirement applied also changed over time. Using data submitted as part of the public data set, we knew that there had been 542 companies in the FTSE 350 during the period 2006 to 2011.

⁷ www.competition-commission.org.uk/assets/competitioncommission/docs/2011/statutory-audit-services/law_regulation_wp_final_for_publication.pdf.

25. We considered that changes in the work required to carry out a particular FTSE 350 audit would make coordination on prices more difficult. In most years the audit fee and the work required would be discussed by the firm and client. Rival firms would not have sufficient information on the scope of the audit to assess how any changes in the published audit fee might relate to changes in the work carried out. This had the effect of reducing the transparency on price.
26. We considered that change over time in the structure of demand for FTSE 350 audits would not undermine the incentives for tacit coordination on price. In particular, audit firms would not have an incentive to, say, cut prices in order to achieve growth by expanding demand for FTSE 350 audits. The demand for audit services was outside the control of audit firms.
27. We also considered that movements in and out of the FTSE 350 would not adversely affect the ability of the firms to monitor their rivals' behaviour. The companies that must undertake a statutory audit was public information that was immediately available, as was the identity of their auditor.
28. Equally, the Big 4 firms as informed observers could identify companies that were likely to enter or exit the FTSE 350. Nevertheless we accepted that the movement of companies in and out of the FTSE 350 might make tacit coordination based on the identity of the client or the characteristics of the clients such as industry sector more difficult to sustain. In particular, we considered that this movement contributed to the uncertainty on the identity of available clients, thereby making it more difficult for firms to form a consensus on the allocation of clients or sectors (see paragraph 12).⁸

⁸ And set out in more detail by KPMG (see [Annex 1](#), paragraphs 30–35).

Price transparency

29. Audit fees paid by FTSE 350 companies were published in the annual reports and accounts. The audit fee for each FTSE 350 audit was therefore information that was publicly available soon after an audit was complete.

30. Audit pricing would be transparent if audit firms were able accurately to compare audit fees they had charged or were proposing to charge with those that other firms had charged their FTSE 350 clients. We considered that such comparisons were not straightforward as products were not homogenous and account needed to be taken of the wide range of factors that affected audit fees, including the need for specific sector experience, the complexity and risk profile of the organizations, the scope and extent of substantive testing necessary, and the geographical interests of the company.⁹

31. Although some of this information on FTSE 350 companies was publicly available, the level of detail might have been insufficient to allow accurate comparison and even where information was available there was likely to be imprecision in the assessment. We found in the survey and in our case studies that companies did benchmark their audit fees, but that comparisons were made with audit fees paid by other companies in the same sector and of a similar size, or were otherwise considered to be good comparators. Accordingly, given the lack of accurate information regarding the benchmarks, we thought that such benchmarking gave a broad rather than precise indication of the relative levels of audit fees.

32. GT said that there was a high degree of transparency in the product delivered. In particular: the provision of audit service was subject to specific minimum standards;

⁹ A firm that had bid, but lost, in a tender would have a clearer view of the price of the winning firm, since the loser was likely to have invested in becoming familiar with the requirements of the tendering company's audit through the tender process.

and there was a high degree of transparency with regard to the level of service provided to audit FTSE 350 companies. We agreed that there was a high degree of transparency on the physical and published outputs of an audit, but not on the scope of a FTSE 350 audit and the work required to conduct the audit was engagement specific, reflecting a range of factors including: industrial sector; the structure of the organization; the geographic interests of the company; the nature of internal financial controls and the financial structure. Also, the demand for audit-related services, the fees for which may be included in published fees, differed between clients.

33. We acknowledged that audit fees were published after the work had been completed, but did not consider this delay to be material in the circumstances. In particular, the length of the client relationships¹⁰ and our finding that fees in the previous year tended to be the starting point for the negotiation of fees in the current year.¹¹

Barriers to entry

34. The nature and extent of barriers to entry and growth are considered in detail in paragraphs 10.31 to 10.34 of our provisional findings. We considered that there were barriers to entry and growth associated with the value attached by FTSE 350 companies to the reputation of the firm and relevant experience of the firm and audit team in the appointment of their auditors.

Competition from non-Big 4 audit firms

35. The evidence gathered on the competitive pressure the Big 4 firms faced from smaller audit firms in the supply of audit services to FTSE 350 companies is presented in the provisional findings (see paragraphs 10.6 to 10.31). We explain that

¹⁰ See Appendix 5, paragraphs 69–75.

¹¹ See paragraph 9.97 of the provisional findings.

it is our provisional view that in this market the Big 4 audit firms face limited competitive pressure from other audit firms.

Switching costs

36. Our assessment of switching costs is set out in the provisional findings (see paragraphs 9.149 to 9.176). It is our provisional view that there were substantial costs to a company associated with switching auditor but that these might be mitigated by the efforts made by firms to make the transition process smooth, and the fact that companies seemed to achieve reductions in audit fees in the first years after switching.¹²

Consideration of additional arguments by parties

37. Additional arguments made by the parties can be summarized as follows.
38. In the issues statement we said that audit and accounting standards and other regulatory requirements might reinforce similarity in business models and cost structure and reinforce the conditions in which tacit coordinated behaviour might take place. In response, Deloitte said that the firms differed materially, in particular with respect to their size in terms of revenues and number of clients, their growth, the relative size of different practice areas, international organization, their client base, and the client and people experience of the firm. Deloitte also said that substantial differences in business structures between audit firms reduced the ability to coordinate, including differences in the size and value of the customer base. This meant that the firms could not easily identify a common optimal price.

¹² See paragraphs 7.37–7.51 of the provisional findings.

39. PwC said that each large audit firm had its own commercial strategy and structure, and that it was, and it believed other large audit firms were, committed to growth which was primarily driven by winning clients from other audit firms.
40. The Big 4 gave a number of reasons why they would not have the incentive or ability tacitly to coordinate their behaviour, based on the identity of the clients. These included: the number of firms in the international networks that would need to be party to such behaviour; the number and complexity of factors that would determine the audit firms' decisions in relation to the sectors in which they operated; uncertainty about when audits would come up for tender; long-term nature and high value of client relationships; the damage a refusal to tender would cause to an audit firm's wider relationship with a company; and the economies of scale in the provision of audit services.
41. On the latter point, KPMG said that the investment by firms further undermined the incentive to coordinate because, having made such investments in people, training and the quality of their audit service, firms were incentivized to compete aggressively for clients, and to seek engagements across the full range of sectors in order to realize economies of scale and scope.
42. KMPG also said the evidence was that the Big 4 firms had placed different emphasis on the role of their audit businesses within the firm structure and that this would further undermine any attempt to align their incentives, and that any similarities in the business strategies of the Big 4 was evidence of fierce competition.
43. Deloitte said that it was not clear that there existed ways for the firms to enforce tacit coordination.

44. EY said that the relative infrequency of tenders, the limited number of potential customers in the FTSE 350 and the delay before audit fees were available publicly meant that it would be difficult for firms to establish a credible rapid retaliatory threat against competitors.
45. In considering these points, we have drawn on analysis contained in several of our appendices, in particular: Appendices 5, 9, 16 and 25.
46. Results extracted from the public and engagement data sets support statements that the Big 4 firms differed in respect of their revenues, number of clients, client base and the growth they had achieved on these measures. We also agreed that these differences were likely to mean that client and people experience differed between these firms.
47. We also agreed that uncertainty about demand would make coordination on price and the sector or identity of a client more difficult. This included uncertainty about:
(a) the length of a given engagement and how the scope of the engagement and demand for audit-related services evolved, and therefore the value of the engagement; and
(b) which audit engagements became available and when.
48. With regard to the business models of these firms, however, information presented in Appendix 9 suggested that the Big 4 firms were organized by service line and each offered broadly similar services. The proportion of the Big 4 firms' revenue generated from statutory audit varied between [§] per cent. The type of people they employed and their mix of staff by grade were also similar.
49. In Appendix 16, we also observed that the Big 4 firms' strategies for expanding their business, in particular their audit business, had similar elements. These included:

marketing strategies including the sponsorship of events and awards, and the provision of technical briefings aimed at building awareness and reputation; strategies for targeting particular existing and potential clients, including organizing meetings with key staff of the company to discuss their proposed approach to the audit engagement; and strategies for attracting, developing and retaining staff. Nevertheless, it appeared to us that how these strategies were implemented at a detailed level differed between firms.

50. We also noted that whilst the evidence was that firms were providing a similar range of services, it was difficult to assess differences in the emphasis placed on growing the audit business. We considered that differences between firms in the proportion of their business accounted for by audit services might also reflect legacy effects from the sale of consultancy divisions in the 1990s.
51. In Appendices 23 and 24 we made observations on the competitiveness of the tenders that there had been in recent years for FTSE 350 engagements. Whilst we accepted that the value of securing a particular client may differ between firms, this does not appear to be reflected in the competition between firms for engagements when they had been invited to bid and had participated in tenders.
52. We agreed that investment of the nature described above would reduce the incentive to coordinate. In appendices 28 and 29 we considered the evidence on the presence of economies of scale and scope in the delivery of audit services. We found evidence of efficiencies across engagements in the same sector, and the value attached by FTSE 350 companies to the reputation of the audit firm and relevant experience of the firm and audit team in the appointment of their auditors.

53. Finally, the information in Appendix 25 suggested that although the Big 4 firms were moving towards network structures with shared service centres that delivered corporate support functions and some standard substantive and analytical audit procedures, these were not universally driven by the network centrally, and there remained significant differences between the Big 4 firms in the structure and organization of their respective networks. These differences were reflected in the autonomy of the national firms in determining strategic direction, the geographical grouping and organization of the firms and the availability of financing to support the development of individual international member firms.¹³
54. BDO said that there was a substantial degree of multi-market contact between the Big 4, which would make punishment easier. Specifically, if a Big 4 firm wanted to punish a defector, whilst it would be difficult to punish it in audit because tenders were so infrequent there would be the option to punish it in non-audit services.
55. We agreed that the evidence suggested that the Big 4 firms frequently found that they were competitors in the provision of audit and non-audit services. Whilst we did not specifically consider above the feasibility of punishing deviation from a coordinated strategy, many of the points made in the context of considering the incentives for Big 4 firms to tacitly coordinate apply. In particular: uncertainty around the timing of opportunities to punish a defecting firm and the costs and benefits to the defecting and punishing firm; and uncertainty that defecting firms would associate behaviour in one market with conduct of rivals in another market.

¹³ Appendix 9, paragraphs in Firm-specific sections on 'Relationship with network'.

Evidence of tacit coordination

56. We have considered whether there was evidence that the Big 4 audit firms adopted tacitly coordinated strategies in competition for FTSE 350 audits. In particular, we looked at:
- (a) the information we had on market shares and whether this was consistent with coordinated behaviour; and
 - (b) the documentary evidence provided by the parties, in particular the documents relating to the tendering of FTSE 350 audits.
57. The Big 4 firms said that there was no evidence of tacit coordination. Deloitte said that generally the largest audit firms provided audit services across almost all industry sectors and that the exceptions, such as banking and mining, were in industries where there were a limited number of FTSE 350 companies. Deloitte also noted the change in market shares over time.
58. EY said that it competed aggressively for audit business.
59. PwC said that there was overwhelming evidence of fierce competition between the large audit firms, including targeting of each other's clients.

Market share information

60. GT said that market share of the Big 4 firms, as a group and individually, had remained stable. GT also noted statements in our consideration of the potential for a price-concentration analysis on the lack of variation in the concentration.
61. With regard to the shares of the Big 4 firms in the supply of audit services to FTSE 350 companies, we observed that over the period 2002 to 2010:

- (a) the shares (measured by number of clients and audit fees) of each of the Big 4 firms in the supply of audit services to FTSE 350 companies had changed;
- (b) the shares (measured by number of clients and fees) did not suggest sector specialization as the Big 4 firms had each had FTSE 350 audit clients in all of the fourteen industry sectors, with three exceptions (EY has not had any FTSE 350 bank audit clients and FTSE 350 telecommunications sector audit clients but did audit a number of global telecommunications companies, and Deloitte has not had any FTSE 350 real estate audit clients); and
- (c) although shares in some sectors had been fairly stable (for example, the industrial companies sector), generally this was not the case.

62. Mazars suggested that low levels of switching might be evidence of tacit coordination. We considered that there were alternative explanations for the observed levels of switching

Documentary evidence

63. At our request, the parties provided documents in their possession relating to their business strategies in the supply of audit services and the tendering of FTSE350 engagements over the last five years. It is our provisional view that the behaviour described by these documents is not consistent with coordinated behaviour as follows.

Strategies for winning business

64. The information provided is summarized in Appendix 16. We considered that the evidence suggested that all the Big 4 firms invested heavily in attributes that underlie reputation and strategies aimed at building relationships with potential FTSE 350 audit clients. This investment included high-level marketing activities that were not sector specific, recruitment and training, IT systems, knowledge and methodologies,

and the provision of technical briefs, and company-specific strategies. There was evidence that all the Big 4 firms actively targeted companies that were currently audit clients of rival firms, for example approaching the company specifically to discuss their proposed approach to the audit engagement together with an alternative fee schedule.

Tendering

65. The documents provided and the information we extracted from these is set out in Appendix 23. These documents provided information in relation to how audit firms decided whether to accept an invitation to tender and their approach to the preparation of a bid and any further negotiations with the potential clients.

66. The documentary information available to us has not provided evidence of behaviour that would suggest that the largest audit firms had adopted cooperative strategies in the process of competing for FTSE 350 audit clients that had come up for tender over the last ten years. In particular, the evidence suggested that the Big 4 audit firms usually participated in tenders when they were invited to do so. Where one of these firms had declined an invitation to tender, this was because of conflicts of interest created by non-audit work the firm had done for the client and an assessment by the firm that it would prefer to maintain that relationship with the prospective audit client. We did not have any evidence to suggest that firms had participated in, but competed less strongly for, some tenders. The evidence we had suggests that participation in tenders for FTSE 350 audits required a considerable amount of partner and senior management time, and we considered that a poor performance could be damaging to the firm's reputation.

67. BDO and GT suggested that the CC had not properly tested the evidence on tacit coordination in tenders. For example, whether the Big 4 had submitted prices to

tenders in a manner that appeared coordinated or tacitly agreed not to compete in certain market segments; and checked whether pricing patterns in tenders varied depending on whether there was a maverick (Mid Tier) competitor involved in the tender.

68. The audit firms had not been able to provide the information that would be required to conduct such an analysis of tenders. The data we were able to compile is set out in Appendix 24. However, the evidence we had suggested that tenders were competitive. In particular: only rarely did firms not participate in tenders when invited to do so; when firms participated in tenders they put considerable effort into the preparation of bids and engaged actively in the process; and prices were subject to negotiation in the selection and appointment process.

Evidence of coordination on other than price or client identify

69. BDO said that the CC should consider evidence of tacit coordination between the Big 4 to reinforce barriers to entry and expansion and in relation to the regulatory framework. BDO said that Big 4 firms had for many years:
- (a) held a particularly strong influence over regulatory bodies through secondments of staff to these bodies, representatives of Big 4 firms on their committees, and Big 4 alumni in senior positions.;
 - (b) used their professional and client training, as well as their marketing, employee and other communications, to create and perpetuate their reputational advantage, through (among others) their extensive alumni networks and intermediaries, including the explicit or implicit message that only the Big 4 firms were capable of providing audit quality and/or auditing large companies; and
 - (c) had a common strategy of seeking to deter audit clients from tendering and/or switching which further reinforced barriers to entry.

70. GT and Mazars made similar points.
71. We considered the influence of the Big 4 firms on standard setting in Appendix 21.¹⁴ We noted that there had been disquiet in the profession that accounting standards, particularly US standards, were more complex than necessary, and to play into the hands of the larger firms and increase the barriers to entry for smaller firms. Nevertheless we had no evidence of tacit coordination among the Big 4 firms to influence the regulatory framework to their advantage.
72. We considered above whether similarity in the business models and strategies was conducive to tacit coordination. In this context, we noted that whilst there were similarities there were differences in implementation. Moreover there was no evidence that the observed similarities were the result of coordination among the Big 4 firms.

¹⁴ Appendix 21, paragraphs 35–43.

Summary of responses to the issues statement

BDO¹

1. BDO generally agreed with the comments made in the issues statement. BDO urged the CC to scrutinize audit pricing, in particular:
 - (a) to compare audit pricing following tenders in which only the Big 4 firms participated, in comparison with those tenders in which BDO and/or other firms outside the Big 4 also participated, and where the incumbent auditor was a Big 4 firm, in comparison with those where the incumbent auditor was BDO or another firm outside the Big 4; and
 - (b) to compare audit prices over time following a competitive tender, as research had found that the Big 4 put their prices up within three years of winning a competitive tender, and to consider whether this was indicative of tacit coordination.
2. BDO said that whilst there was a time lag between audit pricing being agreed and being published, and not all details of services provided were disclosed, the statutory audit market was a great deal more transparent than many markets, particularly other professional services markets. That published audit fees were often used as the starting point for pricing proposals from other audit firms was said to indicate that they were a useful benchmark.
3. BDO said that competition between Big 4 firms in relation to tenders did not demonstrate a complete absence of tacit coordination between them. This was because:
 - (a) there were very few tenders for FTSE 350 audits each year;

¹ [BDO response to the issues statement](#), 13 January 2012, section 5.

- (b) the Big 4 did their best to discourage their audit clients from tendering, so as to minimize the need to retender and the likelihood of switching; and
- (c) most tenders for FTSE 350 audits were contested only by Big 4 firms.

4. BDO said that the substantial degree of multi-market contact between the Big 4 would make punishment easier. Specifically, if a Big 4 firm wanted to punish a defector, whilst it would be difficult to punish it in audit because tenders were so infrequent, there would be the option to punish it in non-audit services.
5. BDO said that the Big 4 firms had for many years: held a particularly strong influence over regulatory bodies, used their professional and client training, as well as their marketing, employee and other communications, to create and perpetuate their reputational advantage, through (among others) their extensive alumni networks and intermediaries, including the explicit or implicit message that only the Big 4 were capable of providing audit quality and/or auditing large companies; and a common strategy of seeking to deter audit clients from tendering and/or switching which further reinforced barriers to entry.

Deloitte²

6. Deloitte said that market conditions were not conducive to tacit coordination as the largest audit firms had neither the incentive nor the ability to engage in tacit coordination; and there was no evidence of tacit coordination.
7. On the similarity of business models, Deloitte said that the Big 4 audit firms differed materially, in particular with respect to their size in terms of revenues and number of clients, their growth, the relative size of different practice areas, international organization, their client base, and the client and people experience of the firm.

² [Deloitte response to issues statement](#), 26 January 2012, section 8.

8. Deloitte said that the issues statement wrongly suggested that the market was relatively stable, as Deloitte's share of the FTSE 100 audit market had grown very substantially from 5 to 22 appointments over the past 15 years, and the scope of the audit services provided to its audit clients had also changed as their businesses had grown and changed.

9. Deloitte said that there was no evidence that the Big 4 firms had the ability to engage in tacit coordination on price as follows:
 - (a) Audits were not homogenous products but bespoke services tailored to the specific needs and complexities of international companies and those needs commonly changed from year to year.
 - (b) Audit fees were individually negotiated with ACs, who were expert and well-informed buyers.
 - (c) While audit fees could be benchmarked at an aggregate level, it would not be possible to discern a deviation from alleged coordinated behaviour by a firm given the multiplicity of factors that were reflected in the audit fee.
 - (d) Although audit fees were publicly disclosed, this was the fee for the previous year's audit, not the fee for the current year's audit. This lack of immediate transparency meant that it would not be possible for any significant deviation from the prevailing behaviour by a firm to be observed by other firms in the market.
 - (e) Substantial differences in business structures between audit firms reduced the ability (as well as the incentive) to coordinate, eg differences in the size and value of the customer base meant that the firms could not easily identify a common optimal price.
 - (f) It was not clear that there existed ways for the firms to enforce any agreement, thereby undermining its stability.

10. Deloitte said that the conditions for tacit coordination on geography were not present in the audit market. It explained that auditing of FTSE 350 companies was not provided within defined sub-regions, either within the UK or internationally, and that the companies determined those jurisdictions in which they would be present and the distribution of their operations across those jurisdictions. Deloitte said that there was no meaningful way in which the largest audit firms could seek to coordinate on a geographical basis. Many audit firms had offices in all major cities across the UK and their international networks would include member firms in most major jurisdictions across the globe.

11. Deloitte said that the conditions for tacit coordination on a sector/industry basis were not present in the audit market. In particular:
 - (a) Generally the largest audit firms provided audit services across almost all industry sectors and where there were exceptions, such as banking and mining, these were industries where there were a limited number of FTSE 350 companies.
 - (b) Decisions in relation to which industries to operate in, such as banking, would depend upon the firm's own risk appetite. In respect of mining, the decision to operate would depend upon whether the firm's international network had a sufficiently robust audit capability in the jurisdictions where the mining operations took place. There was no sense in which these complex factors were susceptible to tacit coordination.

12. Finally, Deloitte said that its experience clearly demonstrated that there had been no tacit coordination by industry sector. It said that its FTSE 350 wins over the past 15 years had been spread across all sectors. It was actively considering investing in the necessary capabilities where it was under strength and was constantly monitoring the opportunities offered in each sector.

EY³

13. EY said that the conditions necessary for tacit coordinated behaviour were unlikely to exist in the audit market because: (a) there was no consistent, homogeneous product; (b) there was a lack of sufficient price transparency; (c) there was a lack of an effective retaliatory mechanism; and (d) scale economies incentivized growth.
14. EY said that there was therefore no standard FTSE 350 audit product. Each audit engagement was a distinct, bespoke product, and could differ as to the nature of the audit product delivered, and the way in which it was delivered. The work that was carried out to produce the audit report was said to vary significantly from company to company, reflecting the varying nature and scope of the companies' businesses and the design and effectiveness of their risk management and control systems.
15. EY said that although FTSE 350 companies were required to publish audit fees, there was no 'going rate' for FTSE 350 audits. The level of fees paid would vary from company to company, reflecting its size, the nature of its business, the particular issues encountered in the audit, the nature of the audit carried out, and the value of the appointment to the auditor (in terms of, for example, prestige or experience). EY also said that the negotiation of fees at the time of initial appointment and annual reappointment (and potentially during the course of the audit if it proved necessary to carry out additional work that was not reasonably foreseeable when the audit scope was agreed), coupled with the delay between the price being agreed and the price being published, further added to the lack of price transparency.
16. EY said that the relative infrequency of tenders, the limited number of potential customers in the FTSE 350, and the delay before audit fees were available publicly meant that it would be difficult for firms to establish a credible rapid retaliatory threat

³ [EY response to the issues statement](#), 12 January 2012, paragraphs 80–91.

against competitors who had displaced them at particular clients. These factors were said to provide strong incentives to compete aggressively to win a contract whenever it was up for tender.

17. EY said that audit firms which were successful in winning audit work from FTSE 350 companies would have made considerable investments in developing their expertise, reputations, quality of service, size and geographic coverage and the 'back office' support functions needed by such businesses. It said that there was an incentive for each audit firm to secure more large company audit work in order to: (a) realize economies of scale if these resources could be deployed over an increased number of large company audits; and (b) to gain the reputational advantage from expanding their representation in the FTSE 350.
18. EY also said that in a market with only 350 potential clients, who only put their audit work out to tender relatively infrequently, the incentive to compete aggressively to secure the appointment and to achieve consequent economies of scale (coupled with the risk for one firm of losing an existing audit client) was a further reason that tacit collusion was unlikely. EY said that the possibility of tacit coordination on a geographic basis was therefore highly implausible.
19. The culture at EY was said to be to pursue and hopefully win any plausible business prospect, and the idea of competing lightly to encourage reciprocation was not part of EY's mindset. EY considered that the aggressive pursuit of audits was essential to the development of broader market relationships.

GT⁴

20. GT said that all the conditions set out in the legal precedent necessary to facilitate tacit coordination were present in the supply of audit services to FTSE 350 companies.
21. GT said that:
- (a) The market was highly concentrated, which made it easier for firms to monitor the behaviour of their competitors; the independence rules, conflicts, and regulations further limited choice; the market had remained highly concentrated for a significant period of time; and there was transparency among the Big 4 auditors which allowed them to observe and monitor the behaviour of their rivals.
 - (b) The name of a company's auditor and the audit fee paid was publicly disclosed, which meant that it was easy to determine the auditor for every FTSE 350 company and audit fees could be readily compared with the fees charged by rivals.
 - (c) Not all of the Big 4 auditors were present across all sectors, which meant that in certain sectors/industries there were even fewer rivals to monitor.
 - (d) Given that audits were subject to specific minimum standards, there was a high degree of transparency with regard to the audit services provided.
 - (e) There was stability in the demand for audit services due to the fact that it was a statutory requirement for medium and large companies to have their financial statements audited.
22. GT also said that it was easy for the Big 4 auditors to punish deviation from a common policy by engaging in aggressive price cuts in the audit market or in the markets for non-audit services. It considered that such a price response would have a large detrimental impact on revenue and profitability as lower prices would not have

⁴ [GT response to the issues statement](#), 13 January 2012, section 5.

any market-expanding effect and the costs to the Big 4 of providing auditing services were largely fixed in the short term.

23. GT said that the statutory requirement for an audit created a clear profit incentive from engaging in tacit coordination. This was said to be because the overall market demand for audits was likely to be price inelastic. If audit fees increased, large firms would still have to purchase auditing services.
24. GT said that there were significant barriers to entry and expansion in the audit market, and limited existing competitive constraint by Mid Tier firms, which meant that it was difficult for rivals to enter and destabilize any coordinated behaviour among the Big 4 auditors.
25. GT said that it was not clear why the CC considered tacit coordination on prices to be less likely than coordination on geography or industry sector.
26. GT said that the prices charged by audit firms were significantly more transparent than for almost all other professional service providers. This transparency was said to allow the largest four audit firms to understand the prices that their rivals charged for an individual assignment (both in the previous year as well as over time), and thus arm them with critical information when tendering or analysing pricing of an individual company or within a sector of the FTSE 350. To the extent that any switching of auditor by FTSE 350 companies had taken place, this level of pricing information also allowed the largest four audit firms to understand the competitiveness of their bids and to identify whether any particular rival was pricing aggressively.
27. GT also said that given that audits were subject to specific minimum standards, there was a high degree of transparency with regard to the level of service provided to

audit FTSE 350 companies. Innovation, confidential and unique know-how, and intellectual property were not significant features of this market, which meant that there was a high degree of transparency in relation to the factors affecting the audit fees being charged.

28. GT said that the stability in the demand for audit services (due to the statutory requirement for medium and large companies to have their financial statements audited) meant that it was easy for the largest four firms to decipher the actions of their rivals from any random market-wide factors affecting demand and prices.

KPMG⁵

29. KPMG said that coordination around prices was highly unlikely as public sources on audit fees did not include sufficient information on the detail of the work to be undertaken and the locations to be covered in order to issue an audit opinion, so the fee alone was not informative to competitors. This was said to be particularly the case for larger and more complex clients.
30. KPMG said that it was difficult to see how audit firms had the incentives to sustain tacit coordination on customer identity or sector. It explained that for coordination to be sustainable, audit firms would have to forgo the opportunity to compete for a given customer's audit with a view to being rewarded in the future. KPMG said that for such behaviour to be internally sustainable, audit firms would have to be confident that they knew which future customers were allocated to them and be comfortable that the increased profits due to less than effective competition in the future more than compensated for the forgone opportunity to gain a new client in the present tender round. KPMG said that this was unrealistic for the following reasons.

⁵ [KPMG response to the issues statement](#), 16 January 2012, section 9, and [KMPG response to the Evidence of Tacit Coordination working paper](#).

31. First, KPMG said that there was great uncertainty about the length of audit relationships; audit relationships were likely to be valued differently by different firms depending on the benefits that an audit was likely to bring in terms of learning by doing, reputation and other factors; and the audits of large companies came up for tender at an unpredictable rate. KPMG said that in practice audit firms competed for audit engagements whether invited or not, and that audit firms continuously sought to win new audit clients by putting themselves forward and trying to win the confidence of companies that were not currently audit clients, including that of audit clients of the other Big 4 firms.

32. KPMG said that, secondly, any punishment of a deviation from a tacit agreement, for the same reasons, would be very uncertain in its timing and effect. KPMG also said that far from being provided in a stable market, audit services were constantly evolving due to changing regulatory requirements and best practice, audit firms' investments in quality improvements and new capabilities as well as companies' evolving audit needs.

33. KPMG also said that the incentives and ability of firms to coordinate were significantly undermined by certainties related to the scope of audit services, and the nature of the audit relationship. The overall scope of a client's demand, beyond the statutory audit, was said to often be determined after the engagement had been secured, and the incoming auditor would not necessarily have full visibility of the range of audit-related or assurance services that a company may have demanded at the outset of a relationship. These demands were said to vary (sometimes significantly) over time. There was also said to be great uncertainty about the length of a given audit relationship. Commercial failure or merger activity were given as only two of the reasons a company might change auditor, and the company's auditor had no way to control or predict these occurrences.

34. KPMG said that audit engagements were also likely to be valued differently by different audit firms, and securing a particular client might be worth more to one firm than another. For example, the audit of a company in a given industrial sector might be worth more to an audit firm which did not have a client in that sector than one which did.
35. KPMG said that the investment by firms further undermined the incentive to coordinate because, having made such investments in people, training and the quality of their audit service, firms were incentivized to compete aggressively for clients, and to seek engagements across the full range of sectors in order to realize economies of scale and scope.

Mazars

36. Mazars made similar point to those made by BDO and GT.

PwC⁶

37. PwC said that there was no tacit coordination and that coordination on geography or industry sector was no more likely than price coordination. It said that in order to coordinate tacitly on geography or sector, a firm would have to decline an invitation to tender or actively make it known that it was not interested in certain business. PwC said that there was no evidence that this happened other than for good objective reasons, and the overwhelming evidence was of fierce competition between the large audit firms, including the targeting of each other's clients, which would make any tacit coordination impossible.
38. PwC also said that market conditions were not conducive to tacit coordination:

⁶ [PwC response to the issues statement](#), 12 January 2012, section 7.

- (a) the structure of demand was not stable (companies moved in and out of the FTSE 350 and there were changes due to M&A activity etc);
- (b) there were strong well-informed purchasers;
- (c) each large audit firm had its own commercial strategy and structure, and PwC was (and it believed other large audit firms were) committed to growth which was primarily driven by winning clients from other audit firms;
- (d) there were only a small number of sectors in which only a limited number of large audit firms were currently providing audit services to large companies, and all the largest firms were capable of making a competitive offer in all market segments;
- (e) client relationships were long term and high value over the period of the relationship;
- (f) tenders were infrequent and unpredictable as to timing;
- (g) refusal to tender would damage an audit firm's wider relationship with a company;
- (h) market shares were not stable and differed between large audit firms; and
- (i) at the time of tender there was only limited predictability of audit scope over the life of the audit relationship; for example, future restructuring or mergers could not necessarily be predicted.

The tender process

Introduction

1. In this appendix we describe what happens when the audit engagement of a FTSE 350 company is tendered. Our sources of information were: submissions made by audit firms to the CC; a sample of invitation to tender letters and proposals for tenders of FTSE 350 audit engagements; and statements made in CC hearings.
2. We describe a preliminary stage when companies were considering whether to tender their audit engagement. At this stage the company may have informal discussions with the incumbent auditor and other firms.
3. If the company decides to tender, it issues invitation to tender letters. These set out in detail what is required of bidders, give details of the selection committee and process, and give supporting company information.
4. Once the letters were sent, we identified five additional steps:
 - (a) The firms invited to tender decide whether to participate in the tender.
 - (b) Preparatory discussions which give the firms the opportunity to familiarize themselves with the company and to gather the information they needed to prepare the bid, and the company the opportunity get to know the bid teams and test their capabilities.
 - (c) The firms prepare and submit written proposals.
 - (d) Firms are invited to give a final oral presentation of their proposals to the selection committee.
 - (e) The company appoints the winning auditor and may give feedback to the losing bidders.

5. The Big 4 firms all stated that the tender process was a competitive one that enabled companies to conduct a direct comparison of the skills and competences of the tendering firms.¹

Sources of information

6. This appendix is based on:
 - (a) the firms' responses to the MFQ regarding existing clients and former clients;
 - (b) 42 invitation to tender letters received by firms;
 - (c) 145 tender proposals submitted by firms;
 - (d) the findings of the case studies (see Appendix 2);
 - (e) firms' responses to the CC working papers '[Evidence relating to the selection process](#)' and '[Nature and strength of competition in the supply of FTSE 350 audits](#)'; and
 - (f) evidence from the CC's hearings with audit firms.

The tender process

7. Our analysis of the evidence suggested that the tender process could be considered in two main stages: an initial stage when a company was considering whether to go out to tender; and a second stage consisting of the tender process itself which started with the issuing of the invitation to tender letters.
8. The first stage was less structured and mainly characterized by internal debates within a company and informal discussions between the company and the audit firms. The company usually had informal discussions with the incumbent auditor and in some circumstances also with other firms with which the company had built relationships.

¹ For example, see [EY response to CC working papers](#), paragraph 4.30.

9. The second stage was a structured tender process when invitations to tender were issued, there would be meetings and discussions between the company and the invited firms, the firms would submit and present formal proposals, a winning firm would be appointed and feedback may be given to losing firms.

10. From the analysis of the parties' submissions, it appears that firms obtain FTSE 350 engagements outside a formal tender in certain limited circumstances. Examples include:
 - (a) following a merger when the auditor of one of the merging entities retains the audit of the new merged entity;
 - (b) following a de-merger when the auditor of the de-merging entities retains the audit of one of the new de-merged entities;
 - (c) companies that become listed in the UK, but which were already clients of the firm network in another country; and
 - (d) UK companies that become listed in the FTSE 350 and retain their auditor.

11. PwC stated that it was very rare for a FTSE 350 company to become an audit client without going through a formal tender process. In the period between 2006 and 2011 it provided three examples of companies that became its clients without a formal tender process: [REDACTED]. PwC also stated that from time to time companies became its client prior to listing on the London Stock Exchange without a tender. Typically this happened when these companies were audit clients of other PwC network firms prior to the UK listing, or well known to PwC from previous appointments. In the period 2006 to 2011, Deloitte and KPMG became the auditor of eight and nine companies respectively without a formal tender. EY was not aware of any existing FTSE 350 client that it had acquired which had not gone through a formal process. Deloitte explained that the eight cases listed in its submission referred to situations in which

the company was already audited by Deloitte, became listed and did not change auditor.

12. GT said that when it received an invitation letter, the preparation for the tender may follow these steps:
 - (a) After an initial appraisal of the tender the firm decided whether or not to participate.
 - (b) The selection of the bid and audit team based on the requirements of the company.
 - (c) Internal planning meetings to agree the pitch strategy and a working plan.
 - (d) Scoping meetings with the company, and the development of initial propositions for testing.
 - (e) Post-meeting activity to consider feedback from the company and whether to continue to bid or to change the pitching team.
 - (f) Development of proposals, finalizing the bid and preparation of the presentation to the company.
 - (g) Follow up, feedback and review following the decision on the auditor to appoint.

In case of loss, the firm may discuss internally the best approach to maintaining a relationship for future opportunities. If it won, the firm started preparing to audit the client.

13. We describe below each stage in the process in detail.

Initial stage

14. Before issuing invitations to tender a company would have had to decide whether to go out to tender and, if so, which firms to invite. A company contemplating a tender would usually discuss this with the incumbent firm, and, in certain circumstances, may also have had discussions with competitor auditors.

Discussions with the incumbent

15. Companies usually discussed with the incumbent auditor the possibility of launching a tender before deciding to do so and announcing its decision. Depending on the circumstances, companies may ask the incumbent to retender, or to renegotiate the scope and fees in a more informal way. For example, Deloitte reported that on 12 occasions, where it was the incumbent, companies discussed with Deloitte the possibility of an audit tender and it was given the opportunity to discuss a new approach before the decision to tender was taken by the client. In four instances, following discussions between the client and Deloitte a full tender did not happen.
16. [X] stated that [X] tested the opportunity to tender, asking it, the incumbent auditor, and two other firms to provide fees and some documentation.

Discussions with competitor audit firms

17. The company may have discussions not only with the incumbent, but also with competitor audit firms in the months preceding the official announcement.
18. As in the case of [X], companies may start with a 'light touch' request for information. The firms may be provided with some information on the company and there may be a limited number of meetings with the company. Firms may be asked to prepare a short document on their proposals.
19. Other examples of companies that have adopted this approach are: [X], which then decided to put the audit out to tender; and [X], which decided against an official tender.
20. PwC stated that companies were more frequently seeking such informal information.

Awareness of coming tenders

21. PwC stated that thanks to its continuous work targeting new clients, it was almost always aware of impending audit tenders before they were officially launched.
22. Deloitte reported the results of an internal survey it conducted of teams that participated in formal tenders for FTSE 350 audits over the past ten years, finding that in 28 cases out of 71 they had some advance knowledge of the forthcoming tender. In 16 cases out of the 28, it had prior knowledge without being the incumbent auditor. In all these cases, Deloitte had an existing relationship with the company in the provision of NAS, particularly in finance-related advice and services.
23. BDO, Deloitte and EY stated that they often knew about tenders before they were launched if they knew the FTSE 350 company well and had a strong relationship with it, but rarely knew about the tender if they did not already know the company. EY also said that it might know that a tender would be launched at most three months before the official tender was launched. KPMG stated that it would know if an audit tender was likely in any given year, but perhaps not the official timing or nature of the tender process, only if it built or had existing relationships with the FTSE 350 companies.
24. GT said that it normally knew about tenders before official launch only if it was the incumbent. Mazars said that it was never aware of tenders before their official launch.

Stage 2—Launch of the official tender

25. In this section we describe the tender process. We describe first the information requested and provided by companies in invitation to tender letters, and then the

process the company and the audit firms followed after the issuing of these letters.

The tender process typically lasted for a period of six weeks to three months.

Description of invitation to tender letters

26. In this section, we describe the invitation to tender letters issued by FSTE 350 companies and submitted to us by the Big 4 firms and GT.² We found that the invitation letters were fairly standard in their content and requirements. Some companies may provide more supporting information than others, for example providing a description of the company issuing the tender, with the consequence that some invitation letters may be as short as three pages, as in the case of [REDACTED], and others may be as long as 27 pages as in the case of [REDACTED].³
27. Invitation letters were signed by the FD and always provided an indication of the expected timescale of the tender process and the deadline for receiving the tender proposal. They may or may not indicate the number or identity of the firms invited. In the case of [REDACTED], the number of firms invited to tender by the company was specified,⁴ and in some circumstances invitations may specify the names of all firms invited to tender.⁵
28. In the invitation letters, companies provided details of the internal selection committee that would select the auditor and clearly stated the service or services that the company required. In some cases, for example for [REDACTED], companies may specify that the contract could be awarded for more than one year (specifically five years in the case of [REDACTED]) subject to satisfactory annual performance and approval of the AC.⁶

² Other firms did not provide any examples of invitation letters.

³ See [REDACTED].

⁴ [REDACTED]

⁵ For example, [REDACTED] submitted by [REDACTED] indicated the name of firms invited to tender, these being the four largest firms only.

⁶ [REDACTED]

29. Invitation letters typically requested firms to provide details of their internal processes for ensuring independence and quality assurance.
30. The invitation letters also typically requested that tender proposals provided details on the following:
- (a) the proposed fees;
 - (b) the team that would carry out the audit;
 - (c) the firm's service approach; and
 - (d) how the firm proposed to manage the switching process.
31. In the next paragraphs we describe each of these elements in more detail.

Fees

32. Invitation letters always required that firms stated the level of fee proposed. In some circumstances, companies may specifically require a charge-out rate by grade of staff involved in the audit, and a detailed breakdown of hours by partner, manager and other members of the team as, for example, in the case of [REDACTED].⁷ In some circumstances, companies may also require firms to provide the basis for agreeing fees in future years,⁸ and fees that would be charged for additional services.⁹ Companies may also require a quotation for fees that would be fixed for a certain period of time, as for example, in the case of [REDACTED].¹⁰

The team

33. Companies always required details of the experience and credentials of the team that would carry out the audit. Particular regard was given to partners and managers, but also information on the experience and business and industry knowledge of other

⁷ [REDACTED]
⁸ [REDACTED]
⁹ [REDACTED]
¹⁰ [REDACTED]

team members was usually requested. Particular attention was given also to the location of the team.¹¹

Service approach

34. Invitation to tender letters usually required firms to describe their approach to the audit including: an outline timetable; a risk assessment and proposed audit response to these risks; the balance of work between reliance on internal controls and substantive testing; issue resolution; and adaptability to changes in the group. Companies may also require firms to specify in their proposals the audit objectives, the use of IT, the communication methods, value added services, innovations and the ability to be proactive.¹²

Transition

35. Where relevant, the company may ask prospective firms to provide details of the proposed transition plan to demonstrate their understanding of the service requirements that would ensure a smooth transition with minimum disruption for the company.

Services

36. Invitation to tender letters always specified the service or services required. Services requested could be statutory audit only, or statutory audit together with other services such as, for example, tax advice.
37. An example of an invitation letter that required the supply of statutory audit only was [REDACTED].¹³ In its invitation letter, [REDACTED] specified in detail that the statutory audit services should provide a review of the control environment within the businesses, AC reports

¹¹ [REDACTED]

¹² [REDACTED]

¹³ [REDACTED]

on key audit issues, significant accounting judgements and major control matters, management letters summarizing key control observations arising as part of the audit, and other audit services that would add value. An example of a company that required both external audit and other services was given by [X], in which the company invited auditors to propose for the external audit and tax compliance.¹⁴

Selection committee

38. In addition to the information above, invitation letters also described the selection committee that would review the firms' proposals and presentations. The selection committee usually consisted of the FD, the ACC, AC members and the Chief Executive. Depending on the company, others may be involved. For example, in the invitation to tender letter of [X], meetings with the Group Financial Controller and the Group Director of Tax, were included, or also with the Head of Internal Audit as in the case of [X].¹⁵

After invitation to tender letters are sent

39. We considered that the typical tender process, once firms received the invitation to tender letters, was characterized by a minimum of five steps:¹⁶

- (a) the firms' decision on whether to accept the invitation to tender;
- (b) preliminary meetings or exchange of information with the management which allowed firms better to understand the business and its requirements, and give individuals in the company the opportunity to test the capabilities of the firm;
- (c) the submission of written proposals;
- (d) the final oral presentation; and
- (e) the appointment of a winning auditor, and the giving of feedback to losing bidders.

¹⁴ [X]

¹⁵ See [X].

¹⁶ For a description of the phases of the tender process see, for example, [X].

40. GT, for example, said that a typical FTSE 350 audit tender took about six weeks, but depending on the complexity of the assignment, it could last up to three months. PwC also reported the examples of [REDACTED], whose process lasted three months, and [REDACTED] which lasted for two months.

Decision to participate

41. In their submissions, firms provided three examples in which they reported that they were invited but decided not to participate in tenders:
- (a) [REDACTED] was invited but did not participate in the [REDACTED] tender because it had a significant contingent fee arrangement in relation to VAT advice provided to that company at the time;
 - (b) Deloitte was invited but with the agreement of management did not participate in the [REDACTED] tender due to the extensive non-audit work carried by Deloitte for the company at the time; and
 - (c) GT was invited but decided not to participate in the [REDACTED] tender, since, given the specific circumstances, it considered that the probability of winning was low.
42. EY said that it did not participate in a number of tenders to which it was invited, but did not name the companies that issued the tender. It explained that its decision to participate was based on an assessment of the audit risks and on its ability to audit a company given regulatory and other issues.
43. EY also stated that since previous contact with the tendering company was important, if it thought that its relationship with the company was not strong enough it may decide not to participate. The lack of a good relationship with a company could, however, be replaced by other strengths as, for example, having a very strong team or a very experienced partner that could lead the audit.

44. KPMG suggested that regulatory issues due to non-audit work a firm had with a potential audit client could often be resolved. It said that the vast majority of non-audit work was of short duration and if both the company and the auditor were keen to go ahead with the engagement, solutions could be found. An example was given of [REDACTED], which appointed EY even though EY was doing a significant amount of non-audit work. KPMG also said that declining a request to tender for an audit would usually send a bad signal to the company and could result in a reduction in the amount of non-audit work requested by the company.
45. KPMG stated that there could be rare instances in which companies did not feel comfortable in having the auditor of one of their competitors, but these were very limited.
46. When deciding whether to participate in tenders, firms considered also the strategic value of the engagement. Some companies, described as 'flagship' companies operating in a certain sector could have a signalling value to the market that goes beyond the value of the audit in itself.
47. Deloitte stated that the tender process provided opportunities for non-incumbents to get familiar with the company and it was a window for tendering firms to make themselves known to the tendering company.
48. Firms may also decide to participate, but may not reach the final stage of the selection: two examples were given by Mazars and GT:
- (a) In the [REDACTED] tender, Mazars was invited to tender, participated, but did not reach the second stage of the tender process.
- (b) In the [REDACTED] tender, GT was invited to a preliminary discussion but then was not invited to bid.

Preliminary meetings

49. EY said that there was ongoing contact and interaction between the firms and key individuals within the company, including numerous meetings and calls, both before and after the written proposal was submitted.¹⁷

50. EY said that during these meetings the firms could get an understanding of why the company decided to go to tender and for what in particular the company was searching. Discussions of this sort with companies allowed the firm to offer a product tailored to the needs of the client, in the boundaries of regulation and standards, which would reflect on the proposed fee.

51. EY also said that during the tender process firms became familiar with the companies' people, made sure that they understood their business, their finance organization and their controls. EY believed that if a firm was perceived as good enough by the tendering company, and the company liked the team and liked the firm offering, if the fee proposed was not right somebody would come back and discuss the issue with the firm.

52. EY stated that companies frequently tested the technical expertise of audit firms by asking detailed 'exam questions' or otherwise posing difficult technical issues. In a number of cases, EY had actively sought such questions.¹⁸ It could also ask the company for data and demonstrate its knowledge and expertise using it.

53. KPMG stressed that the process was highly interactive with feedback from companies to firms and meetings occurring between individuals.¹⁹ In the Company C

¹⁷ EY response to 'Evidence relating to the selection process' working paper, paragraph 4.26.

¹⁸ EY response to CC working papers, paragraph 4.28.

¹⁹ KPMG response to 'Evidence relating to the selection process' working paper, paragraph 56.

case study, the ACC reported that they had about 20 meetings with the four candidates that were invited to tender.²⁰

54. KPMG stated that increasingly there were meetings with the ACCs to understand the full range of the client's needs for the audit service, and any concerns it had.²¹ It also stated that before the audit proposal was submitted, the meetings phase of the process was critical for both the firm to learn about the company and for the company to form an impression of senior audit team members.²²
55. KPMG said that that site visits and meetings with the company were an opportunity for the firm to become familiar with the business, and for the company and ACCs and others to challenge the auditor. The company could form an opinion on whether the auditor and the team that it was seeing in front of it were competent and could be relied upon to deliver a quality audit.
56. KPMG also stated that companies might ask non-incumbent firms whether they had looked at their accounts and whether they thought what they had seen looked out of line with best practice, always respecting the professional standards in terms of second opinion.
57. Firms may regard the proposal process itself as part of the preparation for an audit (for example, preparing a template of instructions to subsidiary auditors). [X] did this in the case of [X]. [X] said that it often put in place internal 'shadow audit teams' that would start planning for an audit and preparing for a tender, even before one had been announced.

²⁰ Appendix 2, Company C case study, p22.

²¹ KPMG response to 'Evidence relating to the selection process' working paper, paragraph 32.

²² KPMG response to 'Evidence relating to the selection process' working paper, paragraph 56.

58. In the Company C case study it was stressed that discussions during the tender process involving the company and firms were crucial for the firms to understand the client's need and to allow firms to tailor their tender proposition.²³
59. Deloitte stated that during the tender process firms had access to numerous people working in the company and a huge amount of their time. These individuals were not limited to the board and the AC, but also included the people who they would be working with on a day-to-day basis as, for example, the group financial controller, the chief financial accountant, or the head of tax.

The submission of written proposals

60. We analysed in detail the proposal documents submitted by firms. We report our analysis in this section.
61. We received 145 tender proposals from Deloitte, KPMG, EY, PwC, BDO and GT. Over the period between 2007 and 2011, tender proposals appeared to become more detailed with a clearer structure and were easier to read.
62. Tender proposals submitted to the CC were similar, both within the Big 4 firms and between Big 4 and non-Big-4 firms. Proposals were professionally presented and the areas they cover were discussed in detail.
63. EY stated that although the detail of proposals submitted by audit firms may vary (depending on the instructions or expectations of the company), they were generally

²³ See Appendix 2, Case study C, p11.

detailed documents which reflected the level of interaction between the company and the audit firm concerned.²⁴

64. KPMG said that although internally it had guidance documents which it used at the start of the tender processes, resulting in proposals having similar formats, all of its tender proposals were created individually and the content was tailored to the client's precise needs.²⁵

65. Proposals shared common features (reflecting similarities in the requirements set out in the invitation to tender letters):

The team

66. The audit team was always described, teams usually had integrated specialists, with tax being the most common, but IT specialists and regulation specialists (where applicable) were also common. This was also true of the Mid Tier firms; while the range of specialists they offered tended to be narrower, this seemed to be a product of typically tendering for audits for smaller or less complex companies.²⁶ When they competed in tenders against the Big 4 firms, their specialist offering was as broad as that of the Big 4 firms.

Previous contacts with the tendering company

67. References to previous work for the tendering companies were common, and the Big 4 firms were more likely to have a previous relationship to draw on, as well as being more likely to be the incumbent auditor. This was often emphasized, and there was often a breakdown of the achievements of the firm while working with the company.

²⁴ EY response to CC working papers, paragraph 4.28.

²⁵ KPMG response to 'Evidence relating to the selection process' working paper, paragraphs 62 & 63.

²⁶ Information provided in relation to FTSE 350 companies.

Communication plans

68. Generally, communication plans were not dealt with in detail, for example they did not provide the timing of meetings or deadlines for reports. Some proposals, however, suggested regular meetings, and some Big 4 firm proposals offered for a key contact to spend significant time informally at the company's premises.

Fees

69. Fees were always mentioned, but they were not always broken down. When they were, how this was done varied across firms and engagements; sometimes by each division of the company, sometimes by who was undertaking the work and their rates and hours, and sometimes by location. While a fixed fee for a set period of time was often offered, it was normally subject to changes in scope or inflation. In 41 per cent of the tender proposals submitted, the fee quotation was fixed for a certain period of time: three years in 50 cases and two years in 12 cases. Fixed fees were always subject to inflation or scope revisions. The average fee per hour was very rarely provided, although it was occasionally deducible when not provided when the number of hours and hourly fee by grade were provided.
70. Incumbent auditors that participated in tenders usually offered a significant reduction in the fee. These reductions were often emphasized in the proposal, along with an explanation (where applicable) of how they would address the issues that led to the work being put out for tender. There were some cases of retrospective reductions; for example, [X] offered [X] a reduction on its 2010 fee in the tender proposal for the 2011 audit, and [X] offered [X] a reduction on its 2009 fee in the tender proposal for the 2010 audit. In some proposals the incumbent firm suggested that it would be willing to negotiate on its price if other proposals were cheaper, as for example in [X] tender proposals to [X] in 2010.

Non-audit related benefits

71. In a few proposals firms offered non-audit-related benefits. [X] promised to appoint [X] as a preferred supplier, and referred to having spent over £[X] with [X] in the previous year. Big 4 firms, especially [X], offered their clients access to public events organized by them, providing networking opportunities, access to publications, such as studies and reviews of sectors and industries, and briefings on topical accounting and business issues.
72. In a minority of cases we found that firms may offer discounts on non-audit services. This was the case in the [X] tender, where [X] stated that it generally would expect to discount its standard rates by [X] per cent for extended assurance services and [X] offered a [X] per cent discount for additional services. In the [X] tender, [X] offered a [X] per cent discount for additional services.

International and local coverage

73. Both the Big 4 and Mid Tier firms pointed to their international or local coverage where appropriate. Mid Tier firms provided evidence of their international coverage. They appeared to anticipate that in some areas they might be perceived to be weaker, such as sector coverage or global presence, and therefore emphasized their strengths particularly in those areas. Sometimes their strategic flexibility (embodied in local decision-making ability) was emphasized as a strength, although this was something the Big 4 firms tended to promise with an empowered head audit partner.

Risk

74. Mid Tier firms tended to explain what each audit risk was and how they intended to address it. The Big 4 firms tended also to provide a risk matrix, or some other analysis of the likelihood of risks materializing and how damaging they could be.

Generally the risk assessments of Mid Tier firms tended to be less detailed than those of the Big 4 firms.

75. Deloitte stated that the analysis of key risk areas and the production of risk matrices gave companies an indication as to how the engagement would be carried out in practice.²⁷

Awards and other clients

76. All firms frequently mentioned other clients, experience and professional awards. They focused on listing their best known clients, and the best known clients from the relevant industry, often adding their experience working in that sector. They also mentioned awards in categories such as best firm and graduate employment credentials. The difference between the Big 4 and their competitors here was one of scale; they both mentioned similar achievements in their proposals, but Mid Tier firms relied on lower key awards (best firm outside the Big 4, for example), less prestigious clients and less industry experience.

Innovation

77. The proposal documents submitted to us rarely referred directly to the firm's record of innovation in carrying out audit engagements.²⁸ A small number mentioned innovation in IT services, and in the data techniques to improve audit efficiency.²⁹ However, PwC stated that innovation was important for competition, and that even if firms did not refer directly to it in their tender proposals, innovation would be apparent to the companies in the proposals submitted.³⁰

²⁷ See [Deloitte response to 'Nature and strength of competition' working paper](#), paragraphs 4.6 & 4.7.

²⁸ This was consistent with invitation to tender letters where companies rarely referred to innovation.

²⁹ See [redacted] proposal to [redacted] and [redacted] to [redacted].

³⁰ [PwC response to 'Evidence relating to the selection process' working paper](#), Annex, paragraph 3.11.

78. PwC mentioned, for example, its innovation in reporting. PwC said that in 2010 its engagement partners were asked to approach some audit clients, including all those in the FTSE 100, to encourage them to expand public reporting by their ACs. In particular, PwC suggested that they give further information about the matters that were discussed privately with auditors and management, such as the risks of misstatement included in the audit plan, alternative accounting treatments and matters of judgement. Six of its FTSE 100 audit clients (Barclays, GKN, Man Group, Unilever, BG Group and BT) responded positively by increasing the transparency of reporting on their ACs' activities. In addition, two others not audited by PwC ([REDACTED]) had made significant changes to provide greater reporting.
79. PwC said that it delivered an innovative audit service and cited several examples: [REDACTED].
80. Deloitte stated that firms that failed to innovate would not be able to compete in a tender. In particular, Deloitte said that during tenders firms were keen to show that they would be able to offer innovation over and above what had been offered by the incumbent auditor, for example by identifying the potential for efficiencies and additional insights that could be delivered.³¹
81. Deloitte provided two examples of companies that appointed firms that offered an innovative approach either in the use of the software or in the ability to offer value added: [REDACTED], won in 2007 by Deloitte from [REDACTED], and [REDACTED] won in 2011 by [REDACTED] from Deloitte.³²
82. KPMG stated that it was innovating around the areas of efficiency and quality, which were vital to its overall audit proposition. Although it was not explicitly labelled as

³¹ Deloitte response to 'Evidence relating to the selection process' working paper, paragraph 4.1.

³² Deloitte response to 'Evidence relating to the selection process' working paper, paragraph 4.1.

'innovation' in proposals, innovation in these areas was a requirement in order for the firm to differentiate its audit offering from other audit firms, to win new clients and retain existing ones.³³

83. KPMG said that many of its proposal documents included significant examples of innovation (eg [REDACTED]). It said that it often referred to innovation/innovative approaches in its proposal documents.
84. Mazars believed that its business model (of an integrated global firm) was innovative and delivered a different 'product'. It said that its proposals expanded on this difference.
85. EY in its tender for the [REDACTED] audit described its tax team as innovative.

Transition plan

86. Transition plans to minimize costs and disruption when changing auditor tended to be present where applicable, and quite detailed. Details of the transition plan included:
 - (a) identifying a 'transition partner' who would help the company and the firm during the beginning of the relationship;
 - (b) defining a precise timetable for the transition period; and
 - (c) defining relevant meetings and deliverables concerning transition.
87. KPMG identified 36 proposals where it had included a more detailed description of how the transition of auditors would be managed to minimize disruption to the client, as part of its overall proposal for the audit. These were [REDACTED].

³³ KPMG response to 'Evidence relating to the selection process' working paper, paragraph 74.

88. Knowledge of the company through previous relationships was often emphasized as a reason why transition should be smooth. The Big 4 firms tended to have more detailed transition plans, and appeared to be able to point to a broader range of experience in managing such transitions including examples of where the incumbent auditor had been the company's current auditor. While the Mid Tier firms did mention such experience, they had fewer and less prestigious clients which were also non-FTSE-350 companies.

89. We note that the tender proposals did not appear to vary in their form, content or detail with the number of firms invited to tender or whether the tender lists included Mid Tier firms. This was illustrated by the proposals submitted in the tendering of the [REDACTED] and [REDACTED] audit engagements.

[REDACTED] proposals

90. The [REDACTED] tender was of interest because the fees proposed for the statutory audit of [REDACTED] were the highest in our sample, the invitation to tender letter of [REDACTED] was particularly detailed, and because only the Big 4 firms were invited to participate.³⁴

91. [REDACTED], [REDACTED] and [REDACTED] each submitted a proposal of roughly 40 pages which was the maximum set by [REDACTED] in its invitation to tender letter. They all described, among other things, the proposed audit team, their international coverage and capability, their experience in the sector and audit approach and proposed fees.³⁵

92. [REDACTED] was the incumbent and in its proposal emphasized the benefit of continuing with the same auditor and the risks associated with a new auditor including a decrease in efficiency, increased costs, disruption to relationships, and distraction to the business. [REDACTED] also stressed that allegations of failure occurred much more frequently

³⁴ See [REDACTED], [REDACTED] and [REDACTED] tender proposals for [REDACTED] tender.

³⁵ In the index of the [REDACTED] proposal it was said that fees were described.

when a firm was in its first years of an audit engagement and that it took two to three years before a new auditor was familiar with the company.

93. [X] and [X] described their proposed approach to minimize disruption during the transition. [X] explained that some strategies to minimize disruption during the transition process started during the tender, for example assembling key members of the global team, and setting up the [X].
94. [X] identified different success factors allowing it to deliver a smooth audit transition. Among them, a well developed transition project plan agreed with both parties, a team that could observe [X] operations before starting the audit, and strategies to transfer knowledge across the multiple teams in the various territories. In the fee proposal, [X] also explained that in the first year it would incur one-off costs in the range of 15 to 20 per cent of the annual audit fee due to the time it would spend in getting to know the business and in understanding its systems and controls. [X] clarified that these costs would be absorbed by it as part of the investment it made in building a long-term relationship.

[X] proposals

95. The [X] tender was of interest because it was the tender with the highest number of proposals submitted. We received the tender proposals submitted by [X], [X], [X], [X], [X] and [X].
96. [X] invited bids for internal and external audit services including corporate tax matters.³⁶ The Big 4 and the Mid Tier firms submitted similar tender proposals. In particular they each provided: details on their firms, the team, and the audit approach; their strategy for dealing with the transition (apart from [X] which was the

³⁶ See proposals to tender for [X] submitted by [X].

incumbent auditor); their quality assurance, independence and governance processes; a fee proposal; and proposals for providing additional services.

97. In their proposals [X] and [X] gave prominence to the possibility of cost savings by choosing them to act as auditor, and [X] proposed a reduction for the external audit of [X] of 20 per cent in fees, comprising 13 per cent to reflect more efficient ways of conducting the audit work, including greater reliance on internal audit, and 7 per cent to reflect the competitive market.
98. [X], [X], [X] and [X] mentioned other retail clients they audited as evidence of their expertise in auditing companies similar to [X].
99. [X] and [X] mentioned that they already worked for [X] and so had established contacts with them. Similarly [X] emphasized its deep knowledge of the company and that [X] would not incur transition disruption by remaining with [X].

Final oral representation

100. In the final oral representation firms had the opportunity to present to the selection panel which would typically comprise the FD, the ACC, AC members and the CEO .
101. KPMG noted that the oral presentations were to a panel of which there was heavy representation of AC members.³⁷
102. BDO stated that, during the tender process, discussions may require up to a couple of days for meetings with the AC and the CFO and around an hour or two in each major location.

³⁷ [KPMG response to 'Evidence relating to the selection process' working paper](#), paragraph 32.

Contract negotiation

103. Deloitte stated that after the presentation of the written submission, tendering companies might have further discussions with firms regarding the proposed approach and the fees. Companies might have these discussions with only one firm chosen as the winner, or they might have this discussion with all the firms invited to the presentation. For example, after choosing KPMG as the winner, [X] negotiated with it on the number of partners' hours.³⁸
104. If the company had discussions with more than one firm, the company might inform firms about their competitors' fees and approaches and ask firms to modify one or more aspects of their proposal to match competitors' strengths. Firms might or might not have full price transparency about competitors' fees depending on the circumstances. EY stated that usually it did not know about other firms' pricing strategies.
105. After the winning firm was appointed those that were not successful might ask companies to provide feedback on their performance. For example, PwC said that it regularly engaged in interviews with management at companies for whose audits it tendered, in order to understand reasons it won or lost, what it did well, how it may improve and how it compared with competitors.³⁹

³⁸ Appendix 2, Case study F, paragraph 30.

³⁹ See [PwC response to the issues statement](#), paragraph 2.67. For evidence on feedback received by firms, see Appendix 24, Table 10 .

Tender process changes in 2012 UK Corporate Governance Code

106. In September 2012, the FRC published the document 'The UK Corporate Governance Code'.⁴⁰ In this section we briefly report the changes relevant to the tender process and implemented since 1 October 2012.⁴¹
107. The FRC proposes that FTSE 350 companies put the audit contract out to tender at least every ten years on a 'comply or explain' basis, ie if companies did not comply with the requirement they needed to explain why in their annual report.⁴²
108. The Code also recommended companies to disclose an explanation of how the AC had assessed the effectiveness of the external audit process and the approach taken to the appointment or reappointment of the external auditor, including the length of tenure of the current audit firm and when a tender was last conducted; and, if the external auditor provided non-audit services, an explanation of how auditor objectivity and independence was safeguarded.
109. The FRC considered that transitional arrangements may be needed to ensure that the introduction of tendering was phased over a suitable period.⁴³ Accordingly the FRC proposes that the timing of any tender should be linked to partner rotation and the length of time since the audit contract was previously put out to tender.

⁴⁰ www.frc.org.uk/getattachment/a7f0aa3a-57dd-4341-b3e8-ffa99899e154/UK-Corporate-Governance-Code-September-2012.aspx.

⁴¹ See www.frc.org.uk/News-and-Events/FRC-Press/Press/2012/September/FRC-publishes-updates-to-UK-Corporate-Governance-C.aspx.

⁴² www.frc.org.uk/getattachment/a7f0aa3a-57dd-4341-b3e8-ffa99899e154/UK-Corporate-Governance-Code-September-2012.aspx, paragraph C.3.7.

⁴³ www.frc.org.uk/getattachment/4794e206-50a7-45d1-815c-7393046fef33/Consultation-Document-revisions-to-the-UK-Corporat.aspx.

Analysis of tender data

Introduction

1. In this appendix, we report our analysis of the tender data submitted by the Big 4 firms, BDO and GT, in response to our request for data on each invitation to tender for a FTSE 350 audit engagement that they received in the past five years.
2. In response to our request, the firms provided data on 52 tenders for FTSE 350 audit engagements between 2007 and 2011.¹ For these 52 FTSE 350 tenders, the firms provided a total of 145 tender submissions.
3. Firms were not able to provide complete information for all the tenders in which they had participated. We took this into account when interpreting the results.
4. BDO suggested that bid prices were lower if a Mid Tier firm was involved.² We were not able to investigate if the number of firms tendering, or the presence of any particular firms in the tender, had an effect on the tender outcome. This is due to the incomplete nature of the data (in particular, we do not have complete tender lists) and the low number of tenders overall.
5. We considered that the key results were as follows:
 - (a) Each year in the period 2007 to 2011 roughly ten FTSE 350 companies tendered their statutory audit. This suggested tender annual tender rates of 3 per cent for both FTSE 100 and FTSE 250 companies.

¹ Since firms told us that they did not systematically collect tender data and that the data they had covered a limited amount of time, we decided to ask for data for tenders that occurred between 2007 and 2011 only.

² See paragraph 7.5.7 of '[Comments of BDO LLP on third party responses to Competition Commission's working papers](#)', paragraph 7.5.7.

- (b) The Big 4 audit firms were more likely to be invited to tender than non-Big-4 firms. Big 4 firms were invited to tender roughly four times as often as non-Big-4 firms.
 - (c) A positive correlation of 0.66 between the total number of hours dedicated to the preparation of the tender and the level of the fee submitted.
 - (d) The costs of tender preparation were generally in the range of 23 to 57 per cent of the first year's audit fee.
 - (e) Incumbent audit firms won tenders in 23 per cent of the cases analysed.
 - (f) Feedback received by firms suggested that 9 per cent of the reasons given for losing tenders were on the ground of fees.
6. The remainder of the appendix is structured as follows: we first set out the scope and coverage of the tender data requested; we then analyse the invitations to tenders, the costs of tenders, and the outcomes of tenders.

The tender data

7. We asked the Big 4 firms and the Mid Tier firms (Baker Tilly, BDO, GT, Mazars and PKF) to provide information regarding each invitation to tender they received in the past five years with respect to FTSE 350 companies.
8. Firms told us that companies may ask them to 're-pitch', or bid again for an existing engagement. We did not ask firms to include information on such events in this data set, as we did not consider these to be competitive tender situations.
9. For each tender that firms participated in, we asked them to provide:
- (a) the name of the company which went out for tender;
 - (b) the date of submission of the bid;
 - (c) whether at the time of the tender the firm was the incumbent auditor;

- (d) whether the firm proposed to provide audit-related services;
- (e) the name of the other participants to the tender;
- (f) whether they won the tender;
- (g) the audit fees they proposed in their bids and, if successful, the final fee agreed in the engagement letter;
- (h) in case of loss, the feedback they received from the client;
- (i) the costs involved in participating in a competitive tender, including the number and grade mix of staff involved in the tendering process; and
- (j) the total hours spent preparing a tender divided by grade; the cost of the time spent on the tender; and non-staff costs of tendering.

10. We received responses from BDO, Deloitte, EY, GT, KPMG and PwC relating to 52 FTSE 350 audit tenders in which they participated between 2007 and 2011.³ For these 52 tenders, firms provided a total of 145 submissions.⁴

11. The data provided, however, was not complete and may not be accurate. In particular:

- (a) The completeness of the sample. KPMG said that whilst it believed that the population of tenders identified should be substantially complete, it could not be certain that this was the case. EY said that it provided the bids of the tenders in which it participated, but did not list tenders it was invited to but decided not to enter. The other firms stated that they reported all invitations to tenders they

³ Since firms told us that they did not systematically collect tender data and that the data they had covered a limited amount of time, we decided to ask for data for tenders that occurred between 2007 and 2011 only.

⁴ In their response to our data request, firms provided a total 216 tender submissions to 112 tenders to which they participated. This data included tenders that occurred before 2007, tenders of firms that were not FTSE 350 at the time of the tender, and tenders for internal audit, or subsidiaries of FTSE 350 only. We did not include in our data set for analysis any data that was not strictly related to FTSE 350 tenders between 2007 and 2011. This was because our data request specifically requested data on FTSE 350 statutory audit tenders in this period, and because our analysis is of FTSE 350 companies only. For example, [REDACTED] provided data for two FTSE tenders that occurred before 2007, and for a company that was not in the FTSE at the time of the tender. For this reason, we excluded the data received by [REDACTED].

received, whether they participated or not. However, after completing checks for factual accuracy, some data was still missing.⁵

- (b) The identity of the other tender participants. Firms provided the names of other participants in 131 instances, but stated that they were not sure about the completeness and accuracy of this information. For example, PwC stated that it provided the identity of other participants in the tenders to the best of its knowledge, and KPMG said that it could have been unaware of the full list of bidders. We observed when comparing responses on the identity of firms participating in these tenders that there were several inconsistencies.
- (c) Reasons for loss. Firms provided partial information, leaving many entries blank. This was because firms did not always receive feedback or save it systematically. Overall, firms provided at least one reason for loss in 76 out of the 145 instances analysed. Occasionally, firms provided more than one reason for loss, which produced a total of 107 reasons for loss.
- (d) Cost of participating in competitive tenders. The data on firms' costs of preparing tenders and the grade of staff involved in the tender preparation were provided by firms with different degrees of accuracy. Table 1 describes the methodology used by each firm to calculate the costs incurred in preparing tenders.
- (e) Compilation errors. As we checked our data with firms, we were warned of further errors associated with data compilation, for example missing entries.

⁵ We could identify missing entries by cross-checking the reported number of participants to each tender and the winners of tenders. See paragraph 40.

TABLE 1 Approaches to calculating the costs incurred in preparing tenders

<i>General approach</i>	<i>Staff and grades</i>	<i>Hours and time costs</i>	<i>Other costs</i>
<p>BDO Data provided for each tender they submitted information for</p>	<p>Details for staff and grades</p>	<p>Computed the 'time cost' for tenders using its average charge-out rates for partner, director etc and multiplied by the estimated number of hours each team member spent working on the bid.</p>	<p>Provided</p>
<p>Deloitte Did not provide figures for each tender. Provided an estimate of the total hours involved in preparing tender submissions. Provided a model used to estimate the indicative tender costs of 6 company categories. Using the model, provided costs for five examples of companies audited in the last five years: a FTSE 100 company (non-financial) with operations in a number of countries; a complex financial institution; a relatively simple financial institution; a FTSE 350 company with subsidiaries in a few countries; a £100m turnover private business operating solely in UK; and a £10m turnover SME working solely in UK</p>	<p>Did not distinguish among tenders. Said that bid teams tended to be high on partner, director and senior manager input, but there were variations depending on the circumstances.</p>	<p>Provided total hours and time costs for the six categories analysed and the specific examples. It also provided hours divided by grade for [§], and for private companies with a turnover of £100m and small and medium enterprises £10m turnover</p>	<p>Not specified</p>
<p>EY Did not provide specific figures for each tender. Not possible to state accurately the costs of tendering for an audit.</p>	<p>Provided grades of the typical tender team being: a lead engagement partner and reviewing partner of committee, an audit senior manager or director, and a pursuit leader.</p>	<p>Did not provide time required for tender. Estimated the cost of a typical tender process may be in the region of [§]% of year audit fee. Also said that there was a big variance and the figure provided was not always reliable. Did not provide hours divided by grade.</p>	<p>Not specified</p>
<p>GT Did not record systematically the costs of time spent on preparing a submission</p>	<p>Estimate of staff and grades of the typical FTSE 350/equivalent audit</p>	<p>Typical costs range from 20% to 30% of the total value of the bid</p>	<p>Provided in some instances</p>
<p>KPMG Identified 11 instances where all information on costs was available since a relevant project code was set up. It said it was likely that these codes may not record all of the time so charged. For other cases, provided estimates by the partner responsible for the proposal. In some instances this information was not available.</p>	<p>Provided staff and grades for some of the tenders</p>	<p>Provided total hours and costs estimated according to the hourly cost rates for the audit practice. Did not provide hours divided by grade.</p>	<p>Approximations provided</p>
<p>PwC Provided the costs associated to each tender apart from seven companies because a separate proposal time recording was not set up</p>	<p>Provided grades of staff participating in the preparation of the tender</p>	<p>The hours provided reflect the time spent by staff working on the preparation of the tender. PwC provided data on UK firm's resources and costs where it had separated records of the time and expenses in relation to specific proposals. Standard work rates have been applied to hours worked by staff and partners. It also provided hours divided by grades. It stressed that because not all tender-related costs were recorded, costs were likely to be underestimated.</p>	<p>Provided costs that reflected out-of-pocket expenses.</p>

Source: Firm responses to tender data request.

12. Given the different bases on which costs were calculated and their degree of approximation, we collected information on the number of hours spent by each grade in preparing tenders, so as to have a more robust metric to compare firms. We collected the number of hours separated by grade for 40 tender submissions.

Analysis of the invitations for tenders

13. As explained above (see paragraph 11), the firms did not provide complete information in relation to the tenders in which they were invited to participate. This meant that in our data set the number of tender submissions and, possibly, the number of tenders was under-reported.
14. According to the data submitted, in the period between 2007 and 2011 the firms were invited to participate in a total of 52 tenders for FTSE 350 engagements: 15 for FTSE 100 engagements and 37 for FTSE 250 engagements.
15. This suggested that over the five-year period considered, 3 per cent of FTSE 350 companies (or 10.4 FTSE 350 companies) went out to tender annually (this also suggests that 3 per cent of FTSE 100 and 3 per cent of FTSE 250 companies went out to tender annually).
16. In total, firms submitted data for 145 tender invitations of FTSE 350 companies. There were also six tenders for which we did not receive data from the tender winner (but did receive data from other participants). Using information from the public data set and further submissions from firms we identified the winner for these six tenders (we established seven additional invitations to tender within these six tenders, including the tender winners).

17. Despite the limitations of the data, we also calculated for each firm the probability of being invited to tender in the time period between 2007 and 2011, by dividing the number of invitations for each firm by the total number of tenders that occurred between 2007 and 2011. Table 2 reports the number and proportion of invitations to FTSE 350 tenders for each firm. Table 2 also makes the distinction between FTSE 100 and FTSE 250 tenders.

TABLE 2 **Analysis of invitations to tender over the period 2007 to 2011**

	<i>BDO</i>	<i>Deloitte</i>	<i>EY</i>	<i>GT</i>	<i>KPMG</i>	<i>PwC</i>
<i>Invitations to tender</i>						
FTSE 350*	[X]	[X]	[X]	[X]	[X]	[X]
FTSE 100	[X]	[X]	[X]	[X]	[X]	[X]
FTSE 250	[X]	[X]	[X]	[X]	[X]	[X]
<i>No of invitations as percentage of no of tenders identified by the CC</i>						
FTSE 350	[X]	[X]	[X]	[X]	[X]	[X]
FTSE 100	[X]	[X]	[X]	[X]	[X]	[X]
FTSE 250	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC tender data set.

*The numbers in this table include 145 firm submissions and seven invitations to tender that we identified as missing using the public data set and further information provided by firms.

18. In our data set, the average number of participants to tenders was three.⁶ This number was calculated including the four tenders for which we had details of only one participant. We considered it likely that this was the result of missing data rather than companies inviting only one firm to tender. Given the incomplete nature of the data set, we consider that the calculated average number of participants was likely to be an underestimate. The maximum number of participants was six.

Analysis of the costs of tenders

19. Firms stated that the costs of preparing tenders fell into two categories: direct and indirect costs.

⁶ This result was in line with the results reported in the first CC survey, although given the incomplete nature of the data set the number was a lower bound and likely to be an underestimate. See Appendix 3.

20. The direct costs were said to be the costs incurred by the firms in preparing for the tender and were mainly the costs of the time allocated by the pitching team. Deloitte explained that the factors that could influence the cost of submitting a tender were the mix of pitching team, the specifics of client requests, the extent of overseas visits, the number of meetings during the tender process, the length of the tender process, and any additional costs associated with innovative approaches in the pitch. They were said to vary from company to company and depended largely on the complexity of the assignment and the requests of the clients.
21. The indirect costs were said to be not easily quantifiable and we have been told that they included:
- (a) the time spent before the tender, to increase the probability of being invited if a tender opportunity emerged, such as the costs of building a relationship with the client; and
 - (b) the opportunity cost of staff not working on other projects while preparing for the tender.⁷
22. All parties agreed that the more complex the tender, the more time firms spent in the preparation, and the higher its costs were. Also it appeared that the pitching team was generally more senior than the team required for the delivery of the audit service. For example, GT explained that engagement and audit partners, audit senior managers, managers and bid managers were those in the team that spent most time in preparing the tender. EY stated that a typical tender team consisted of a lead engagement partner and reviewing partner or committee, audit senior manager or director and pursuit leader who could be either a specialist or an engagement partner.

⁷ We report here firms' views on the matter, but recognize that accounting for opportunity costs leads to double counting direct time costs.

Staff involved in the preparation of tenders

23. Firms provided some information on the number of staff involved in preparing the audit for 127 tender invitations. In all the cases, the tender team had a partner or an associate partner, and in almost all cases (125 out of 127) a director was part of the team. In 54 per cent of proposals, the team included a senior manager, a manager or an assistant manager, and in 43 per cent of the cases the bid team included more junior staff.
24. The average number of staff involved in the preparation of tenders was 15, but this varied considerably across tenders. For example, in the [redacted] tender 100 [redacted] staff in the UK were involved, to varying degrees, in the preparation of the tender submission, while only two people participated in the preparation of KPMG's submission for the [redacted] tender. For each firm, we calculated the average number of staff involved in the preparation of tenders, noting that it was important to take account of the fact that these numbers would be affected by the nature of tenders in which the different firms had participated.⁸
25. Table 3 shows the average number of staff involved, to varying degrees, in the preparation of a tender.

TABLE 3 **Average number of staff involved, to varying degrees, in the preparation of a tender**

<i>Firm</i>	<i>Average staff</i>
BDO	[redacted]
Deloitte*	Not available
EY	[redacted]
GT	[redacted]
KPMG	[redacted]
PwC	[redacted]

Source: CC tender data set.

*As explained in Table 1, Deloitte did not provide staff data.

⁸ The average related to the total number of staff involved during the course of a tender and not the average number of staff working on a tender at any point in time.

Hours spent preparing tenders

26. The maximum number of hours spent in preparing a submission was reported by [X] for the preparation of the [X] tender at 4,851 hours and the minimum number of hours spent in preparing a submission was reported by KPMG for the preparation of the [X] tender at 70 hours. The average number of hours allocated to preparing a tender submission was 943.
27. There were 21 tenders in which more than one firm reported the number of hours spent on its preparation. In such instances, comparing hours across firms may be more informative than where firms were participating in different tenders, and we report them in Table 4. Only those bidders for whom hours data was available are listed, so the table cannot be used to infer anything about the total number of bidders in a tender.

TABLE 4 **Number of hours spent to prepare tenders by firm and company (only those bidders are listed for whom hours data was available)**

<i>Tender</i>	<i>Auditor</i>	<i>Hours</i>
[X]	[X]	[X]

Source: CC tender data set.

28. For those tenders where we had information for [X] and [X], the figures suggest that in the majority of the cases [X] reported more hours than [X]. However, [X] stated that its hours were likely to be underestimated since they were based on the recollection of partners participating in the tenders and were not collected systematically.
29. In several cases, [X] reported a number of hours which was more than 50 per cent higher than its competitors' hours, as, for example, in the case of the [X], [X] and [X] tenders.

30. Apart from the [X] tender, where [X] spent roughly the same hours as [X], non-Big-4 firms spent fewer hours than Big 4 firms in preparing tenders: this was the case for [X] ([X] and [X] spent fewer hours than [X]); the [X] ([X] reported [X] hours against [X] and [X] 1,096); and in the case of the [X], [X] and [X] reported approximately the same hours while [X] reported almost twice as many hours.
31. We found a positive correlation, equal to 0.66, between the total number of hours dedicated to the preparation of the tender and the level of the fee submitted. This was consistent with the claim that the more complex tenders, which we would expect to be associated with higher fees, required more preparation.

Hours spent preparing tenders divided by staff grades

32. Results for amount of time spent by each staff grade are shown in Figure 1. The results were based on 40 observations provided by BDO, Deloitte, GT and PwC submissions.⁹

FIGURE 1

Proportion of staff hours involved in tender preparation by grade

[X]

Source: CC tender data set.

33. The figure above shows the mix of staff by firm used in the preparation of tenders. In particular, for each grade it shows the average time spent by each staff grade as a percentage of the total time allocated to preparing a tender submission. For all the firms, senior managers, directors and partners accounted for the largest proportion of time spent preparing the tender. In particular, partners were those that spent most time preparing tender submissions, ranging between roughly 30 and 35 per cent of the total time spent preparing a submission.

⁹ As explained in Table 1, KPMG and EY were not able to provide data divided by staff grade.

34. Using the staff hours provided by firms and the average scale rates across all the engagements per firm in the year of the tender (see Appendix 5 for further detail), we calculated for each firm the minimum, maximum and average cost of preparing a tender and the minimum, maximum and average cost as a percentage of proposed fees in the first year of the engagement.¹⁰ This is shown in Table 5.
35. Ideally we would want to consider the costs of tendering compared with fees or profits over a longer period and preferably the expected tenure of an engagement, but we did not have the information to do this.

TABLE 5 **Statistics on staff costs of preparing tenders by firm**

	<i>BDO</i>	<i>Deloitte*</i>	<i>GT</i>	<i>PWC</i>
Minimum staff costs (£)	[£]	[£]	[£]	[£]
Maximum staff costs (£)	[£]	[£]	[£]	[£]
Average staff costs (£)	[£]	[£]	[£]	[£]
Lowest ratio of staff costs to first year's fee (%)	[%]	[%]	[%]	[%]
Highest ratio of staff costs to first year's fee (%)	[%]	[%]	[%]	[%]
Average staff costs as proportion of proposed first year's fees (%)	[%]	[%]	[%]	[%]

Source: CC tender data set.

*Deloitte all also provided the aggregate hours of overseas staff involved in the preparation of a tender which are not included in the calculations.

36. We observed that the average staff costs of tendering as a proportion of the proposed fee for the first year of the audit by firm ranged from 23 to 57 per cent and that for some engagements the ratio of costs to fees was considerably higher than the average.
37. It was not clear that all the staff time allocated to tender preparation would have been spent on audit engagements absent the tender, or could have been billed for the average scale rates (we understand that average scale rates were significantly

¹⁰ Our calculation was made on all the available data in the data set. This included bids that were not successful and whose costs of preparation could have been relatively lower than winning bids. In this case the results would be underestimated, especially if there was a big difference in the quality of the proposals submitted. It is worth mentioning, however, that all the tender proposals analysed appeared to be of similar quality within the same tender.

higher than real hourly staff costs¹¹). We therefore expect this methodology to over-estimate the cost of the staff time allocated to tender preparation and thereby the cost to firms of participating in tenders expressed as a percentage of audit fees.

38. This range was, however, consistent with PwC's statement that the costs of preparing a proposal could be significant: they analysed seven proposals drawn for the period 2009 to 2011, finding that proposal costs ranged from [redacted] to [redacted] per cent as a proportion of their first-year audit fee. They also recognized that the costs of preparing tenders represented a substantial investment in winning a new appointment.¹²
39. [redacted] estimated that on average tender preparation costs for companies that were in the FTSE 350 at the time of tendering were approximately [redacted] per cent of the first-year bid submitted. We note that there may be circumstances in which the costs of preparing tenders were much higher, as in the case of [redacted] in the [redacted] tender. The costs of preparing these tenders were higher than the first-year fees.

Analysis of the tender outcomes

40. This section reports descriptive statistics regarding the tender outcomes. As noted above (see paragraph 16), of the 52 tenders for which information was submitted, for six the winning firm had not been identified. We used the public data set and further information provided by firms to identify the tender winner.
41. Table 6 reports the total number of tenders won by each firm and the proportion of tenders won by each firm (as a percentage of the tenders in which each firm participated).

¹¹ See Appendix 14.

¹² See PwC's '[Submission and response to issues statement](#)', paragraph 5.44.

TABLE 6 Number of tenders won by firm over the period 2007 to 2011

	<i>BDO</i>	<i>Deloitte</i>	<i>EY</i>	<i>GT</i>	<i>KPMG</i>	<i>PwC</i>
Number of FTSE 350 tenders won	[X]	[X]	[X]	[X]	[X]	[X]
Percentage of FTSE 350 tenders won in which they participated	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC tender data.

42. According to our data set, [X] was the firm which was most successful in winning tenders in which it participated while [X] was the least successful.¹³

43. In Table 7 we give figures on the number of FTSE 100 and FTSE 250 tenders won by each firm over the period 2007 to 2011.

TABLE 7 Number of FTSE 100 and FTSE 250 tenders won by firm over the period 2007 to 2011

	<i>BDO</i>	<i>Deloitte</i>	<i>EY</i>	<i>GT</i>	<i>KPMG</i>	<i>PwC</i>
Number of FTSE 100 tenders won	0	6	3	0	3	3
Number of FTSE 250 tenders won	1	9	9	0	7	11

Source: CC tender data.

44. In absolute terms, these figures suggested that, of those tenders for which we had the information, Deloitte was the firm that won the highest number of FTSE 100 tenders and PwC the firm that won the highest number of FTSE 250 tenders over the period 2007 to 2011.

45. We also calculated the frequency of firms bidding against each other in tenders, which are shown in Table 8.

¹³ It is important to stress that the incompleteness of the data set makes us cautious in interpreting these results and attributing great weight to them.

TABLE 8 Number of times firms met in tenders

	<i>BDO</i>	<i>Deloitte</i>	<i>EY</i>	<i>GT</i>	<i>KPMG</i>	<i>PwC</i>
BDO		3	2	3	2	4
Deloitte	3		19	4	26	25
EY	2	19		3	26	21
GT	3	4	3		4	3
KPMG	2	26	26	4		28
PwC	4	25	21	3	28	

Source: CC tender data.

Note: Since firms did not report all the tenders they participated in, the table is likely to underestimate the number of times firms met in tenders.

46. Unsurprisingly, these figures suggested that the four largest firms bid against each other more frequently than against BDO or GT. In particular, KPMG and PwC met the highest number of times. KPMG was the firm that each of the other firms had met the highest number of times in tenders (with the exception of BDO which met PwC most frequently in the tenders it was invited to).

47. We found that in 44 out of 52 tenders companies invited only Big 4 firms to tender, and that BDO and GT met each other as often as they met the Big 4 firms, suggesting that while companies invited Big 4 firms only, they did not invite Mid Tier firms only.¹⁴

48. Data provided by firms showed that in 12 cases out of 52 (23 per cent), the winner of the tender was the incumbent (five times PwC, four EY and three Deloitte).¹⁵

Changes of fees after tenders

49. For seven out these nine cases where the incumbent had won the tender, we were able to accurately extract the fee level before and after a tender from the public data

¹⁴ These results were consistent with the findings of the first CC survey. See Appendix 3.

¹⁵ These results were consistent with the findings of the first CC survey. See Appendix 3.

set. The results are shown in Table 9. For the majority the audit fee in the first year of the engagement was lower than that in the previous year.¹⁶

TABLE 9 Fees level before and after tenders won by incumbents

<i>Company name</i>	<i>Year</i>	<i>Pre-tender fee £'000</i>	<i>Post-tender fee £'000</i>	<i>Change %</i>
Brit Insurance Holdings	2007	729.8	547.9	-25
Burberry Group	2010	1,762.1	1,100.8	-38
Shaftesbury	2010	163.2	142.7	-13
Taylor Wimpey	2007	384.6	1,035.8	169
United Business Media	2009	1,552.5	976.9	-37
Whitbread	2010	528.6	423.4	-20
Witan Investment Trust	2007	44.2	47.1	6

Source: Public data set.

Fees and tender outcomes

50. In the tender data set, there were 39 tenders for which we had data on the total fee proposed to the company for more than one bidder and the identity of the winner. This allowed us to investigate whether firms that submitted the lowest fee were those that won tenders.¹⁷ We calculated that in roughly 36 per cent of the cases (14 instances), the winning firm was not the firm that bid the lowest fee, and in roughly 23 per cent of the cases (nine instances), the winner was the firm which bid the highest fee. This result was also consistent with the feedback given on the reasons for losing a tender reported in Table 10 below.
51. We note that the fees finally agreed with the client were generally the same as those proposed in the bid document, but that in some cases they were higher or lower. Firms explained that during the negotiation process clients may, for example, ask for discounts, or for additional work which would then increase the final fee.

¹⁶ We note that this result was not in line with the results reported in Appendix 5 where a larger sample of tenders without switches is considered.

¹⁷ Because we did not have all of the submissions, we interpreted these results just as indicative of companies' attitude.

Reasons for losing in a tender

52. We asked firms to describe the feedback they received from companies in cases where they were unsuccessful. Firms provided at least one reason for losing a tender in 76 instances (with a total of 107 reasons). In Table 10 we report the frequency of each reason and this as a proportion of all reasons given.

TABLE 10 **Reasons for losing in a tender**

<i>Reason for losing in a tender</i>	<i>No of times mentioned by firms</i>	<i>% of all reasons given</i>
Lack of experience/or others more experienced	20	19
The winner had strong relationship with the client (either via the provision of other services or via personal knowledge)	14	13
The company was not positively impressed (this includes lack of chemistry, the company felt that the firm was not supplying added value or the company felt that there was bad communication)	12	11
Lack of international strength in one country or globally	11	10
The winner had a better knowledge of the company and/or the business	11	10
Incumbent was preferred (this includes mergers)	11	10
The tender was lost on the ground of fees (fees proposed were too high, or competitors offered the service for lower fees)	10	9
The company wanted a fresh approach (this feedback was given to losing incumbent)	6	6
The firm was conflicted	4	4
Winner offered a local team	3	3
Client had a bad experience with the company in the past	2	2
The winner was able to provide also (better) tax advice	1	1
The winner had an innovative approach	1	1
The winner was able to provide internal and external audit	1	1

Source: CC tender data.

53. The most mentioned reason for losing a tender was a lack of experience or competition from a firm with more experience. The second most mentioned reason was that a rival firm had a stronger relationship with the company.

54. Knowledge of the company, together with being the incumbent auditor, were also said to be important factors. If we considered these elements to be aspects of the firm's experience, overall experience was mentioned in 39 per cent of the responses. International strength, lack of chemistry and the level of fees were also among the most cited reasons by firms.

55. BDO and GT said that the experience of the firm compared with that of the winning firm, and the fact that the winner had a strong relationship with the company, were the most frequently-given reasons by the company for them having lost in a tender.

Barriers to entry: international networks

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Introduction

1. This appendix sets out our evidence on whether international networks might comprise a restriction on entry, because of the difficulty of any new entrant, or smaller firm seeking to expand, replicating a network similar to that of the largest (Big 4)

firms. A related issue considered in the appendix is the effect of a collapse of a member firm on the network as a whole.

2. The analysis was based on the responses to the MFQ, an additional set of questions sent to nine parties (Baker Tilly, BDO, Deloitte, EY, GT, KPMG, Mazars, PwC and PKF), analysis of a database of engagement-level data and a survey of CFOs and ACCs of listed and large private companies.

3. The appendix is structured into nine sections. We considered the networks' form and function, in particular:

(a) the structure of an audit firm network, ie how networks were structured legally and operationally;

(b) their function, in terms of service companies and common functions; we reviewed party submissions on the functions that networks shared among themselves; and

(c) their role in setting audit methodologies and internal standards, in particular the implications of a common methodology in delivering large company audits.

We turned to their economic significance, in terms of:

(d) the annual expenditure of the network bodies; this section compared the level of expenditure incurred by each of the networks and the UK's contribution;

(e) the international coverage of networks, in terms of the number of countries and average size of network firms in each country in which networks were present;

and

(f) referred income from the UK and to UK firms from their networks.

We then:

(g) considered the importance of networks to purchasers of audit services with a summary of survey responses with respect to networks, and evidence gathered from our case studies;

(h) set out some initial views of the possible effect of networks on competition; and

(i) finally, in light of this evidence and analysis, we considered the potential exit of a major auditor. We considered the collapse of Arthur Andersen US and its effect on the UK firm, as well as other significant accounting scandals that had not had significant, long-lasting economic effects on other firms within the relevant network.

The structure of an audit firm network

Introduction

4. All but one of the largest audit firms in the UK were members of international networks,¹ and all current auditors of FTSE 350 companies were members of networks. Networks were broadly based around membership by individual firms (or their partners) of a network body. The network body did not itself conduct audits, but acted to facilitate cooperation between member firms.
5. The network of firms could be structured using alternative operational models and might differ on the level of standardization and cooperation across the network: alliances and associations offered a looser framework within which firms could collaborate; and integrated partnerships exercised a greater level of central control.
6. International professional service networks had historically developed from a single firm's need to service existing clients that expanded overseas, and had since grown as newly-created overseas offices became legally independent firms which had sought to develop business relationships with companies based in their respective jurisdictions.^{2,3} Each network structure evolved over time, but the fundamental legal and organizational structure of networks developed in part because of two factors:

¹ Mazars did not consider itself to have adopted a network structure, instead taking the form of an 'integrated partnership'.

² This view was based upon the description of the development of firms (and their networks) in 'The origins and evolution of the accountancy profession' by Peter Boys in *Chartered Accountants in England and Wales*, edited by Wendy Habgood, which drew upon the archives of the ICAEW including periodicals and the work of academics and the firms' official histories.

³ Information on the history of each firm and its network is considered in Appendix 9.

(a) Ownership requirements of audit firms. Many jurisdictions required an audit firm to be owned and/or controlled by qualified auditors in that jurisdiction, and thus could not be owned by an overseas firm.⁴

(b) Ring-fencing of liability. By remaining independently owned and legally separate, the members of a network were not liable for each other's actions.⁵

7. There were indications that networks were becoming increasingly integrated, specifically with respect to standardized methodologies, software and the level of control exercised by the network.⁶ The UK member firms of some networks owned, exercised significant control over, or had a significant direct financial interest in other member firms, specifically in Europe and the Gulf States. Other developments indicating greater global integration included KPMG UK's involvement in creating KPMG Europe with a number of other member firms.

8. The remainder of this section considers:

(a) the legal structure and functions of the network body;

(b) types of network membership;

(c) governance and control of the network; and

(d) recruitment, retention and departure of member firms in the network.

Legal structure and functions of the network body

9. Networks operated through the presence of a network body, which put in place standard legal agreements that member firms had to abide by. This meant that individual firms did not need to negotiate a large number of bilateral agreements.

⁴ For example, the Chinese Government has recently set deadlines for increasing the proportion of partners of Chinese audit firms that must be Chinese citizens.

⁵ If a group auditor relied on a material component's auditor's work, which was subsequently found to be deficient, the group auditor could potentially be held liable for not ensuring that the group financial statements were not free of material misstatement, even though the error originated from a subsidiary's accounts.

⁶ At EY, member firms were not controlled by the network body. The network body acted as a coordinating entity of the network. In some geographic regions, including within part of the European Union, where permitted by local law or regulation, member firms had created entities that controlled multiple member firms.

10. The network body was typically based on firms becoming members of the organization, by signing the network's membership agreement. If incorporated in the UK, this would be a company limited by guarantee, though similar structures were used in those network bodies incorporated elsewhere.⁷
11. The network's membership agreement typically included provisions that defined the relationship between member firms and the service companies. The network might also use the network body for the purpose of framing legal agreements between member firms (eg those concerning the referral of work on subsidiary audits). The functions of the network body might be conducted by the network body itself, or by a number of service companies, which might be either incorporated as subsidiaries of the network body, or as a separate membership organization.
12. The staff of the service companies were either permanent employees or secondees from member firms. The intellectual property of the network, such as branding, methodology and software, might be held by a further separate entity.
13. The separation of the different aspects of the network (oversight of cooperation, operations and intellectual property) into different, independent entities protected the network from systematic collapse from legal action against any specific part of the network or member firm. An example of these arrangements was the [X] network, where a firm joined the network by becoming a member of a [X] company limited by guarantee, but that participation in the network was only activated on agreeing to separate legal agreements with a service company registered in [X] and an intellectual property licensing company registered in [X].

⁷ The network body itself might comprise a number of legal entities or service companies.

14. The specific functions and responsibilities of the network body and its service companies varied by network, but broadly encompassed:
- (a) developing and defending the network's intellectual property rights, including branding and audit methodology;
 - (b) developing and maintaining audit software and servers for storing shared audit files;
 - (c) liaising with professional and standard bodies internationally and in key territories;⁸
 - (d) developing training programmes and materials, and maintaining a global intranet;
 - (e) supporting network development (including financial support for acquiring firms) and overseeing the admission of potential new member firms;
 - (f) performing quality assurance reviews of member firms' audit files; and
 - (g) establishing overseas processing centres.
15. Individual member firms were responsible for implementing their networks' policies including methodologies. Subject to local regulatory requirements, the global methodology might need to be amended for additional requirements over and above ISA and disclosures required under IFRS. Any territory-specific requirements might need to be overseen by the member firm. In the UK, such tailoring would include, inter alia, ensuring that there was specific consideration of UK Ethical Standards and appropriate disclosures under the Companies Act.
16. In networks where the level of global integration was greater, the functions of the network might also be greater, such as overseeing the admission of partners in member firms and their subsequent appraisals.

⁸ The network as a whole might wish to make submissions to regulators in countries such as the USA on matters which might affect member firms outside of that country (such as Sarbannes Oxley and the requirement to be SEC registered for some financial services clients).

17. Where networks used a standard audit software platform, the staff providing technical support might be employed by the network, even if those staff were co-located with member firms.

Types of network membership

18. The networks each had different types of firm membership. The terminology and effective rights and obligations of different types of firms differed across networks.
19. Most of the international firms within the Big 4 and Mid Tier networks were full member firms. Full members were subject to the quality assurance requirements of the network, such as periodic reviews of audit files, and often were required to use the standard international methodology (appropriately localized) and had access to the network's audit software. Affiliate or 'correspondent' firms might be used where there was not perceived to be sufficient demand to justify establishing or recruiting a firm as part of the network, or where the network had not identified a firm suitable for full membership. Nearly all of the networks considered in this appendix used affiliates.⁹ Affiliates did not have the right to use or adopt the branding or name of a network, other than in advertising that they were an affiliate of the network.
20. As an example of the use of affiliates, Deloitte used 'Independent Correspondent Firms' (ICFs) on a non-exclusive basis¹⁰ in territories where it did not have a member firm.¹¹ ICFs were not subject to the normal Deloitte requirements of membership, such as use of a standard methodology, and were essentially a pre-selected third party subject to assessment for competence by any audit team taking assurance from them. Since affiliates were not subject to regular quality reviews by the network,

⁹ The nature of affiliates varied across networks. BDO stated that it did not use 'affiliates' per se, but member firms might issue sub-licences to other firms, such as in the USA and Spain. [REDACTED] was the only firm whose network did not include affiliates.

¹⁰ That is, that there might be multiple ICFs in a territory and that a member firm was not required to refer overseas work to an ICF.

¹¹ There were [REDACTED] affiliates in the Deloitte network.

the level of work performed by a group auditor would not be reduced relative to using any other firm that was not a full member firm of the network.¹²

21. KPMG International, however, allowed its 'correspondent' firms access to certain proprietary materials on payment of a fee. Following a change in strategy, KPMG International had reduced the number of correspondent firm agreements in place and by 2012 only five remained in five territories. One of the reasons for the change in strategy included concerns that the use of the term 'correspondent firm' could be erroneously construed as indicating that the firm was part of the KPMG network.

Governance and control

22. The voting arrangements in each network varied and might differ based on the nature of the decision (such as election of global board members, or amendments to a network's constitution). Given the wide variety of arrangements, these are not discussed on a network-by-network basis in this appendix.
23. The structure and distribution of voting rights also varied, with some networks subject to decisions made by the population of partners across the network, whilst in others each firm (through a designated representative) voted on behalf of its partners (somewhat like an electoral college system), with different firms receiving different weightings.
24. The relative weighting of votes might be affected by a number of factors such as firm revenue, the nature and size of clients (and by extension the level of referred revenue generated for the network) and number of staff.

¹² Admittance as an ICF was after scrutiny by the network, but not to the extent that member firms could take assurance without appropriate additional review of an ICF's work.

25. The ultimate strategic and decision-making power within the network sat with a board, committee or leadership team, which might be overseen by an advisory committee, and supported by a number of additional committees, either appointed separate to the board, or as a subcommittee of the board.
26. The individuals present on the network board were chosen in several ways. In some networks, election to the board and other network governance structures was through popular election by all partners globally. For some networks, such as [✂] and [✂], a number of seats might also be reserved for individual firms or geographic areas.¹³
27. Regardless of the model, there was broadly a link between the size of a firm and the level of influence it could exert, although specific provisions might protect or enhance the relative standing of certain firms.

Recruitment, retention and departure of member firms in the network

Discussion

28. It was in the interest of individual member firms and the network as a whole to ensure that there was continuity in the representative member firm for each territory, as this facilitated a better service for companies. Two factors encouraged stability.
29. The first was referred income within the network. Without membership of a network, an individual firm was likely to lose audit work on subsidiaries of international companies, and by extension would lose a potentially significant amount of revenue. Referred income is discussed further in paragraphs 98 to 106.

¹³ Specifically for appointment to policy boards.

30. The second, which was controlled by the network centrally, was the imposition of exit charges on firms which left the network. However, the one-off penalty cost might not be a sufficient deterrent to a member firm from one network joining a larger network if the expected level of referred income was large enough.
31. The network body was responsible for admitting new member firms. If a network sought to expand into a new jurisdiction, it sought an existing firm¹⁴ to either join the network or to create a joint venture with another member firm from another jurisdiction where the network was already present which would represent the network. In some instances a network might permit a member firm to provide services in neighbouring countries subject to appropriate regulation with respect to statutory audit, particularly if there was only sporadic demand from international clients and there was no existing member firm.¹⁵
32. If a network needed to expand into a new territory (Country X), to service a new client or an existing client's expanded overseas operations (Company A), the network could either create a new firm in Country X (Firm X), or invite an existing firm to join the network. However, if there were regulations in place to prevent a threat to independence as a result of fee dependency, the creation of a new firm would not be possible, unless the new firm could service existing clients' operations in Country X (which might have previously have been done by an overseas firm), or obtain its own domestic clients.
33. Even where there were not domestic regulations over independence, ISA 600—Special Considerations—Audits of Group Financial Statements (Including the Work

¹⁴ This might be an independent firm or a member firm of another network.

¹⁵ The network could coordinate communication between firms if expansion was necessary to service an international client. For instance, part of [X] US's decision to open an office in [X] was that the UK firm's ability to win the audit of [X] was partially predicated on it having an office there.

of Component Auditors)—required a group auditor to consider the independence of a component auditor and could not rely upon the component auditor’s work if it was not considered to be independent.¹⁶

34. We understand that the UK and US firms had historically created overseas offices and firms to service their domestic clients’ international operations which in some instances were driven by a single client. Had the ethical standards issued by the International Ethics Standards Board for Accountants (IESBA), which underlie ISA 600, been in place, this route of expansion might not have been allowable.¹⁷
35. Because of the regulatory requirements, overseas expansion into new territories appeared to require either a member firm from another territory to operate across jurisdictions, or to identify an existing firm which was sufficiently large not to risk a threat to its independence as a result of fee dependency. There were a small number of examples where the member firm of one network merged with, or acquired, another local firm which was a member of a different network. Such mergers or acquisitions would lead to a gap in the representation of one of the networks. In the examples we identified it was not clear whether the consolidation of two existing firms into one was driven by the partners or by international motivation.¹⁸
36. [Annex 1](#) describes the example of Brazil, where the member firms of both GT and BDO left their respective networks to join the pre-existing Brazilian member firms of EY and KPMG respectively. There were potential consequences to a network of such losses and acquisitions and using the Brazilian market as an example these were:
- (a) loss of a firm to service the Brazilian subsidiaries of international companies, disrupting the completion of ongoing group audits;

¹⁶ The EC Audit Directive required all statutory audits to be conducted in accordance with ISAs.

¹⁷ If the new branch office or firm shared in the profits of the ‘parent’ firm, this might not be an issue.

¹⁸ There were also examples in the UK, such as Robson Rhodes merging with GT and leaving the RSM network.

- (b) loss of market share and outward referred income from Brazilian companies;
- (c) a reputational effect on the network's ability to retain its member firms and thus suitability to service large international clients; and
- (d) the cost to the network of acquiring a replacement firm of a similar size, which might lead to targeting the member firm of another network, and the need to finance any penalties for the new firm's exit from its previous network, and the costs of integrating the new firm into the network.

37. It appeared that the networks were prepared to support member firms in expanding through acquisition in certain circumstances. That the network body had sufficient funds to provide financial support to member firms (or that the network body had negotiated preferential borrowing rates despite not undertaking activities other than supporting the network) suggested that other member firms supported this approach.

38. The House of Lords Select Committee on Economic Affairs considered that such acquisitions impeded the ability of smaller networks to develop:

The Big Four continue to strengthen their position by using their financial muscle to acquire significant parts of the home and international networks of next-tier firms. There have been several notable acquisitions in recent years in, for example, France and Brazil. These take-overs limit the scope for smaller competitors to develop international networks. The effect seems anti-competitive.¹⁹

39. We were aware of one example of a member firm of one of the four largest networks joining another network, being the Belarusian member firm of KPMG joining the BDO

¹⁹ Paragraph 128, Chapter 3, House of Lords, Select Committee on Economic Affairs, 2nd report of Session 2010–11, Auditors: Market concentrations and their role, Volume I; Report, published 30 March 2011.

network. However, despite this firm being the largest in its domestic territory, it was relatively small, employing 65 partners and staff.²⁰

40. PwC noted that the merger of two firms was likely to be subject to review by competition authorities in that jurisdiction. However, whilst any merger might not have an adverse effect on competition in that jurisdiction, the impact on competition internationally might not be considered. For example, the loss of a member firm in territory X might prevent other member firms in that network from auditing a client with a large subsidiary in territory X even if the level of competition among firms in territory X might not be diminished.
41. On occasion, networks might choose to remove membership from a firm. In their submissions some of the parties indicated that a small number of firms had been expelled from their respective networks for issues of quality, or due to lack of demand for audit services in that country, or political instability in a country.

Function of networks

42. The networks provided a number of services to member firms in addition to management of common standards and cooperation between firms.²¹ The networks were moving towards both shared service centres for corporate support functions and centralized processing centres for standardized, objective audit procedures (audit processing centres). In terms of network functions, this section considers in particular:
 - (a) audit processing centres;
 - (b) shared costs;
 - (c) independence within the network; and

²⁰ www.bdo-belarus.by/en/news/1.html.

²¹ These services were generally provided through a service company, which might either be a subsidiary of the coordinating network body or a separate entity controlled by member firms.

(d) strategy.

Audit processing centres

43. Audit processing centres might be located in emerging economies, or in some instances, areas of the UK which we assumed to have a lower cost base. The AQRT in its 2012 annual report noted that firms were increasingly using centralized processing centres, or increasing the proportion of testing performed by junior staff to maintain profit margins.
44. The nature of the work performed in the audit processing centres was typically objective, low-level testing or administrative procedures, such as setting up audit files. The nature of testing might include, for example, identifying year-on-year variances or analysis of ratios such as gearing or the level of working capital to assist in identifying areas of possible risk.
45. Audit processing centres were typically established in a territory with a low cost base by one or more member firms of a network, with the work supervised by the local member firm.²²
46. In the case of PwC, the UK firm had established two joint ventures to run an offshore facility (one with firms from some English-speaking countries to operate a centre in India, the other with the German and Central European firms to operate a centre in Poland).²³ [§] ²⁴ PwC said that processing centres were an important part of meeting their customers' demands and of enhancing quality, and that there was significant competitive pressure on audit firms to price audit services competitively through innovations in the audit and efficiency savings. It also said that there was suitable

²² In some networks the processing centre is not dependent on the local firm's supervision.

²³ PwC UK also operated a centre in [§].

²⁴ Other firms in the PwC network had also independently established other centres.

oversight of audit processing centres and the level of quality and review was the same as in any other part of the network.

47. EY UK anticipated using central processing facilities for some [X] hours of audit work (approximately [X] per cent of its total output) in 2011/12. However, the financial benefits had not yet been fully assessed.
48. KPMG UK has operated a 'resource centre' in India since 2005 in a joint venture with its Indian firm, and another 'Global Services' centre with its US and Indian firms since 2010. At present, a number of member firms used these facilities. KPMG had not performed a detailed cost assessment, but noted that if audit labour hours were outsourced on a one-to-one basis,²⁵ a crude estimate would be a saving of £[X] million, though due to the costs of establishing the centre and additional review in the UK, this might be overstated. Other KPMG member firms also operated their own centres. KPMG UK expected that the resource available to the UK firm in these centres would double by 2012/13. KPMG noted that its use of processing centres was not simply to reduce costs. The use of processing centres allowed 'onshore professionals' to 'focus more time on higher qualitative aspects', resulting in a more efficient process. [X] In 2012, Deloitte UK established a 'Risk Management Shared Services Centre' in Cardiff, [X].
49. [X], GT and PKF did not operate any audit processing centres facilities. Whilst [X] was considering off-shore audit processing centres in the future, GT and PKF had no plans. Mazars International was developing plans potentially to establish some form of processing hub in certain non-audit services, but not in audit.

²⁵ That is 1 hour of staff time in the centre replaced 1 hour of UK staff time.

Independence within the network

50. Member firms might provide a variety of non-audit services to the various international subsidiaries of a group. Should one member firm be appointed as group auditor, this might require other member firms to cease offering non-audit services.

51. The need to compensate another member firm for lost clients under these circumstances varied, though most firms stated that no consideration would be due and that it was felt that the potential loss of non-audit service work (if rules on independence precluded the provision of certain types of level of non-audit services in addition to acting as statutory auditor) would ultimately even out over time. Mazars, because of its global profit-sharing arrangement, would consider the financial impact on the Mazars group as a whole before accepting an engagement. In the [✂] network, some consideration might need to be paid to another member firm.

Strategy

52. As noted, by being part of a network, member firms benefited from work referred by other firms. As a result, if firms targeted large international groups and won those audit engagements, the network benefited economically. The fraction of the total audit fee payable to the UK firm would in part depend on where the business activities were based as this would often dictate where the audit work took place. In some circumstances, such as where the holding company was in the UK, but where the majority of business activity took place overseas, the UK audit fee might be relatively small. To encourage the domestic firm to attempt to win such audits to bring referred income in, the network might identify companies to target. Similarly, member firms might be requested to target certain sectors.

53. We considered the strategy of several firms:
 - (a) The Baker Tilly network had no central targeting of potential clients.

- (b) The [REDACTED] network did not require firms to target specific clients or sectors, but encouraged its larger member firms to develop [REDACTED] with an intention of moving towards a [REDACTED].
- (c) Deloitte UK had autonomy in targeting potential clients and sectors, but considered the strategies of the network and other members as a whole, and as a firm targeted large global clients.
- (d) EY had a Priority Account Programme, which for the UK was 'owned' at EMEIA Area level with implementation in each sub-area. [REDACTED] EY had three tiers of priority accounts, based on size and complexity [REDACTED]. Monitoring occurred at the global level for the largest tier and at the EMEIA level for the other two tiers. [REDACTED]
- (e) GT International targeted sectors with individuals from member firms chosen to lead on these sectors. However, individual GT member firms decided which sectors they actively wished to pursue.
- (f) At KPMG, member firms were expected to adopt strategies consistent with the global strategy of KPMG International, recognizing that individual elements of the global strategy would be of different significance to individual firms in light of specific circumstances and markets. The global strategy identified eight priority areas, which included industry sectors, activities ([REDACTED]) and locations ([REDACTED]). The member firms collectively established a Global Accounts Programme, which covered 280 very large existing clients, broadly three-quarters of which had a strong KPMG Europe LLP presence (and of which 30 were UK-based or UK-listed) with clients designated as audit or non-audit (non-audit clients were presently being reviewed to establish which were target audit clients). Within the global non-audit accounts, there were 42 'focus' accounts identified based on their strategic importance and the scale of additional services that could be sold to the clients. As part of this programme, specific large target clients were identified.

- (g) Mazars centrally determined major target clients and sectors in liaison with local firms, with targets set for each firm.
- (h) The PKF network had no involvement in identifying clients for its member firms.
- (i) The PwC network identified [redacted] Global Industry Sectors in which it developed thought leadership and provided other support to facilitate high-quality client service delivery and targeting. The UK firm's industry sector programme was aligned to the PwC networks' global programme. PwC UK identified [redacted] UK companies which were considered to be 'Global' which it targeted for sales of its services (and of which [redacted] were existing audit clients). For 'Global' clients, the Network Leadership Team had the ultimate decision in how to approach and target these companies.

The role of the network in setting audit methodologies and standards

54. The network's principal function was to enable cooperation between independent member firms to service their respective international clients for their mutual benefit (through referred income—see paragraphs 98 to 105).

Overseeing quality across the network

55. The UK auditor of the consolidated financial statements of a parent and its subsidiary undertakings must adhere to the requirements of Clarified ISA 600—Special Considerations—Audits of Group Financial Statements (Including the Work of Component Auditors). The 'group auditor' did not need to audit all the components of a group, but needed to obtain sufficient appropriate audit evidence that the consolidated financial statements were free from material misstatement at the group level.
56. The firm auditing a component (this might be a subsidiary or an overseas branch) for the purposes of the group audit opinion would not necessarily need to issue a

statutory audit opinion on that component. Where a statutory audit was required, the audit firm undertaking the audit would act as component auditor, reporting its findings to the group auditor.²⁶

57. The typical method of auditing a large international group was to issue group audit instructions to ‘component auditors’ outlining the minimum necessary procedures on key balances and confirming the level of materiality used in the audit of the component.²⁷ Depending on the size of an individual component (subsidiary), the level of detail and subsequent scrutiny of a component auditor’s work by the group auditor varied.
58. The level of review and challenge that a group auditor needed to apply to the work of a component auditor could be reduced if the group auditor could rely on the quality control environment of the component auditor. For member firms of international networks, where a standard methodology was applied and the member firm’s quality assurance framework was overseen by the network body, the amount of work in reviewing the work of component auditors and assessing their competence could be reduced.²⁸
59. Where a network had a common audit IT platform, the group auditor might be able to review the audit work relating to the overseas subsidiaries of a UK company in the UK, without the need to visit the local audit team. However, if an overseas component was significant, the UK group audit partner or team might need to review files locally or attend meetings with the component audit team. The extent of this would

²⁶ If a statutory audit was not legally required (or requested) in an overseas subsidiary, a greater level of materiality might be used by the component auditor, to provide assurance to the group financial statements and reduce the overall level of audit testing, because the materiality applicable to the group financial statements would normally be higher than would be appropriate for stand-alone statutory financial statements of the overseas subsidiary.

²⁷ Not all components needed to be audited from the group perspective if their results were not material, though there might be a legal requirement for the component to be audited in its own right.

²⁸ ISA 600 Special Considerations—Audits of Group Financial Statements (Including the Work of Component Auditors), Application guidance, paragraph A35 discusses how a group auditor may gain an understanding of a component auditor.

vary by the nature of the individual components. Where a component auditor was not a member of the network, overseas visits to review files were more likely.²⁹

60. Of eight firms which provided information, all had international methodologies and audit platforms. [X] Use of the standard audit software was mandatory in all firms except KPMG and [X].³⁰ At KPMG, any firm not using the software had to use a standard paper-based system based on the same methodology. All the UK firms used their network's software.
61. The nature of each network's international quality assurance programme varied but operated in two layers. The first was the requirement for member firms to operate their own quality assurance programme and the network might set regulations and offer advice on establishing a review programme. [X], for example, required all member firms to have reviewed the audits of all partners every three years, unless a firm was very small (five or fewer partners). Similarly, GT and Mazars required all firms to incorporate a quality assurance programme compliant with International Standard on Quality Control 1,³¹ issued by the IFAC among others. The second layer or review was by the network body of the quality of individual member firms' quality assurance framework which included a review of a sample of audits.
62. Where member firms were identified to have weaknesses in their quality assurance framework, or where poor quality had been found in a member firm's audit files, the member firm was required to agree to an improvement programme with various deadlines. Should a member firm consistently fail to meet its network's standards, it would ultimately face expulsion.

²⁹ See, for instance, [X] description of [X] Plc, whose activities were primarily overseas.

³⁰ Use of the Mazars global audit methodology (and related software) was now mandatory at Mazars.

³¹ ISQC1 did not specify a frequency of monitoring.

63. For example, [X] expelled [X] member firms ([X]) in [X] on the grounds of quality and had expelled [X] member firms.
64. A logical consequence of a common quality assurance platform existing across a network appeared to be that the resource requirement of the group auditor was reduced, meaning a more efficient audit, allowing either greater margins or the ability to compete more aggressively on price.
65. However, relying wholly on the network's quality assurance arrangements was not necessarily sufficient for all audits, as the group auditor had to ensure that it had an appropriate understanding of the audited entity's business including its subsidiaries both individually and in aggregate.³² PwC stated that the level of interaction with an overseas member firm would vary depending on the scale of financial activity and the business and audit risks of individual overseas components, to ensure that appropriate evidence was obtained to support the group audit opinion. For example, PwC described one FTSE 350 audit where it had a greater level of interaction with component auditors to understand the issues:

Although the business sector in which [X] operated was not inherently high risk, the nature of its organisation, with lots of small overseas operations and the need for adequate internal systems and controls to manage these operations, increased the level of audit risk. [X] expectations and our experience was that the senior members of PwC UK's group audit team increasingly needed to spend additional time visiting the overseas operations to ensure that audit issues were appropriately identified and resolved and that there was adequate central oversight of these overseas operations. The costs involved in

³² The fact that a component auditor was in the same network did not mean that the component auditor's work was not subject to review, but that less work would need to be performed in understanding the capabilities of the component auditor prior to being able to conduct that review.

doing this resulted in the economics on this assignment becoming very poor.

66. Some firms had stated that they considered the use of audit firms outside their network either to increase the risk to the group audit opinion or, in mitigating these risks, to increase the cost of the audit. For instance, PwC provided the example of [REDACTED], where it stated that working with a non-network firm incurred a 'significant addition to the local audit firm's fee', though it should be noted in this case that the estimated increase in PwC's group audit fee was only 2 per cent, which would suggest that this was an issue of the level and extent of the local firm's testing rather than increasing the complexity of the group audit.³³

67. KPMG UK had a stated policy that specific approval had to be obtained for any engagement where member firms of the KPMG network were not the auditor of a significant proportion of a group's components, ostensibly for quality control purposes:

... our policy requires that where we are appointed as the group auditor, but the audit of more than 30 per cent (as measured by consolidated assets or consolidated gross revenues) of a group / entity is carried out by component auditors who are not Member Firms, approval is required from the Quality and Risk Management Partner. Such approval will generally be given only where the situation is expected to be temporary and the group auditor has extensive direct involvement in the relevant component audits so that we can be confident in the overall quality of the work.

³³ However, the increase in cost might have been cumulatively greater if multiple subsidiaries had been audited by multiple audit firms not in the network.

68. One of the considerations that EYUK took into account when considering whether it was appropriate to perform a group audit was [REDACTED].
69. We obtained some information on the costs incurred by firms in the development of audit software platforms. This indicated that one network had spent \$400 (£250) million on development and one was planning to spend a similar amount in the near future. Other networks had spent significant, albeit lower, sums, although we had some reservations about the accuracy of these numbers given that they reflected internal development costs. Table 2 contains further information on costs.³⁴
70. A development cost of £250 million would be unlikely to be economically viable for a single firm (unless it could license the product to other firms), but by acting as a network, the firm can benefit from an economy of scale (in the case of PwC, the UK's contribution was estimated at £[REDACTED] million to receive the features of a software tool that cost \$400 million (approximately £250 million)). Given the lower level of referred income in the smaller networks, it was not clear whether such investment would be financially beneficial given the lower level of international engagement.
71. Similarly, the ongoing maintenance costs of the software varied between £5 million and £17 million a year, but rather than falling on a single firm, were able to be shared.

³⁴ All the networks have a standard international methodology and, with the exception of PKF, its use is compulsory.

TABLE 1 **Costs of developing methodologies and software**

	[X]	[X]						
Cost of global methodology	[X]	[X]						
Localization	[X]	[X]						
Last full refresh	[X]	[X]						
Annual update costs	[X]	[X]						
Software package	[X]	[X]						
Is use mandatory in the network	[X]	[X]						
Development cost	[X]	[X]	[X]	[X]	[X]	[X]	\$400m	[X]
Localization	[X]	[X]	[X]	[X]	[X]	[X]	\$400m	[X]
Annual costs	[X]	[X]						
Notes	[X]	[X]	[X]					

Source: CC analysis.

Notes:

1. Where firms have provided the total cost incurred in updating their systems or methodologies over a number of years, the CC has used this to calculate an average annual cost.
2. N/A = not available.

Annual expenditure of the network bodies

72. The network body and any service companies were funded by contributions from individual member firms. The relative level of contribution would be determined by a number of factors, though the principal determinant was the relative revenue generated by each firm. Other factors, such as number of professional staff and referred income, might also be included in the formula to calculate a firm's contribution.
73. Table 2 shows the level of annual expenditure of each network and the contributions paid by the UK member firms in absolute terms and relative to each UK firm's revenue.
74. In 2011, the Big 4 networks spent between £[X] million and £[X] million with the other networks spending between £[X] million and £[X] million. This disparity was

indicative of the differing levels of integration and activity undertaken at the network level.³⁵

75. The UK member firms contributed between [X] and [X] per cent of these running costs, with the relative contributions of the firms clustered into two groups. The first ([X]) contributed between [X] and [X] per cent of running costs, whilst the other ([X]) contributed between [X] and [X] per cent of running costs. It was not clear that there was any specific cause for the different relative contributions.³⁶

TABLE 2 Financial scale of the networks and firms, 2011

	BDO	DEL	EY	GT	KPMG	Mazars	PwC	PKF
UK revenue (£m)	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]
UK contribution (£m)	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]
% of UK revenue (%)	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]
Network expenditure (£m)	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]
UK contribution as % of network costs (%)	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]
Network expenditure as % of UK revenue (%)	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC analysis.

Note: Some numbers have been converted from other currencies, using the average mid-market rate for that network's financial year. The relative level of contribution would vary year on year depending on the factors used in determining contributions.

76. The financial burden on the UK firms varied, with the contribution paid ranging from [X] to [X] per cent of the firms' revenue. The largest relative contributions were paid by [X] and [X], which were the [X].³⁷

The international coverage of networks

77. In this section we set out: (a) the number of countries to which networks could supply audit services; and (b) the number of staff employed by international member firms.

³⁵ It was not fully clear whether the expenditure was as a result of the relative scale of the largest networks and linked to actual coordination of activities, or whether the largest networks engaged in a broader range of activities.

³⁶ As noted, the basis of the calculation would vary, so some variation in contribution was to be expected.

³⁷ Due to the complexities of individual firms, we had not assessed whether a large centre led to a reduction in overheads at the member firm level or merely an additional tier of management.

Number of countries to which networks can supply audit services

78. To establish the relative international coverage of the networks, we compared the number of member firms and the number countries in which they operated.³⁸ Table 3 shows the range of the scale of the networks.
79. The number of member firms varied significantly (between 69 and 305), but this did not give an accurate representation of geographic coverage, as in part the number of member firms might be dictated by the networks' legal structure.
80. In analysing the relationship between number of firms and number of territories covered, it was apparent that (a) some member firms operated in territories outside their domestic jurisdiction and (b) in some territories a network might be represented by more than one member firm.³⁹
81. Due to the variation in the nature of each network and their member firms' operations, a detailed comparison of the networks was not easily performed, nor would a detailed assessment of a network's coverage in a given separate territory be any more enlightening.⁴⁰ However, the relative coverage in G7 and BRIC countries is considered in Table 6.
82. The Big 4 firms reported that their networks had member firms with audit or assurance operations in between 146 and 164 countries. The other firms reported that their networks had operations in between 84 and 135 countries.

³⁸ In some jurisdictions, an audit firm did not need to be a local firm to undertake statutory audit.

³⁹ In Australia, for instance, BDO had a separate member firm in each federal state which cooperated with each other as 'BDO Australia'. In some instances, there might be separate member firms for the provision of audit and non-audit services, which might be a local requirement.

⁴⁰ For instance, it would be difficult effectively to compare two networks that both serviced companies in Monaco, but where one had a dedicated Monaco office, whilst the other had staff commuting from its Nice office.

83. The firms were able to offer further international coverage through the use of affiliate or correspondent firms which were not full member firms of the networks.⁴¹ Table 3 shows, however, that the use of affiliates was not widespread for any of the six largest networks, with at most 11 affiliate firms used. The only network which had a significant number of affiliates was PKF. However, its use of affiliates was relatively infrequent and the 70 affiliate firms were concentrated in only 15 territories. Mazars, which had adopted an 'integrated partnership' model, was a member of the Praxity alliance, which extended coverage by another 13 countries.

TABLE 3 International scope of networks

	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]*
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]†	[REDACTED]	[REDACTED]	[REDACTED]‡	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: CC analysis

*Includes branch offices of member firms.

†Firms in alliance with the network's US and Spanish firms.

‡EY did not provide a specific number of affiliate firms outside of its network other than as 'less than ten'.

§Mazars was also a member of the Praxity alliance which increased overall coverage to 97 firms.

84. Table 4 analyses the changes in the number of countries to each network over the period 2007 to 2011.⁴² All the networks added new member firms and accompanying additional geographic coverage. The largest four networks added between [REDACTED] and [REDACTED] net new firms, with the other networks adding between [REDACTED] and [REDACTED] net new firms.

⁴¹ In a number of instances, these affiliate or correspondent firms might be present in a country where a full member firm was operational, even if the firm was not legally registered there.

⁴² These changes all relate to firms which appear to be the sole member firm in a given country.

TABLE 4 Changes in the number of countries where networks are present

	2007	2008	2009	2010	2011	Net increase
[X]	[X]	[X]	[X]	[X]	[X]	[X]
[X]	[X]	[X]	[X]	[X]	[X]	[X]
[X]	[X]	[X]	[X]	[X]	[X]	[X]
[X]	[X]	[X]	[X]	[X]	[X]	[X]
[X]	[X]	[X]	[X]	[X]	[X]	[X]
[X]	[X]	[X]	[X]	[X]	[X]	[X]
[X]	[X]	[X]	[X]	[X]	[X]	[X]
[X]	[X]	[X]	[X]	[X]	[X]	[X]
[X]	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC analysis

Notes:

- Responses have been analysed on the basis of calendar years or firm reporting years depending on format of data supplied. Depending on the data supplied, this may relate to changes in either the number of member firms, or activity of existing member firms in another territory or a combination of the two.
- GT's net figure includes two departures from the network which did not have a date disclosed.

85. Seven firms provided a list of where their network had operations and our analysis indicated that these networks had a combined representation in approximately 202 nations or territories.^{43,44}

86. The Big 4 networks were each present in approximately 150 of the 202 territories. There were 116 territories where all of the largest four networks were present. Of these 116 territories, both BDO and GT were present in 88 (76 per cent), with one of BDO and GT present in a further 18 territories and neither present in the remaining ten territories.⁴⁵

87. Of the 28 countries where BDO and GT were not both present, nine were in Europe (all are Baltic or Balkan states, with the exception of Monaco), seven were in Africa and five were in Central Asia, the Middle East and the Pacific. The only country from

⁴³ The lists of territories submitted by each firm had been compared against each other and, wherever possible, the named territories had been compiled. In some instances, such as with reference to individual islands that were formerly in the Dutch Antilles, we have needed to make a judgement over how these are treated based on information supplied.

⁴⁴ [X], Deloitte, EY, GT, KPMG and PwC were the only firms to provide a full list of countries where the network had operations.

⁴⁵ [X] had operations in 100 of the 118 and [X] had operations in 94 of the 118.

this group of 28 that was in the IMF's list of the 50 largest global economies was Nigeria.⁴⁶

88. It appeared that the Big 4 firms had a wider coverage of international territories, and each was present in a similar number of territories, but that no single network offered universal coverage. Where all the four largest networks were present, both BDO and GT showed a broadly similar level of international coverage. However, as discussed below, the number of staff in each member firm varied.

The number of staff employed by international member firms

89. We requested data on the number of staff employed by each member firm in a network. Due to the different ways that the firms presented data and how their individual member firms were managed (such as the number of countries serviced by each member firm), a simple numerical comparison of their size by number of employees was difficult. However, there were distinctive differences. Further, the proportion of staff in each member firm that were qualified to work on an audit varied and as such the data in Table 5 should be treated as indicative of relative scale, rather than conclusive in respect of a network's international audit capacity and capability.⁴⁷

TABLE 5 **Analysis of international distribution of staff 2011**

[✂]

Source: CC analysis.

90. There were two identifiable tiers of networks. Deloitte, EY, KPMG and PwC employed on average approximately [✂] staff for each country serviced, compared

⁴⁶ Based on nominal GDP from IMF's World Economic Outlook Database, April 2012.

⁴⁷ Particular caution should be applied to data for Deloitte, which had provided staff data for 61 individual firms/named territory groupings, as this would make Deloitte's individual firms appear disproportionately large.

with an average of approximately [redacted] for BDO and GT.⁴⁸ Mazars, which had member firms in fewer countries, had a smaller average number of staff at [redacted]. Baker Tilly and PKF were not able to provide figures for staff internationally.

91. A simple comparison of average number of staff needs to be treated with caution, but other statistics such as the median also indicated that there was a disparity in the average size of firms in each network. There was also, however, a significant variation in the relative size of member firms in the networks. For all networks, the smallest member firms (which employed between 1 and 43 staff) were dwarfed by the largest firms (2,000 to 53,000 staff) in their respective networks.
92. The larger networks' member firms were larger on average, and also had fewer small member firms. For the larger networks, the proportion of member firms that employed fewer than 50 staff ([redacted] per cent) was lower than for the other networks (approximately [redacted] per cent).⁴⁹
93. The Big 4 networks were not identical in size, despite being present in a similar number of countries and having a similar average number of staff in each country (Table 5). The median EY member firm, for instance, employed [redacted] staff, whereas the same figure for KPMG was [redacted] ([redacted] per cent higher) despite their mean number of employees ([redacted] and [redacted] respectively, KPMG [redacted] per cent higher), indicating that [redacted]. Further evidence of this difference was that only [redacted] per cent of KPMG member firms employed fewer than 50 staff, compared with [redacted] per cent for EY.⁵⁰

⁴⁸ This had been calculated to allow comparison with [redacted] whose structure meant that it reported 60 member firms, approximately half the number of the other firms.

⁴⁹ A similar trend was observable in the proportion of member firms with fewer than 100 staff.

⁵⁰ [redacted] had fewer member firms but had a similar level of coverage in the number of territories served, so direct comparison was difficult.

94. [X] networks had broad international coverage. Their overseas member firms were typically smaller than member firms of the Big 4 in those countries where they were present, which was particularly notable when considering the median-sized firm in each network.
95. The smaller networks had expanded the number of countries in which they were present and were approaching a coverage similar to the largest networks, but individual international member firms were smaller and potentially had less capacity to resource engagement teams for large subsidiaries at short notice.
96. Table 6 gives an overview of the size of international member firms in a selection of large and significant emerging economies.⁵¹ All the networks were present in all these economies, but the largest four networks' presence was significantly larger with at least [X] staff in each of these economies. The BDO and GT networks had a relatively strong presence with on average over [X] in these territories. However, [X], for instance, had fewer than [X] staff in [X] of the ten countries. Mazars was smaller, with an average of 502 staff, but with significant variation in firm size, with only 18 staff employed in its Japanese office (although through a joint venture with a larger Japanese firm, Mazars had the ability to draw upon additional resources as necessary).

TABLE 6 Number of staff employed by member firms in significant economies (G7 and BRIC)

[X]

Source: CC analysis

*KPMG France included Algeria and Ivory Coast.

†Deloitte Russia figure was for CIS firm.

‡KPMG Russia included Georgia and Kyrgyzstan.

97. This analysis of staff numbers indicated that whilst the smaller networks had representation in a large number of countries, their member firms were also smaller.

⁵¹ These are the G7 and BRIC economies.

Referred income

98. The existence of networks with member firms in a number of countries produced 'referred' income, ie revenue generated from the servicing by one member firm of a network of the overseas operations of a company from another jurisdiction on behalf of another firm. For UK firms, the level of both outward referred income (subsidiaries of UK companies being serviced by foreign firms) and inward referred income (UK subsidiaries of foreign companies) was substantial (see below). The greater the level of referred income within a network, the greater the economic incentive there would be for a firm to remain within that network.
99. The historic development of the largest four networks dated back to the 19th century, and the expansion of the founding firms (through overseas branches and child partnerships as well as alliances with other firms) was driven primarily by British and US mercantile activity and client demand.
100. In contrast, BDO, GT and PKF all could trace their roots to a founder firm established in the 19th or early 20th century but their international activity developed primarily from the 1960s onwards.⁵² Mazars' development as an international network was later, with the firm established in 1940, and exhibited relatively little international growth until the 1980s.

Outward referred income: audit fees from UK companies paid to overseas firms

101. One measure of the importance of an international network was the proportion of a UK company's group audit fee that related to work undertaken by the UK audit firm, as the remaining element must be paid to other member firms. Table 7 shows that

⁵² This was also true to an extent with respect of Arthur Andersen.

the proportion of the total audit fee for FTSE 350 payable to the UK firm declined by 11 percentage points in the period 2006 to 2011.

102. Both the UK and the total audit fee had increased over the period, although whilst the total audit fee increased by 5.2 per cent each year, the UK element increased by only 1.1 per cent.⁵³ The reason for the different growth rates was not clear. Whatever the cause, approximately half of the financial value of FTSE 350 audit work was now undertaken by overseas auditors, meaning that the quality of the international network was of increased importance.

TABLE 7 Proportion of FTSE 350 audit fees receivable by UK firms

	2006	2007	2008	2009	2010	2011	CAGR %
UK audit fee	280,081	303,720	307,926	314,526	304,526	295,138	1.1
Total audit fee	475,077	547,697	565,468	635,750	664,001	611,324	5.2
UK element of the total fee (%)	59	55	54	49	46	48	

Source: CC analysis.

Notes:

1. EY excluded as non-UK element of audit fee not provided.
2. The fees relate to all FTSE 350 audits, and not just those with overseas elements per Table 8.
3. UK audit fee was net of any international costs billed via the UK firm.
4. The data provided by firms included a number of instances where the UK audit fee was greater than the total audit fee. If these were excluded, a similar trend was evident, with the UK proportion of audit fees declining albeit from 50 to 42 per cent. Where supplied total audit fee was less than the UK audit fee, and the total audit fee was adjusted to be equal to the UK audit fee, the proportion of audit fees receivable by UK firms falls from 57 to 47 per cent.

Inward: audit fees earned by UK firms from overseas companies

103. The UK firms also receive referred work relating to the UK subsidiaries and branches of overseas companies. For the largest firms, the value of this work was very substantial and accounted for approximately one-third of all revenues. In 2011, [X] per cent of Deloitte's firm revenues came from 'foreign' clients (2007: [X] per cent)⁵⁴ and [X] per cent of PwC's revenue was 'inbound' ([X] per cent of assurance) (2007: [X] per cent/not available).⁵⁵ KPMG stated that 'around [X] of KPMG's UK revenues

⁵³ The non-UK element increased by 11.2 per cent each year.

⁵⁴ Deloitte May 2011 management accounts.

⁵⁵ PwC 2011 Firm and Assurance Management accounts.

were attributable to clients which were identified on our finance systems as having an overseas entity as the parent’.

104. In 2011, BDO received some £[X] million of inward referred income, of which £[X] million was related to audit ([X] per cent of firm revenue and [X] per cent of audit revenue). GT UK received approximately US\$[X] million (approximately £[X] million) of inward referred income annually, of which an estimated approximately [X] to [X] per cent (approximately £[X] million) related to statutory audit ([X] per cent of firm revenue, and [X] per cent of audit revenue).
105. When the European Commission considered the nature of the economic relationship and interdependence of member firms in the Deloitte network (during the acquisition of Andersen’s business), it found there to be little financial incentive for a member firm to leave this large network and stated that ‘The interdependence of the member firms is further strengthened by the consideration that the possibility for a member firm to leave DTT [Deloitte’s network body] is economically almost unfeasible and very unlikely’.⁵⁶

Importance of networks to purchasers of audit services

Current FTSE 350 use of networks

106. In 2011, 76 per cent of the FTSE 100 and 63 per cent of the FTSE 250 (Table 8) paid audit fees that related to non-UK audit activity. Of those companies that needed non-UK audit services (such as for a branch or subsidiary), the non-UK element in 2011 accounted for some 52 per cent of the total audit fees for the group for FTSE 100 companies and 29 per cent of the group for FTSE 250 companies (Table 8).

⁵⁶ Case No COMP/M.2810—DELOITTE & TOUCHE/ANDERSEN (UK), paragraph 14.

107. In the period 2006 to 2011, there was some evidence of an upwards trend in the level of non-UK audit work. The proportion of FTSE 350 companies that had needed some non-UK audit had increased (four percentage points), driven primarily by increases in the FTSE 250 (a seven percentage point increase). The relative value of the non-UK proportion of total audit fees in the FTSE 350 had also increased (six percentage points), with the increase in the FTSE 100 some 14 percentage points. These trends indicated that members of the FTSE 350 increasingly had international operations and that the non-UK element of the audit was increasing.

TABLE 8 **Proportion of companies which have an element of non-UK audit**

	<i>per cent</i>					
	2006	2007	2008	2009	2010	2011
FTSE 100	75	77	78	78	80	76
FTSE 250	56	64	63	65	67	63
FTSE 350	62	67	67	69	71	66

Source: CC analysis.

Notes:

1. Excludes EY, as UK and total audit fee data not both supplied.
2. Where the supplied total audit fee for an engagement was less than the UK audit fee, the engagement was assumed to have no international element.

TABLE 9 **Average proportion of total audit fee payable for non-UK audit work**

	<i>per cent</i>					
	2006	2007	2008	2009	2010	2011
FTSE 100	38	41	41	43	47	52
FTSE 250	26	25	25	28	28	29
FTSE 350	30	30	30	32	34	36

Source: CC analysis.

Notes:

1. Excludes EY, as UK and total audit fee data not both supplied.
2. Where the supplied total audit fee for an engagement was less than the UK audit fee, the engagement was assumed to have no international element.

108. This increased demand from large listed companies for some form of international audit (and the extent of that audit work) suggested that to service large companies it

appeared increasingly important for an audit firm to have a suitable network to deliver this work.⁵⁷

109. However, 24 per cent of the FTSE 100 and 37 per cent of the FTSE 250 did not require any non-UK audit work (or if they did, it was performed by the UK firm) and thus the network was not an immediate barrier to entry for these sections of the FTSE 350.
110. However, for UK companies with no overseas activities, but with expectations of expanding overseas in future, the existence of an international network might be perceived as beneficial, as a company would not need to seek either a local auditor, or potentially seek a new group auditor. Our survey of CFOs and ACCs indicated that this was not a universal consideration, with only 8 per cent of respondents from companies with no international operations considering a firm's international network as important when choosing an auditor (see paragraph 125).

FTSE 350 views: CC survey

111. The CC used the services of an independent research company to undertake a survey of the views of the CFO/FD and the ACC (herein referred to as purchasers) of the companies comprising the FTSE 350 and over 1,750 other companies comprising the smaller FTSE indices, the Top Track 350 and a sample of companies listed on the Alternative Investment Market (AIM).^{58,59,60}

⁵⁷ In some circumstances, a UK firm might be able to service the non-UK element directly, but as the proportion of the total audit work undertaken overseas increased, this was likely to be less economically viable due to travel and subsistence costs.

⁵⁸ Not all companies responded. The overall number of responses at the company level was 474.

⁵⁹ In this section, use of the word 'significant' refers to differences which are statistically significant at the 95 per cent confidence interval.

⁶⁰ Some results from the survey indicate that a greater proportion of purchasers of audit services may consider a network as important than might be expected based on the figures included in Table 8; however, as the table did not include EY clients, and the survey did not have full coverage, the two populations would not be directly comparable. The expectation of possible overseas expansion may also drive some element of this relationship.

112. Companies whose CFO or ACC estimated that at least 40 per cent of their audit fee related to overseas work are herein referred to in this appendix as ‘international companies’.⁶¹
113. The survey found that the individuals involved in the purchase of audit services for FTSE 350 companies and for international companies of all types (FTSE 350 and non-FTSE 350) were more likely to identify the international network as an important factor in a number of scenarios. The survey also found that not only do the Big 4 firms audit almost all the international companies, but that international companies made up a significantly higher proportion of those firms’ client base.

International companies’ choice of auditor

114. In the survey, of the 114 international companies, 97 per cent were audited by one of the Big 4 firms. This indicates that international companies are almost entirely audited by one of the Big 4 firms. In contrast, the Big 4 firms audited 90 per cent of the total survey responses.⁶²
115. Further, international companies accounted for 26 per cent of the largest four firms’ clients, compared with 6 per cent of clients for the other firms. This difference in client base was statistically significant and showed that not only do almost all international companies choose the Big 4 firms, but that for those firms, these companies made up a larger proportion of their client base by number than for other firms.

The importance of the network in companies’ assessment of quality

116. When purchasers were asked to identify how they assessed audit quality, significantly more FTSE 350 purchasers (66 per cent) identified ‘consistency of

⁶¹ However, other companies may have some element of international.

⁶² The Big 4 firms audit a similar proportion of the FTSE 350, but it should be noted that 40 of the 114 companies were not in the FTSE 350, and the market share of the Big 4 firms is lower.

delivery worldwide' as an 'important' factor (ie answered important or very important) than the 47 per cent of purchasers from non-FTSE 350 companies.⁶³ Within the FTSE 350, significantly more FTSE 100 purchasers (84 per cent) identified this as an important factor compared with the FTSE 250 purchasers (58 per cent).⁶⁴ Similarly, significantly more purchasers from international companies (92 per cent) considered this to be an important factor than non-international companies (39 per cent).⁶⁵

The importance of a network in choosing an auditor

117. The strength of the international network was considered to be an important factor in the decision to appoint or reappoint an auditor by 83 per cent of the FTSE 100 purchasers⁶⁶ and 64 per cent of the FTSE 350 purchasers,⁶⁷ significantly more than the 45 per cent of purchasers from other companies.⁶⁸ This difference was even greater for international companies, with 96 per cent of international company purchasers considering this to be an important factor compared with 62 per cent of purchasers for non-international companies.⁶⁹
118. Geographic considerations were seen to be a reason not to invite or include companies in a tender situation. Of the 175 companies which had tendered in the past five years, 24 per cent responded that 'regional strength/geographic coverage' was a reason used to exclude some firms from tendering. The proportion of international companies which used this as a basis for filtering (48 per cent) was significantly higher than for other companies (22 per cent for those with 1 to 40 per cent of their

⁶³ Respondents were asked to rate factors on a scale from 'Not at all important' to 'Very Important'.

⁶⁴ The proportion of the FTSE 100 purchasers identifying this as an important factor was significantly greater (ie the difference is statistically significant) than any other group of purchasers, and the proportion of FTSE 250 identifying this an important factor was statistically greater than for respondents from AIM, the Top Track 250 and Top Track 350.

⁶⁵ Non-international companies comprised those where the overseas element of the audit fee was between 1 and 40 per cent and may still require international audit services.

⁶⁶ This is a statistically significant difference compared with non-FTSE 100 companies.

⁶⁷ This is a statistically significant difference compared with non-FTSE 350 companies.

⁶⁸ Respondents were asked to rate factors on a scale from 'Not at all important' to 'Very Important'.

⁶⁹ As noted above, non-international companies are those where the overseas element of the audit fee is between 1 and 40 per cent. For those companies without any international element to the audit, 8 per cent considered this important.

audit fee relating to overseas audit and 10 per cent of firms with no international element).⁷⁰

119. Of the 260 companies which would only consider the Big 4 firms, only 4 per cent of respondents considered that the strength or coverage of any of the four firms' respective networks would exclude one or more of those firms.

Case studies

120. Companies taking part in our case studies told us that they wanted their auditors to be experienced both within the industry within which they operated and within the FTSE. Companies wanted the quality of the audit to be consistent across their international business. For example:
- (a) one company [X] required experience of large and global FTSE companies; and
 - (b) another company [X] said that the main selection criteria used were: did the firm have the right industry skills and the quality of the team across the international group).
121. The main concern raised by our case studies about non-Big-4 firms was that they did not have the geographic spread and quality in those locations to be able to undertake some of the international audits. Many perceived that non-Big-4 firms used affiliates. For example:
- (a) One company [X]'s ACC was concerned about the geographic coverage and experience of acting for global clients of the Mid Tier. The ACC did not know, but guessed that Mid Tier firms were represented by affiliates in other areas of the world. She thought it was difficult to maintain global standards and training when using affiliates.

⁷⁰ The wording of the responses makes it unclear if respondents are referring to just overseas coverage, or regionally within the UK as well.

- (b) Another company [redacted] CFO was concerned that currently using a Mid Tier firm would mean using Mid Tier 'partner' firms in different territories and that this was an added difficulty.
- (c) A third company [redacted] ACC did not think that the Mid Tier firms had the necessary reach to be able to deal with the geographic spread of the company. The ACC was not sure if this view would still be valid for firms with simple operations solely in the UK.
- (d) A fourth company [redacted] ACC thought there was a significant gap in terms of coverage (but not skills) between the Big 4 firms and the larger Mid Tier firms.
- (e) A fifth company [redacted]—the ACC said that it was 'almost inconceivable' that the external audit would go to a non-Big-4 firm because of the company's international presence and the fact that the locations of the company were unknown and changing. Whilst the Mid Tier firms audited AIM-listed companies in the extractive industries sector, they did not have a consistent presence in enough countries.
- (f) The fifth company [redacted] did not know where it would have operations in the near future, therefore it needed an audit firm with broad international strength.

122. Accordingly, in general our case studies thought that international capacity was important, and this was principally to be found in the Big 4 firms' networks.

The network and the potential exit of a major auditor

123. Whilst the network model ring-fenced legal liability, it did not eliminate the risk of collapse of one member firm spreading to other member firms. Through close economic and business association, member firms were susceptible to reputational damage, to the same extent as they might benefit from the positive effects of brand reputation. We considered various examples.

Arthur Andersen

124. The clearest example of the effect of reputation on a network was the case of Arthur Andersen Worldwide (Andersen). The US (and founding) member firm's involvement in alleged failures in auditing and destruction of evidence had a significant reputational impact, which was compounded when the US firm surrendered its audit licence. Member firms began to identify other local firms that they could merge with (these were predominantly member firms of the other four largest networks).
125. The collapse of the network was driven by a number of factors:
- (a) The network was unable to provide audit services to the US subsidiaries of overseas companies.
 - (b) There was a reputational impact which meant that international companies did not wish to be associated with such a perceived catastrophic audit failure.
 - (c) The loss of the US audit practice meant that referred income to other member firms would have decreased significantly.⁷¹
126. In its conclusions on the subsequent acquisition of most of Andersen UK's business by Deloitte UK, the European Commission stated that international networks were a requirement of a large-company audit business: 'Large clients demand a global network, a high degree of international expertise and a reputation ... Andersen Worldwide was able to offer this, but Andersen UK on its own cannot.'⁷²
127. In the case of Andersen, the actions of one member firm damaged the reputation of other firms in the network but the effect was possibly greater than it might have been in other circumstances. It appeared that the Andersen network was more focused on servicing the subsidiaries of the US firm's clients relative to the other networks

⁷¹ Non-US firms would be likely to have found that they were overstaffed on the loss of referred engagements from the US firm, meaning that their firm profitability would have fallen.

⁷² <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/02/968>.

(though in almost all networks the US firm was the largest member by revenue), and the loss of the US firm would be likely to have had a much greater effect on the revenue of member firms than the loss of other constituent territories.^{73,74}

128. There have been other examples of accounting scandals concerning member firms of the four largest networks, which had not led to the collapse or any noticeable long-term detriment to the networks.

PwC Japan Chuo Aoyama

129. The events surrounding the PwC Japanese firm ChuoAoyama provided some evidence that networks could recover from the damage caused by the actions of member firms. After accounting irregularities were found at Kanebo (a Japanese cosmetics company), ChuoAoyama, the PwC network firm⁷⁵ in Japan, was suspended from practice for two months in July 2006 by the Japanese accounting regulator. In the same month, a group of partners from the Japanese firm entered into dialogue with the PwC network to discuss how to ensure continuity of service to ChuoAoyama's existing inbound and major Japanese clients.
130. Having concluded that ChuoAoyama's reputation was tarnished, a group of former ChuoAoyama partners initiated the formation of Aarata, a new firm, which applied for and was granted membership of the PwC network. At this point, a number of partners and staff of ChuoAoyama as well as several large clients chose to transfer to the new firm.

⁷³ That is not to say that Andersen did not have a significant presence in the UK public company market, and had a 10 per cent share of the audit market, making it the fourth or fifth largest firm on the basis of audit revenue (Oxera). Historic global revenue data is not readily available. For FY2000, both Andersen Worldwide and PwC Global reported that 44 to 45 per cent of their network revenues were generated in North America. However, it is not clear what proportion of non-North-America revenue was generated from local firms rather than referred income from the US firm. Figures from archived webpages.

⁷⁴ In the Big 4 firms we believe the US member firm to generate approximately 20 to 30 per cent of global revenues.

⁷⁵ Network firms in the PwC network have a slightly lower level of rights and responsibilities compared with member firms and cannot, for example, participate in the election of the Chairman and Global Board of PricewaterhouseCoopers International Ltd.

131. On 1 September 2006 (on completion of its two-month suspension), ChuoAoyama changed its name to Misuzu. In the summer of 2007, Misuzu's status as a network firm of the PwC network was terminated and the firm ceased trading. The remaining staff of Misuzu transferred to either Aarata or the member firms of the other three largest networks.⁷⁶
132. In FY2012, the PwC network generated \$[¥] million from the Japanese firm's clients' overseas operations, across all service lines.

PwC India

133. Two partners in one of the PwC audit firms in India had been subject to disciplinary proceedings by the Indian accounting regulator for their alleged failure to detect the management-perpetrated fraud at Satyam Computer Services Ltd (SCSL). One inquiry remained pending before the Indian accounting regulator. In the second case, the Indian accounting regulator barred the partner from practice and had assessed a fine against him; that judgment had been stayed, pending the resolution of judicial appeals. Also in the SCSL matter, the PwC audit firms in India registered with the PCAOB settled administrative proceedings with both the PCAOB and the US Securities and Exchange Commission; the settlement included payment of a financial penalty.^{77,78} In FY2012, the level of revenue generated by the PwC network from subsidiaries of the PwC firm in question was some \$[¥] million across all service lines.

⁷⁶ PwC submission; www.accountancyage.com/aa/news/1788528/misuzu-operations-formally-halt-japan. Additionally some partners of Misuzu established Kyoto Audit Corporation.

⁷⁷ www.accountancyage.com/aa/news/2131072/auditors-barred-life-satyam-scandal.

⁷⁸ www.sec.gov/news/press/2011/2011-82.htm.

Discussion

134. In these Japanese and Indian examples, there did not appear to have been any significant and persistent adverse effect on the network. In the Japanese example, ChuoAoyama was a network firm, rather than a member firm. PwC's share of the Japanese market fell, with several clients switching to other auditors. ChuoAoyama was barred for a two-month period from performing certain types of audit work, was subsequently renamed Misuzu, and then ceased trading shortly after it left the PwC network. In India, the PwC member firms had continued to trade. Had either firm lost its ability to deliver audits, the effect might have been more significant. Similarly, if the Japanese firm had been full members, there might have been greater damage to reputation if clients had doubted the effectiveness of the network's methodology and quality control procedures.
135. The possible exit of a participant in the UK audit market as a result of actions of another member firm seemed therefore to depend on a large number of factors, principally:
- (a) whether the overseas member firm was prohibited from providing audit as a result;
 - (b) the ability to source a replacement firm should the original firm cease trading or providing audit services;
 - (c) the level of income referred by the firm to the UK;
 - (d) the proportion of the UK firm's client base with significant subsidiaries in the overseas territory;
 - (e) the size and global impact of any corporate collapse (and thus impact on the network's reputation); and

(f) the extent of financial interdependence between other firms.⁷⁹

136. However, if a firm in the UK, or any other market, failed, the network had the ability to create a new 'clean firm' which might replace or run in parallel to a previous, potentially troubled firm. The incentive for the network to create a new firm, or to financially support a failing firm, would necessarily be greatest where the greatest level of referred work was found.
137. Analysis of the causes of a potential collapse of a firm or network is necessarily highly speculative given that Andersen had been the only instance in the recent past. However, examples of significant audit failures which had not led to collapse when considered with the nature of the Andersen collapse might indicate the nature and scale of a catastrophic event that would be necessary for a network to collapse.
138. It appeared from examples of significant audit failures that there had been no notable impact on the respective international networks. The potential collapse of a network would likely be triggered by a member firm in a large developed economy, and one which had a significant level of referred work to and from other large member firms. Given the Japanese example, it was a possibility that a 'clean' firm could be created, but this would be contingent on any large audit failure being perceived as a one-off event. Should there be a series of alleged audit failures, there may be resultant reputational damage.
139. The collapse of a network seemed potentially most likely to occur from the actions of a very large member firm, which audited large international domestic companies and potentially a number of local subsidiaries of overseas international companies (that is

⁷⁹ For instance, if the 'offending' firm had significant economic ties through referred income with a third firm, which led to the third firm seeking to leave the network, it might be this exit that affects the UK firm, rather than the 'offending' firm.

they serviced the subsidiaries of other member firms clients). The chain of events that could lead to a network collapse might proceed as follows:

- (a) Erosion of reputation—a series of notable, alleged or proven, audit failures, primarily in a large international member firm (Firm X), but also elsewhere in the network. These might lead to litigation, but not to an extent that Firm X was unable afford the settlement.
- (b) Triggering event—a significant audit failure in a large PIE which:
 - (i) coincided with the collapse of the company; and, or,
 - (ii) resulted in a significant financial liability which the firm was unable to finance without assistance from the network.
- (c) Response of large customers—large significant international companies stating that they would switch from Firm X or from another member firm in Firm X's network.

140. This chain of logic is based on the assumption that as long as the audit failure could be isolated to a single member firm, and to a single audit engagement team, there was the potential to ring-fence blame on individuals. A more pervasive perception of poor quality within the firm or network would likely develop from multiple (and high-profile) instances of audit failure. Such reputational damage might prevent a clean firm from being established. However, if individual clients were satisfied that their individual audit team was providing a quality product (and for listed companies that the market did not consider this to be an issue) and did not choose to switch networks, the firm and ultimately the network would be more likely to survive.

141. A theoretical alternative might be for the network to open a new, 'clean' firm that focused on servicing the overseas subsidiaries incorporated in Firm X's domestic territory. This model would reduce the risk of collapse by providing audit services to other member firms' existing clients but would be dependent on avoiding being

tainted by the previous firm. By not competing directly in the domestic market it might be easier to recruit from other firms, or, subject to regulatory requirements, overseas staff might be able to perform the statutory audits. However, whilst this might act to prevent collapse of the network, it would still lead to the exit of a participant in that market.

Views of the firms

142. Deloitte emphasized that networks existed because of client demand and had not been developed as a strategic barrier to entry, and further noted that the largest Mid Tier firms had international networks with broad coverage, indicating that networks did not act as a barrier to entry.

143. PwC said that the existence of international networks was as a result of client demand and competition. PwC noted that FTSE 350 companies had increasingly international audit requirements. PwC said that large companies' preference for large audit firms was partly a reflection of the large audit firms' membership of superior networks and greater experience of auditing international companies. PwC also said that the merger of one local firm with another was most often driven by those firms and that in most jurisdictions such acquisitions would be subject to local merger control. PwC also said that the risk of collapse of one of the four largest firms was overstated.

144. Mazars said that it believed it was the perceived rather than actual strength of networks that might lead purchasers not to choose a Mid Tier audit firm.

Example: the Brazilian audit market

1. The member firms of both GT and BDO left their respective networks to join the pre-existing Brazilian member firms of EY and KPMG respectively. Further, the BDO firm which merged with the KPMG firm had previously been a GT affiliate.
2. GT's Brazilian member firm was acquired by EY Brazil in 2010. GT's Brazilian firm was the fifth largest firm in Brazil (with EY Brazil's revenues approximately four times larger). GT UK believed that EY Global instigated the transaction, though EY Global stated that the acquisition was instigated by EY Brazil, [REDACTED].
3. [REDACTED]⁸⁰
4. The main effect on the GT network was that of the [REDACTED] international clients that were serviced by GT Brazil, [REDACTED] did not transfer to the new GT Brazil member firm; however, two of those companies subsequently merged with other companies audited by the new GT member firm. Referred income to and from the Brazilian firm and the GT network was under £[REDACTED] million.
5. The direct financial effect on the UK firm was not significant, due to the limited number of its clients operating in Brazil, but led to at least one client challenging GT UK on whether its network could support the client's growth ambitions.⁸¹
6. The firm acquired by EY Brazil had revenues of US\$52.2 million in 2009, of which [REDACTED]. The replacement firm in 2010 had revenue of US\$18.8 million, which increased

⁸⁰ It was not clear to what extent this assistance was driven by EY operating as a 'globally integrated partnership'.

⁸¹ This challenge arose when a UK audit client asked GT UK to introduce it to the Brazilian firm to assist with the acquisition of a company in Rio de Janeiro; the replacement firm's Rio de Janeiro assurance and due diligence team was not as strong as the previous firm's.

to US\$35.6 million in 2011, of which [REDACTED]. This was a decrease in assurance revenues [REDACTED], and the GT share of the audit market was likely to have similarly declined.

7. Similarly, in 2011, KPMG Brazil acquired BDO Brazil, which was at the time the fifth largest Brazilian audit firm. As a result of this, the BDO network lost its representation in Brazil and was forced to find a new firm of its own and identified Crowe Horwath's Brazilian firm to replace it.
8. KPMG Brazil noted that the firm had previously had discussions with the BDO firm in 2002 about joining KPMG Brazil prior to the firm's admission to the BDO network (in 2002 it was a GT affiliate). The transaction was initiated by BDO Brazil and KPMG Brazil subsequently contacted KPMG International to inform it of its intent to proceed and to seek financial support from KPMG International. A loan of US\$[REDACTED] to assist with the net consideration payable [REDACTED] was provided. A further US\$[REDACTED] million was being made available by KPMG International to the Brazilian firm over a number of years to assist with the integration of the firm.⁸²
9. BDO considered the acquisition of the Brazilian firm to be anticompetitive and made submissions to the Brazilian competition authorities.⁸³
10. That the growth of KPMG Brazil was perceived to benefit the network as a whole appeared to be supported by KPMG Brazil's submission to the Brazilian competition authorities, which stated that:

The decision to acquire BDO Trevisan [BDO Brazil] took into consideration, as a strategic issue, the current requirements of Brazilian com-

⁸² The additional \$[REDACTED] million was not expected to be repaid, though there were conditions which may trigger repayment if not complied with.

⁸³ [BDO response to the issues statement](#), 13 January 2012, Section 5.

panies, including the requirement to be able to compete in both national and international markets. In addition, Brazilian companies that are growing quickly are also the focus of international investors (International investment in Brazil was approximately US\$ 45 billion, or 2.3% of GDP in 2010).

11. In both cases above, there was an exit fee to the departing member firm of approximately \$[X] million payable to the network.⁸⁴

⁸⁴ The amount receivable by the network would have been subject to a 15 per cent withholding tax levied in Brazil.

Awareness, reputation and experience

Introduction

1. This appendix presents:
 - (a) the evidence we have gathered in relation to lack of awareness of Mid Tier firms acting as a barrier to expansion (paragraphs 3 to 13); and
 - (b) the evidence we have gathered in relation to reputation and experience acting as a barrier to selection (paragraphs 14 to 98).

2. The evidence has primarily been gathered via:
 - (a) the case studies;
 - (b) our first survey;
 - (c) the firms' submissions (including responses to our *Barriers to entry: reputation and experience* working paper ¹); and
 - (d) other (including academic literature and tender documents).

Awareness of audit firms

3. We considered the evidence of companies' awareness of audit firms and their capabilities, including:
 - (a) general awareness and marketing; and
 - (b) knowledge of Mid Tier firms' international presence.

¹ www.competition-commission.org.uk/assets/competitioncommission/docs/2011/statutory-audit-services/reputation_and%20_experience.pdf.

General awareness and marketing

Survey

4. Our first survey results showed that 77 per cent of the FTSE 350 companies had been approached in relation to the audit of their company by only Big 4 audit firms. The Top Track 350 companies appeared to be more contested by non-Big 4 firms. Of the Top Track 350 companies responding to our survey, 10 per cent had been approached by non-Big 4 firms only and 33 per cent had been approached by a combination of Big 4 and non-Big 4 firms. AIM companies were also likely to have been approached by non-Big 4 firms, in 21 per cent of cases they had been approached only by non-Big 4 firms and in 49 per cent of the cases they had been approached by a combination of Big 4 and non-Big 4 firms.

Case studies

5. The case study interviewees (all FDs or ACCs of FTSE 350 companies²) generally had much better awareness of the capabilities of the Big 4 firms than they had of the Mid Tier firms. This was driven in part by their previous experiences working for the Big 4 firms (see section on Alumni below) and by their almost universal use of Big 4 firms.
6. CFOs and ACCs often did not know much about the Mid Tier firms and some views appeared founded on distant experience. For example:
 - (a) The Company A ACC's view of the Mid Tier firms was based on the original FRC reports, which in the first year found that the Mid Tier firms were not as strong as the Big 4 firms. He was not aware if they had improved since then.³
 - (b) The Company C CFO did not think he had ever been approached by anyone from the Mid Tier. He was not entirely sure which firms made up the Mid Tier.⁴

² See Appendix 2 for details of selection criteria.

³ Appendix 2, Case study A, paragraph 65.

7. Mid Tier firms were sometimes recalled as an afterthought: for example, the Company A CFO said that he had worked with ‘all of them, well all the big ones’, by which he meant all of the Big 4 firms.⁵
8. In general, the case study interviewees (CFOs and ACCs) received marketing material from, and were invited to seminars/briefings by, the Big 4 firms more than the Mid Tier firms.

Firms’ submissions in response to our Reputation and experience working paper

9. Deloitte said that the evidence gathered in the survey and case studies showed that Mid Tier firms made less significant efforts to make sure FTSE 350 companies were aware of their capabilities—it said that audit relationships had to be sought and won actively.⁶
10. KPMG said that the lack of awareness was due, at least in part, to the marketing efforts (or lack thereof) of audit firms outside the Big 4 firms. It said that this lack of awareness could therefore be overcome relatively easily, for example by an enhanced programme of sponsorship or thought leadership publications. It did not consider it to be a material barrier to entry.⁷
11. PwC said that the Big 4 firms were considerably more active in targeting the larger companies than the Mid Tier firms, which tended to target Top Track and AIM. It said that this demonstrated clearly that the Mid Tier firms rightly recognized that their

⁴ Appendix 2, Case study C, paragraph 32.

⁵ Appendix 2, Case study A, paragraph 12.

⁶ Deloitte [response to working papers](#), section 4.

⁷ KPMG [response to working papers](#), paragraph 4.

attributes were better suited to these typically less complex and/or international companies, where they stood a better chance of success.⁸

Knowledge of firms' international networks

Survey

12. A large number of FTSE 350 companies gave 'size of audit firm/geographical coverage' as a reason for not considering a non-Big-4 auditor. As the factor cited covers both size and geographic coverage, the importance of geographic coverage in itself is unknown. Comments suggested that companies were concerned about quality and technical expertise as well as coverage.⁹

Case studies

13. The main concern that the case studies raised about Mid Tier firms was that they did not have the geographic spread and quality in required locations to be able to undertake some international audits.¹⁰ Some perceived that Mid Tier firms predominantly used affiliates prevailed.¹¹

Reputation and experience as a barrier to selection

14. We have considered three categories of factors that might create barriers to selection relating to reputation or experience, we consider these in turn.
15. First, we have considered evidence related to 'experience and capability', this covers: demand for experience and expertise in the large client audit market; the importance of firms' international networks; and the demand for technical resource (paragraphs 19 to 47).

⁸ PwC [response to working papers](#), paragraph 15.

⁹ 'Survey' working paper, Annex 2.

¹⁰ Appendix 2, Case study A, paragraph 64; Case study D, paragraph 65; Case study H, paragraph 31.

¹¹ Appendix 2, Case study B, paragraph 45; Case study C, paragraph 33. See also Appendix 25, paragraph 83.

16. Second, we have considered evidence related to ‘attracting talent and influence of alumni network’. This covers the importance of attracting and retaining the best graduates and partners; and the influence of alumni networks (paragraphs 48 to 63).
17. Third, we have considered evidence related to ‘reputation’. This section covers reputation as an indicator of quality and companies’ views of external pressures (paragraphs 64 to 98).
18. In some cases, particularly for the capability requirements, we have cross-referred to evidence presented elsewhere in other appendices.

Experience and capability

19. We considered evidence as to whether the following created barriers to selection:
 - (a) a lack of experience and expertise in the large company audit market;
 - (b) a lack of existing relationships with large companies (with regard to the supply of non-audit services);
 - (c) the reputational role of the firms’ international network; and
 - (d) the firms’ technical resources.

Demand for experience and expertise in large company audit market

Survey

20. The results of the CC’s survey showed the great majority (90 per cent) of the companies that responded considered the experience and knowledge of the engagement partner important in deciding whether to appoint or reappoint a statutory auditor, as well as sector-specific expertise (which was important for 71 per cent of FTSE 350 companies).

Case studies

21. We found that companies wanted their auditors to be experienced both within the industry in which they operated and within the FTSE more broadly. For example:
- (a) At Company F, the FD said that when considering potential auditors, sector experience was a given, with the level of investment the larger firms put in this was not an issue and they all had the capability to perform the audit. The questions asked therefore focused on the audit team's experience, tax experience, cultural fit and the individuals that would work on the audit.¹²
- (b) At Company G, the Group Financial Controller (GFC) said that the skills required to audit other financial institutions would be similar to those required at Company G. He would also be interested in the other large and global FTSE 100 work that the audit firm undertook.¹³

Tender documents

22. Our review of the tender documents found that all firms frequently mentioned other clients, experience and professional awards received. They focused on listing their best known clients, and the best known clients from the relevant industry, often adding their experience working in that sector. They also mentioned awards received in categories such as best firm and graduate employment credentials. The difference between the Big 4 firms and their competitors here was one of scale; they both mentioned similar achievements in their proposals, but non-Big-4 firms relied on lower key awards (best firm outside the Big 4, for example), less prestigious clients and less industry experience.¹⁴

¹² Appendix 2, Case study F, paragraph 24.

¹³ Appendix 2, Case study G, paragraph 26.

¹⁴ ['Evidence relating to the selection process'](#) working paper, paragraph 73.

23. The review of tender information also showed that the most frequently mentioned reason for losing a tender was lack of experience or competition from a firm with more experience.¹⁵

Firms' submissions in response to our Reputation and experience working paper

24. BDO said that the combination of the difficulty of demonstrating experience; and overcoming additional reputational hurdles hindered the larger Mid Tier firms from expanding their client base within the FTSE 350.¹⁶
25. Deloitte said that our working paper, 'Barriers to entry: reputation and experience', had failed to distinguish between the importance of experience and the importance of expertise. It considered that audit firms that displayed appropriate expertise could win audit engagements even where they did not have direct experience of auditing FTSE 350 companies in the same sector and cited Deloitte's financial services practice as a demonstration of this. It said that Deloitte did not have pre-existing FTSE 350 audit experience with major retail banks or insurers to draw on, but was able to demonstrate the required expertise through other work and so win major clients such as Abbey National, Alliance & Leicester, RBS Group and RSA.¹⁷
26. EY said that the reputation and experience gained by EY reflected strategic decisions taken, and costs incurred, by EY over a number of years; its current reputation and market position represented the outcome of a process of intense competition.¹⁸
27. KPMG said that we had mischaracterized reputation and experience as a barrier to entry. It said that the standards of quality and the capabilities of audit firms servicing

¹⁵ 'Evidence relating to the selection process' working paper, paragraph 132.

¹⁶ BDO [response to working papers](#), paragraph 1.1.

¹⁷ Deloitte [response to working papers](#), paragraphs 2.1 & 2.2.

¹⁸ EY [response to working papers](#), paragraph 3.1.

the FTSE 350 represented the minimum requirements necessary in order to compete in a highly competitive market.¹⁹ It said that experience and expertise were real quality differentials on which audit firms competed and that as with any other experience good clients used indicators such as the experience of the firm in a relevant industry or the experience of an audit firm in dealing with large and complex companies, to judge, ex ante, the audit's quality. Clients might also use reputation as an ex ante indicator of the quality of an audit firm or the individual partners. However, experience and reputation were just two of many factors companies could use to judge quality ex ante. Other attributes included technical expertise, good working relationships, independent reports on the audit firm's quality and (in particular for companies with a significant overseas presence) a strong international network. KPMG said that it was important to recognize that once an audit firm had been engaged, the client would not refer to the audit firm's reputation and previous experience in order to assess quality. Rather, it would base its opinion directly on the quality of the audit services it received.²⁰

28. PwC said that experience was an important component in providing a quality audit and was not an insurmountable obstacle to Mid Tier firms which might choose to build up and demonstrate experience by hiring experience personnel from the larger firms and/or by leveraging off their experience of less complex Top Track and AIM company audits. PwC said that in doing so Mid Tier firms would not be using their experience with smaller companies as a proxy for their quality but would seek to demonstrate to smaller FTSE 350 companies that they had experience of similar

¹⁹ KPMG [response to working papers](#), paragraph 5.

²⁰ KPMG [response to working papers](#), paragraph 2.1.

audits and hence were capable of exercising the judgement and other skills necessary.²¹

Review of a Mid Tier firm's debrief documents

29. We reviewed the debrief documents that [X] had compiled following its unsuccessful tender for the [X] audit in 2010. Whilst there were positive attributes listed and [X] was told it came a very close second to [a Big 4 firm], one of the concerns raised by the potential client was that [X] could not be as current on regulatory and technical issues owing to its size and inability to borrow from experience of working with other FTSE clients compared with the Big 4 firms. The potential client was concerned that the proposed lead partner was not personally an auditor of a FTSE 250 [X] business.²²

Existing relationships with large companies

30. We considered whether having a pre-existing relationship (via the supply of non-audit services) with a company was an advantage in being asked to tender for, or being selected as, auditor.

Case studies

31. Both firms and companies viewed provision of non-audit services as a way of developing a working relationship with one another. For audit firms, this was a way of gaining knowledge of a client that might lead to further non-audit work or help the firm if preparing to tender for the company's statutory audit. For companies, non-audit service provision was perceived to be an opportunity to assess service quality of a prospective auditor. For example:
- (a) At Company C the evaluation of tender proposals included a review of the

²¹ PwC [response to working papers](#), paragraph 10.

²² [X]

assignments conducted for the company by the firms over the past two years.²³

(b) The FD at Company F had used potential audit firms for non-audit work prior to a tender to get experience of working with them.²⁴

(c) The FD at Company H said that there was a benefit in firms other than the auditor providing non-audit services. If the company wanted to change auditor it was beneficial to have people who had an understanding of the business and had established credibility with the company's employees.²⁵

Tender documents

32. Our review of tender documents showed there were advantages to having pre-existing relationships with large companies:

(a) References to previous work for the tendering companies were common, and the Big 4 firms were more likely to have a previous relationship to draw on, as well as being more likely to be the incumbent auditor. This was often emphasized, and there was often a breakdown of the achievements of the firm whilst working with the company.

(b) Knowledge of the company, together with being the incumbent auditor were cited as important factors when winning a tender. A rival firm having a stronger relationship was the second most mentioned reason for losing a tender. (See Appendix 24, paragraph 53.)

NAS database

33. We requested details of the value of non-audit services that each firm supplied to companies in the FTSE 350 which were not audit clients. Table 1 summarizes this data and shows that in 2011 BDO and GT had non-audit relationships with fewer of

²³ Appendix 2, Case study C, paragraph 24.

²⁴ Appendix 2, Case study F, paragraph 16.

²⁵ Appendix 2, Case study H, paragraph 48.

the FTSE 350 and that the average value of the revenue generated from those relationships was significantly lower compared with the Big 4 firms.

TABLE 1 Value of revenue from non-audit services provided to FTSE 350 non-audit clients, 2011

	£'000					
	BDO	DEL	EY	GT	KPMG	PWC
Value of NAS provided	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Number of FTSE 350 clients	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Average value of NAS provided	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: CC analysis.

Note: These figures relate to companies which were classified in the CC public data set as being in the FTSE 350 in 2011.

Firms' submissions in response to our Reputation and experience working paper

34. Deloitte said that relationships were not the exclusive preserve of the Top Tier firms. Deloitte pointed to evidence that BDO, GT and Mazars had provided us with during the inquiry, for example the number of FTSE 350 companies GT and BDO acted for in a non-audit capacity (as well as their existing audit FTSE 350 clients) and Mazars' worldwide listed client experience. It said it would seem that this work should give these firms good opportunities to demonstrate expertise even where they did not have a pre-existing relationship with a specific FTSE 350 company.²⁶
35. EY said that the CC's view on a virtuous circle failed to take into account (among other things) the possibility of others breaking the virtuous circle, either by using their existing FTSE 350 clients as a basis on which to develop their reputation and experience, or through developing innovative strategies. EY said that the possibility of other audit firms developing novel competitive strategies to gain both broader experience of working with FTSE 350 companies, enhancing their reputation with those companies and ultimately securing more audit work from them could, and should, have been market tested by the smaller firms if they were committed to gaining a larger presence in the FTSE 350 audit sector. Market disruptive strategies

²⁶ Deloitte [response to working papers](#), paragraphs 2.3 & 2.4.

by non-incumbents which had been successful in securing market share had been seen in other industries.²⁷

36. KPMG said that in its view Mid Tier firms had a number of strategies available to them to expand in the FTSE 350 audit market, for example through non-audit work, thought leadership and seconding employees.²⁸
37. PwC pointed to GT's relationships with FTSE 350 companies and also noted that the survey showed 30 per cent of tenders included a Mid Tier firm.²⁹

Reputational effect of international network

38. We considered the role of international networks as a barrier to entry specifically in Appendix 25. In terms of the reputation of the international network, our case study interviews highlighted that for some companies, concerns about the quality and scope of Mid Tier firms' international networks was an issue (also see Appendix 25).

Survey

39. While international scope or quality of the audit was an important factor in the decision to switch auditor for only 14 per cent of the respondents to the survey, the strength of a firm's international network was an important characteristic for 53 per cent of respondents (and this increased to 64 per cent of FTSE 350 companies that responded and 83 per cent of FTSE 100 companies that responded).
40. The strength of the international network was an important factor in the decision to appoint or reappoint the statutory auditor for (i) companies that were willing to appoint only a Big 4 auditor (64 per cent of the respondents); and (ii) for companies

²⁷ EY [response to working papers](#), 9 November 2012.

²⁸ KPMG [response to working papers](#), paragraph 8.

²⁹ PwC [response to working papers](#), paragraph 15.

that had more than 40 per cent of their audit fee accounted for by activities outside of the UK.

Tender documents

41. Our review of the tender documents showed that both the Big 4 and Mid Tier firms pointed to their international or local coverage where appropriate. We found that Mid Tier firms provided evidence of their international coverage: they appeared to anticipate that in some areas they might be perceived to be weaker, such as sector coverage or global presence, and therefore emphasized their strengths particularly in those areas (see Appendix 23, paragraph 73).

Firms' submissions in response to our Reputation and experience working paper

42. Deloitte, KPMG and PwC considered there to be real differences between the capabilities of the networks.^{30,31}
43. KPMG said that the characteristics of international networks could be observed by companies, and demonstrated by audit firms. There was therefore no sense in which the 'reputation of the international network' of an audit firm was different from the firm's actual international network. It said that it was not clear how reputation—as opposed to the observable qualities—of a firm's international network had any bearing whatsoever on the choice of auditor or ability of the Mid Tier to compete in this market.³²

³⁰ Deloitte [response to working papers](#), paragraphs 2.5 & 2.6.

³¹ PwC [response to working papers](#), paragraph 1.5.

³² KPMG [response to working papers](#), paragraph 2.3.

Demand for technical resource

Case studies

44. The case study interviews showed that certain technical sector-based skills were required for a firm to be selected as auditor. For example:
- (a) at Company C one of the selection criteria used in the tender process was insurance expertise;³³ and
 - (b) at Company H one of the AC's prime concerns when selecting auditors was that the auditor understood the technicalities of the industry. The FD did not feel limited within the Big 4 firms as IFRS for extractive industries was now more established than when the company previously selected an auditor, she also thought a Mid Tier firm could do the work.³⁴
45. The ACC at Company G said that in addition to traditional auditing skills, non-audit skills were required to undertake a bank audit and so a strong multidisciplinary firm was essential.³⁵

[Anonymous 1] plc³⁶

46. In its tender process [Anonymous 1] plc had invited the Big 4 firms to tender, since it thought they had the necessary geographic spread and accounting and actuarial skills. It had assessed the capability of Mid Tier firms (based on desktop research) and decided not to invite them to tender: it did not think that they had adequate worldwide capabilities, in particular with regard to actuarial skills.³⁷

³³ Appendix 2, Case study C, paragraph 23(a).

³⁴ Appendix 2, Case study H, paragraphs 26, 31 & 32.

³⁵ Appendix 2, Case study G, paragraph 70.

³⁶ www.competition-commission.org.uk/our-work/statutory-audit-services/evidence/summaries-of-hearings-held-with-parties.

³⁷ Published summary, paragraph 13.

Firms' submissions in response to our Reputation and experience working paper

47. KPMG said that there was no evidence to support the contention that a reputation for high quality technical skills (as opposed to actual, observable high quality skills) was a barrier to entry or that there was a difference between reputation and reality. KPMG maintained that if there were a difference then reputation would soon be lost. KPMG said all firms were able to build up expertise by providing non-audit services to clients in specific sectors and cited PKF's expertise in hotels and KPMG's expertise in utilities as examples.³⁸

Attracting talent and influence of alumni network

48. We considered whether there was evidence that the Big 4 firms were better able to attract higher calibre staff and partners, and whether their alumni networks conveyed an advantage in building their client bases.

Attracting talent

Case studies

49. With regard to staff, the opinion expressed in some of the case studies was that the quality of staff in the Big 4 firms was higher:

- (a) the Company B FD assumed that the best people were in the Big 4 firms;³⁹
- (b) the Company E FD thought that when interviewing he had found a marked difference in overall capability between candidates from Big 4 and Mid Tier firms: he was more likely to find a better candidate from the bigger firms;⁴⁰ and
- (c) the Company F CFO thought that there were 'real issues' with Mid Tier firms and this boiled down to the quality of the individuals.⁴¹

³⁸ KPMG [response to working papers](#), paragraph 2.5.

³⁹ Appendix 2, Case study B, paragraph 21.

⁴⁰ Appendix 2, Case study E, paragraph 25.

⁴¹ Appendix 2, Case study F, paragraph 26.

50. However, this view was not universal. The Company D ACC thought that the quality of the accountants in the Mid Tier firms was the same as in the Big 4 firms. This was based on experiences of recruiting finance teams, taking former employees of both the Big 4 and Mid Tier firms.⁴²
51. With regard to partners, the case studies indicated that the quality of the AEP was important to ACCs and FDs. Most AEPs had significant FTSE experience and many had management experience within the audit firms (eg the AEPs for Company G and Company I). The experience of AEPs was noted as a key factor in determining audit quality by both investors and companies.⁴³ Reasons for wanting an experienced audit partner included:
- (a) The Company C AEP was valued for his judgement and fairness. His technical skill was taken as a given. He was viewed as having a great deal of knowledge and experience as such the AC would consider seriously anything he disapproved of.⁴⁴
 - (b) Partner input was important for the review of more judgemental areas as partners would 'lift the drains a bit harder'. When considering the fees proposed during the tender, the company focused on value for money, ie what seniority of staff it was receiving for the hours charged. The FD said that 'there was no point in getting a cheap fee and junior audit experience'.⁴⁵
 - (c) The Company I FD thought that the AEP was crucial in the provision of the service and therefore changing partner could have an impact on the quality of an audit.⁴⁶

⁴² Appendix 2, Case study D, paragraph 65.

⁴³ Appendix 2, BlackRock, paragraph 14; Company D, paragraph 20.

⁴⁴ Appendix 2, Case study C, paragraph 17.

⁴⁵ Appendix 2, Case study F, paragraphs 29 & 31.

⁴⁶ Company I, paragraph 31.

Other

52. [X] said that it paid its staff only marginally less than Big 4 firms; however, Big 4 partners earned considerably more. [X] indicated that it could not afford to hire partners with experience of auditing the largest UK corporates. [X] stated that it focused 'most' of its graduate recruitment budget on four 'tier one' universities.⁴⁷
53. Investor representatives noted that there were differences between the quality of partners within firms, although it was difficult for investors to have any visibility of this.⁴⁸

Review of tender documents

54. As noted in paragraph 22 above, firms mentioned their graduate employment credentials in tender documents. Firms' reputation may allow them to attract better graduates.

Firms' submissions in response to our Reputation and experience working paper

55. BDO considered the view that the quality of staff in Big 4 firms was higher to be misconceived but unsurprising given the alumni of the Big 4 firms.⁴⁹
56. KPMG said that with investment in recruitment and training there was no reason why Mid Tier firms could not attract good people with the appropriate experience to deliver quality services. Further, to the extent that they already had quality staff, if the problem was that companies were not aware of this, then the Mid Tier audit firms had ample opportunity to address this by demonstrating their quality by, for example, providing general assurance services. KPMG said that whilst we had found firms mentioned their graduate employment credentials in tender documents, neither the

⁴⁷ The Universities of X.

⁴⁸ See [summary of a hearing with institutional investors](#), 16 April 2012, paragraph 35.

⁴⁹ BDO [response to working papers](#), paragraph 1.3.1.

case studies nor the CC's survey indicated that this was an important factor for companies when choosing an audit firm. It did not view this as a barrier to competition.⁵⁰

Alumni network

Survey

57. Our survey showed that 64 per cent of all respondents (both FDs and ACCs) had previously worked for a Big 4 firm (this reflected 67 per cent of the FTSE 350 respondents, 58 per cent of Top Track respondents and 55 per cent of AIM respondents). Overall, 6 per cent of respondents had previously worked for a non-Big-4 firm, this figure dropped to 4 per cent for FTSE 350 respondents whilst 14 per cent of AIM respondents had previously worked for a non-Big-4 firm.

Case studies

58. We interviewed ten CFO/FD equivalents, of whom seven had trained at a Big 4 firm, and a further two who having trained elsewhere then went on to work for a Big 4 firm. Most had practised as an auditor at a Big 4 firm, although one was a tax practitioner and another (who had joined after qualifying) worked on management consultancy. One CFO/FD equivalent had previously been an audit partner at a Big 4 firm.
59. We interviewed ten ACCs, of whom seven had trained at a Big 4 firm, and three had gone on to be audit partners at a Big 4 firm. Of the three ACCs who had not trained at a Big 4 firm two subsequently went on to work in audit at a Big 4 firm for a time after qualifying.

⁵⁰ KPMG [response to working papers](#), paragraph 3.1.

60. The two interviewees (one ACC and one FD) who had never worked for a Big 4 firm (either as trainees or after qualification), had both trained as management accountants (CIMA) in industry (rather than in public practice).

Firms' submissions in response to our 'Reputation and experience' working paper

61. Deloitte said that there was no basis for allegations of bias and such bias could not be inferred from the mere fact of previous employment.⁵¹ PwC and KPMG expressed a similar view that there was no evidence to support such a hypotheses.^{52,53}

62. PwC said that:

- (a) the CC's survey demonstrated that one-third of FTSE 350 ACCs and FDs had not previously worked at one of the four largest audit firms. These individuals would presumably not be influenced by any alleged bias or lack of objectivity. However, there was no evidence that they were more willing to appoint Mid Tier audit firms than are the alumni of the largest firms;
- (b) ACCs and FDs in Top Track and AIM listed companies included alumni of the largest firms to a materially similar level as FTSE 350 companies;⁵⁴
- (c) many of the ACCs and FDs concerned would have spent only a short part of their career at one of the largest audit firms. PwC's research showed that the majority left practice more than ten years ago; and
- (d) there was academic evidence to suggest that personal familiarity with an organization would lead to more informed purchasing decisions and better outcomes.⁵⁵

⁵¹ Deloitte [response to working papers](#), paragraph 3.3.

⁵² KPMG [response to working papers](#), paragraph 3.2.

⁵³ PwC [response to working papers](#), paragraph 14.

⁵⁴ We note PwC's interpretation. However, whilst review of the survey responses shows that for ACCs this interpretation is broadly fair (the proportion of Big 4 alumni ACCs in the Top Track 100 looks low compared with FTSE 350 but there is no significant difference); for FDs PwC's interpretation is less fair as the proportion of FTSE 350 FDs who are Big 4 alumni is significantly different from the proportion of AIM FDs who are Big 4 alumni.

63. PwC said that there was no attempt to explain why alumni of a particular firm would be likely to prefer one of the other largest firms over Mid Tier firms when they had not actually worked at the other large firms.⁵⁶

Reputation

64. This section considers reputation and the views of investors that may influence company choice of auditor.

Reputation as an indicator of quality

65. Reputation was cited in the case studies and survey as being a reason for selecting or trusting an audit firm.
66. The Company G ACC used reputation (as one of a number of factors) to assess quality.⁵⁷ However, he did not say how he defined reputation.
67. Our survey indicated that 'reputation' was an important or very important factor in auditor selection for 84 per cent of FDs/CFOs and 82 per cent of ACCs. However, of the companies that stated they would not formally consider any firms outside of the Big 4, only 18 per cent indicated 'reputation' as the reason.

Academic literature

68. Professor Vivian Beattie (whom we instructed to conduct an academic literature review⁵⁸ for us) reported⁵⁹ that Azizkhani et al (2010) found that the ex ante cost of capital was lower for Big 4 audits up to 2001, but not after the financial scandals of 2001/02, indicating that these events eroded perceptions of audit quality differences

⁵⁵ PwC [response to working papers](#), paragraph 14.

⁵⁶ PwC [response to working papers](#), paragraph 14.

⁵⁷ Appendix 2, Case study G, paragraph 76.

⁵⁸ www.competition-commission.org.uk/assets/competitioncommission/docs/2011/statutory-audit-services/initial_review_of_relevant_academic_literature_in_the_audit_market.pdf.

⁵⁹ [Initial review of relevant academic literature on the audit market](#), section 2.11.1, p26.

between Big 4 and non-Big-4 firms. She noted that a working paper that used a similar approach, Cassell et al (2011) concluded that the financial reporting credibility of clients of Mid Tier firms was lower than clients of Big 4 firms in the six years pre-SOX, but similar in the six years post-SOX (US study). However, Boone et al (2010) found that, for the period 2003 to 2006, the ex ante equity risk premium (a proxy for perceived audit quality) was lower for Big 4 clients than for non-Big-4 clients, indicating that perceived quality differences persisted after the scandals.

Companies' views of external pressures

69. We considered whether there was evidence that companies used the reputation of an audit firm to satisfy external pressures, including use of Big 4 firms as an accepted norm; and use of Big 4 firms to meet investors' expectations.

Use of Big 4 firm is the accepted norm

70. In response to our survey, the reputation of the audit firm with investors, corporate brokers, analysts or external advisers was cited as being important in deciding to appoint or reappoint a statutory auditor for 82 per cent of the companies in the survey (overall).
71. Participants in some case studies said that they did not want to be regarded as unusual, and therefore wanted to use a Big 4 firm as this was the norm and so was perceived as lower risk:
- (a) The Company A ACC thought that if a company used a Mid Tier firm and there was something wrong in the accounts, shareholders would ask why a Big 4 firm was not used.⁶⁰

⁶⁰ Appendix 2, Case study A, paragraph 64.

- (b) The former ACC of Company B thought that it would be a 'brave ACC or CFO of a FTSE 100' to appoint an auditor other than one of the Big 4 firms. He considered the Big 4 firms were perceived as more capable by the market and that this perception was driven not just by Boards but also by investors. FTSE 250 businesses had less pressure to appoint a Big 4 auditor, but most aspired to be a FTSE 100 company and so would adopt similar approaches to FTSE 100 companies when appointing advisors, including auditors.⁶¹ The Company B FD thought that it would look odd to have a Mid Tier firm as auditor as the majority of FTSE listed companies used a Big 4 firm.⁶²
- (c) The Company D FD thought that if a Big 4 firm could provide the scale, strength and depth required by the company then there was no need to look outside the Big 4 firms. General practice was to use a Big 4 firm. Using the Big 4 was the safe option. There was less to worry about or justify, and using a Big 4 firm was in line with all the company's peers and the companies that it came into contact with. Choosing a Mid Tier firm would make it the odd one out.⁶³ The Company D ACC said that it was a commonly held perception in the market that the Big 4 were more credible and therefore that it was safer to use a Big 4 firm.⁶⁴ The ACC at Company D would look at Mid Tier auditors in the future, if they could prove that they had the coverage and that this was credible and not an issue to shareholders then she would have no issue with using them in principle. She noted that this view was a personal opinion and might not be shared by the FD or other AC members.⁶⁵
- (d) Based on his experience, the ACC at Company E thought a Mid Tier firm would be able to perform the company audit, although he only had experience of the Mid Tier firms in the UK. However, the ACC thought that there was pressure for a

⁶¹ Appendix 2, Case study B, paragraph 64.

⁶² Appendix 2, Case study B, paragraph 21.

⁶³ Appendix 2, Case study D, paragraph 29.

⁶⁴ Appendix 2, Case study D, paragraph 66.

⁶⁵ Appendix 2, Case study D, paragraph 67.

PLC to use a Big 4 firm and that the larger the company the greater the pressure was. It was very hard to move away from the Big 4 and that 'no one lost their job for appointing a top four'.⁶⁶

72. The former AEP of Company F was from a Mid Tier firm, he considered that Company F's FD was surprised (on his appointment) that the company did not have a Big 4 auditor and the former AEP felt his firm had struggled against this preconception.⁶⁷

Companies views of investors' expectations

Survey

73. Our survey responses showed that overall 58 per cent of companies said that they were likely to seriously consider switching their auditors if pressured by shareholders, bankers, lawyers or analysts. However, only 25 per cent of Top Track 350 companies cited this as a trigger to consider switching auditor.
74. Only 8 per cent of respondents who had tendered and limited the invited firms to the Big 4 firms said that this limitation was as a result of investor perceptions or financial institution requirements.

Case studies

75. The FD at Company D said that he was concerned at how a Mid Tier audit firm would be perceived by investors. He thought that they might be uncomfortable with a Mid Tier firm. However, this was just a gut feeling and not something he had tested.⁶⁸

⁶⁶ Appendix 2, Case study E, paragraph 54.

⁶⁷ Appendix 2, Case study F, paragraph 100.

⁶⁸ Appendix 2, Case study D, paragraph 29.

The ACC at Company D thought that shareholders and banks also preferred a Big 4 firm to sign the accounts.⁶⁹

76. At Company F, the ACC said he thought that as companies got bigger shareholders, lenders and investors expected to see a Big 4 auditor, but he had not experienced such pressure of expectation whilst at the company.⁷⁰
77. At Company H, the ACC had not faced pressure from outside the Company to continue using a Big 4 firm. Regarding bank covenants, the ACC thought the perception that there was pressure to use a Big 4 firm had been unfairly criticized. Given the uniform consistency across the Big 4 firms it was easier for the bank to remove the hassle and risk by mandating one of those firms: 'If something goes wrong, they have big enough insurance, you can sue them anyway.' The ACC thought other audit firms could do the job but it was just easier to comply with the terms of a covenant by not considering other options.⁷¹
78. The ACC at Company I thought that the reputation of the auditor was important for the City and other stakeholders, such as debt providers.⁷²
79. At Company J (a company with a Mid Tier auditor):
- (a) The FAM had experienced no external pressure to switch to a Big 4 auditor.⁷³
 - (b) The ACC said that there had been no issues regarding the company using a Mid Tier firm rather than a Big 4 firm. The ACC thought that the current auditor was a large and well-recognized firm, particularly in the UK outside of London.⁷⁴

⁶⁹ Appendix 2, Case study D, paragraph 66.

⁷⁰ Appendix 2, Case study F, paragraph 54.

⁷¹ Appendix 2, Case study H, paragraph 75.

⁷² Appendix 2, Case study I, paragraph 52.

⁷³ Appendix 2, Case study J, paragraph 30.

⁷⁴ Appendix 2, Case study J, paragraph 57.

(c) The ACC did not consider that there was any issue in agreeing financing arrangements when a company had a non-Big-4 auditor. The company would not have accepted the current auditor if there was a financial implication to this.⁷⁵

Investors' views

80. Investors wanted to see an audit firm name on the accounts that they recognized—both that we spoke to said that they would include the top six audit firms in this list.^{76,77} BlackRock said that the identity of the auditor was unlikely to affect its decision to invest due to the concentrated pool of auditors that were appointed to audit FTSE 350 companies.⁷⁸

81. BlackRock said that investors did expect to see a bigger auditor appointed as companies got larger, although they felt the lack of use of non-Big-4 auditors stemmed from reluctance at board level and not from investors such as themselves.⁷⁹

Investor questionnaire

82. We sought the views of investors. For some it was important that companies had a Big 4 firm as auditor, for example:

(a) Schroder: 'Top 4 firms are the best', 'Large firms have the resources while small firms don't', 'It is a big concern if it's a change from the Big 4 but not if it's from a small to a big firm.'

(b) [X]: 'The so called 'Big 4' would carry the highest rating. Audit firms in the 'third tier' would be a cause for concern in the case of listed equities.'

⁷⁵ Appendix 2, Case study J, paragraph 58.

⁷⁶ Appendix 2, BlackRock, paragraph 15.

⁷⁷ Appendix 2, Legal and General, paragraph 15

⁷⁸ Appendix 2, BlackRock, paragraph 11.

⁷⁹ Appendix 2, BlackRock, paragraph 17.

- (c) [X]: 'No barriers, but any switch would have to be explained to investors. A switch from the Big Four to a smaller auditor would require careful explanation.' 'A change within the Big Four would not be of concern. A change to a smaller/obscure auditor would raise questions.'
- (d) Artemis favoured the Big 4 firms. A shift to a division 2 player would cause concern.
- (e) Fidelity Worldwide: 'As investment manager: Yes, we generally want a Top 4 firm, particularly in Emerging markets. The choice of a local, unknown auditor with limited experience in our markets, particularly for companies domiciled in emerging or developing markets would negatively affect our willingness to invest.'

Oxera's investor survey on behalf of BDO/Grant Thornton

83. Oxera found that.⁸⁰

- (a) The investors surveyed generally took note of the identity of a company's auditor, but, with the exception of either the very largest companies or those with very widespread multinational interests, would have no concerns with the larger Mid Tier firms auditing companies in the FTSE 350. Indeed, none of the investors surveyed thought that there was a genuine gap in capability between the Big Four and mid-tier firms for the purpose of many FTSE 350 audits.
- (b) Nonetheless, around half of those interviewed believed there to be a 'perception gap', which some suggested was the factor that led to virtually all of the FTSE 350 companies to choose a Big 4 firm. All investors considered that there may be a genuine capability gap between the Big 4 and Mid Tier firms for certain very large (the top 15–30 FTSE 100 companies), specialist, or multinational companies.

⁸⁰ [Oxera investor survey](#), p(ii).

Cardiff Business School report

84. The Cardiff Business School reported that there were some suggestions in the academic literature that debt providers were concerned by the identity and/or quality of borrowers' auditors:

Pittman and Fortin (2004) found, based on a sample of 371 newly public US firms, that the cost of debt capital is lower if the firm appoints a (then) Big 6 auditor. This effect was, however, found to subside over time and to be most pronounced for younger firms, for which less financial information is available. Furthermore, this study relied on a 'noisy' measure of the cost of debt estimated from interest payments in the financial statements, rather than directly on lending agreements. Mansi et al. (2004) also find that bond yields are lower for US firms employing a Big 6 auditor, and this effect is larger for non-Investment Grade firms.⁸¹

Firms' submissions in response to our Reputation and experience working paper

85. Deloitte said that its reputation was no more than the sum of the direct observations of its clients as to the quality it delivered and that if it ceased to deliver that quality, its reputation would suffer in short order.⁸² It considered that companies did have access to accurate information on quality and capability.⁸³

86. Deloitte said that decision-makers within companies made their auditor appointment, appraisal and reappointment decisions on the basis of observed capabilities, not 'so-called "proxies"'.⁸⁴ It said that there was no suggestion in any of the evidence gathered that any third party had put pressure on company decision-makers—in the

⁸¹ Appendix 7, Annex A.

⁸² Deloitte [response to working papers](#), paragraph 5.2.

⁸³ Deloitte [response to working papers](#), paragraph 5.3.

⁸⁴ Deloitte [response to working papers](#), paragraph 6.1.

CC's survey only 13 per cent of FTSE 350 CFOs and 15 per cent of FTSE 350 ACCs cited it as a reason for taking the view they would not consider non-top-tier firms and the Oxera survey indicated the opinion of external stakeholders in audit selection was seen as relatively unimportant by ACCs.⁸⁵

87. Deloitte said that the survey showed that more than half of FDs/ACCs stated external pressure would be a likely trigger that would make their company consider switching auditor. However, this theme did not emerge as a reason for the recent actual switches. It considered the evidence to show that decision-makers were not influenced by third parties and so made their decision on their own assessment of the real capabilities of firms.⁸⁶

88. KPMG said an audit firm's reputation was a reflection of its underlying quality. It considered quality to be observable, particularly to audit clients (ACs and management). KPMG strongly rejected any suggestion that audit firms' reputations reflected anything other than their underlying quality and capabilities.⁸⁷ It said we had not recognized the impact that independent regulators' reports on quality had on reputation and that this impact had been highlighted in the CC's survey which found that adverse regulatory findings were a factor in many companies' choice of auditor.⁸⁸

89. KPMG said that whilst audit was an 'experience good' there were many ways in which companies could assess the quality of prospective audits (eg via provision of non-audit services) and that companies were sophisticated purchasers who were able to judge technical quality and service quality both ex-ante (ie when choosing an

⁸⁵ Deloitte [response to working papers](#), paragraph 6.2.

⁸⁶ Deloitte [response to working papers](#), paragraph 6.4.

⁸⁷ KPMG [response to working papers](#), paragraph 12 & 13.

⁸⁸ KPMG [response to working papers](#), paragraph 14.

auditor) and ex-post (ie when assessing current auditors). It said that companies looked for experience of working with FTSE 350 companies and relevant industry experience not for 'reputational effect' but because such experience improved the quality of the audit.⁸⁹ Once a firm had been appointed clients assessed quality based on actual work done rather than on the basis of reputation or experience. KPMG considered that clients would talk among themselves so that any underperformance would likely be communicated to a wider audience and so poor performance would harm KPMG's relationship with its existing clients and damage its chance of winning future mandates—any alleged mismatch between quality and reputation would be corrected in the short to medium term.⁹⁰

90. KPMG said of the CC's survey results, that of the companies which would not consider an audit firm outside of the largest four firms, only 18 per cent gave 'reputation' as the reason—it was not therefore the reason why most companies chose the largest four firms over others. Of the companies which only invited the largest four audit firms to tender in the previous five years, only 11 per cent gave 'wanted to use the Big 4' as a reason. It considered this to indicate that any prestige value that derived from 'Big 4' status was not determinative in selecting an audit firm. KPMG said there was nothing to suggest that the quality of the Mid Tier audit firms was also not reflected in the reputations of each.⁹¹
91. KPMG said that we had no evidence in our working paper of any actual pressure to switch being exerted by shareholders, bankers, lawyers or analysts nor evidence of financial institutions insisting on, or enforcing 'Big-4-only' clauses. It said that there was no clear evidence that investors put pressure on companies to use a Big 4 audit firm and said that this pressure was either not a barrier or was a barrier that was

⁸⁹ KPMG [response to working papers](#), paragraphs 15–17.

⁹⁰ KPMG [response to working papers](#), paragraph 18.

⁹¹ KPMG [response to working papers](#), paragraph 5.

easily overcome. KPMG noted the Oxera survey had found investors did not perceive a genuine capability gap between the Mid Tier and Big 4 firms except for the largest FTSE 100 companies.⁹²

92. KPMG noted that evidence used by CBS was nearly ten years old and from the USA, that CBS itself had recognized the limitations of the noisy measure of cost of debt in one of these papers and that as such the evidence was not reliable robust or relevant.⁹³
93. BDO and GT said that the evidence suggested an 'IBM effect' whereby a Big 4 auditor was chosen, not necessarily on the merits, but because if things went wrong the ACC or company could not be blamed as they chose the 'safe option'.^{94,95} BDO said that competition could not be said to be functioning well if, as indicated by the Company B FD, companies were excluding firms outside the Big 4 for the reason that 'it would look odd to have a Mid Tier firm'.
94. BDO said that over 80 per cent of survey respondents cited 'reputation of audit firm with investors, corporate brokers, analysts or external advisers' as being very important or important. It said that this factor beat 'strength of international networks' as a factor, yet the latter (rather than the former) was often given as a reason for not using Mid Tier firms. BDO said that this supported its contention that the influence of intermediaries on choice of auditor was very significant and often operated to the exclusion of non-Big-4 firms.⁹⁶

⁹² KPMG [response to working papers](#).

⁹³ KPMG [response to working papers](#).

⁹⁴ BDO [response to working papers](#), paragraph 1.4.

⁹⁵ GT [response to working papers](#), paragraph 2.1.

⁹⁶ BDO [response to working papers](#), paragraph 1.5.

95. PwC said that reputation was important in this market and played a pro-competitive role. Reputation was based on the reality of the experience and observations of informed purchasers and helped companies select the audit firm most appropriate to their needs.⁹⁷
96. PwC said the conclusion that the largest companies made their selection of auditor based on 'proxies' for quality was misconceived as:
- (a) experience was an important component of quality in its own right;
 - (b) that there was no convincing explanation that highly experienced ACCs and FDs would chose to rely on proxies rather than their own actual experience and observations; and
 - (c) that Mid Tier firms had multiple opportunities to make large companies aware of their skills including through tenders and non-audit engagements.⁹⁸
97. PwC said the attributes that dictated that the largest audit firms were the only ones that could audit the largest FTSE companies were also of value to smaller (but nevertheless still large) companies in the FTSE 350. Even in cases where a Mid Tier firm might have the technical competency to conduct an audit of smaller FTSE 350 companies they might nevertheless not be able to offer a combination of technical and service standards that matched those of the four largest firms. PwC said that competency was a baseline.⁹⁹

Review of a Mid Tier firm's debrief documents

98. We reviewed the debrief document that [X] had compiled following its unsuccessful tender for the [X] audit in 2009. This noted some issues with [X] performance at the presentation with regard to commercial acumen and level of specificity. The docu-

⁹⁷ PwC [response to working papers](#), paragraph 2a.

⁹⁸ PwC [response to working papers](#), paragraph 2b–c.

⁹⁹ PwC [response to working papers](#), paragraph 7.

ment also reported that '[REDACTED] perceive that the name on the books has a value to it—and the Big 4's is greater than [REDACTED]. The FD felt that having a Big 4 name on their books signifies that they are okay'. It reported that the potential client would have gone further with [REDACTED] had their fees been lower, they were 10 per cent lower than the eventual winner, but needed to be 25 per cent lower to have been taken further given all the other factors in how [REDACTED] had come across.¹⁰⁰

¹⁰⁰ [REDACTED]

Specific allegations of aggressive pricing

Introduction

1. This appendix considers allegations made by firms outside the Big 4 of aggressive pricing and 'lowballing' to win audit clients from Mid Tier firms. It considers specific allegations relating to four companies submitted by BDO.

Observations

2. Based on information submitted we observed the following:

Company 1

(a) [X]. The audit fee for the last year of BDO's audit was £[X], having decreased from £[X] in the previous year. There had been a broad decline in audit fee since 2003. The agreed audit fee reduced to £[X] on [a Big 4 firm] taking on the audit. [The Big 4 firm] had informed us that its original proposed audit fee was greater than BDO's and its fee was reduced only on demand by [X]. This would indicate that it was the company that drove down the audit fee to match BDO's proposal.

Company 2

(b) [X]. BDO suggested that [a Big 4 firm] appointment as auditor was as the result of a tender that was at least 25 to 50 per cent lower than BDO's audit fee for the previous year. However, [X] had decreased significantly in size since 2007 and the audit fee had similarly declined over that period. [The Big 4 firm] had stated that [X] invited it to 'pitch' in both [X] and [X], being unsuccessful in [X]. [The Big 4 firm] stated that in the [X] bid [X] asked it to reduce the proposed price to match that offered by BDO but [the Big 4 firm] refused and agreed a fee between the two. This suggested that the tender led to downward pressure on BDO's fee rather than the strategic pricing decisions of [the Big 4 firm]. [X] was a private company and was not in the FTSE 350.

Company 3

- (c) [REDACTED]. The most recent tender was in 2011. The financial statements for that year had not been filed but we had been told that the audit fee was [REDACTED], which was a reduction of 32 per cent on the 2010 fee. We did not have all of the proposed audit fees, but the three we did have were for a reduction of [REDACTED] to [REDACTED] per cent on BDO's fee. Given that GT proposed a [REDACTED] per cent reduction, competitive pressure on price did not appear to be limited to the four largest firms and this did not appear to be an example of the Big 4 acting differently from other market participants, though the extent of the reduction in price might suggest that they were able to price at a lower level.

Company 4

- (d) [REDACTED]. [A Big 4 firm] denied offering a lower fee and had provided the basis of its fee setting which demonstrated a proposed increase on BDO's fee. [The Big 4 firm] acknowledged that [REDACTED] was a target.

3. When firms proposed a lower fee than the incumbent charged for the previous year's audit, this might have been as the result of actual or perceived changes in the scope of the audit, and therefore identifying what was considered to be an aggressive pricing decision was difficult.

Details of specific allegations

BDO

4. [REDACTED]

[REDACTED]

5. [REDACTED] was now called [REDACTED] (it was [REDACTED] in [REDACTED]).

6. BDO stated: '[X] received an unsolicited audit proposal from [a Big 4 firm] in 2006 at a fee of £[X]k, when BDO's audit fee was then c.£[X]k ... BDO audited [X] until [X]; from [a Big 4 firm] were [X] auditors.'

CC analysis

7. [X] was not included in our engagement data set. The published financial statements indicated that there was a decline in audit fee in FY[X] to £[X] on the switch to [a Big 4 firm], from BDO's fee of £[X] in FY[X] and £[X] in FY[X]. However, the £[X] fee had been a £[X] increase on the [X] fee and, as discussed in paragraph 8, [X] audit fee had fluctuated over the period.
8. Since 2000, [X] turnover and its audit fee had shown relatively little correlation. After a sharp fall in 2001, the audit fee increased until 2005 before declining until [X] (on the switch to [a Big 4 firm]), before levelling out and [a Big 4 firm's] fee was lower in real terms than any year since 2000. However, turnover had doubled over the same period (see Table 1 and Figure 1).
9. It was not clear whether the expectation of continued growth had made the company a specific target leading to price pressure and the long-term reduction in audit fee, but BDO did not make this suggestion, focusing only on the specific pricing offered in 2006.

TABLE 1 Data on [X] in the public data set

	BDO							[X]				£'000
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Total audit fee—nominal	[X]											
Real terms	[X]											

Source: Public data set.

Note: As discussed below, the 2007 and 2008 audit fees were incorrect in the published financial statements of [X].

FIGURE 1

Real and nominal audit fees and real turnover (£'000)

[REDACTED]

Source: Public data set.

[A Big 4 firm] response

10. We asked [a Big 4 firm] about the allegations of aggressive pricing and the background to its appointment, and the following is based on its response.
11. [The Big 4 firm] stated that there was a formal tender process which it believed included three other firms. [The Big 4 firm] stated that it was 'invited to pitch' as it was well known to management through other engagements and other industry events.
12. [The Big 4 firm] stated that [REDACTED] decided to appoint it as auditor before the formal presentation stage, but that its fee was 'significantly' higher than the three other tenders, and it was asked to resubmit its fee quote. This second submission the Big 4 firm believed was 'in line with the fees proposed by the other firms'. It provided the breakdown of its original and revised proposed fees, as shown in Table 2.

TABLE 2 [A Big 4 firm] proposed audit fee

	<i>Original</i>	<i>Revised</i>
Group accounts	[REDACTED]	[REDACTED]
Subsidiaries	[REDACTED]	[REDACTED]
Half-year	[REDACTED]	[REDACTED]
Total	[REDACTED]	[REDACTED]

Source: [A Big 4 firm].

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13. The original proposed fee for the [REDACTED] audit was greater than the [REDACTED] audit fee. We reviewed the brochure the Big 4 firm gave to [REDACTED] and had verified the figures, and noted that it stated that 'this reflects the additional time we have assessed it will take to audit the new [REDACTED] company'.

14. We further reviewed a schedule of budget and out-turn data from the Big 4 firm's business management system and noted that the published audit fees in [redacted] financial statements for [redacted] and [redacted] did not reflect the actual price paid by [redacted] once overruns were invoiced by the Big 4 firm and the actual price was £[redacted] and £[redacted] respectively, both of which were an increase on BDO's fee (however, the original fee agreed was lower).¹
15. On the basis of the information provided by the Big 4 firm, it appeared that it was an outcome of the tender process that led to the Big 4 firm setting its prices at the level it did, and that this was pressure directly exerted by the company. Other than the recovery of cost overruns in the first two years, it appeared that the underlying audit fee had been relatively steady other than periodic increases to adjust for inflation and additional work on a new [redacted], and there was no indication of the Big 4 firm lowballing before increasing its prices.

[redacted]

16. BDO stated that 'in a recent tender for [redacted], BDO were replaced as auditor by [a Big 4 firm], who BDO understands quoted for [redacted] hours of audit work at a blended rate of £[redacted] per hour, well below normal rates for this work'.²
17. We requested further information and were informed that in [a Big 4 firm] had approached [redacted] and proposed an audit fee of £[redacted] (the [redacted] audit fee was £[redacted]) and during fee negotiations for the [redacted] audit BDO agreed to reduce its fee to match the Big 4 firm's offer of £[redacted] and was retained as auditor, in part because it had already started its audit work.

¹ From the information we received from [redacted], it was not clear when [redacted] and [redacted] agreed the value of the overruns relative to the date the financial statements were published. £10,000 of the £20,000 overrun costs for [redacted] were included in [redacted] and £[redacted] of overrun costs in [redacted] were omitted completely. As a result, public data is understated by £[redacted] over the two years.

² We note that this would indicate a fee of £[redacted], which is greater than the £[redacted] fee suggested by BDO.

18. Subsequently, [X] held a tender in [X]. BDO tendered at £[X] to retain a significant client but believed the Big 4 firm tendered below this.

[Big 4 firm] response

19. The Big 4 firm stated that it had a long-lasting relationship with the [X] which owned [X], and that it was the [X] that asked it to make a formal submission in 2010, which was ultimately unsuccessful, but was asked in 2011 to tender again for the audit.
20. The Big 4 firm stated that its initial tender proposal in 2011 was for £[X] and that [X] asked the Big 4 firm to match BDO's tendered fee of £[X] which the Big 4 firm declined to do, but ultimately agreed to reduce its price to £[X]. A figure of £[X] was consistent with BDO's statement on the Big 4 firm's 'blended rate'. This would indicate that the Big 4 firm did not 'lowball' and that BDO in fact lowered its price in anticipation of competitive pricing.
21. The Big 4 firm provided data on its budgeting ahead of the tender. Its tender of £[X] would have generated an expected revenue recovery rate of [X] per cent; the fee of £[X] agreed upon was expected to generate an RRR of [X] per cent, a difference of one percentage point. The Big 4 firm acknowledged that this was lower than other engagements, which the CC had calculated at [X] per cent, but noted that recovery rates in the first year of an audit engagement would be expected to be lower than average.
22. Ultimately, the Big 4 firm incurred 24 per cent more hours than budgeted, which reduced the recovery rate to [X] per cent. The Big 4 firm identified the causes as greater than expected costs in the first year and the resource mix being skewed towards more senior staff than planned, in part because the Big 4 firm was appointed

in [X] for a 31 December year end. The Big 4 firm said that the late appointment was due to fee negotiations which were long-lasting.

CC analysis

23. Figure 2 shows the relationship between the audit fee and company turnover from the public data set over the period 2000 to 2010, and Figure 3 shows the link to a broader number of financial bases in [X] accounts (nominal terms) indexed to show relative movements in the period 2007 to 2011. [X] Group Ltd and its subsidiaries had decreased significantly in scale and the decline in audit fee appeared broadly to correspond to this.

FIGURE 2

Real and nominal audit fees and real turnover (£'000)

[X]

Source: Engagement data set.

FIGURE 3

Indexed financial performance of [X] (2008 = 100)

[X]

Source: [X] financial statements.

Note: The 2011 audit fee is plotted on both estimates provided by BDO of what was agreed between [a Big 4 firm] and [X] (published figure for both 2010 and 2011 are rounded to £0.2 million).

[X]

24. BDO stated in its response to our 'Restrictions to entry or expansion' working paper: 'in a recent tender for the [X] audit, in the face of deep discounting by Big 4 firms ([X]), BDO was only able to retain the client (a FTSE 350 company) by cutting its prices to a level at which BDO would make no margin on the work.'
25. We requested further background information and BDO replied stating that a tender occurred in [X] with [X] and BDO reached the final stage of the process. BDO stated that 'BDO was informed that ... the fee gap between BDO and those firms was

not insignificant and that unless BDO reconsidered its fees, it was unlikely to be successful in the final stage’.

26. BDO was informed of the lowest fee offered by the other firms and reduced its proposed fee to match the lowest bid.
27. [X] entered administration in [X]. BDO stated that its agreed audit fee for [X] including interim review. The previous year’s audit fee (including interim review work) was £[X]. Removing the cost of the interim review gives equivalent audit fees of £[X] for [X] and £[X] for 2011/12, or a decrease of £[X], or [X] per cent of the [X] audit fee.
28. Our database of tender data included responses from [X] for the tender of 2011/12. Their proposed fees were in the range £[X] to £[X] which would be equivalent to a [X] per cent reduction in audit fee. [X] both proposed £[X], whilst [X] proposed £[X]. However, all were a reduction on BDO’s fee in the previous year.
29. The UK element of the audit fee (engagement data set—Table 3) showed a decrease of [X] per cent (£[X]) in 2010, but engagement profitability fell only slightly, with a reduced number of hours recorded. [X] engagement profitability fell in 2011, as a result of a significant increase in the number of hours worked on the audit, in part offset by an increase in audit fee.
30. Nominal and real audit fees (including audit-related services such as interim reviews) (public data set—see Table 4 and Figure 4) show correlation to the company’s turnover. However, since 2009, in which period company turnover declined by over [X] per cent in real terms, real audit fees had remained constant.

31. Given that GT also tendered at a significantly lower level than BDO's previous fee, this example does not appear to support a view that it was only the Big 4 that would aggressively price an audit and that BDO was able to maintain its profit margins.

TABLE 3 Data on [REDACTED] in the engagement data set

	£'000					
	2006	2007	2008	2009	2010	2011
Profitability (%)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Revenue per hour	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
UK audit fee	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total hours	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: Engagement data set.

TABLE 4 Data on [REDACTED] in the public data set

	£'000							
	2004	2005	2006	2007	2008	2009	2010	2011
Audit fee (nominal)	[REDACTED]							
Audit fee (real)	[REDACTED]							
Turnover (real)	[REDACTED]							

Source: Public data set.

Note: Years in this table have been corrected from the public data set with an offset of one year for consistency with discussion above, whereby 2011 is used to describe the financial year ended in 2011.

FIGURE 4

Real and nominal audit fees and real turnover (£'000)

[REDACTED]

Source: Public data set.

[REDACTED]

32. BDO stated:

[REDACTED], which has been listed on the London Stock Exchange since [REDACTED] and is now part of the FTSE 250, has been heavily targeted by [a Big 4 firm] for several years. BDO understands that [a Big 4 firm] has given unsolicited audit fee quotes at a discount to the existing fee and has made comments aimed at undermining BDO's depth (tracking partner rotation).

33. We requested further background information and BDO stated that ‘some [redacted] ago’ (approximately [redacted]) [redacted] met [a Big 4 firm] to discuss corporate finance ahead of its move to the main market, and BDO stated that [a Big 4 firm] proposed an audit fee of £[redacted], in contrast to BDO’s fee of ‘around £[redacted]’. However, BDO believed that because the Big 4 firm’s work (presumably on the listing) was more expensive than quoted, that the offer was not pursued.
34. [redacted] A review of the company’s annual report and financial report indicated a significant rise in revenue over the period 2007 to 2011, although gross profit had fluctuated between profit and loss. Data provided by BDO (Table 9) indicated that the fee was £[redacted] in 2011 and had increased steadily since 2007.

TABLE 5 Total audit fees as recorded by BDO—nominal

	£'000				
	2007	2008	2009	2010	2011
Total audit fee	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Source: BDO.

35. BDO gave [redacted] as an example of a company which was expected to enter the FTSE 350 which had been heavily targeted by other firms. It should be noted that as a [redacted] company, a significant amount of audit might be required outside the UK, and it was not clear what proportion of the total audit fee related to the UK.

[A Big 4 firm] response

36. The Big 4 firm stated that [redacted] was a target, but that this was to be expected given that it was a ‘fast growing [redacted] company’ and noted that [a Big 4 firm] as auditor of [redacted] had significant experience of [redacted] companies, and that [redacted] had acquired assets that [a Big 4 firm] had previously audited, so had experience of specific elements of the company’s business.

37. [A Big 4 firm] stated that it had made an informal approach, with a fee of \$[X], based on BDO's 2010 fee of \$[X] million (which was then the most recent publically disclosed fee) with an additional \$[X] for the recent acquisition of the [X]. [A Big 4 firm] noted that the 2012 audit fee which had just been disclosed was \$[X] million, suggesting that [a Big 4 firm] did not price aggressively.

Econometric analysis of audit costs

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Introduction

1. In this appendix we give a detailed description of our econometric analysis of engagement-related staff costs.

2. We analysed accounting firms' staff costs of providing audit services to listed and large private companies. Confidential data from audit firms was combined with publicly available data to estimate the labour costs of auditing at the engagement level. These costs were modelled as functions of client characteristics, such as size, sector, and financial performance, and of auditors' characteristics such as firm size and the costs of different grades of labour.

3. The analysis focused only on staff costs specific to an engagement, and did not cover fixed costs such as the costs of office space, IT support, marketing, and so on. Costs of the latter type were examined in appendix 29. CC analysis of accounting

data received from auditors suggested that for the Big 4 firms staff costs in the assurance service line comprised around [X] per cent of total costs in that line. (These proportions excluded partner costs from both the staff costs and the total costs of the assurance service line.¹) Similar proportions were observed for the labour costs of [X].

4. For these engagement-specific staff costs, we found that economies of scale existed with respect to client size. All else equal, at an average client a 10 per cent increase in assets raised costs by only 1.9 per cent. Economies of scale were still observed even if we scaled up turnover and the client's global presence at the same time as assets. There was weak evidence of economies with respect to auditors' sectoral specialization. The returns to scale with respect to auditor size were difficult to measure accurately, although the data was not inconsistent with increasing returns in this dimension. Within the scope of our analysis, covering only variable labour costs and ignoring the fixed costs of IT etc, there was no evidence of complementarities or synergies between auditing and the provision of non-audit services. Audit costs increased when a client was involved in a merger, when the client was financially risky, and when the client's financial year finished in the auditor's busy period. Costs decreased in the tenure of the auditor, by about 2 per cent a year up to the tenth year of tenure. There was no evidence of audits becoming more costly over the period of the data. All else equal, audits of FTSE 100 clients were the most costly, followed in descending order by clients in the FTSE 250, Other Listed, and Private categories.

Economies of scale and scope

5. The estimated cost functions told us about the technological environment in which audit firms operated. In particular they told us about any *economies or diseconomies of scale* faced by audit firms. Economies of scale were situations where the average

¹ There may be additional central costs which were not allocated to a firm's service lines.

cost of production declined in output. Diseconomies of scale were the opposite, when average costs increased in output. Since economies of scale naturally tended to favour big firms over small, they were argued in some cases to constitute a barrier to entry.

6. A related concept was *economies of scope*, which represented 'synergies' between related products, or situations where the average cost of producing one product declined as the output of another was increased.
7. There was a direct mapping from (dis)economies of scale, which were defined in terms of cost functions, to 'returns to scale', which were defined in terms of production functions. The production function captured an auditor's technological constraints, describing the inputs necessary to achieve any given level of output. Economies of scale were equivalent to 'increasing returns to scale', meaning that raising inputs by x per cent increased output by more than x per cent. Diseconomies of scale were equivalent to the opposite case of 'decreasing returns to scale', where proportionate increases in inputs lead to less than proportionate increases in output. Thus in estimating an auditor's cost function we were effectively recovering the properties of its technological constraints in the provision of audit services.
8. In cases where output had a number of dimensions, economies of scale could be measured with respect to each of those separate dimensions. In the present context output, or the 'quantity of audit services provided', would vary with, among other factors: (a) the size of the client, (b) the number of engagements performed by the auditor in a given sector and (c) the number of engagements performed by the auditor overall. Thus, with respect to output (b), for example, our analysis would enable us to estimate how the average cost of performing an audit varied with the 'depth' of an auditor's experience in the given sector.

9. The analysis would also show how average costs were affected by other aspects of the engagement, such as the length of the auditor-client relationship, whether the auditor also provided the client with non-audit services, and the client's international presence. If the relationship involved a lot of 'learning by doing' by the auditor, for example, then we should have found that average costs were declining in the length of tenure of the client's current auditor. Or we might have found that, all else equal, the average costs of an audit declined in the amount of non-audit services provided, in which case we would include that there were economies of scope in the provision of audit and non-audit services.

Related literature

10. Our analysis was distinguished from previous work by the availability of detailed data, at the level of individual engagements, on the labour inputs expended in auditing public and private clients. Although there was an academic literature on the productive efficiency of audit providers, researchers in this area had rarely had access to such detailed (confidential) information. In consequence our estimates of economies of scale and scope in the provision of audit services were likely to be among the most accurate available.
11. There was a small academic literature on estimating the efficiency with which accounting firms provided audit and other services, such as advising on tax and corporate finance. The reason for the sparse literature was the relative lack of good data. The minimum data required was information on: (a) outputs (quantity of services provided, classified by type of service); and (b) inputs (hours worked, preferably classified by type of labour) and/or input prices (wages/salaries, preferably classified by type of labour). Such data was usually either not publicly available, or was available but difficult to assemble into a single consistent data set. (In contrast,

there was extensive literature on the determinants of audit fees, because for listed firms audit fees were public information.)

12. Few researchers in this area had had access to disaggregated data on individual audit engagements, which was the level at which we proposed to conduct our analysis. One exception was the widely cited paper by O’Keefe et al (1994), which studied how a major US accounting firm varied its mix of labour inputs according to the nature of the audit engagement. The ‘mix’ refers to the proportions in which the hours spent on an audit were contributed by the different grades of labour: Administrative, Associates, Managers, Directors, and Partners. Among other results O’Keefe et al found no evidence of learning by doing in the provision of audits. They also reported economies of scale with respect to client size. That is, the hours required to complete a given audit increased less than in proportion with the client’s total assets.²

13. A related paper is Banker et al (2003). They estimated a multi-output production function, rather than a cost function, but as noted in paragraph 7 there was a mapping from the properties of production functions to those of cost functions. The data was from large accounting firms in the USA, recording outputs of audit, tax and M&A advising services, and inputs of labour by grade. In contrast with O’Keefe et al (1994), these observations were not at the engagement level, but were aggregated over all engagements to the firm level. Banker et al (2003) find that economies of scale prevailed in the provision of accounting services. That is, at the average firm, a 10 per cent increase in the input of labour in each category (Associates, Managers,

² O’Keefe, Terrence B, Dan A Simunic, Michael T Stein (1994), ‘The production of audit services: Evidence from a major public accounting firm’, *Journal of Accounting Research*, 32, 2 and 241–61. Although they did not report a numerical estimate of the economies of scale, the authors stated that they found clear evidence that, ‘ceteris paribus, audit effort is a concave (from below) function of client size’ (p260).

etc) resulted in a more than 10 per cent increase in (a weighted average of) the outputs.³

14. Note that the economies of scale found by Banker et al (2003) were with respect to an accounting firm's *total* annual outputs of each of the three types of service, whereas those found by O'Keefe et al (1994) were with respect to the size of a *single client*. This highlighted the need for caution when making claims of 'economies of scale' in this industry—it must be clearly specified to which dimension of output the economies refer.

Data

15. Our data request to large accounting firms, including both the Big 4 and Mid Tier firms, provided information on individual audits conducted by these firms between 2006 and 2011. This information primarily showed, for each client audited, the year, auditor's fee, auditor's labour inputs (hours, and number of workers, classified by grade), and the auditor's notional cost of each type of labour. We supplemented this data request with further information on clients obtained from the public data set, that was put together jointly with the parties for the purpose of this market enquiry.⁴ In addition to characteristics such as sector, capital-market, and index classification, we collected data on clients' financial performance, international scope and merger activity.⁵
16. Our cost analysis focused just on the direct labour costs incurred on each engagement. It abstracted away from the costs of inputs like IT support, office rental space, employee travel, marketing, and so on. We argued that as an approximation such

³ Banker, Rajiv D, Hsihui Chang, Reba Cunningham (2003), 'The public accounting industry production function', *Journal of Accounting and Economics*, 35 and 255–81. To combine the three outputs into a single index, the authors actually estimated a revenue function rather than a production function, assuming that auditors were price takers with respect to the services that they provided. The latter assumption is debatable in the context of the present inquiry, and therefore this way of incorporating multiple outputs into the estimation was not directly applicable in our context.

⁴ See Appendix 6, paragraphs 9 and onwards.

⁵ A detailed description of the construction of the data set is contained in [Annex 1](#).

costs could be thought of as either (a) fixed at the engagement level, or (b) variable at the engagement level, but varying in direct proportion to the total expenses on an audit. In either case the omission of the cost factor did not invalidate analysis at the engagement level.

17. Fixed costs of type (a), such as the costs of IT infrastructure, or of office space, could be estimated from auditors' financial accounts. If necessary such estimates could be combined with the labour cost functions estimated below to derive an auditor's overall costs, of all inputs, as functions of various controls and outputs. Variable costs of type (b) were already allowed for, in that their inclusion would not alter the key estimates of economies of scale and scope, or change the statistical significances of estimates on the controls.⁶
18. We divided the labour used on an audit into five grades: Partners, Directors, Managers/Senior Managers, Other Qualified, and Unqualified. While additional categorizations were possible (eg Administrative), we restricted attention to the costs incurred from expenditures on the above five groups because they accounted for the great majority of the labour costs on an audit.⁷
19. Since the inputs on an audit engagement were measured as hours worked by each of these grades of labour, we also needed an hourly 'price' for each such grade. We used two alternative approaches to measuring the price of a given grade. The first 'staff cost' approach was to use each audit firm's reported average annual hourly remuneration for that category of worker. This average varied across audit firms,

⁶ Suppose, as a purely illustrative example, that every £100 of labour costs incurred on an audit draws £20 of IT costs. This was equivalent to a simple rescaling of the units for measuring input prices (with all prices rising by 20 per cent) and would have no substantive effect on the estimates to follow.

⁷ On average, across all years and audit firms, administrative staff billed between 0 per cent and 3.5 per cent of total engagement hours, and based on scale rates, accounted for between 0 and 1.9 per cent of total cost.

across grades, and over time. It would be constant across all engagements within a given grade, auditor and year.

20. The second 'scale rate' approach was to use the auditor's reported average scale rates for the workers used on each engagement. In this case the price of a given labour grade would vary across grades, engagements, auditors, and years.⁸

21. A complication with the first approach was that partners' average hourly remuneration was not included in the reported staff costs. To get around this problem we imputed an hourly partner cost by using the ratio of partner-to-director *scale rates* to scale up reported director *staff costs*. As a robustness check we tried different ratios in this imputation, using information from parties on the overall relative differences between partner and director remuneration. Details of the alternative imputation methods are contained in [Annex 1](#).

22. The two approaches to defining the price of labour reflected two ways of defining an auditor's opportunity cost of using a given type of labour on an audit. Consider the auditor's best alternative use for a worker who was released from working on a given audit. The worker would then have surplus hours which could potentially be devoted to other tasks. If there was no demand for the worker's services elsewhere in the firm (ie if the firm has excess capacity with respect to its available labour pool), then the best alternative might be to fire the worker, or reduce their paid working hours. In this case the opportunity cost of employing the worker on the original audit would be their hourly market wage (which would be a cost avoided if the worker were to be released from the audit).

⁸ In the case of the Manager/Senior Manager grade we constructed a weighted average of the reported scale rates for the two different types of manager.

23. Suppose instead that the auditor was capacity constrained with respect to labour (eg because it was costly to hire and fire workers). Then the best alternative use for any worker employed on a given audit was to work on another audit, and their value in that alternative would be represented by the billable hours that they generated. In this case the opportunity cost of employing a worker on a given audit would be the scale rate which they would have earned for the company on the alternative task. This scale rate would of course be different from the worker's hourly wage, because the auditor charged a mark-up on its labour costs.
24. Our methodology for estimating a cost function assumed that auditors were price takers in input markets, ie that they did not have any power to set the prices of the inputs that they used. In the engagement-level data, we believed that this assumption was satisfied for the labour grades below Partner level.
25. Partners constituted a special labour category since they were the residual claimants of the auditor's profits. Thus they were both employers and employees. The fact that one type of worker was also a decision-maker with respect to overall labour inputs did not affect the basic principles underlying our methodology, provided that we could correctly identify the opportunity cost to the decision-maker of using the partner's time on the given audit. The question was whether this opportunity cost should include the partner's share (averaged over hours worked) in any profit distributions from the partnership.
26. To the extent that profit distributions were independent of the hours worked by the partner, they should be excluded from calculations of opportunity cost. This was because, if a partner got a profit distribution no matter what hours they worked, then any such payments would be incurred whether or not a partner worked on the present audit, and so would not affect the decision of how many hours the partner

should put into this audit. In such cases the appropriate scale rate (or, alternatively, an hourly ‘wage’ rate) would suffice as a measure of the opportunity cost of the partner’s labour.

Model

27. To perform our analysis we used the ‘translog’ technique—a widely used econometric approach to estimating firms’ cost functions.⁹ The translog method was the main approach used in the CC’s recent work on estimating cost functions for local bus depots.¹⁰ The approach combined flexibility in the form of the estimated cost function with restrictions from economic theory that improved the precision of the estimates.

28. Let *TOTCOST* denoted an auditor’s annual total cost of a given audit, meaning the sum of economic costs contributed by the five types of labour in working on the client’s audit during the *auditor’s* financial year. That is, we constructed *TOTCOST* from the variables in Table 1 as follows:

$$\text{TOTCOST} = (\text{PARTNERHOURS} * \text{PARTNERWAGE}) + (\text{DIRECTORHOURS} * \text{DIRECTORWAGE}) + (\text{MANAGERHOURS} * \text{MANAGERWAGE}) + (\text{OTHERHOURS} * \text{OTHERWAGE}) + (\text{UNQHOURS} * \text{UNQWAGE}) \quad (1)$$

29. We estimated a cost function of the following general form—in this specification all continuous variables (including *TOTCOST*) enter as logarithms:

$$\text{TOTCOST} = \beta_1 \text{CLIENTSIZE} + \beta_2 \text{SPECIALIZE} + \beta_3 \text{AUDITORSIZE} + \beta_4 \text{CLIENTGLOBAL} + \beta_5 \text{NONAUDIT} + (\beta_6 \text{PARTNERWAGE} \text{ and similar terms for the other four labour grades}) + (\beta_{11} \text{TENURE} \text{ and terms for other controls listed in Table 1}) + (\text{Indicators for year, auditor, sector, capital market and index membership}) + (\text{all$$

⁹ See Peter Davis and Eliana Garces (2009), *Quantitative Techniques for Competition and Antitrust Analysis*, Princeton University Press, Chapter 3.

¹⁰ CC, *Local bus services market investigation: A report on the supply of bus services in the UK (excluding Northern Ireland and London)*, [Appendix 9.6](#).

second-order interactions and squared terms involving CLIENTSIZE, SPECIALIZE, AUDITORSIZE, CLIENTGLOBAL, NONAUDIT, and the five wage indicators) + ε ,
(2)

where ε was a random error, representing unmeasured factors affecting the labour costs of an audit that were not captured by the included explanatory variables.

30. The interactions and squared terms were included to allow flexibility in the estimated cost function; for example, the inclusion of these terms allowed the economies of scale on an engagement to vary with the size of the client. To aid the interpretation of the coefficients, the continuous variables were all normalized by their means, ie they were centred on a (hypothetical) engagement with average values for these variables. This meant that, to interpret the cost conditions facing this average engagement, we could ignore all the interactions and squared terms. To examine costs at engagements away from this average, we would need to look also at these 'second-order' terms.
31. Our estimated base model included some amendments to the basic specification in equation (2). First, there were some missing values for the *CLIENTGLOBAL* variable. To allow for these we included among the regressors a 0–1 indicator for '*CLIENTGLOBAL* non-missing'. All terms involving *CLIENTGLOBAL* were then interacted with this dummy variable.
32. Second, the data on *NONAUDIT*, the non-audit services supplied to a client, showed a 'spike' at zero, indicating a dichotomy between two groups of audit engagement: those which accompanied non-zero levels of non-audit services, and those which accompanied no non-audit services at all. To allow for any possible unmeasured distinctions between these two groups, we included a dummy variable for

'*NONAUDIT* is non-zero', and then interacted this dummy variable with all terms involving *NONAUDIT*.¹¹

33. Third, we explored different non-linear specifications for the influence of *TENURE* on audit costs. One reason to do this was that any learning-by-doing effect of longer tenure on costs would be steeper in the early years of an engagement relationship. A second factor was that *TOTCOST* seemed to under-measure the total costs of an audit in the first year of an engagement. This could be because the hours worked on auditing accounts for a given 12-month reporting period might cover a span of more than 12 months. They might involve some initial preparatory work prior to the beginning of the 12-month period, as well as some work at the end on 'wrapping up' that year's audit. Our construction of costs would allocate these extra hours to adjacent financial years of the auditor. To the extent that the client continued with the same auditor, this meant that the misallocation of hours was smoothed out over time (because adjacent financial years simply 'swapped' some hours). An exception occurred in the first year of an engagement, where any initial preparatory hours could not be allocated to an adjacent financial year, because there was no 'year zero'. The hours attributed to this first year might therefore be too low, and *TOTCOST* might be underestimated as a result.
34. The year indicators captured year-to-year fluctuations in unobserved factors that affected all engagements equally, for example unobserved variation in the regulatory environment. The firm indicators were dummy variables for each of the Big 4 auditors—these captured any time-constant factors that affected the costs of all audits performed by each of these firms.

¹¹ This treatment of *CLIENTGLOBAL* and *NONAUDIT* meant that all terms involving these variables (including interactions and squared terms) were set to zero at observations where the variable was missing or zero, respectively. The approach permitted a logarithm to be taken when a positive value of the variable was observed.

35. To the above equation we added equations explaining the shares of the five different labour grades in total costs, and then linked all equations with theoretical restrictions implied by the assumption that firms were cost minimizers.¹² The role of the extra equations was mainly to strengthen the precision of the estimates; the primary economic interest was in the parameters of the cost function given above.¹³

Endogeneity

36. In estimating equation (2) the aim was to answer the question: ‘All else held equal, what was the effect of the variables on the right-hand side on the total cost of an audit?’ That is, the aim was to deduce the *causal* effect of the regressors (ie the right-hand-side variables) on *TOTCOST*. Any such deduction would be confounded if an observed correlation in the data between a regressor and *TOTCOST* arose simply because both variables were affected by some unobserved feature of the audit. This was the problem of potential *endogeneity* in the regressor(s). That is, the observed correlation might not represent a causal effect on *TOTCOST*, because the observed controls included in equation (2) (ie labour costs, measures of risk, complexity, etc) did not hold ‘all else equal’—there might be unobserved factors, implicitly included in the random error ε , which affected both the regressor and *TOTCOST* and which therefore confounded the relationship between those two variables.
37. We considered that there was the potential for such endogeneity in the explanatory variable *NONAUDIT*, measuring the auditor’s fees from provision of non-audit services (NAS) to the client. This variable appeared in the model in order to measure the potential for *economies of scope* in the joint provision of audit and non-audit services (see paragraph 9). Assuming that model (2) was estimated without bias, a

¹² The constraints used in the estimation, which were implied by the assumption of cost-minimizing firms, were: (a) that the minimum cost function was homogeneous of degree one in prices, and (b) that Shepherd’s lemma held. These were the standard restrictions used in the translog approach.

¹³ Although there were five types of labour in the model, we only added four extra cost-share equations to the cost function in (2). The fifth such cost-share equation would be redundant, since the cost shares must sum to one.

significantly negative coefficient on NAS would point to the existence of such economies, meaning that audits were less costly when other services were also provided, perhaps because of knowledge spillovers between the two activities.

38. There might, however, be unobserved factors (part of ε in equation (2)) which affected the costs of doing an audit, and which also affected the fees received from NAS. For example, the provision of NAS might be associated with more complex audits. Some of the complexity of an audit was unmeasured in our model, and therefore comprised part of the error ε in model (2). In this way NAS fees could be positively correlated with ε (holding all else equal, including the size of the client), creating an endogeneity problem with respect to *NONAUDIT*.
39. We dealt with this potential endogeneity using instrumental variables, a standard approach which used auxiliary variables (called 'instruments') to 'filter out' the unwanted correlation between ε and the endogenous regressor. The instruments were required to be (a) correlated with the endogenous regressor, but (b) uncorrelated with the unobservable confounding factors represented by ε .
40. As an instrument for the quantity of NAS provided to a client, we used measures of the propensity of other clients in the same sector-capital-market-index category to procure NAS from their auditors. For each client of a given auditor j , defined a variable *RIVALNAS*, representing the average ratio of NAS fees to audit fees received by all auditors *other than j* from clients in this sector-capital-market-index combination. Defined also *OTHERNAS*, representing the average ratio of NAS fees to audit fees received by j from its own other clients in this sector-capital-market-

index combination.¹⁴ We used *RIVALNAS* and *OTHERNAS* as instruments for the potentially endogenous regressor *NONAUDIT*.

41. Justification for these instruments might be found, for example, in a study prepared for the CC by Beattie, who found that, as a result of tighter post-Enron scrutiny of auditor independence, for FTSE 100 companies 'NAS provision to audit clients dropped from a peak of over 300 per cent of audit fees in 2001 to 75 per cent in 2008'. Beattie said that this drop 'can be attributed to both regulatory changes and voluntary choices made by companies seeking to avoid criticism'.¹⁵ This suggested that there might be systematic sector-by-sector variation in investors' level of tolerance for NAS provision by auditors. That is, in some sectors and capital markets we might find the NAS fees received by auditors to be low, while in other sectors they were higher.

42. If investors' level of tolerance for auditors' NAS provision varied systematically by sector (and capital market), then *RIVALNAS* and *OTHERNAS* should be correlated with *NONAUDIT*, fulfilling the first required property of an instrument given in paragraph 39. However, once sector and capital-market-index dummies were included in the regression (thereby accounting for unobserved features of sectors and capital-market-index categories which contribute to higher NAS fees), there was no obvious reason why *RIVALNAS* and *OTHERNAS* should be correlated with the remaining

¹⁴ Thus *RIVALNAS* varies across auditors, sectors and capital markets, but is constant for any given auditor-sector-capital-market-index combination. In contrast *OTHERNAS* varies across all engagements, although the variation within a given auditor-sector-capital-market-index combination would be low if the auditor had a lot of clients in that sector-capital-market-index category.

¹⁵ Vivien Beattie (2012), 'Initial review of relevant academic literature', study prepared for the CC Statutory Audit Services market investigation, p16. It was our understanding that in the UK there was not a blanket legal restraint against provision of NAS by auditors. Rather the acceptance of such services was to some extent a matter of client choice, subject to the conflict-of-interest guidelines published in APB Ethical Standard 5. In contrast, we understood that in the US Title II of the Sarbanes-Oxley Act prohibited such joint provision.

residual error ε . Therefore it could be argued that they also satisfied the second required property of an instrument in paragraph 39.¹⁶

43. As noted above, our estimated base model also included a 0–1 indicator for a non-trivial set of engagements on which *NONAUDIT* equals zero. This indicator variable could be endogenous for the same reasons that *NONAUDIT* might be endogenous. We used two extra instruments for this additional potential endogeneity. These were motivated by the same considerations as *RIVALNAS* and *OTHERNAS*. They measured (a) the proportion of rivals' clients within the sector-capital-market-index category procuring non-zero NAS from their auditor, and (b) the proportion of clients on the auditor *j*'s other jobs who procured non-zero NAS from *j*.

44. Further comments on potential sources of endogeneity in the model are contained in [Annex 3](#). For comparison with our base model, below we also showed results for an OLS model, ie an uninstrumented model in which the potential endogeneity in NAS was ignored—see Model III in Table 2. It would be seen that one consequence of the instrumenting procedure was to make the estimated coefficients somewhat noisier. Relative to the OLS model, our base model was therefore conservative in terms of the statistical significances of its coefficients, and in its implied economies of scale and scope.

Summary statistics

45. Table 1a showed the summary statistics for the variables used in the regressions. Each observation represented an audit engagement by a certain audit firm of a particular company in a given year.

¹⁶ Since we had two instruments for *NONAUDIT*, we could use a standard 'overidentification' test to check whether the instruments satisfied property (b) in paragraph 39. To implement this test it was necessary to assume that at least one of the instruments was valid, ie it was not a test of the *joint* validity of the instruments, only of their validity singly.

46. The dependent variable TOTCOSTS was calculated as in equation (1). Depending on the way we calculated the relevant wages, the measure of total cost would differ from one specification to another.
47. *PARTNERHOURS*, *DIRECTORHOURS*, *MANAGERHOURS*, *OTHERHOURS*, and *UNQHOURS* represented the number of hours billed by each category of staff on a given engagement. These did not vary across the model specifications.
48. *PARTNERWAGE*, *DIRECTORWAGE*, *MANAGERWAGE*, *OTHERWAGE*, and *UNQWAGE* represented the prices of the inputs in the model. The mean values of the staff costs in the base-case model (where we used average staff cost based on actual salary by grade and total number of hours worked), were around £[~~xxx~~] an hour for partners, £[~~xxx~~] for directors, £[~~xxx~~] for senior managers and managers combined, £[~~xxx~~] for other qualified staff, and £[~~xxx~~] for unqualified staff.¹⁷
49. Under the alternative definition of staff cost, when we used scale rates by staff grade, the mean values of the input prices variables were £[~~xxx~~] for partners, £[~~xxx~~] for directors, £[~~xxx~~] for senior managers and managers combined, £[~~xxx~~] for other qualified staff, and £[~~xxx~~] for unqualified staff.
50. Depending on which approach we used to calculate the staff cost, *TOTCOST* varied between £[~~xxx~~] and £[~~xxx~~] with a mean of £[~~xxx~~] in the base case, and between £[~~xxx~~] and £[~~xxx~~] with a mean of £[~~xxx~~] when using scale rates as input prices. The variation of the total costs was quite high across different companies.

¹⁷ Please see detailed description in [Annex 1](#) of the methodology used to calculate staff costs in each approach, and in particular, partners' wages. Note that the absolute magnitudes of measured wages are irrelevant to the estimates of economies of scale, because changes in absolute magnitudes are essentially just changes in the units in which wages are measured. All that matters for the economies of scale estimates are the *relative* magnitudes of wages for the different labour grades.

51. We used five measures of output. *CLIENTSIZE* represented the size of the client measured by its total worldwide assets. As noted below, we also included among the explanatory variables the client's global presence, measured by the number of countries in which the client operated. The estimated coefficient on *CLIENTSIZE* therefore showed the effect on costs of an increase in assets, *holding fixed the client's global presence*. That is, in interpreting the coefficient on *CLIENTSIZE*, increases in client assets should be interpreted as increases in total assets per country in which the client operated.¹⁸
52. The variable *SPECIALIZE* was a measure of the audit firm's specialization in a given sector and could be measured in two ways: by the total number of companies it audited in that sector, or by the total sum of assets of all clients in audits in the sector. Due to data limitations, in both cases the total number of clients and total sum of assets of clients in a given sector was restricted to the companies in our sample.
53. *AUDITORSIZE* measured the size of the audit firm and was calculated as the total number of clients in a given year. *CLIENTGLOBAL* was a variable that was supposed to reflect the complexity of an engagement, and it was measured as the number of countries the client was present in. EY noted that it did not record on its systems the number of countries its clients were present in: out of 447 engagements where EY was auditor in our sample, the variable *CLIENTGLOBAL* had missing values in 375 observations (or 84 per cent).
54. *NONAUDIT* represented non-audit fees from the same client to its auditor. In around 10 per cent of engagements (294 observations out of 2,952) the non-audit fees were zero.

¹⁸ An alternative measure of client size is annual turnover. We use assets as our principal measure of client size because it is easier to define consistently across sectors. However, we also include turnover as an additional control.

55. The variable *TENURE* represented for every given year the current length of the ongoing relationship between the audit firm and its client. These ranged between 1 and 82 in our sample.¹⁹ Based on this variable we constructed a dummy for the cases of the first year of tenure, as well as some other measures of tenure in different time intervals.
56. Other control variables included dummies for a company listing or delisting its shares—*LISTING* and *DELISTING*; dummy if a company reported a loss—*DMLOSS*; dummies for Big 4 audit companies—individual *DMEY*, *DMPWC*, *DMDEL*, *DMKPMG* as well as aggregate dummy *BIG4*. 94 per cent of observations represented a Big 4 audit firm’s engagement.
57. *BUSY* was a dummy for cases when the financial year of the company ended in a period that was usually busy for auditors, which we assumed to be December or January (which was the case for 53 per cent of engagements in the sample).
58. *MAJOR_MERGER* was a dummy variable that helped to control for client merger activity, which was likely to affect the complexity of an audit. We calculated the ratio of annual merger deals (from the Dealogic database, see [Annex 1](#) for more detail) to the total assets of a company. We ranked these ratios and marked a merger ‘major’ (setting *MAJOR_MERGER*=1) if the ratio was in the upper 75 per cent percentile.
59. *TOTAL_TURNOVER* was included to complement client size measured by total assets, and also to proxy for aspects of audit complexity not already captured by the other explanatory variables in the model. In cases when the reporting period was different from 12 months, we used annualized turnover.²⁰ In keeping with other studies of audit markets we calculated *LOWRISK*, a measure of financial stability, as

¹⁹ See Appendix 6, for more details on how we defined ‘year of first engagement.’

²⁰ This was the case only for 1.7 per cent of observations.

the ratio of current assets to current liabilities.²¹ Greater stability meant a higher value of *LOWRISK*—if this translated into lower-cost audits, we would expect a negative coefficient for this variable.

60. The variables *OTHERNAS*, *RIVALNAS*, *OTHERPROPNAS*, and *RIVALPROPNAS* were used as instruments, explained above in the section on endogeneity.
61. Table 1b shows how many observations fall into each super sector according to ICB classification. Table 1c shows observation in each capital-market-index group: FTSE 100, FTSE 250, Other listed and Private. Table 1d shows the number of engagements in the data by audit firm.

Results

62. Model I in Table 2 shows results for our base-cost model. In technical terms this was an instrumental-variables-constrained SURE regression, with bootstrapped standard errors. The endogenous variables were (a) *NONAUDIT*, (b) the dummy for zero values of *NONAUDIT*, and (c) any squares and interactions involving *NONAUDIT*. To allow for the panel structure of the data (repeated observations on each client), the standard errors were clustered on client. This allowed audit costs for the same client to be arbitrarily correlated across financial years.
63. To prevent the results from being unduly influenced by a handful of extreme observations, we trimmed outliers in the base model. For each continuous variable

²¹ For financial sectors (super-sectors 8300 Banks, 8500 Insurance, 8600 Real Estate, and 8700 Financial services) the data on current assets and current liabilities is not available. For these sectors we use share of total assets to total liabilities as a proxy for low risk.

we defined an observation as an outlier if its value fell into the extreme 1 per cent of the distribution.²²

64. As noted above, for flexibility the estimated model included all pairwise interactions and squared terms for the five outputs (*CLIENTSIZE*, *SPECIALIZE*, *AUDITORSIZE*, *CLIENTGLOBAL*, *NONAUDIT*) and the five labour prices (*PARTNERWAGE*, etc.). For brevity the interactions are not shown in Table 2. The interactions and squared terms permit the economies of scale or scope with respect to any output to vary across the range of the observed data. For example, economies of scale with respect to client size might be present for small clients, but not for large clients. (In other words, the average cost curve was allowed to be U-shaped with respect to any of the outputs.)
65. Because of this flexibility, to estimate economies of scale at any given data point we in general had to look not just at the un-interacted ‘first-order’ output terms, but also at their interactions and squares. There was one exception, for a hypothetical ‘average’ client, assumed to take average values of the outputs and labour prices. Since the continuous variables had been normalized about their means, the coefficients on the first-order output terms, viewed alone, showed the estimated economies of scale for this ‘client’. For simplicity our discussion of economies of scale focused in the first instance on results at this average data point.²³
66. Since the dependent variable, $\log(TOTCOST)$, was in logarithms, the coefficient on any explanatory variable which was also in logarithms could be interpreted as an elasticity. With respect to *CLIENTSIZE*, for example, we see that, with all explanatory variables held at their average values, a 10 per cent increase in client size

²² Specifically, for symmetrically distributed variables with two long tails we tagged the extreme 0.5 per cent of the observations in each tail as outliers, and for skewed distributions with one long tail we tagged the extreme one per cent of the observations in that tail as outliers. In total this results in the deletion of 212 observations, or 6.7 per cent of the usable data.

²³ To be strictly correct, it is the logarithms of the continuous variables which have been normalized about their means.

(measured by total assets) led to an increase in total costs of only $0.192 \times 10 = 1.9$ per cent. Thus, for the hypothetical average client, there were substantial economies of scale with respect to client size.

67. Examining the coefficients on the other outputs, we saw first a somewhat negative effect of sectoral specialization on audit costs. In our base model *SPECIALIZE* was measured as the number of clients in our sample who were audited by the given firm in the given sector. Table 2 therefore showed that a 10 per cent increase in the number of clients reduced the costs of each audit in that sector by $0.104 \times 10 = 1$ per cent, but the statistical significance of the effect was weak, at the 10 per cent level.
68. Our estimate of the economies of scale with respect to auditor size (measured by number of clients audited) was also noisy. The coefficient on *AUDITORSIZE* was -0.315 , suggesting a 3.15 per cent cost reduction for a 10 per cent increase in auditor size, but the estimate was not statistically significant. The reason for the noise in the estimate was that most of the variation in auditor size in our sample was soaked up by the dummies for each of the Big 4 auditors (shown lower down in the table). The estimated coefficient on *AUDITORSIZE* was therefore based solely on: (a) the year-to-year variation in this variable for each auditor (which was a relatively small amount of variation, since we had data from a short span of time), and (b) the variation in size among Mid Tier auditors (who were relatively few in the sample).
69. The noise in the estimate of economies of scale with respect to auditor size was an example of the econometric problem of 'micro-level responses to grouped data'. Our data contained many micro units (engagements), but few groups (auditors). The large number of micro units gave the misleading impression that there were lots of degrees of freedom with which to measure the response of costs to changes in auditor size. In practice the mechanics of regression analysis was essentially to

calculate an average response within each group, holding all else equal, and compare these averages across groups. There was one average per group. If there were only a small number of groups (auditors), then there were only a small number of averages to compare, and any estimate of how costs and auditor size co-vary across groups would suffer from the imprecision inherent in small samples.

70. We found a more precise estimate for the coefficient on *CLIENTGLOBAL*, the number of countries in which the client operated. At a value of 0.159, significant at the 1 per cent level, the estimate indicated that a 10 per cent increase in the number of countries raises the costs of an audit by $0.159 \times 10 = 1.6$ per cent. The coefficient on the dummy for missing values of *CLIENTGLOBAL* was significantly negative, indicating that, for unknown reasons, lower-cost audits were overrepresented among the observations (mainly [✂] clients) with those missing values.
71. On the other hand, neither *NONAUDIT*, nor the dummy for *NONAUDIT=0*, showed coefficients that were statistically significantly different from zero. Recall that both these variables were treated as endogenous. In this base model there was therefore no evidence of complementarities, or economies of scope, between audit and non-audit services.
72. Turning to the controls in the regression, we saw first that longer auditor tenure was estimated to have a significantly negative effect on costs. Because of the apparent underestimation of costs in the first year of tenure (see paragraph 33 above), we adopted a tenure specification that normalized the effect at zero in the *second* year of tenure. Tenure effects in other years were all measured relative to this second year of tenure. In particular, (a) a dummy variable for *tenure=1* showed the difference between costs in the first and second years, and (b) the variable *TENURE_2TO10* showed the effect of an extra year's tenure on costs for each year beyond the

second, up to year ten. Beyond year ten we assumed that the effect of longer tenure on costs was zero.²⁴

73. The dummy for tenure=1 was seen to have a significantly negative coefficient, counterintuitively suggesting that costs in the initial year were 33.1 per cent lower than in the next year. We argued that this anomaly arose because of the data issue referred to in paragraph 33. Effects of additional years of tenure from years two to ten were more in line with intuition—each such extra year was estimated to reduce costs by 2.6 per cent, significant at the 1 per cent level.
74. Estimated coefficients on most of the other controls in the Model I had the expected signs. Involvement of the client in a major merger increased costs by 13.9 per cent on average, significant at the 1 per cent level. The coefficient on *LISTING*, showing whether the client was newly listed in the given financial year, was also positive, although not statistically significant. A 10 per cent increase in client financial stability, measured as the ratio of current assets to current liabilities, led to a fall of $0.239 \times 10 = 2.4$ per cent in costs, significant at the 1 per cent level. On the other hand the coefficient on *DMLOSS*, a dummy variable for whether the client made a loss, suggested that such financial problems led to an increase of 19.6 per cent in audit costs, significant at the 1 per cent level.
75. Coefficients on the dummies for the different capital-market-index combinations showed the expected pattern. Relative to the omitted (base) category, which was the FTSE 100, FTSE 250 audits were 20.9 per cent less costly, Other Listed audits were 28.3 per cent less costly, and audits of unlisted clients are 58.2 per cent less costly, all else equal. In each case the difference with the FTSE 100 category was statistically significant at the 1 per cent level.

²⁴ This assumption was supported by the data—when we add to the regression an explanatory variable measuring years of tenure beyond ten, it was not statistically significant.

76. These capital-market-index effects held equal all other observed client characteristics—including assets, global presence, and turnover. To put the magnitudes of these effects in context, consider for example the comparison between FTSE 100 and FTSE 250 clients. The coefficient for the dummy variable for the FTSE 250 companies showed that if everything else is held constant, the cost of auditing a FTSE 250 company was lower by around 20 per cent compared with a FTSE 100 company. In practice an average FTSE 100 company was larger than an average FTSE 250 company as measured by total assets; it was also present in more countries and had a larger total turnover. An average FTSE 100 company in the sample of the base model had total assets of £33.5 billion, operated in 27 countries, and had a total turnover of £8.4 billion. An average FTSE 250 company, on the other hand, had £2.1 billion of total assets, operated in 12 countries, and had a total turnover of £1.1 billion. If we calculated a difference in total cost (using the coefficients estimates for the relevant variables from the base model) using these average values for the two groups of companies, we obtained around a 40 per cent difference in total cost.²⁵
77. Client financial years that finished in the auditor’s busy period were significantly more costly. The coefficient on the *BUSY* dummy suggested a differential of 15.5 per cent, significant at the 1 per cent level, with financial years that finished at other times.
78. When interpreting the four dummies for the Big 4 auditors, note that the omitted (base) category was the set of Mid Tier auditors. Relative to this set, [X] each showed no statistically significant difference in costs. However, [X] showed

²⁵ The estimated cost difference was based just on the first-order coefficients on *CLIENTSIZE*, *CLIENTGLOBAL*, and *TURNOVER*.

substantially higher costs—a difference of 46.3 per cent, significant at the 5 per cent level. A possible explanation of this effect is discussed below.²⁶

79. The year dummies included in the model serve two purposes: to control for inflation, and also to show if there was any systematic time trend in audit costs. The omitted (base) category was 2006, the first year in the sample. Model I in Table 2 showed that the coefficients on the year dummies were not individually statistically significant, and nor were they significant in a joint test (p-value = 0.83). There was therefore no evidence of a systematic upward or downward trend in audit costs over the period of the sample.
80. As noted above, we included client turnover as a control to complement the measurement of *CLIENTSIZE* by total assets. Turnover also helped control for aspects of audit complexity not captured by our other variables (such as the sector and capital-market-index dummies, and *CLIENTGLOBAL*). Although turnover was not in itself a direct measure of complexity, it was likely positively correlated with those unmeasured factors. Table 2 shows that higher turnover does indeed raise costs, with a 10 per cent rise in turnover leading to an increase of $0.132 \times 10 = 1.32$ per cent, significant at the 1 per cent level.

Robustness tests

81. The distribution of $\log(TOTCOST)$ in the regression sample for the base Model I was slightly bimodal, following a standard bell shape, but with a small ‘bump’ in the left-hand tail. Bimodal distributions were sometimes indicators that the sample had been drawn from two distinct populations, possibly with different behaviours. Closer examination of our data indicated that the outlying bump was due to a group of audits

²⁶ In an unreported variation on the base model we replaced the four separate dummies for each Big 4 auditor with a single Big 4 dummy. The Big 4 dummy was not statistically significant, but *AUDITORSIZE* now became statistically significant at the 1 per cent level (coefficient = minus 0.683).

in the Equity Investment Instruments subsector. We reran Model I without these observations—Model II in Table 2 shows the results. The deleted subsector accounted for 230 observations, and in terms of qualitative changes there were two main effects. First, the positive coefficient on $\log(NONAUDIT)$ now became statistically significant at the 1 per cent level. As there was no obvious reason why the provision of NAS should raise audit costs, this suggested that *NONAUDIT* may be proxying for unmeasured aspects of audit complexity, and that the variables which we used as instruments did not completely filter out the influence of these unmeasured factors. Certainly, as in the base model, there was no evidence that the provision of NAS allowed audits to be done more efficiently.

82. Model II also shows that the dummy for [X] became statistically insignificant when the Equity Investment Instruments clients were dropped. Further examination of the data indicated that [X] was indeed somewhat overrepresented on audit jobs in this sub-sector. Therefore it appeared that the '[X] effect' in the base model was a consequence of it taking on relatively more clients from this sub-sector.
83. For comparison with the base model, Model III in Table 2 shows the results from an OLS approach, ie a model which did not instrument for the potential endogeneity of NAS.²⁷ The point estimates were generally close to those for the base model. As would be expected, the standard errors in the OLS model were somewhat smaller, particularly for the potentially-endogenous NAS variables. Hence the positive coefficient on $\log(NONAUDIT)$, for example, became significant at the 1 per cent level, although its estimated magnitude was not much different to that in the base model. Similarly the negative effect of *SPECIALIZE* was now estimated to be significant at the 1 per cent level. Our proposed explanation for the positive effect on

²⁷ Model III still keeps the multi-equation SURE framework.

$\log(NONAUDIT)$ would be the same as in the case of Model II—omitted factors affecting audit complexity.

84. Since the choice of an appropriate level of outlier trimming for the base model was somewhat arbitrary, Table 3 shows regression results for alternative trimming criteria. While in the base model we trimmed 1 per cent of outliers from continuous variables, Model IV in Table 3 trims no outliers at all, while Model V trims 2 per cent. Thus Model IV has 3,164 observations while Model V has only 2,682, in comparison with 2,952 observations in the sample for the base model. In general the results are quite stable across the different samples. The main differences were that: (a) the positive coefficient on *LISTING* became statistically significant in both alternative samples, (b) the $[\otimes]$ dummy became significant in Model IV, and (c) the negative effect of *SPECIALIZE* became statistically significant in Model V. Given the propensity for Model IV to be affected by extreme outliers, we would not place much emphasis on the finding (b). However, the finding (c) was suggestive of more pronounced economies of specialization than are apparent in the base model.
85. Recall that the base Model I used staff costs to measure labour prices, and used the number of clients audited in a sector as a measure of specialization. Table 4 shows models with alternative constructions of these variables. The first and third models show results for alternative definitions of ‘wages’. In the former (Model VI) we measured the hourly wage using scale rates instead of staff costs. Estimated coefficients were in general quite close to those in the base model. The only two qualitative changes of any substance were that: (a) the positive coefficient on $\log(NONAUDIT)$ became statistically significant, and (b) the $[\otimes]$ dummy lost some statistical significance. Both changes had already been seen in other alternative specifications.

86. Model VII in Table 4 used staff costs to measure hourly wages, but imputes Partners' staff costs using different assumptions to those used in the base model. Specifically, the factor by which Directors' staff costs were scaled up was increased, to match aggregate data on the relative remuneration to those two labour grades. The table shows that the results of the base model were quite robust to this change. Almost the only qualitative change was that the [~~⊗~~] dummy lost statistical significance, again highlighting the sensitivity of this particular coefficient to details of the model specification. The coefficient on $\log(PARTNERWAGE)$ increased substantially, to 0.358, from 0.162 in the base model. This was as expected, because it could be shown that this coefficient represented the share of partner wages in total costs for an average client, and clearly this share should increase when partner wages were scaled up.
87. Model VIII, the remaining model in Table 4, shows results where an auditor's specialization in a sector was measured by the total assets of clients it audited in that sector in our sample. The results were again quite robust to this modification, with the only notable change being an increase in the statistical significance of $\log(NONAUDIT)$.
88. In Table 5 we investigated different ways of measuring the effect of increased tenure. Three specifications are shown, all of which retain the dummy for tenure=1 from the base model. They differ in the way in which they model the effects of tenure beyond the first year. Model IX used a logarithmic specification, thereby imposing the assumption that the effect of an extra year's tenure was steepest early on in the relationship. Model X supposes that any per-year tenure effect was constant from years two to five, and again constant (but possibly different) from years six to ten. Thus a break was allowed between years five and six. Model XI goes further, allowing for two breaks, one between years three and four, and one between years six and seven.

89. In model IX we note that the logarithmic effect of tenure was estimated to be negative, significant at the 5 per cent level. The estimated coefficient of 0.070 indicated that a 10 per cent increase in tenure produced a fall in costs of $0.070 \times 10 = 0.7$ per cent. The main observation with respect to models X and XI was that in both cases we could not reject the hypotheses that the per-year tenure effects were the same before and after the breaks. That is, the base model, with no breaks, was not rejected by the data.²⁸
90. Table 6 shows results from a single-equation version of our model. In contrast to the base model, this specification estimates just the cost equation (2), without any accompanying share equations. For this reason most of the 45 constraints imposed in the base model could not be used in the single-equation specification.²⁹ This alternative model therefore gave an idea of how the results were affected by imposing all the constraints in the base model. (Note that the model still instruments for *NONAUDIT*, and clusters standard errors by client.) It could be seen that the results were qualitatively quite similar to those in the base model.³⁰
91. Table 7 shows results for the model where clients in banking and financial services sectors were excluded from the sample. We considered this specification because the concept of assets for clients in these sectors might be somewhat different from how assets were viewed in, for example, retailing.
92. With respect to the five output measures (*CLIENTSIZE*, etc.), the qualitative conclusions of this model were quite similar to those of the base model. Some differences were seen in the coefficients on the controls, but these were mainly

²⁸ In model X the null hypothesis that the coefficients on *TENURE_2TO5* and *TENURE_6TO10* are equal is not rejected (p-value = 0.45). In model XI the null hypothesis that the coefficients on *TENURE_2TO3*, *TENURE_4TO6*, and *TENURE_7TO10* are all equal is also not rejected (p-value = 0.39). In that model pairwise equality of these coefficients is also not rejected.

²⁹ The model in Table 6 imposes just one constraint, derived from the assumption of homogeneity of degree one in prices.

³⁰ One notable difference was that the coefficients on the Big 4 auditor dummies were much noisier in the single-equation model, illustrating the role of the constraints in improving the statistical precision of estimates in the base model.

differences in statistical significance, rather than changes in sign. For example, the coefficient on the tenure variable was no longer statistically significant in Table 7, although its point estimate was of similar magnitude to that in the base model. The loss in statistical significance on these variables was consistent with the smaller sample size, which fell by almost 700 observations when the given sectors were excluded.

93. In Table 8 we return to the base model and consider the effects on costs of simultaneous changes in certain of the outputs and controls. For example, it will often be the case that clients with more assets also had higher turnover and a greater global reach. Therefore it was of interest to consider the effects on audit costs of scaling up all these client characteristics simultaneously.
94. The table considers three variables—*CLIENTSIZE*, *TOTAL_TURNOVER*, and *CLIENTGLOBAL* (all in logarithms). Shown in the first three rows are the individual effects (or elasticities) of each of these variables, taken directly from the base model in Table 2. The fourth row shows the effect of simultaneously scaling up *CLIENTSIZE* and *TOTAL_TURNOVER* in the same proportion. We see that, all else equal, a simultaneous 10 per cent increase in both these variables increased costs by only $0.324 \times 10 = 3.2$ per cent. Therefore economies of scale were still present. Moreover these economies were statistically significant, because, as the table shows, the difference between the estimate 0.324 and 1 is significant at the 1 per cent level. Economies of scale were still present if we add *CLIENTGLOBAL* into consideration. A 10 per cent increase in all three variables was shown to increase costs by only $0.483 \times 10 = 4.8$ per cent, and once again the difference between the estimate 0.483 and 1 was statistically significant.³¹

³¹ Note that the estimate 0.483 is derived by summing the individual elasticities of the three variables.

TABLE 1a Summary statistics for regressions

<i>Variable</i>	<i>Description</i>	<i>Obs</i>	<i>Mean</i>	<i>Std dev</i>	<i>Min</i>	<i>Max</i>
<i>Dependent variable</i>						
TOTCOST	Base case (based on hourly staff cost) (£)	2,952	[⊗]	[⊗]	[⊗]	[⊗]
	Alternative case 1 (based on scale rates) (£)	2,950	[⊗]	[⊗]	[⊗]	[⊗]
	Alternative case 2 (based on hourly staff cost, additional upgrade of partner costs) (£)	2,951	[⊗]	[⊗]	[⊗]	[⊗]
<i>Outputs</i>						
CLIENTSIZE	Total assets of client (£'000)	2,952	7,096,263	38,300,000	3,112	873,000,000
SPECIALIZE	Base case—total number of clients in a sector in the sample	2,952	14.20	10.56	1.00	35.00
	Alternative—total assets of clients in a sector in the sample (£'000)	2,938	65,100,000	143,000,000	102,989	1,980,000,000
AUDITORSIZE	Total number of clients of the audit firm	2,952	3,912	925	2,734	9,603
CLIENTGLOBAL	Number of countries a client is present in	2,502	12.45	18.27	1.00	114.00
NONAUDIT	Non-audit fees of the client (£'000)	2,952	429	676	0	5,805
<i>Input prices: base case</i>						
PARTNERWAGE	Base case (hourly director wage 'upgraded' using scale rate difference) (£)	2,952	[⊗]	[⊗]	[⊗]	[⊗]
	Alternative case (additional 'upgrade' by factor of 3.05) (£)	2,951	[⊗]	[⊗]	[⊗]	[⊗]
DIRECTORWAGE	Average hourly directors salary (£)	2,952	[⊗]	[⊗]	[⊗]	[⊗]
MANAGERWAGE	Average hourly salary of senior managers and managers combined (£)	2,952	[⊗]	[⊗]	[⊗]	[⊗]
OTHERWAGE	Average hourly salary of other qualified staff (£)	2,952	[⊗]	[⊗]	[⊗]	[⊗]
UNQWAGE	Average hourly salary of unqualified staff (£)	2,952	[⊗]	[⊗]	[⊗]	[⊗]
<i>Input prices: alternative definition</i>						
PARTNERWAGE	W.av. scale rate of partners (by sector/capmarket) (£)	2,950	[⊗]	[⊗]	[⊗]	[⊗]
DIRECTORWAGE	W.av. scale rate of directors (by sector/capmarket) (£)	2,950	[⊗]	[⊗]	[⊗]	[⊗]
MANAGERWAGE	W.av. scale rate of senior managers and managers (by sector/capmarket) (£)	2,950	[⊗]	[⊗]	[⊗]	[⊗]
OTHERWAGE	W.av. scale rate of other qualified staff (by sector/capmarket) (£)	2,950	[⊗]	[⊗]	[⊗]	[⊗]
UNQWAGE	W.av. scale rate of unqualified staff (by sector/capmarket) (£)	2,950	[⊗]	[⊗]	[⊗]	[⊗]
<i>Inputs: hours worked on an engagement</i>						
PARTNERHOURS	Hours of partners	2,952	[⊗]	[⊗]	[⊗]	[⊗]
DIRECTORHOURS	Hours of directors	2,952	[⊗]	[⊗]	[⊗]	[⊗]
MANAGERHOURS	Hours of senior managers and managers	2,952	[⊗]	[⊗]	[⊗]	[⊗]

<i>Variable</i>	<i>Description</i>	<i>Obs</i>	<i>Mean</i>	<i>Std dev</i>	<i>Min</i>	<i>Max</i>
OTHERHOURS	Hours of other qualified staff	2,952	[]	[]	[]	[]
UNQHOURS	Hours of unqualified staff	2,952	[]	[]	[]	[]
<i>Other variables</i>						
TENURE	Length of relationship with a client (years)	2,952	12.80	9.94	1.00	82.00
TENURE_1	Dummy for 1 st year of engagement	2,952	0.01	0.12	0.00	1.00
LISTING	Dummy for listing	2,952	0.02	0.13	0	1
DELISTING	Dummy for delisting	2,952	0.01	0.09	0	1
MAJOR_MERGER	Dummy for major merger. Equals 1 if the ratio of merger deal to total assets exceeds 25% percentile	2,952	0.17	0.38	0	1
LOWRISK	Ratio of current assets to current liabilities*	2,952	7.14	53.07	0.13	1,007.44
TOTAL_TURNOVER	Total turnover of client (proxy for complexity), annualized for cases of reporting periods differing from 12 months (£'000)	2,952	2,228,397	5,276,950	1,734	50,100,000
BUSY	Dummy for cases when client's financial year ends in January or December	2,952	0.53	0.50	0	1
DMLOSS	Dummy for loss	2,952	0.16	0.36	0	1
DMEY	Auditor=EY	2,952	0.15	0.36	0	1
DMPWC	Auditor=PWC	2,952	0.31	0.46	0	1
DMDEL	Auditor=DEL	2,952	0.24	0.43	0	1
DMKPMG	Auditor=KPMG	2,952	0.24	0.42	0	1
BIG4	Auditor=EY or DEL or PWC or KPMG	2,952	0.94	0.23	0	1
<i>Instruments</i>						
OTHERNAS	The ratio of non-audit fees to audit fees received in this year by the present auditor from its other clients in this sector and capital market.	2,952	1	0.677	0	4.351
RIVALNAS	The ratio of non-audit fees to audit fees received in a year by all auditors other than the present auditor from clients in this sector and capital market	2,952	1	0.481	0	3.123
OTHERPROPNAS	The own firm's propensity to incur non-zero non-audit fees on other jobs in the year-sector-market combination	2,952	1	0.206	0	1
RIVALPROPNAS	The rival's propensity to incur non-zero non-audit fees in the year-sector-market combination	2,952	1	0.160	0	1

Source: CC analysis.

*For financial sectors (super-sectors 8300 Banks, 8500 Insurance, 8600 Real Estate, and 8700 Financial services) the data on current assets and current liabilities is not available. For these sectors we use share of total assets to total liabilities as a proxy for low risk.

Note: Based on merged engagement and public data sets, 2006–2011. Unit of observation is one engagement. Sample is restricted to the regression sample of base case Model ([]), or for variables not appearing in Model []—regression sample of the regression where they are included.

TABLE 1b Sectors in the sample

<i>Super sector code</i>	<i>Super sector name</i>	<i>Obs</i>
0500	Oil & Gas	125
1300	Chemicals	38
1700	Basic Resources	97
2300	Construction & Materials	92
2700	Industrial Goods & Services	562
3300	Automobiles & Parts	39
3500	Food & Beverage	129
3700	Personal & Household Goods	138
4500	Health Care	81
5300	Retail	327
5500	Media	114
5700	Travel & Leisure	250
6500	Telecommunications	42
7500	Utilities	75
8300	Banks	27
8500	Insurance	102
8600	Real Estate	60
8700	Financial Services	492
9500	Technology	162
	Total	2,952

Source: ICB classification, CC analysis of submitted data.

TABLE 1c Capmarket variable

<i>Capmarket</i>	<i>Obs</i>
FTSE 100	485
FTSE 250	1,296
INACTIVE	Dropped
OTHER LISTED	501
PRIVATE	670
Total	2,952

Source: CC analysis of submitted data.

TABLE 1d Observations by audit firm

<i>Auditor name</i>	<i>Obs</i>
BDO	74
BT	4
DEL	719
EY	447
GT	87
KPMG	695
PKF	6
PWC	920
Total	2,952

Source: CC analysis of submitted data.

TABLE 2 Regression results—base case

<i>Model</i>	<i>I—Base case</i>		<i>II—sector1 8980 excluded</i>		<i>III—OLS, bootstrapped</i>	
	<i>Coef</i>	<i>Std Err</i>	<i>Coef</i>	<i>Std Err</i>	<i>Coef</i>	<i>Std Err</i>
Obs	2,952		2,722		2,954	
R-sq	-		-		0.760	
Clusters	607		546		607	
Bootstrap iterations	500		500		500	
<i>Log(TOTCOST)</i>						
Log(CLIENTSIZE)	0.192***	0.036	0.179***	0.032	0.172***	0.032
Log(SPECIALIZE)	-0.104*	0.060	-0.082	0.060	-0.139***	0.053
Log(AUDITORSIZE)	-0.315	0.371	-0.622*	0.353	-0.150	0.352

<i>Model</i>	<i>I—Base case</i>		<i>II—sector1 8980 excluded</i>		<i>III—OLS, bootstrapped</i>	
Dummy for missing values of						
CLIENTGLOBAL	-0.281***	0.091	-0.185**	0.094	-0.276***	0.087
Log(CLIENTGLOBAL)	0.159***	0.022	0.129***	0.021	0.158***	0.019
Dummy for zero values of						
NONAUDIT	-0.379	0.328	-0.140	0.295	-0.638***	0.077
Log(NONAUDIT)	0.118	0.076	0.195***	0.075	0.128***	0.013
Log(PARTNERWAGE)	0.162***	0.002	0.161***	0.002	0.162***	0.002
Log(DIRECTORWAGE)	0.057***	0.002	0.057***	0.002	0.057***	0.002
Log(MANAGERWAGE)	0.301***	0.003	0.301***	0.003	0.301***	0.003
Log(OTHERWAGE)	0.213***	0.002	0.213***	0.002	0.213***	0.002
Log(UNQWAGE)	0.267***	0.003	0.268***	0.003	0.267***	0.003
<i>Squared terms</i>						
Log(CLIENTSIZE)^2	0.087***	0.034	0.082***	0.030	0.055***	0.020
Log(SPECIALIZE)^2	-0.116	0.071	-0.155**	0.066	-0.158***	0.062
Log(AUDITORSIZE)^2	0.133	1.078	0.377	1.019	0.355	0.997
Log(CLIENTGLOBAL)^2	0.019	0.036	0.055	0.034	0.010	0.029
Log(PARTNERWAGE)^2	0.132***	0.029	0.138***	0.029	0.134***	0.029
Log(DIRECTORWAGE)^2	-0.088	0.054	-0.063	0.059	-0.090*	0.053
Log(MANAGERWAGE)^2	-0.091	0.074	-0.004	0.077	-0.098	0.074
Log(OTHERWAGE)^2	0.036	0.062	0.096	0.064	0.028	0.059
Log(UNQWAGE)^2	2.353	5.365	4.284	4.782	2.443	4.966
Log(NONAUDIT)^2	-0.041	0.069	0.024	0.069	0.014	0.011
<i>Control variables</i>						
LISTING	0.162	0.106	0.075	0.109	0.149*	0.077
MAJOR MERGER	0.139***	0.038	0.072**	0.032	0.132***	0.030
Dummy for tenure=1	-0.331**	0.132	-0.313**	0.150	-0.316***	0.115
TENURE_2TO10	-0.026***	0.008	-0.017**	0.008	-0.025***	0.007
Log(LOWRISK)	-0.239***	0.034	-0.074**	0.036	-0.226***	0.025
Log(TOTAL_TURNOVER)	0.132***	0.034	0.122***	0.032	0.128***	0.030
Dummies for sectors:						
Chemicals	0.096	0.253	0.200	0.223	0.027	0.207
Basic Resources	0.007	0.155	-0.012	0.166	0.024	0.148
Construction & Materials	0.558***	0.187	0.662***	0.181	0.527***	0.168
Industrial Goods & Services	0.662***	0.153	0.727***	0.143	0.714***	0.137
Automobiles & Parts	0.021	0.245	0.214	0.223	0.048	0.207
Food & Beverage	0.125	0.145	0.234*	0.134	0.089	0.133
Personal & Household Goods	0.210	0.149	0.241*	0.144	0.232*	0.126
Health Care	0.291**	0.140	0.355**	0.144	0.264**	0.115
Retail	0.168	0.140	0.266**	0.132	0.202*	0.119
Media	0.532***	0.162	0.658***	0.154	0.526***	0.143
Travel & Leisure	0.170	0.139	0.281**	0.136	0.202	0.128
Telecommunications	0.177	0.250	0.325	0.216	0.265	0.219
Utilities	0.517***	0.186	0.641***	0.181	0.533***	0.167
Banks	0.006	0.321	0.203	0.309	0.040	0.291
Insurance	0.218	0.164	0.366**	0.166	0.225	0.140
Real Estate	0.536***	0.174	0.571***	0.173	0.486***	0.161
Financial Services	0.176	0.171	0.533***	0.155	0.290**	0.144
Technology	0.223	0.148	0.268*	0.139	0.211	0.136
Dummy for FTSE 250	-0.209***	0.078	-0.162**	0.073	-0.201***	0.068
Dummy for OTHER LISTED	-0.283***	0.092	-0.234***	0.090	-0.272***	0.082
Dummy for PRIVATE	-0.582***	0.095	-0.546***	0.082	-0.551***	0.083
Dummy for year 2007	-0.011	0.029	-0.024	0.028	-0.003	0.025
Dummy for year 2008	-0.016	0.033	-0.018	0.029	-0.002	0.029
Dummy for year 2009	-0.012	0.043	-0.012	0.038	0.014	0.031
Dummy for year 2010	-0.018	0.046	0.001	0.041	0.018	0.035
Dummy for year 2011	-0.045	0.049	-0.015	0.044	-0.006	0.035
BUSY	0.155***	0.050	0.134***	0.049	0.135***	0.046
DMLOSS	0.196***	0.048	0.126***	0.045	0.175***	0.040
[⊗]	0.463**	0.229	0.283	0.246	0.533**	0.214
[⊗]	0.159	0.261	-0.106	0.267	0.299	0.242
[⊗]	0.254	0.222	0.012	0.234	0.355*	0.203
[⊗]	-0.013	0.213	-0.215	0.221	0.063	0.196
Constant	-1.678***	0.504	-1.592***	0.500	-1.777***	0.459

Source: CC analysis.

Note: *** p<0.01, ** p<0.05, * p<0.1. Interaction terms are not shown for brevity. Logs of outputs and input prices are demeaned.

TABLE 3 Regression results—alternative trimming of outliers

Model	IV—no outlier trimming		V—2% trimming	
	Coef	Std Err	Coef	Std Err
Obs	3,164		2,682	
R-sq	-		-	
Clusters	628		584	
Bootstrap iterations	200		500	
<i>Log(TOTCOST)</i>				
Log(CLIENTSIZE)	0.160***	0.038	0.215***	0.033
Log(SPECIALIZE)	-0.112*	0.059	-0.125**	0.055
Log(AUDITORSIZE)	-0.208	0.267	-0.326	0.359
Dummy for missing values of				
CLIENTGLOBAL	-0.349***	0.091	-0.316***	0.088
Log(CLIENTGLOBAL)	0.159***	0.023	0.149***	0.021
Dummy for zero values of				
NONAUDIT	-0.423	0.340	-0.164	0.291
Log(NONAUDIT)	0.113	0.079	0.123*	0.067
Log(PARTNERWAGE)	0.164***	0.002	0.161***	0.002
Log(DIRECTORWAGE)	0.057***	0.002	0.058***	0.002
Log(MANAGERWAGE)	0.298***	0.002	0.299***	0.003
Log(OTHERWAGE)	0.213***	0.002	0.213***	0.002
Log(UNQWAGE)	0.267***	0.003	0.269***	0.003
<i>Squared terms</i>				
Log(CLIENTSIZE)^2	0.065***	0.025	-0.016	0.031
Log(SPECIALIZE)^2	-0.122*	0.069	-0.122*	0.066
Log(AUDITORSIZE)^2	0.110	0.574	0.418	1.052
Log(CLIENTGLOBAL)^2	-0.016	0.035	-0.028	0.039
Log(PARTNERWAGE)^2	0.118***	0.029	0.089***	0.029
Log(DIRECTORWAGE)^2	-0.085**	0.037	-0.213***	0.057
Log(MANAGERWAGE)^2	-0.029	0.080	-0.105	0.076
Log(OTHERWAGE)^2	0.082*	0.047	(omitted)	
Log(UNQWAGE)^2	-1.820	3.251	(omitted)	
Log(NONAUDIT)^2	0.021	0.057	-0.009	0.057
<i>Control variables</i>				
LISTING	0.237**	0.098	0.282***	0.093
MAJOR MERGER	0.163***	0.041	0.148***	0.035
Dummy for tenure=1	-0.258**	0.130	-0.357**	0.145
TENURE_2TO10	-0.022***	0.009	-0.025***	0.008
Log(LOWRISK)	-0.190***	0.033	-0.284***	0.038
Log(TOTAL_TURNOVER)	0.145***	0.032	0.130***	0.032
<i>Dummies for sectors</i>				
Chemicals	0.068	0.186	-0.117	0.223
Basic Resources	-0.020	0.149	-0.057	0.154
Construction & Materials	0.449***	0.174	0.410**	0.178
Industrial Goods & Services	0.651***	0.145	0.618***	0.140
Automobiles & Parts	0.108	0.242	-0.034	0.240
Food & Beverage	0.069	0.133	-0.018	0.137
Personal & Household Goods	0.195*	0.118	0.181	0.138
Health Care	0.278**	0.123	0.168	0.136
Retail	0.171	0.124	0.094	0.128
Media	0.491***	0.146	0.427***	0.149
Travel & Leisure	0.185	0.129	0.075	0.138
Telecommunications	0.257	0.220	0.222	0.223
Utilities	0.459***	0.172	0.458***	0.177
Banks	-0.197	0.312	0.334	0.273
Insurance	0.116	0.153	0.210	0.166
Real Estate	0.542***	0.180	0.486***	0.157
Financial Services	0.157	0.169	0.147	0.157
Technology	0.184	0.137	0.186	0.143
Dummy for FTSE 250	-0.175**	0.080	-0.156**	0.080
Dummy for OTHER LISTED	-0.291***	0.105	-0.184**	0.093
Dummy for PRIVATE	-0.511***	0.101	-0.492***	0.097
Dummy for year 2007	-0.016	0.025	-0.001	0.031
Dummy for year 2008	-0.029	0.035	-0.008	0.032
Dummy for year 2009	-0.019	0.043	-0.008	0.036
Dummy for year 2010	-0.031	0.051	-0.015	0.040
Dummy for year 2011	-0.043	0.049	-0.044	0.041
BUSY	0.161***	0.053	0.123***	0.047
DMLOSS	0.198***	0.048	0.149***	0.042
[X]	0.679***	0.206	0.619***	0.234
[X]	0.317	0.221	0.296	0.290
[X]	0.440**	0.211	0.432*	0.237
[X]	0.102	0.210	0.124	0.224

	<i>Coef</i>	<i>Std Err</i>	<i>Coef</i>	<i>Std Err</i>
Constant	-2.097***	0.514	-1.745***	0.500

Source: CC analysis.

Note: *** p<0.01, ** p<0.05, * p<0.1. Interaction terms are not shown for brevity. Logs of outputs and input prices are demeaned.

TABLE 4 Regression results—alternative wage and specialize specifications

<i>Model</i>	<i>VI—Scale rates</i>		<i>VII—Alternative partner salary upgrade</i>		<i>VIII—Specialize measured as assets</i>	
Obs	2,950		2,951		2,938	
R-sq	-		-		-	
Clusters	608		606		606	
Bootstrap iterations	500		500		500	
	<i>Coef</i>	<i>Std Err</i>	<i>Coef</i>	<i>Std Err</i>	<i>Coef</i>	<i>Std Err</i>
<i>Log(TOTCOST)</i>						
Log(CLIENTSIZE)	0.153***	0.035	0.197***	0.036	0.173***	0.039
Log(SPECIALIZE)	-0.102*	0.058	-0.103*	0.058	-0.027	0.028
Log(AUDITORSIZE)	-0.462	0.302	-0.308	0.379	-0.092	0.36
Dummy for missing values of						
CLIENTGLOBAL	-0.243***	0.085	-0.281***	0.085	-0.219***	0.085
Log(CLIENTGLOBAL)	0.154***	0.023	0.168***	0.023	0.150***	0.023
Dummy for zero values of						
NONAUDIT	-0.081	0.268	-0.379	0.308	-0.518	0.317
Log(NONAUDIT)	0.254***	0.070	0.116	0.081	0.151**	0.073
Log(PARTNERWAGE)	0.139***	0.002	0.358***	0.004	0.162***	0.002
Log(DIRECTORWAGE)	0.050***	0.002	0.045***	0.002	0.057***	0.002
Log(MANAGERWAGE)	0.321***	0.003	0.229***	0.002	0.301***	0.002
Log(OTHERWAGE)	0.217***	0.002	0.162***	0.002	0.212***	0.002
Log(UNQWAGE)	0.272***	0.003	0.206***	0.003	0.268***	0.003
<i>Squared terms</i>						
Log(CLIENTSIZE)^2	0.056*	0.029	0.089***	0.032	0.060*	0.032
Log(SPECIALIZE)^2	-0.099	0.063	-0.112	0.069	-0.007	0.021
Log(AUDITORSIZE)^2	0.424	0.948	0.063	1.041	-0.059	1.083
Log(CLIENTGLOBAL)^2	0.026	0.034	0.020	0.035	0.043	0.038
Log(PARTNERWAGE)^2	-0.045	0.030	0.176***	0.036	0.131***	0.029
Log(DIRECTORWAGE)^2	-0.009	0.008	-0.098**	0.044	-0.094	0.058
Log(MANAGERWAGE)^2	0.008	0.031	-0.038	0.057	-0.108	0.075
Log(OTHERWAGE)^2	0.132***	0.032	0.027	0.049	0.019	0.066
Log(UNQWAGE)^2	-0.285	0.471	3.007	5.179	0.853	5.291
Log(NONAUDIT)^2	-0.010	0.072	-0.042	0.065	-0.037	0.062
<i>Control variables</i>						
LISTING	0.104	0.102	0.171*	0.102	0.133	0.097
MAJOR MERGER	0.133***	0.035	0.139***	0.037	0.143***	0.036
Dummy for tenure=1	-0.319**	0.131	-0.328**	0.132	-0.287**	0.135
TENURE_2TO10	-0.023***	0.009	-0.026***	0.008	-0.024***	0.008
Log(LOWRISK)	-0.260***	0.033	-0.237***	0.037	-0.235***	0.036
Log(TOTAL_TURNOVER)	0.123***	0.033	0.131***	0.035	0.125***	0.036
Dummies for sectors:						
Chemicals	-0.048	0.240	0.097	0.233	0.006	0.203
Basic Resources	-0.049	0.136	0.017	0.152	-0.011	0.158
Construction & Materials	0.514***	0.176	0.561***	0.179	0.498**	0.195
Industrial Goods & Services	0.564***	0.140	0.656***	0.150	0.426***	0.125
Automobiles & Parts	0.072	0.243	0.013	0.289	-0.051	0.257
Food & Beverage	0.071	0.138	0.131	0.144	0.109	0.138
Personal & Household						
Goods	0.157	0.136	0.214	0.145	0.157	0.14
Health Care	0.248*	0.132	0.296**	0.145	0.274*	0.141
Retail	0.107	0.130	0.166	0.139	0.051	0.136
Media	0.419***	0.147	0.531***	0.155	0.520***	0.153
Travel & Leisure	0.119	0.133	0.172	0.140	0.11	0.137
Telecommunications	0.205	0.218	0.175	0.236	0.222	0.237
Utilities	0.438**	0.179	0.521***	0.179	0.382**	0.189
Banks	0.109	0.272	0.007	0.311	0.007	0.349
Insurance	0.182	0.150	0.218	0.158	0.296*	0.172
Real Estate	0.449**	0.176	0.535***	0.170	0.389**	0.171
Financial Services	0.098	0.161	0.163	0.162	0.079	0.151
Technology	0.146	0.136	0.228	0.141	0.164	0.149
Dummy for FTSE 250	-0.178**	0.073	-0.216***	0.075	-0.232***	0.076
Dummy for OTHER LISTED	-0.290***	0.087	-0.293***	0.090	-0.347***	0.093

Model	VI—Scale rates		VII—Alternative partner salary upgrade		VIII—Specialize measured as assets	
Dummy for PRIVATE	-0.564***	0.091	-0.600***	0.092	-0.586***	0.086
Dummy for year 2007	-0.017	0.028	-0.012	0.028	-0.019	0.027
Dummy for year 2008	0.000	0.034	-0.024	0.033	-0.007	0.032
Dummy for year 2009	0.026	0.043	-0.021	0.041	0.025	0.036
Dummy for year 2010	0.004	0.043	-0.026	0.042	0.015	0.038
Dummy for year 2011	-0.009	0.043	-0.054	0.046	0	0.042
BUSY	0.161***	0.052	0.153***	0.048	0.152***	0.046
DMLOSS	0.175***	0.047	0.197***	0.049	0.192***	0.048
[X]	0.368*	0.218	0.381	0.239	0.448**	0.22
[X]	0.014	0.242	0.090	0.272	0.217	0.248
[X]	0.176	0.220	0.203	0.235	0.285	0.211
[X]	-0.043	0.214	-0.074	0.228	0.002	0.204
Constant	-1.480***	0.515	-1.588***	0.538	-1.571***	0.524

Source: CC analysis.

Note: *** p<0.01, ** p<0.05, * p<0.1. Interaction terms are not shown for brevity. Logs of outputs and input prices are demeaned.

TABLE 5 Regression results—alternative tenure specifications

Model	IX—log tenure		X—2-part tenure		XI—3-part tenure	
Obs	2,952		2,952		2,952	
R-sq	-		-		-	
Clusters	607		607		607	
Bootstrap iterations	200		200		200	
	Coef	Std Err	Coef	Std Err	Coef	Std Err
Log(TOTCOST)						
Log(CLIENTSIZE)	0.196***	0.036	0.192***	0.036	0.191***	0.036
Log(SPECIALIZE)	-0.110*	0.058	-0.105*	0.059	-0.106*	0.058
Log(AUDITORSIZE)	-0.328	0.356	-0.312	0.355	-0.340	0.359
Dummy for missing values of						
CLIENTGLOBAL	-0.283***	0.096	-0.279***	0.096	-0.280***	0.096
Log(CLIENTGLOBAL)	0.159***	0.023	0.158***	0.023	0.158***	0.023
Dummy for zero values of						
NONAUDIT	-0.402	0.307	-0.401	0.305	-0.400	0.306
Log(NONAUDIT)	0.116	0.073	0.123*	0.072	0.127*	0.072
Log(PARTNERWAGE)	0.162***	0.002	0.162***	0.002	0.162***	0.002
Log(DIRECTORWAGE)	0.057***	0.002	0.057***	0.002	0.057***	0.002
Log(MANAGERWAGE)	0.301***	0.003	0.301***	0.003	0.301***	0.003
Log(OTHERWAGE)	0.213***	0.002	0.213***	0.002	0.213***	0.002
Log(UNQWAGE)	0.267***	0.003	0.267***	0.003	0.267***	0.003
Control variables						
LISTING	0.182*	0.106	0.163	0.106	0.155	0.106
MAJOR MERGER	0.139***	0.035	0.137***	0.035	0.137***	0.035
Dummy for tenure=1	-0.339**	0.137	-0.301**	0.131	-0.343***	0.133
Log(TENURE)	-0.070**	0.030				
TENURE_2TO5			-0.009	0.022		
TENURE_6TO10			-0.031***	0.012		
TENURE_2TO3					-0.077	0.055
TENURE_4TO6					-0.003	0.020
TENURE_7TO10					-0.034**	0.014
Log(LOWRISK)	-0.236***	0.034	-0.238***	0.034	-0.239***	0.034
Log(TOTAL_TURNOVER)	0.130***	0.032	0.131***	0.032	0.130***	0.032
BUSY	0.154***	0.051	0.156***	0.051	0.155***	0.050
DMLOSS	0.201***	0.049	0.194***	0.048	0.192***	0.048
[X]	0.456*	0.243	0.460*	0.241	0.451*	0.242
[X]	0.145	0.265	0.159	0.264	0.141	0.265
[X]	0.250	0.229	0.251	0.228	0.241	0.228
[X]	-0.017	0.216	-0.013	0.217	-0.024	0.216
Constant	-1.617***	0.460	-1.704***	0.470	-1.642***	0.471

Source: CC analysis.

Note: *** p<0.01, ** p<0.05, * p<0.1. Squared terms, interaction terms, industry and sector dummies are not shown for brevity. Logs of outputs and input prices are demeaned.

TABLE 6 Regression results—single equation specification, without bootstrapping

<i>Model</i>	<i>XII—single equation</i>	
Obs	2,952	
R-sq	-	
Clusters	607	
Bootstrap iterations	N/A	
	<i>Coef</i>	<i>Std Err</i>
<i>Log(TOTCOST)</i>		
Log(CLIENTSIZE)	0.162**	0.065
Log(SPECIALIZE)	-0.090	0.095
Log(AUDITORSIZE)	-2.184	3.533
Dummy for missing values of CLIENTGLOBAL	-0.341**	0.156
Log(CLIENTGLOBAL)	0.160***	0.039
Dummy for zero values of NONAUDIT	-0.150	0.730
Log(NONAUDIT)	0.209	0.209
Log(PARTNERWAGE)	-1.347	3.149
Log(DIRECTORWAGE)	1.144	2.324
Log(MANAGERWAGE)	1.544	5.099
Log(OTHERWAGE)	-1.933	2.788
Log(UNQWAGE)	See Note	
<i>Squared terms</i>		
Log(CLIENTSIZE)^2	0.042	0.072
Log(SPECIALIZE)^2	-0.062	0.144
Log(AUDITORSIZE)^2	-6.164	8.760
Log(CLIENTGLOBAL)^2	0.078	0.070
Log(PARTNERWAGE)^2	-0.100	0.187
Log(DIRECTORWAGE)^2	16.237	19.741
Log(MANAGERWAGE)^2	49.787	49.488
Log(OTHERWAGE)^2	68.707	80.997
Log(UNQWAGE)^2	-65.751	105.991
Log(NONAUDIT)^2	-11.138	28.062
<i>Control variables</i>		
LISTING	0.156	0.192
MAJOR MERGER	0.147**	0.060
Dummy for tenure=1	-0.246	0.239
TENURE_2TO10	-0.023**	0.012
Log(LOWRISK)	-0.250***	0.062
Log(TOTAL_TURNOVER)	0.123**	0.050
Dummies for sectors:	0.000***	
Chemicals	0.013	0.462
Basic Resources	-0.010	0.223
Construction & Materials	0.608**	0.248
Industrial Goods & Services	0.579**	0.252
Automobiles & Parts	-0.141	0.410
Food & Beverage	0.210	0.220
Personal & Household Goods	0.226	0.249
Health Care	0.301	0.246
Retail	0.131	0.208
Media	0.562***	0.210
Travel & Leisure	0.248	0.184
Telecommunications	0.071	0.308
Utilities	0.362	0.261
Banks	-0.127	0.498
Insurance	0.372	0.232
Real Estate	0.589**	0.277
Financial Services	0.152	0.261
Technology	0.261	0.205
Dummy for FTSE 250	-0.259**	0.114
Dummy for OTHER LISTED	-0.354**	0.139
Dummy for PRIVATE	-0.659***	0.152
Dummy for year 2007	-0.158	0.249
Dummy for year 2008	-0.099	0.435
Dummy for year 2009	0.039	0.480
Dummy for year 2010	-0.182	0.475
Dummy for year 2011	-0.227	0.357
BUSY	0.123	0.083
DMLOSS	0.208**	0.099
[ⓧ]	1.079	1.000
[ⓧ]	-0.627	1.415
[ⓧ]	-0.028	0.711
[ⓧ]	0.041	0.769

	<i>Coef</i>	<i>Std Err</i>
Constant	-1.134	0.919

Source: CC analysis.

Note: *** p<0.01, ** p<0.05, * p<0.1. Interaction terms are not shown for brevity. Logs of outputs and input prices are demeaned. For the single equation model the dependent variable and input prices are recalculated as the difference between the relevant demeaned log and demeaned log of UNQWAGE. Therefore the coefficient for Log(UNQWAGE) is not shown.

TABLE 7 **Regression results—financial services sectors excluded**

<i>Model</i>	<i>XIII—Financial services excluded</i>	
	<i>Coef</i>	<i>Std Err</i>
Obs	2,271	
R-sq	-	
Clusters	456	
Bootstrap iterations	500	
	<i>Coef</i>	<i>Std Err</i>
<i>Log(TOTCOST)</i>		
Log(CLIENTSIZE)	0.163***	0.041
Log(SPECIALIZE)	-0.098	0.070
Log(AUDITORSIZE)	-0.701*	0.426
Dummy for missing values of CLIENTGLOBAL	-0.203**	0.100
Log(CLIENTGLOBAL)	0.130***	0.023
Dummy for zero values of NONAUDIT	0.011	0.307
Log(NONAUDIT)	0.226***	0.075
Log(PARTNERWAGE)	0.162***	0.003
Log(DIRECTORWAGE)	0.059***	0.002
Log(MANAGERWAGE)	0.301***	0.003
Log(OTHERWAGE)	0.213***	0.003
Log(UNQWAGE)	0.265***	0.004
<i>Squared terms</i>		
Log(CLIENTSIZE)^2	0.027	0.034
Log(SPECIALIZE)^2	-0.158**	0.077
Log(AUDITORSIZE)^2	0.626	1.162
Log(CLIENTGLOBAL)^2	0.035	0.034
Log(PARTNERWAGE)^2	0.031	0.069
Log(DIRECTORWAGE)^2	0.129***	0.032
Log(MANAGERWAGE)^2	-0.050	0.062
Log(OTHERWAGE)^2	0.060	0.088
Log(UNQWAGE)^2	0.122*	0.072
Log(NONAUDIT)^2	3.952	5.424
<i>Control variables</i>		
LISTING	-0.002	0.114
MAJOR MERGER	0.061	0.038
Dummy for tenure=1	-0.269*	0.149
TENURE_2TO10	-0.011	0.008
Log(RISK)	-0.046	0.039
Log(TOTAL_TURNOVER)	0.122***	0.041
<i>Dummies for sectors</i>		
Chemicals	0.136	0.229
Basic Resources	0.021	0.166
Construction & Materials	0.624***	0.181
Industrial Goods & Services	0.719***	0.152
Automobiles & Parts	0.265	0.256
Food & Beverage	0.133	0.145
Personal & Household Goods	0.172	0.142
Health Care	0.335**	0.148
Retail	0.242*	0.142
Media	0.590***	0.153
Travel & Leisure	0.246*	0.136
Telecommunications	0.318	0.196
Utilities	0.681***	0.200
Banks	(omitted)	
Insurance	(omitted)	
Real Estate	(omitted)	
Financial Services	(omitted)	
Technology	0.197	0.137
Dummy for FTSE 250	-0.104	0.082
Dummy for OTHER LISTED	-0.245**	0.101
Dummy for PRIVATE	-0.484***	0.095

<i>Model</i>	<i>XIII—Financial services excluded</i>	
Dummy for year 2007	−0.030	0.033
Dummy for year 2008	−0.037	0.035
Dummy for year 2009	0.001	0.042
Dummy for year 2010	−0.017	0.046
Dummy for year 2011	−0.040	0.047
BUSY	0.097*	0.052
DMLOSS	0.073	0.052
[⊗]	0.366	0.276
[⊗]	−0.020	0.319
[⊗]	0.113	0.279
[⊗]	−0.105	0.250
Constant	−1.689***	0.633

Source: CC analysis.

Note: *** p<0.01, ** p<0.05, * p<0.1. Interaction terms are not shown for brevity. Logs of outputs and input prices are demeaned.

TABLE 8 **Estimated cost elasticities**

<i>Changes in ...</i>	<i>Elasticity of total cost</i>	<i>Std error</i>	<i>Significantly different from 1?</i>
<i>CLIENTSIZE</i>	0.192***	0.036	YES***
<i>TOTAL_TURNOVER</i>	0.132***	0.034	YES***
<i>CLIENTGLOBAL</i>	0.159***	0.022	YES***
<i>CLIENTSIZE and TOTAL_TURNOVER</i>	0.324***	0.040	YES***
<i>CLIENTSIZE, TOTAL_TURNOVER, and CLIENTGLOBAL</i>	0.483***	0.046	YES***

Source: CC analysis.

Note: *** p<0.01, ** p<0.05, * p<0.1.

Comments on specification and interpretation

95. Deloitte said that these results further demonstrated that there were no economies of scale or scope in audit costs that would act as a barrier to entry to the statutory audit market. On the contrary, the economies that were present in the provision of audit services were achievable by all audit firms.³²

96. We agreed that economies present at an engagement level would be achievable for all audit firms. However, we did not agree that the results demonstrated that there are no economies of scale or scope in audit that would act as barriers to entry. This analysis provided some evidence that the incremental costs of an engagement declined with the number of audit clients a firm had in a sector (see paragraph 67).

³² Deloitte response to the 'Econometric analysis of audit costs' working paper, paragraph 2.2

Also there may be economies of scale and/or scope to be realized at smaller scale of operation than a Big 4 firm which were not detected by the model, as the auditor for 96 per cent share of engagements in the database was a Big 4 firm.

97. EY said that the analysis related to the scale of the *client* rather than the scale of the *audit firm* and, as such, the conclusions that could be drawn with respect to the economies of scale experienced by audit firms were limited. EY believed that greater insight might be gained from the inclusion of a firm-wide cost function that included both fixed costs for audit services and aggregated fixed costs across the entire firm.³³ We note that the model included firm dummies and other variables on the characteristics of the auditor.
98. EY also said that the analysis found no evidence of economies of scope in the provision of auditing and non-audit services. The definition of the cost function focused on audit engagement-level costs and non-audit costs were said to be largely excluded from the analysis.³⁴
99. Non-audit services were not excluded from the analysis of audit engagement costs. In particular, we investigated but find no evidence of significant economies of scope in the provision of both audit and non-audit services to the same client in the incremental staff costs of delivering an engagement. There were, however, data limitations to investigating complementarities in the provision of audit and non-audit services. Also, we note that the model would not capture the benefits to a firm that the provision of non-audit services might bring in winning new audit clients.

³³ EY response to the 'Econometric analysis of audit costs' working paper, paragraph 3b.

³⁴ EY response to the 'Econometric analysis of audit costs' working paper, paragraph 6.

100. EY said that difficulties in distinguishing the appropriate ‘salary’ component of a partner’s remuneration presented challenges to the integrity of the analysis.³⁵ KPMG said that a more accurate but conservative estimate of partner costs would be based on the medium salary of the 20 per cent highest paid directors. Our approach was to estimate the opportunity cost of partner time relative to that of other staff. We estimated this by applying multiples to director staff costs. We found that the results were not sensitive to the multiple applied (see paragraphs 86).
101. EY said that the definition of ‘output’ in the model was unclear as the outputs seemed to be features of the audit client (for example, client size, global presence) and of the audit firm (for example, specialism, auditor size). EY believed that it would be difficult to draw firm conclusions on economies of scale or scope based on the estimated coefficients.³⁶ We did not consider this to be a key point. EY did not appear to be challenging the findings in relation to the effects of the variables listed on engagement-level costs.
102. EY said that when estimating a variable cost function it was standard practice for fixed inputs to be included as explanatory variables, that these had been omitted from the estimated function and that conclusions with respect to economies of scale might change if cost functions were updated to include fixed inputs.³⁷ We considered that fixed costs (or inputs) were captured by firm dummies and firm-specific characteristics such as the size of the auditor and auditor specialization.

³⁵ EY response to the ‘Econometric analysis of audit costs’ working paper, paragraph 9a.

³⁶ EY response to the ‘Econometric analysis of audit costs’ working paper, paragraph 9b.

³⁷ EY response to the ‘Econometric analysis of audit costs’ working paper, paragraph 9d.

103. KPMG was concerned that the model as specified would not pick up learning by doing effects across engagements.³⁸ We understood the point to be that the model would not capture accumulated sector experience. We accept this.
104. KPMG said that it was incorrect to characterize a result that engagement costs did not increase in proportion with clients' assets or turnover as an economy of scale.³⁹ We did not consider this to be a key point as KPMG did not appear to be challenging the result. We also note that Deloitte in its note of 12 January 2012 described the effect in this way.
105. KPMG also said that client assets and turnover were not in isolation good proxies for the size of the audit engagement.⁴⁰ We did not disagree. In the model other variables were used to control for the size of the audit engagement, in particular the number of countries in which an engagement was conducted and client sector, where we had data.
106. KPMG said that the specialization variable might be badly specified by not taking account of the fact that certain sectors contained fewer companies than others.⁴¹ We did not agree with the suggestion that specialization might be better measured by the clients' assets as a proportion of total sector assets. Such a measure appeared more relevant as an indicator of relative competitive advantage where a large share might exclude others from gaining required experience.
107. GT said that an alternative explanation for the observed learning by doing effects could be that an auditor took advantage of their incumbent position and consequently

³⁸ [KPMG response to the 'Econometric analysis of audit costs' working paper](#), paragraph 1.5.

³⁹ [KPMG response to the 'Econometric analysis of audit costs' working paper](#), paragraph 2.2.

⁴⁰ [KPMG response to the 'Econometric analysis of audit costs' working paper](#), paragraph 2.3.

⁴¹ [KPMG response to the 'Econometric analysis of audit costs' working paper](#), paragraph 2.3.

reduced the resources which they employed on an engagement in order to increase engagement profits.⁴² We note that the model did not control for audit quality.

⁴² [GT response to the 'Econometric analysis of audit costs' working paper](#), paragraph 2.2.

Data description

1. The data set used for the estimation of the cost model was obtained by merging the engagement data set and public data set.
2. In addition, the merged data set was supplemented by the following data sets:
 - (a) Other business info—each audit firm that provided engagement data also provided data on the total number of audit clients, total audit fees, and total non-audit fees for 2004 to 2011. This data set covered all clients, and was not limited to FTSE 350 and Top Track companies. The template and instructions for this data requested are provided in [Annex 2](#).
 - (b) Merger activity—PwC had obtained the merger activity data from Dealogic and made it available to the CC in an aggregated form. The data represented the sum of deal values over 2000/11 for the CC's list of FTSE 350 companies included in the engagement data request.¹
3. The variable 'year' in the engagement data set referred to the financial year of the relevant audit firm.² Thus, for example, in this data set the year 2008 for KPMG covered the period from 1 October 2007 to 30 September 2008, but for EY it would cover the period from 2 July 2007 to 1 July 2008. In each case, the 'year' referred to the calendar year in which the audit firm's financial year ended.
4. At the same time, each company in the public data set had its own end of financial year. In the majority of cases, companies' financial years ended on 31 December. Companies also occasionally changed the date on which their financial years ended, which sometimes led to reporting periods longer or shorter than 12 months. In

¹ See Appendix 6, Annex 2.

² See Appendix 6, Table 3.

approximately 98 per cent of the observations in the public data set, however, the reporting period was 12 months.

5. When merging the engagement data set and public data set, we had to make an assumption on how to match financial years of companies and audit firms. We thought it was reasonable to assume that the majority of work on an audit engagement of a particular set of accounts for a company's financial year occurred after the financial year of the audited company had ended. At the same time, we recognized the fact that some work might be done by an audit firm before the relevant financial year end. However, if we took a sequence of years, any discrepancy in the total number of hours devoted on a certain engagement resulting from our assumption would be smoothed out.

6. Therefore, when merging the engagement and public data sets we arranged them in such a way that the auditor's financial year always ended after the audited company's financial year. An example is provided in Figure 1 below. An auditor's financial year ends on 30 June; Company 1 has financial year end on 31 December; Company 2 on 1 March; and Company 3 on 31 July. If we imposed our rule that the audit firm's financial year ended always after the financial year of the audited company, then we matched the auditor's data from the year 2007 (covering the period from 1 July 2006 to 30 June 2007) with the accounts for Company 1 covering the period from 1 January to 31 December 2006, and accounts for Company 2 covering the period from 2 March 2006 to 1 March 2007. The accounts of Company 3 covering the period from 1 August 2006 to 31 July 2007 would be matched with the auditor's period covering 1 July 2007 to 30 June 2008.

FIGURE 1

An example of matching years between engagement and public data set

Calendar years: 2006												2007												2008												2009																							
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12												
Auditor 1												2007												2008												2009												2010											
Company 1												2006												2007												2008												2009											
Company 2												2006												2007												2008												2009											
Company 3												2007												2008												2009																							

Source: CC.

Note: The colour indicates which sets of auditor's and companies' accounts were matched together. Each shaded rectangle represented a set of accounts. The year within a rectangle represented the calendar year to which a set of accounts 'belonged'. (See Appendix 6, Annex 5, paragraph 8.)

- For each set of accounts in the public data set a primary auditor was identified. In some instances, the engagement data set showed that an audit firm billed positive hours on an engagement in a year when it was not the primary auditor of the relevant company. For the purposes of the cost model estimation, we excluded such observations.

Staff costs

- We used two types of data as a proxy for the staff costs:
 - Average scale rates by staff grade in all engagements in a certain sector-capital market combination, weighted by total number of hours billed.³ This data came from the engagement data set.
 - Hourly staff costs by grade based on their actual salary and number of hours worked.
- We asked audit firms to provide data on employees' hourly salary for each grade,⁴ calculated as the total annual cost of an employee in a certain grade divided by the

³ For those engagements where certain grades did not bill any hours in a sector-capital market combination in a given year, in order to avoid missing values we used weighted average scale rate for that grade for the audit firm as a whole in that year. For example, if audit firm Z did not bill any directors' hours on the audit of company X in 2007, we assumed that directors' scale rate for that engagement was equal to average directors' scale rate of firm Z in 2007.

⁴ The grades were the same as those used when collecting engagement data: partners, directors, senior managers, managers, other qualified, unqualified and administrative. Most firms did not bill administrative staff costs on a per-engagement basis, and for those that did, the share of administrative costs in the total costs was negligible. Thus, in our analysis we ignored administrative staff costs.

total number of hours worked by employees in that grade—this included all hours recorded on a timesheet regardless of the activity (eg it includes training and business development).⁵

10. Because partners were both employees and owners of the firm, the total remuneration they received included both their compensation as workers, and the share in the profits, and it was impractical to separate the two components. Therefore, while we did have data on scale rates for audit partners, we had to make an assumption on how to estimate the hourly staff cost of partners.
11. We attempted several approaches. In one, we calculated the difference between scale rates of partners and directors, using the engagement data set, and then applied this difference to ‘upgrade’ the hourly staff cost of directors to arrive at a proxy for hourly staff cost of partners. See Table 1 for an example.

TABLE 1 Constructing hourly staff cost of partners, an example

Year	Auditor	Scale rate, directors	Scale rate, partners	Difference %	Hourly staff cost, directors	Hourly staff cost, partners
		A	B	$C = (B / A - 1) * 100$	D	$E = D * (1 + C/100)$
2007	X	400	500	25	50.00	62.50
2008	X	420	530	26	55.00	69.40
2009	X	440	550	25	60.00	75.00

Source: CC.

Note: Numbers are for illustration only.

12. This approach assumed that the relative staff costs of partners and directors were mirrored in their respective scale rates, which might not always be the case.
13. In Appendix 14,⁶ we noted that after exclusion of return on investment the difference between average salary of partners and average salary of directors in [§] in [§] was around [§] per cent, which was much [§] than the difference in the respective

⁵ For more detail see Appendix 6, paragraphs 41–43.

⁶ See Appendix 14, paragraph 44.

scale rates. Therefore, we also looked at one variation of the model where we assumed a much [X] difference between staff cost of directors and partners than the scale rate ratio would suggest.

14. In this variation, we compared the ratio of scale rates of partners and directors for [X] in [X] in the engagement data set, which was [X], and the ratio of 'implied' partners' salary and directors' salary, calculated in the Profitability—part one working paper—[X]. We calculated an 'additional upgrade factor' by which we needed to further increase partners' staff cost calculated above as [X]. We then multiplied partners' staff cost by [X] in all years for all audit firms to arrive at the alternative definition of partners' staff cost.

TABLE 2 Alternative construction of hourly staff cost of partners, an example

Year	Auditor	Scale rate, directors	Scale rate, partners	Difference %	Hourly staff cost, directors	Hourly staff cost, partners	Alternative hourly staff cost, partners
		A	B	$C = (B / A - 1) * 100$	D	$E = D * (1 + C / 100)$	$F = E * [X]$
2007	X	400	500	25	50.00	62.50	[X]
2008	X	420	530	26	55.00	69.40	[X]
2009	X	440	550	25	60.00	75.00	[X]

Source: CC.

Note: Numbers are for illustration only.

15. In another variation, we used a different 'upgrade' factor for partners in Big 4 audit firms and other audit firms. For the Big 4, we used the factor of [X] (calculated above). For other audit firms we took 'implied salary' of partners of levels 3 and 4 only,⁷ which for [X] in [X] was higher than the salary of directors by [X] per cent. Thus, for non-Big-4 firms we the used 'additional upgrade' factor of [X].
16. To summarize, the different ways of calculating staff costs we attempted were:
 - (a) Scale rates from the engagement data set.

⁷ See Appendix 14, Table 3.

- (b) Hourly staff costs by grade. Partners' costs were calculated as directors' cost times average partners' scale rate divided by average directors' scale rate.
- (c) Hourly staff costs by grade. Partners' costs were calculated as directors' cost times average partners' scale rate divided by average directors' scale rate, times 3.05.
- (d) Hourly staff costs by grade. Partners' costs were calculated as directors' cost times average partners' scale rate divided by average directors' scale rate, further multiplied by $\left[\frac{\text{X}}{\text{X}}\right]$ for the Big 4 and by $\left[\frac{\text{X}}{\text{X}}\right]$ for other audit firms.

'Other business info' data request template and instructions

Number of Audit Clients	Comments	2004	2005	2006	2007	2008	2009	2010	2011
FTSE 100									
FTSE 250									
Other									
Financial data (£000s)	Comments	2004	2005	2006	2007	2008	2009	2010	2011
Audit Fees									
FTSE 100									
FTSE 250									
Other									
Non-Audit Fees									
FTSE 100									
FTSE 250									
Other									
Direct Staff Costs - Audit									
FTSE 100									
FTSE 250									
Other									
Direct Staff Costs - Non-Audit									
FTSE 100									
FTSE 250									
Other									
Gross Margin - Audit									
FTSE 100									
FTSE 250									
Other									
Gross Margin - Non-Audit									
FTSE 100									
FTSE 250									
Other									
Overheads									
Firm Profit									
Partners	Comments	2004	2005	2006	2007	2008	2009	2010	2011
Audit Number									
Non-Audit Number									
Profitability per Audit Partner (£000)									
Profitability per Non-Audit Partner (£000)									
Audit Partner Remuneration (£000)									
Minimum (£000)									
Maximum (£000)									
Base salary (if applicable) (£000)									
Profit share (£000)									
Performance related elements (£000)									
Other (£000)									
Non-Audit Partner Remuneration (£000)									
Audit Partner Moves									
Retirement									
Competitor move									
External move									
Dismissal									
New arrivals									
Promotion									
Other									

Instructions for worksheet: 'Other business info':

Please provide the following business information for the past 8 financial years for your UK firm. The financial year refers to that used by your firm.

Number of Audit Clients

The term 'audit' refers to work agreed under the engagement letter and is carried out by the audit engagement team. It includes at the very least the statutory audit and may or may not include audit-related services.

FTSE 100	Number of audit clients that are in the FTSE 100 at the end of June for each year. We will provide a list of companies separately. This information should reconcile with the client data provided for 'FTSE 350 Client data'.
FTSE 250	Number of audit clients that are in the FTSE 250 at the end of June for each year. We will provide a list of companies separately. This information should reconcile with the client data provided for 'FTSE 350 Client data'.
Other	Number of audit clients that are not covered in the previous segments. We may seek a further breakdown of this category at a later date (for example by other UK listed companies and internationally listed companies).

Financial data (£000s)

The same definitions used under 'Number of Audit Clients' should be used here, with reference to the end of June for each year.

Audit Fees	
FTSE 100	Total audit fees (£000s) earned from clients in the FTSE 100. This information should reconcile with the client data provided for 'FTSE 350 Client data'.
FTSE 250	Total audit fees (£000s) earned from clients in the FTSE 250. This information should reconcile with the client data provided for 'FTSE 350 Client data'.
Other	Total audit fees (£000s) earned from clients not covered by the segments above. We may seek a further breakdown of this category at a later date (for example by other UK listed companies and internationally listed companies).
Non-Audit Fees	
FTSE 100	Total non-audit fees (£000s) earned from clients in the FTSE 100. This information should reconcile with the client data provided for 'FTSE 350 Client data'.
FTSE 250	Total non-audit fees (£000s) earned from clients in the FTSE 250. This information should reconcile with the client data provided for 'FTSE 350 Client data'.
Other	Total non-audit fees (£000s) earned by clients not covered from the segments above. We may seek a further breakdown of this category at a later date (for example by other UK listed companies and internationally listed companies).
Direct Staff Costs - Audit	
FTSE 100	Staff costs (£000s) directly incurred when undertaking audits for FTSE 100 companies.
FTSE 250	Staff costs (£000s) directly incurred when undertaking audits for FTSE 250 companies.
Other	Staff costs (£000s) directly incurred when undertaking audits for clients not covered by the segments above. We may seek a further breakdown of this category at a later date (for example by other UK listed companies and internationally listed companies).
Direct Staff Costs - Non-Audit	
FTSE 100	Staff costs (£000s) directly incurred when undertaking non-audit services for FTSE 100 companies.
FTSE 250	Staff costs (£000s) directly incurred when undertaking non-audit services for FTSE 250 companies.
Other	Staff costs (£000s) directly incurred when undertaking non-audit services for clients not covered by the segments above. We may seek a further breakdown of this category at a later date (for example by other UK listed companies and internationally listed companies).
Gross Margin - Audit	We define gross margin as audit fees minus direct salary costs.
FTSE 100	Gross Margin (% of audit fees) for audit for clients in the FTSE 100.
FTSE 250	Gross Margin (% of audit fees) for audit for clients in the FTSE 250.
Other	Gross Margin (% of audit fees) for audit for clients not covered by the segments above. We may seek a further breakdown of this category at a later date (for example by other UK listed companies and internationally listed companies).
Gross Margin - Non-Audit	We define gross margin as audit fees minus direct salary costs.
FTSE 100	Gross Margin (% of non-audit fees) for non-audit services for clients in the FTSE 100.
FTSE 250	Gross Margin (% of non-audit fees) for non-audit services for clients in the FTSE 250.
Other	Gross Margin (% of non-audit fees) for non-audit services for clients not covered by the segments above. We may seek a further breakdown of this category at a later date (for example by other UK listed companies and internationally listed companies).
Overheads	Total cost of overheads (£000s) for your firm. We may seek a further breakdown of this figure at a later date.
Firm Profit	Profit (£000s) of your firm. We may seek a further breakdown of this figure at a later date.

Partners

This information should be provided for FTE partners of your UK firm.

Audit Number	The number of audit partners
Non-Audit Number	The number of non-audit partners
Profitability per Audit Partner (£000)	Average profit per partner in your audit business
Profitability per Non-Audit Partner (£000)	Average profit per partner in your non-audit businesses
Audit Partner Remuneration (£000)	Total remuneration for partners in your audit business
Minimum (£000)	Minimum remuneration for partners in your audit business
Maximum (£000)	Maximum remuneration for partners in your audit business
Base salary (if applicable) (£000)	Average base salary of audit partners (if applicable)
Profit share (£000)	Average profit share of audit partners
Performance related elements (£000)	Average performance-related pay of audit partners
Other (£000)	Average remuneration for audit partners that is not included in the components listed above.
Non-Audit Partner Remuneration (£000)	Total remuneration for partners in your non-audit businesses
Audit Partner Moves	
Retirement	Number of audit partners that retired
Competitor move	Number of audit partners that resigned to join another audit firm. Please state in the 'Comments' box or in a separate document the firms that these partners moved to.
External move	Number of audit partners that resigned to pursue other interests or to move into non-audit work.
Dismissal	Number of audit partners that were dismissed. You may explain the reasons in the 'Comments' box.
New arrivals	The number of audit partners that joined from another audit firm.
Promotion	The number of internal staff promoted to audit partner.
Other	The number of other arrivals at audit partner level.

Further comments on potential endogeneity

1. The endogeneity of *NONAUDIT* was discussed in the text. Here we consider whether certain of the other regressors in the model (equation (2) in paragraph 29) might be also considered as endogenous.
2. Consider first *CLIENTSIZE*, a measure of the size (in assets or turnover) of the client being audited. Suppose that, within any grade of labour (Associates, Managers etc.) at a given audit firm, there were efficient workers and less efficient workers. The efficient workers might complete audits more quickly, leading to a lower input of hours, and lower total costs, all else equal. If more efficient workers did indeed exist, we did not observe to which projects they were allocated. Suppose that they were allocated to the larger audits (as measured by *CLIENTSIZE*). This would lead to a correlation between larger clients and lower average audit costs, all else equal. Ordinarily this might lead to a conclusion of economies of scale with respect to client size. However, in this hypothetical case such a conclusion would need to be qualified, because the correlation in the data (between *TOTCOST* and *CLIENTSIZE*) actually arose from the way in which the auditor allocated staff of different qualities to different audits, and so was not a true economy of scale in the strict sense.⁸
3. We did not consider that this story opens up serious weaknesses in our analysis. The argument was restricted to within-firm, within-grade differences in worker quality, and implies that audit firms allocated lower-quality workers to smaller clients. While such allocations might be possible in practice, we queried whether the resulting effects would be large enough to seriously bias our estimates of economies of scale. Various factors would seem to militate against the existence of major disparities in audit

⁸ If the presence of less-efficient workers in an audit firm is thought of as a kind of inevitable 'fixed' cost, then the correlation between *TOTCOST* and *CLIENTSIZE* might be argued to constitute a situation of de facto economies of scale, if not one of strict textbook economies.

quality within firms. First, the legal framework in which audits were performed was presumably designed to guarantee the same minimum standard of work on all audits. Second, auditors had an incentive to maintain consistent quality across all audits in order to protect their brand reputation. Third, small-firm clients would likely become aware of any systematic shunting of low-quality workers onto their engagements, and could respond by switching to an alternative, possibly cheaper, auditor.

4. Consider next the variable *SPECIALIZE*, an indicator of the audit firm's expertise in a given sector. This variable could be endogenous for similar reasons to those proposed above for *CLIENTSIZE*. Within a given grade of labour there might be unobserved differences in the efficiencies of an audit firm's workers. An auditor might choose to allocate its most efficient Associates, for example, to the sector(s) in which it was most specialized. (For example, it might do this in order better to exploit market power in sectors where it had high market shares.) If these workers completed audits relatively more quickly than their colleagues in other sectors, then we would find the auditor's average costs decreasing in sectoral specialization, all else equal. This might be interpreted as an economy of scale with respect to specialization, whereas it was in fact a consequence of an auditor's decision to focus its 'best' resources on the sector(s) where it had the highest competence.
5. We did not consider that this argument constituted a major problem for our analysis. The hypothesized allocation of workers was possible in theory. However, various legal and operational constraints, already mentioned with respect to *CLIENTSIZE*, would seem to work against any within-firm differences in audit quality becoming too severe.
6. Consider next the variable *AUDITORSIZE*. As an indicator of the audit firm's overall presence in the UK audit market, this variable was something like a traditional

measure of 'output' in a standard cost study in manufacturing industries. In such studies, arguments underlying the endogeneity of output typically focused on the role of unmeasured components of factor prices. It was supposed that there was a component of factor prices that was unmeasured by the researcher, but which was known to the manufacturer, and which affected the manufacturer's choice of output. For example, a manufacturer who faced lower factor prices than were measured in the data would presumably choose a higher output level than would be otherwise predicted. Since the unmeasured part of factor prices comprises part of the error term ε (in equation (2)), we then had a correlation between ε and output, causing output to be endogenous.

7. Two features of the present application ameliorate this problem, and therefore we did not feel that *AUDITORSIZE* needed to be treated as endogenous. The first was that we observed factor prices at a much more disaggregated level than in the typical manufacturing study. Instead of observing wages at the broad level of an industry, a region, or a whole firm, we could potentially (depending on exactly how we measured the wage for each grade of labour) observe wages at the very fine level of individual engagements. This greatly reduced the extent to which firms could possess 'private information' about wages which might be unobserved in our data.
8. The second ameliorating feature was that model (2) included time-constant dummies for each audit firm. Each of these dummies 'soaked up', or controlled for, all time-constant firm-wide characteristics of the corresponding auditor. This included the auditor's average 'total output' over the period of the data, as represented by *AUDITORSIZE*. Therefore the coefficient on *AUDITORSIZE* would be determined not by the variation in size from audit firm to audit firm, but by each firm's variation in size from year to year, around an overall average size for that firm over the period of the data. The firm dummies also soaked up any time-constant unobserved component of

the auditor's factor prices (which might affect output even though it was not observed). Therefore the only way that our estimates could be affected by the 'classic' endogenous-output problem of paragraph 6 was if there was some unobserved component of factor prices which varied from year to year in a way that determined the inter-temporal variation in *AUDITORSIZE*. Given the fine detail in which we observed factor prices, it was not clear what such a time-varying unobserved factor might be.

9. Next consider *CLIENTGLOBAL*, an indicator of the client's international presence. This could be endogenous for similar reasons to those given previously for *SPECIALIZE* and *CLIENTSIZE*. More efficient workers might be allocated to clients with international operations, leading to an incorrect inference of economies of scale with respect to international presence, when in fact the lower average costs were arising from unobserved differences in worker efficiency.
10. We did not consider that *CLIENTGLOBAL* needed to be treated as an endogenous variable, for similar reasons to those already given for *SPECIALIZE* and *CLIENTSIZE*.

Economies of scale in operating costs

Introduction

1. This appendix considers if the six largest firms in the UK were able to achieve any overall economies of scale in their operating costs, which might act as a barrier to entry to the relevant market.
2. We considered whether the non-staff costs¹ incurred by the firms showed a strong positive link to the overall size of each firm (which was measured in a number of ways, such as number of people² and level of activity of the firm (measured by firm revenue)) and whether that link declined with the increasing size of the firm. We considered three discrete areas of expenditure:
 - (a) IT costs;³
 - (b) accommodation costs; and
 - (c) marketing costs.
3. We did not consider the cost of employing professional or client-facing staff in this appendix. We did, however, consider the number of hours of staff time engaged on marketing activities.

IT costs

Analysis

4. The six firms were asked for details of their IT costs in the following categories:
 - (a) staff costs of the IT function;
 - (b) operating lease costs of IT equipment;

¹ Specifically costs other than employing staff delivering professional services.

² We use the term 'people' to refer to the combined number of employees and partners. The term 'staff' is used to refer to employees of the firms.

³ The specific costs analysed are discussed in detail below.

- (c) depreciation costs of IT equipment;⁴
- (d) software costs (including amortization and licences); and
- (e) any other non-capital IT costs.

5. We also requested information on any significant IT support or provision from the firms' respective network to be estimated and included within the figures.⁵
6. Firms could choose to own or lease hardware, develop or license software or directly employ or outsource those maintaining the IT environment (and providing user support). This made comparison of expenditure difficult, particularly so where any of the above elements were purchased as a combined service from another entity (either the international network or a specialist supplier). There were additional issues of inconsistency in respect of certain costs that led to differences in categorization and thus scale of expenditure.⁶
7. Most firms were unable to identify expenditure on a service-line basis, so this analysis was based on the firm as a whole (and as such included expenditure on business management systems as well as the operating environment for the end-user).
8. The potential complexity of the above factors meant that meaningful direct comparison of each element of the IT costs recorded by a firm was not possible, and instead it was necessary to look at total UK IT expenditure. By including depreciation and software amortization costs, it was possible to get some indication of the annual

⁴ We have included amortization and depreciation rather than the purchase or development cost of assets to provide a more consistent level of IT expenditure to prevent any distortion from periodic hardware and software replacement. Firms may adopt different accounting policies on calculating depreciation and the useful economic lives over which classes of assets are depreciated or amortized. As such the costs reported may diverge significantly from cash expenditure in a given year.

⁵ Some level of IT support may be provided by the network, but might not be a separately identifiable element of any charges paid by the UK firm.

⁶ For example, costs such as printing, photocopying and telephony may all be treated as IT costs by some firms and not others.

cost to a firm of its IT operations even where there had been a significant one-off capital investment.⁷

9. The absolute level of IT expenditure varied considerably between firms (Table 1), with the Big 4 spending considerably more than the other two firms. However, as the firms had different numbers of staff, we would expect costs to increase with size.

TABLE 1 IT expenditure of the largest six firms

	£'000					
	BDO*	Deloitte†	EY‡	GT§	KPMG¶	PwC#
2007	[X]	[X]	[X]	[X]	[X]	[X]
2008	[X]	[X]	[X]	[X]	[X]	[X]
2009	[X]	[X]	[X]	[X]	[X]	[X]
2010	[X]	[X]	[X]	[X]	[X]	[X]
2011	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC analysis.

*BDO LLP.

†Deloitte LLP.

‡Ernst & Young LLP.

§Grant Thornton UK LLP.

¶KPMG UK.

#PricewaterhouseCoopers LLP.

10. We considered whether there was any significant difference in the level of expenditure on IT when considered with respect to the size of the firm by revenue, total operating costs and number of people.
11. Table 2 shows total IT costs as a proportion of firm revenue. With the exception of [X], the range in IT costs as a proportion of revenue for each firm in the period 2007 to 2011 was less than one percentage point. [X] spent the most on IT costs relative to its revenue and [X] spent the least on IT costs relative to revenue.

⁷ Where a firm has developed its own software, there may be differences in accounting policies over amortization or impairment of the asset. We believe that the audit software has for all firms in this paper been developed by the network and thus no asset relating to it will be present on the UK firm's balance sheet or statement of financial position and no amortization or impairment, charged, although the firms may have other intangibles.

TABLE 2 IT costs as a proportion of revenue

	<i>per cent</i>					
	<i>BDO</i>	<i>Deloitte</i>	<i>EY</i>	<i>GT</i>	<i>KPMG</i>	<i>PwC</i>
2007	[X]	[X]	[X]	[X]	[X]	[X]
2008	[X]	[X]	[X]	[X]	[X]	[X]
2009	[X]	[X]	[X]	[X]	[X]	[X]
2010	[X]	[X]	[X]	[X]	[X]	[X]
2011	[X]	[X]	[X]	[X]	[X]	[X]
Average	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC analysis.

12. Our analysis of IT costs as a proportion of all pre-tax expenditure of the firms, found a very similar relationship to that observed above in respect of revenue, with the only notable difference being the wider range in IT costs as a proportion of total expenditure in a given year for each firm. Table 3 shows IT costs as a proportion of total pre-tax expenditure. Again, [X] had the lowest average relative level of IT spend and [X] the highest average relative level of IT spent. [X] expenditure was similar to that of [X].

TABLE 3 IT costs as a proportion of total pre-tax expenditure

	<i>per cent</i>					
	<i>BDO</i>	<i>Deloitte</i>	<i>EY</i>	<i>GT</i>	<i>KPMG</i>	<i>PwC</i>
2007	[X]	[X]	[X]	[X]	[X]	[X]
2008	[X]	[X]	[X]	[X]	[X]	[X]
2009	[X]	[X]	[X]	[X]	[X]	[X]
2010	[X]	[X]	[X]	[X]	[X]	[X]
2011	[X]	[X]	[X]	[X]	[X]	[X]
Average	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC analysis.

13. Table 4 shows IT spend per person (using headcount figures)⁸ [X] average spend per person was £[X] on average spent the lowest amount per person.

⁸ Headcount has been used rather than full-time equivalents (FTEs) as we assume all partners and staff regardless of part-time working require their own computer and software licences.

TABLE 4 IT expenditure per person

	£'000					
	<i>BDO</i>	<i>Deloitte</i>	<i>EY</i>	<i>GT</i>	<i>KPMG</i>	<i>PwC</i>
2007	[X]	[X]	[X]	[X]	[X]	[X]
2008	[X]	[X]	[X]	[X]	[X]	[X]
2009	[X]	[X]	[X]	[X]	[X]	[X]
2010	[X]	[X]	[X]	[X]	[X]	[X]
2011	[X]	[X]	[X]	[X]	[X]	[X]
Average	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC analysis.

Note: Includes employees and partners, using headcount data. [X] based on FTE figure.

Discussion

14. In examining the level of IT expenditure, there was no readily identifiable evidence of economies of scale. It is not to say that economies of scale are not achievable, but that firms appear to be investing to different extents and this may be due to investing to achieve additional efficiency improvements in other costs (such as staff time).
15. We understand that audit software is primarily developed centrally by a network entity and if those costs can be financed by a larger network (measured by the number of member firms or their combined revenues), it follows that economies of scale may be achievable. However, given the significantly different levels of total expenditure on developing audit software, it is difficult to identify to what extent the development costs incurred are as a result of differing functionality as opposed to the scale of the potential number of users. Further, scale of usage and functionality may interact, such that facilitating the audit of a complex international group of companies may require additional features, beyond those necessary for the process of obtaining and recording audit evidence of a smaller audit.⁹

⁹ Development costs may be increased by additional functionality, such as in-built analytic tools as well as the need to engineer software to allow users in a number of countries to be able to access a central database of audit files or to allow multiple users to work in the same audit file concurrently.

Accommodation costs

Analysis

16. Table 5 shows the cost per square metre of each of the six firms' premises held under operating leases.^{10,11} The four largest firms had paid £[redacted] to £[redacted] per square metre for premises in central London over the period 2007 to 2011, which contrasts with [redacted], which paid between [redacted] and [redacted] per square metre over the same period. [redacted] increase in cost per square metre in London was [redacted] per cent per year. In contrast, its non-London property costs had increased by only [redacted] per cent.

TABLE 5 Cost per square metre of occupied property held under operating leases

	£					CAGR %
	2007	2008	2009	2010	2011	
BDO						
Central London (including Isle of Dogs)					[redacted]	
Other					[redacted]	
Combined					[redacted]	
Deloitte						
Central London (including Isle of Dogs)		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Other		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Combined		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
EY						
Central London (including Isle of Dogs)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Other	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Combined	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
GT						
Central London (including Isle of Dogs)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Other	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Combined	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
KPMG						
Central London (including Isle of Dogs)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Other	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Combined	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
PwC						
Central London (including Isle of Dogs)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Other	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Combined	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Source: CC analysis.

Note: [redacted] was unable to provide operating lease costs for all years.

¹⁰ An operating lease is any lease which is not a finance lease. A finance lease is loosely one where the risks and rewards of ownership are transferred to the lessee at the end of the lease term. GT and KPMG occupy some properties under finance leases making comparison difficult, [redacted]. Deloitte holds a small amount of property as freehold. [redacted]

¹¹ Data was provided by parties on the basis of square feet but has been converted by multiplying this figure by 10.76 and rounding the result to one decimal place.

17. Table 6 shows the total occupied floor space reported by the firms to us, divided by the number of people (headcount) to give an indication whether there was any discernable trend in the amount of space relative to the number of people working at each firm.

18. [REDACTED] utilized the most space per employee of any of the six firms at [REDACTED] square metres per employee.

TABLE 6 Occupied floor space per person

	square metres per person					
	2007	2008	2009	2010	2011	Average
BDO					[REDACTED]	
Deloitte		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
EY	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
GT	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
KPMG	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
PwC	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: CC analysis.

Note: Includes employees and partners, using headcount data. [REDACTED] based on FTE figure.

Discussion

19. It was not clear whether the ‘efficiency’ of office space usage was an indicator to economies of scale. Just as the largest firms appear to pay a premium on property (particularly in London), other factors may interact. The efficiency of space usage may be affected by:

- (a) floor plates of buildings—modern office buildings are built to be fully open plan and thus have less ‘wasted space’ than older buildings;
- (b) amenities—firms may choose buildings with large atriums and other facilities such as meeting rooms, business centres, canteens and gyms that increases the overall area per person, but without increasing actual work area; and
- (c) ratio of desks to staff—firms may implement hot-desking with a decreased ratio of desks per staff, to reflect the overall demand for desks on a given day (as a result of staff leave, illness or working at a client site).

20. All of the three factors above interact, and was it not possible to draw a firm conclusion, although it appeared that [X] had the highest cost per square metre, and [X] the lowest cost per square metre and that [X] had the highest amount of floor space per employee.

Marketing costs

Analysis

21. Table 7 shows the number of hours spent each year by partners on marketing activities. For the three firms which provided data for assurance and the firm as a whole (excluding marketing staff), assurance partners spent significantly less time on marketing activities compared with the firm's partnership as a whole, with the assurance partners spending [X] per cent of the number of hours devoted to marketing by the firm's partners as a whole.¹²
22. [X] partners undertook a significantly lower level of recorded marketing activity [X] assurance partners undertook a similar level of marketing [X] but their partnership as a whole did not spend as much time on marketing activities.¹³

¹² The level of time recorded by staff on marketing activities should be treated with care, as it may be subject to less scrutiny by the management of each firm which may lead to under or over-record the level of time spent on marketing activities depending on the requirements and incentives to staff to record time on different activities.

¹³ [X]

TABLE 7 Hours spent by client-serving partners on marketing each year

	2007	2008	2009	2010	2011
<i>BDO</i>					
Hours per assurance partner					
Hours per partner		[X]	[X]	[X]	[X]
<i>Deloitte</i>					
Hours per audit partner	[X]	[X]	[X]	[X]	[X]
Hours per partner					
<i>EY</i>					
Hours per assurance partner					
Hours per partner					
<i>GT</i>					
Hours per assurance partner	[X]	[X]	[X]	[X]	[X]
Hours per partner	[X]	[X]	[X]	[X]	[X]
<i>KPMG</i>					
Hours per assurance partner	[X]	[X]	[X]	[X]	[X]
Hours per partner	[X]	[X]	[X]	[X]	[X]
<i>PwC</i>					
Hours per assurance partner	[X]	[X]	[X]	[X]	[X]
Hours per partner	[X]	[X]	[X]	[X]	[X]

Source: CC analysis.

Notes:

1. [X]
2. Figures exclude partners in dedicated marketing roles [X].

23. Table 8 shows the number of hours spent by members of the firms' staff on marketing activities. The overall level of marketing activity was lower than for partners, but the same relationship between assurance and the firm as a whole was observable.

TABLE 8 Hours spent by client-serving staff on marketing each year

	2007	2008	2009	2010	2011
<i>BDO</i>					
Hours per member of assurance staff					
Hours per member of staff		[X]	[X]	[X]	[X]
<i>Deloitte</i>					
Hours per member of assurance staff		[X]	[X]	[X]	[X]
Hours per member of staff		[X]	[X]	[X]	[X]
<i>EY</i>					
Hours per member of assurance staff		[X]	[X]	[X]	[X]
Hours per member of staff		[X]	[X]	[X]	[X]
<i>GT</i>					
Hours per member of assurance staff	[X]	[X]	[X]	[X]	[X]
Hours per member of staff	[X]	[X]	[X]	[X]	[X]
<i>KPMG</i>					
Hours per member of assurance staff	[X]	[X]	[X]	[X]	[X]
Hours per member of staff	[X]	[X]	[X]	[X]	[X]
<i>PwC</i>					
Hours per member of assurance staff	[X]	[X]	[X]	[X]	[X]
Hours per member of staff	[X]	[X]	[X]	[X]	[X]

Source: CC analysis of data supplied by parties.

Notes:

1. [X] and [X] unable to provide staff hours.
2. Figures exclude staff in dedicated marketing roles [X].

24. Table 9 shows the expenditure on marketing costs incurred by the six largest firms (excluding staff in service lines). There has not been any significant increase in overall marketing expenditure by any of the firms. [X] was notable in reducing its marketing expenditure by [X] per cent a year with the majority of the reduction occurring between 2008 and 2010 with similar relative reductions in staff costs and other marketing spend.

25. Both [X] and [X] had the largest relative increases in their advertising spend. The increase in advertising by [X] was in contrast with its reduction in spending on a dedicated marketing team. [X] has not recorded any specific expenditure on advertising.

TABLE 9 Marketing expenditure excluding client-serving staff and partner costs

	£'000					CAGR
	2007	2008	2009	2010	2011	%
<i>Marketing staff costs</i>						
BDO	[X]	[X]	[X]	[X]	[X]	[X]
Deloitte	[X]	[X]	[X]	[X]	[X]	[X]
EY	[X]	[X]	[X]	[X]	[X]	[X]
GT	[X]	[X]	[X]	[X]	[X]	[X]
KPMG	[X]	[X]	[X]	[X]	[X]	[X]
PwC	[X]	[X]	[X]	[X]	[X]	[X]
<i>Advertising</i>						
BDO	[X]	[X]	[X]	[X]	[X]	[X]
Deloitte	[X]	[X]	[X]	[X]	[X]	[X]
EY	[X]	[X]	[X]	[X]	[X]	[X]
GT	[X]	[X]	[X]	[X]	[X]	[X]
KPMG	[X]	[X]	[X]	[X]	[X]	[X]
PwC	[X]	[X]	[X]	[X]	[X]	[X]
<i>Other costs</i>						
BDO	[X]	[X]	[X]	[X]	[X]	[X]
Deloitte	[X]	[X]	[X]	[X]	[X]	[X]
EY	[X]	[X]	[X]	[X]	[X]	[X]
GT	[X]	[X]	[X]	[X]	[X]	[X]
KPMG	[X]	[X]	[X]	[X]	[X]	[X]
PwC	[X]	[X]	[X]	[X]	[X]	[X]
<i>Total</i>						
BDO	[X]	[X]	[X]	[X]	[X]	[X]
Deloitte	[X]	[X]	[X]	[X]	[X]	[X]
(excluding Switzerland)	[X]	[X]	[X]	[X]	[X]	
EY	[X]	[X]	[X]	[X]	[X]	[X]
GT	[X]	[X]	[X]	[X]	[X]	[X]
KPMG	[X]	[X]	[X]	[X]	[X]	[X]
PwC	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC analysis.

Note: CAGR represents an annualized growth rate over the period, but should be treated with care where there are significant increases in a small number of years. [X]

26. Table 10 shows the expenditure shown in Table 9 expressed as a proportion of firm revenue. [X] have the highest level of marketing spend relative to their revenue of any of the six firms, but they have demonstrated a downward trend. However, this does not factor in the costs of marketing and business development activity undertaken by staff and partners. [X] can be seen to have relatively low marketing expenditure.

TABLE 10 Marketing expenditure as a proportion of revenue

	<i>per cent</i>					
	2007	2008	2009	2010	2011	Period
BDO	[X]	[X]	[X]	[X]	[X]	[X]
Deloitte	[X]	[X]	[X]	[X]	[X]	[X]
EY			[X]	[X]	[X]	[X]
GT	[X]	[X]	[X]	[X]	[X]	[X]
KPMG	[X]	[X]	[X]	[X]	[X]	[X]
PwC	[X]	[X]	[X]	[X]	[X]	[X]

Source: CC analysis.

Discussion

27. In looking at the expenditure incurred on marketing activity, we found significant variation in the relative level of expenditure on marketing that indicates there is no readily observable economy of scale in marketing costs and that the level of absolute and relative expenditure is a strategic decision. We found that [X] expenditure on marketing as a proportion of firm revenue was greater than the [X] but that there was a significant range in the level of marketing spend [X].
28. With respect to partner time, we found variation among the firms, but that where separately identifiable, assurance partners spend less time on marketing activities on average than the partners of the firms as a whole. There is no observable link between size of firm and the level of partner activity with respect to potential economies of scale and the level of partner time devoted to marketing appears to be a strategic decision.
29. [X] do not appear to use the members of their partnerships as a whole as intensively for marketing as [X] but [X] assurance partners record as much time on marketing activity as [X].

Views of the firms

30. The firms noted that it was difficult to comment given the level of redaction in the published work paper but made a number of observations. PwC noted that we did not find any economies of scale and that this indicated that barriers to entry did not exist in these areas. PwC and KPMG agreed that there were unlikely to be significant economies of scale in the types of expenditure considered. KPMG noted that the CC did not consider client specific investments in developing the audit or more general investments in quality, which are important elements of the competitive process and could give rise to economies of scale. PwC also noted issues in relying upon time recording by individuals with respect of marketing.

31. BDO observed that if there were no economies of scale it raised questions on the perceived higher level of profits achieved by the Big 4 and that further, there was no cost-based reason why the Big 4 can deliver a 'better' price/quality offer than the mid-tier.

PwC's econometric analysis of the prices of large company audits

Introduction

1. This appendix discusses our interpretation of the results of PwC's econometric analysis of the prices of large company audits ('PwC's analysis'), which is published on our website.¹
2. Appendix 5 investigated the evolution of real audit fees after a company switched audit firm. The CC separately considered the change in fees by type of switching event. Among 55 events identified as direct switches² by FTSE 350 companies the median price decrease was 17 per cent in the year after the switch, with 78 per cent of companies achieving a fee decrease. The median price decrease found disappeared over time.³
3. PwC said that econometric analysis can provide potentially important insights into the nature and intensity of competition in the large company audit market. Furthermore it said that econometrics enabled a much more rigorous analysis of empirical data than simple descriptive statistics.⁴ In particular, it can provide insights into the effectiveness of rivalry outside of tenders.⁵⁶
4. The data set used for PwC's analysis was based on the Industry Data Set (IDS), which the CC referred to as the 'public data set'.⁷ PwC identified tenders and

¹ The report is called 'An econometric analysis of the prices of large company audits' and can be found here: www.competition-commission.org.uk/assets/competitioncommission/docs/2011/statutory-audit-services/pwc_an_econometric_analysis_of_the_prices_of_large_company_audits.pdf.

² This selection of switches excluded those associated with the collapse of Arthur Andersen, merger and acquisition activity, and moves to or from joint audits.

³ See Appendix 5, paragraph 52 and onwards.

⁴ See PwC's analysis, paragraph 2.4.

⁵ See PwC's analysis, paragraph 1.2.

⁶ Our understanding is that econometric analysis can control for changes in multiple factors that influenced audit prices, such as scope, complexity, risk, quality, buyer power and regulation. Theoretically the effect of factors that measure rivalry such as switching or tendering can be estimated more precisely after controlling for these other aspects.

⁷ See Appendix 6, paragraph 9 and onwards.

takeover⁸ switches using own business intelligence, information found in company annual reports, and other business news sources. Mergers were identified directly by using data on deals from Datastream.⁹

5. The main specification¹⁰ of the ‘company specific effects’ model in PwC’s analysis found that tenders and switches that arose from direct choices by companies (‘direct tenders or switches’) on average led to a 9 per cent reduction in audit fees compared with companies that did not tender or switch. However, the effect of direct tenders and switches was temporary—in the fourth year following a direct tender or switch, PwC’s analysis found that prices were on average 3 per cent higher than for companies that did not tender or switch.¹¹

6. PwC’s analysis also examined the relationship between audit prices and market concentration. However, PwC agreed with the CC that for various reasons there was limited value in conducting a price concentration analysis in the audit market.¹² Therefore we do not discuss these results in this appendix.

7. PwC’s analysis also presented results for an ‘industry and index effects’ model. However, PwC indicated that the results of this model needed to be treated with caution as the estimated coefficients may be biased.¹³ Therefore we do not discuss these results in this appendix.

8. This appendix discusses three aspects that are relevant for the CC’s interpretation of the results as presented in PwC’s analysis:
 - (a) interpretation of the results from the main specification;

⁸ This is a takeover of a company in the IDS by an entity outside of the IDS.

⁹ See PwC’s analysis, paragraphs 3.7, 3.9 & 3.10.

¹⁰ In PwC’s analysis this is ‘Model 3’.

¹¹ See PwC’s analysis, paragraph 4.11, findings a & b.

¹² See PwC’s analysis, paragraphs 2.2 & 2.3.

¹³ See PwC’s analysis, paragraph 4.23.

- (b) evaluation of the estimation sample; and
- (c) PwC's choice of the main specification.

Interpretation of the results from the main specification

9. Taking the results of the main specification in PwC's analysis as presented, and assuming that these translated directly to the subsample the CC considers relevant,¹⁴ implies that on average companies experienced the following audit price changes compared with the price level but for the tender/switch:¹⁵
 - -9 per cent in year 1 after the tender/switch;
 - -8 per cent in year 2 after the tender/switch;
 - -4 per cent in year 3 after the tender/switch; and
 - +3 per cent in year 4 after the tender/switch.

10. These numbers indicated to us that on average companies that tendered/switched saved a combined 21 per cent on their audit fees over the first three years, or 7 per cent per year, related to the direct tender or switch. The results implied that the price effect resulting from the tender or switch eroded over time, but to us also suggested that the price effect could be achieved again in another tender or switch. A company that was willing to tender every three years could thereby theoretically achieve a permanent reduction in its audit price of 7 per cent.¹⁶ In a similar manner, tendering or switching every four years could result in a permanent price reduction of 4.5 per cent.¹⁷

11. To put the total estimated price gain of 21 per cent, or 7 per cent per year, into perspective we investigated the level of fees they related to. The average audit and audit-related services fees per year in the sample used for the estimation were

¹⁴ Direct tenders or switches of FTSE 350 companies.

¹⁵ See PwC's analysis, Figure 1. These predicted price changes take into account the dynamic structure of the model. The parameter estimates in the third and fourth years are not statistically significant.

¹⁶ This is calculated as follows: $(9+8+4) / 3 = 7$.

¹⁷ This is calculated as follows: $(9+8+4-3) / 4 = 4.5$.

around £1.16 million.¹⁸ If the sample was restricted to companies that at some point were in the FTSE 350, the average audit-related fees per year were around £1.43 million. The estimation results therefore implied savings of around £300,000 over the first three years after switching for FTSE 350 companies, or £100,000 per year.

12. Another way to put the savings into perspective was to compare them to the realized profits of the companies investigated. When compared with the total average annual profits of around £310 million for the FTSE 350 companies in the sample, the potential savings related to more frequent tendering and switching translated into a 0.03 per cent increase in profits.
13. We consider that PwC's analysis might understate the achieved gains of direct tendering or switching for two reasons. First, the first CC survey found that in many cases switching was not related to price, which might therefore not be the most important parameter in a company's decision.¹⁹ If part of the switches in the sample did not aim for a price decrease but rather a quality increase, this could drive down the average price effect. We note that audit quality was not captured in the available data and could therefore not have been included in the model.
14. Secondly PwC estimated the average reduction in fees for a sample of direct tenders and switches across all companies in the IDS. With the exception of results that excluded and included banking and financial services companies, PwC did not explore whether there were groups of companies within this sample which achieved

¹⁸ These numbers were extracted by the CC using the data set and STATA do-files provided by PwC and programming additional code.

¹⁹ The potential trigger most frequently identified as very likely or likely to prompt a company seriously to consider switching was the complacency of the audit firm followed by a problematic working relationship between auditor and management. Only as third most frequent respondents mentioned a substantial increase in the audit fee (particularly among FDs). See Appendix 3, paragraph 37.

higher than average fee reductions. We recognize the available sample size may have been a factor.

15. PwC said that companies that voluntarily tendered or switched might have been self-selecting.²⁰ Indeed, we make the methodological note with regards to the interpretation of the results that the causality of the estimated effects was not clear. The audit fee level itself could also have had an effect on the likelihood of a direct tender or switch, and this simultaneity made the switching dummies potentially endogenous. Therefore we could not conclude that anyone who switched could realize the estimated gains, but rather that the average company that switched did.

Evaluation of the estimation sample

16. With regard to the estimation sample used in PwC's analysis, we note the following.
17. PwC's analysis considered the entire IDS public data set, so to the extent possible²¹ it included all auditor tenders and switches for companies that were in the FTSE 350 or the TopTrack 100 at some point during the period from 1999 to 2011.²² The analysis only used data from 2000 to 2010.²³
18. PwC made a distinction between so-called consequential tenders or switches and direct tenders or switches. Consequential tenders and switches arose as a consequence of takeovers or the Arthur Andersen collapse. Direct tenders and switches were those that arose from deliberate and voluntary decisions of

²⁰ See PwC's analysis, paragraph 4.20.

²¹ Where data is partially missing for a company in a particular year, PwC needed to drop the observation in that year. PwC explained that in order to include an observation in a regression analysis, one needed to have data for every explanatory variable included in the model. See PwC's analysis, paragraph 3.11 & fn 28.

²² See PwC's analysis, paragraph 3.1.

²³ See PwC's analysis, paragraph 3.2.

companies.²⁴ In addition to direct switches these observations also included tenders that did not result in a switch.²⁵

19. PwC's definition of a direct tender or switch was slightly different from that adopted in the CC's descriptive analysis. First of all a different approach was used to identify switches related to M&A activity. PwC's analysis excluded switches that resulted from a takeover of a company in the IDS by an entity outside of the IDS.²⁶ The CC used a more inclusive definition for switches related to M&A activity. We defined switches that occurred in a year with, or a year immediately after any deal activity as being driven by M&A, and analysed them separately.
20. PwC's analysis considered switches related to other merger and acquisition activity such as mergers of companies inside of the IDS jointly with 'normal' switches.²⁷ PwC preferred to model the short-run effects of a merger, such as increased complexity of the audit, using a merger dummy in the years 1 and 2 following the merger.²⁸ PwC said that this left the longer-term effects of the merger to be explained by other variables that controlled for changes in scope.
21. The CC's descriptive statistics separated switches to a joint audit, ie hiring an additional external auditor, or from a joint audit, ie dismissing one of the joint external auditors. PwC's analysis did not exclude or separately control for switches to and from a joint audit. However, we note that the number of such switches was small.²⁹

²⁴ See PwC's analysis, paragraph 3.5.

²⁵ See PwC's analysis, paragraph 3.10.

²⁶ See PwC's analysis, Table 2 & Appendix A, paragraph 23. These switches were not excluded from the analysis, but they were controlled for separately and therefore no longer relevant for the determination of audit price changes related to direct tenders and switches.

²⁷ See PwC's analysis, Table 1.

²⁸ See PwC's analysis, Appendix A, paragraph 22. However, the data set submitted by PwC showed that the merger dummy was in many cases set to 1 for a single year only, which led us to believe that only the first year following a merger or acquisition was controlled for.

²⁹ The CC's descriptive statistics analysis separated ten such cases at FTSE 350 companies. See Appendix 5, Table 5.

22. Summarizing, we noted that PwC could not observe switches, or tenders without a switch, that arose from direct decisions by companies. PwC defined the relevant group by eliminating certain events that more clearly associated with external factors. In light of the observations in paragraphs 19 to 21, we consider that the sample defined by PwC potentially included tenders and switches that were not driven by dissatisfaction with the auditor and did not involve an open competition for the engagement.
23. We also noted that the main difference in the set of tenders and switches considered by PwC when compared to those analysed in the CC's descriptive statistics, is that PwC's analysis included all such events in the IDS by both FTSE 350 and non-FTSE 350 companies.
24. To this end the CC performed some robustness testing using the data set and STATA do-file provided by PwC. The model specification was slightly altered to accommodate for a separate estimation of price effects for tenders and switches of companies that were in the FTSE 350 and those that were not. The analysis resulted in slightly larger point estimates for the price effects for tenders and switches of FTSE 350 companies. However, the estimates were not significantly different from those obtained by PwC in its main specification.

PwC's choice of the main specification

25. The main specification in PwC's analysis controlled for a range of factors that were hypothesized to have an influence on the price of an audit.³⁰ Examples of such variables were the value of a company's assets and its turnover, which were

³⁰ See PwC's analysis, paragraph 4.4.

indicators for the 'scope' of the audit. Another variable, the ratio of inventories to total assets, was included to partially control for the 'risk' of an audit.³¹

26. PwC explained that including inventories to assets ratio as a variable in their model automatically resulted in their estimation dropping observations from companies in years where no data existed on inventories.³² This led to the exclusion of all banks and many financial services companies from the data used to estimate the model's coefficients, as banks and financial service companies often did not have any meaningful inventories.³³
27. To test the robustness of its model estimates to the inclusion of banks and financial service companies, PwC estimated a slightly altered specification³⁴ that allowed these observations to be included.³⁵ This increased the number of observations from 3,733 to 4,683, or by about 25 per cent. We found that in the larger sample the audit-related fees of banks and financial service companies accounted for about 30 per cent of the total amount.³⁶
28. The larger sample also resulted in different estimates for price effects in the years following direct tenders and switches.³⁷ From these results, we calculated the following observed price changes following a direct tender or switch, for the sample including banks and financial service companies:³⁸

³¹ See PwC's analysis, Table 2. Another variable included to control for the risk of an audit was a 'Loss' dummy.

³² See PwC's analysis, Appendix E, paragraph 1.

³³ See PwC's analysis, paragraph 3.11.

³⁴ PwC imposed a notional constant value of the inventory/assets ratio for these companies. It explained that the precise value employed did not matter in its 'company specific effects' model as the estimates were based entirely on within-company variation in fees and other variables, including inventories (PwC's analysis, Appendix E, paragraph 2). In Appendix F, paragraph 19, it is furthermore noted that the model allows banking and financial services companies to have different coefficients on assets and turnover than other companies.

³⁵ See PwC's analysis, Appendix E, for the estimation results of this altered model.

³⁶ These numbers were extracted by the CC using the data set and STATA do-files provided by PwC and programming additional code.

³⁷ See PwC's analysis, p26. In model 3, the price effect estimates in the third and fourth years were not statistically significant at the 5 per cent level. The price effect estimate in the third year was statistically significant at the 10 per cent level.

³⁸ These figures take into account the dynamic structure of the model. The observed price change in year two is calculated as the sum of the estimated price effect for that year (-0.09), and the observed price change for the previous year (-0.13) multiplied with the coefficient on the lagged dependent variable (0.24): $-0.09 + 0.24 * -0.13 = -0.12$. The resulting value enters the calculation of the observed price change in year 3 as the observed price change for the previous year, and so forth.

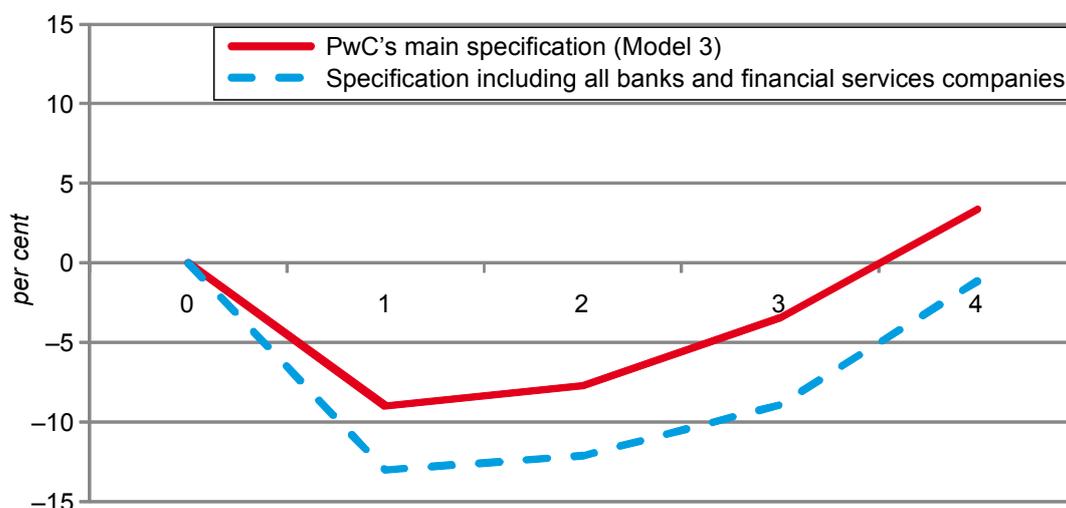
- –13 per cent in year 1 after the tender/switch;
- –12 per cent in year 2 after the tender/switch;
- –9 per cent in year 3 after the tender/switch; and
- –1 per cent in year 4 after the tender/switch.

29. These figures indicated to us that companies that tendered/switched on average saved an accumulated amount of 34 per cent after three years, or more than 11 per cent a year, related to the direct tender or switch.³⁹

30. Figure 1 compares the observed price change following a direct tender or switch as presented by PwC,⁴⁰ to the one we calculated for the specification including all banks and financial service companies.

FIGURE 1

Price effects estimated with and without financial services companies



Source: Figure 1 and Appendix E of PwC's analysis, CC calculations.

31. We note that the specification including all banks and financial service companies had significantly more observations, and resulted in higher point estimates for audit fee decreases following direct tenders or switches. We also note that the price effects

³⁹ This is calculated as follows: $(13+12+9) / 3 = 11.3$.

⁴⁰ See PwC's analysis, Figure 1.

estimated by PwC in its main specification and the specification including all banks and financial services companies were not statistically different.

Glossary

the Act	Enterprise Act 2002.
AAC	Audit and Assurance Council, formerly known as the APB .
AC	Audit Committee.
ACC	Audit Committee Chair.
ACCA	Association of Chartered Certified Accountants.
AEC	Adverse effect on competition, as set out in section 134 of the Act .
AEP	Audit Engagement Partner.
AGM	Annual General Meeting.
AIM	Alternative Investment Market—the London Stock Exchange's international market for smaller growing companies.
AIU	Audit Inspection Unit of the FRC —former name for the AQRT .
APB	Auditing Practices Board now known as the AAC .
AQRT	Audit Quality and Review team (of the FRC)—new name for the AIU as of 2 July 2012.
Audit Commission	A government body that oversees the appointment of external statutory auditors to local authorities in England.
Audit-related services	Services provided to clients that are of a similar nature to statutory audit and are integrated as part of the statutory audit.
Baker Tilly	Baker Tilly UK Holdings Ltd.
BDO	BDO LLP.
Big 4	Collective term for the four largest audit firms: Deloitte , EY , KPMG and PwC .
The Cadbury Report	The Cadbury Report, titled <i>Financial Aspects of Corporate Governance</i> , is a report that sets out recommendations on the arrangement of company boards and accounting systems to mitigate corporate governance risks and failures. The report was published in 1992.
CAI	Institute of Chartered Accountants in Ireland.
Case studies	The CC selected ten companies as case studies from across the FTSE 350 index.
CBS	Cardiff Business School.

CEO	Chief Executive Officer.
CFO	Chief Financial Officer.
CIMA	Chartered Institute of Management Accountants.
CIPFA	Chartered Institute of Public Finance and Accountability.
the Companies Act	Companies Act 2006.
Company	An audited entity.
Deloitte	Deloitte LLP.
DTTL	Deloitte Touche Tohmatsu Ltd, International Network for Deloitte UK.
EY	Ernst & Young LLP.
FD	Finance Director.
First survey	CC survey of FDs and ACCs conducted by IFF .
Firm	An audit firm.
Follow-up survey	CC survey of FTSE 350 ACCs , who were willing to be contacted again following the first survey, conducted by IFF .
FRC	Financial Reporting Council.
FTSE 100 Index	The largest 100 companies by market capitalization which have their primary listing on the London Stock Exchange.
FTSE 250 Index	Companies 101 to 250 when companies which have their primary listing on the London Stock Exchange are ranked by market capitalization.
FTSE 350 Index	The FTSE 350 Index is a market capitalization weighted stock market index incorporating the largest 350 companies by capitalization which have their primary listing on the London Stock Exchange. It is a combination of the FTSE 100 Index of the largest 100 companies and the FTSE 250 Index of the next largest 250 companies.
Going concern	The ability of a company to continue in business for the foreseeable future from the date of signing the audit opinion.
Group A	The immediate group of accounting firms that follow in size from the Big 4 firms, BDO and GT .
GT	Grant Thornton UK LLP.
IAASB	International Auditing and Assurance Standards Board.
IAS	International Accounting Standards; now incorporated into IFRS .

ICAEW	Institute of Chartered Accountants in England & Wales.
ICAS	Institute of Chartered Accountants of Scotland.
IFAC	International Federation of Accountants.
IFF	IFF Research. Market research agency that conducted the CC's surveys in this investigation.
IFRS	International Financial Reporting Standards. All listed companies in the EU have been required to report their financial results using IFRS since 2005.
Index designation	<p>The market index that a public limited company's shares are listed on.</p> <p>The London Stock Exchange operates a main market which comprises the FTSE 100, FTSE 250, FTSE SmallCap and FTSE Fledgling indices.</p> <p>Inclusion in a specific index is determined quarterly, with companies ranked by size on the basis of market capitalization (the value of issued shares in the company). The FTSE 350 is an aggregation of the FTSE 100 and the FTSE 250 indices and comprises the largest 350 companies by market capitalization.</p> <p>In addition to the main market, the London Stock Exchange also operates AIM which has a more flexible regulatory environment. This is an international market for smaller growing companies.</p>
ISA	International Standards on Auditing, issued by the IFAC through the IAASB .
Kingston Smith	Kingston Smith LLP (a Group A firm).
KPMG	KPMG LLP.
KPMG Europe LLP	Part of the KPMG network.
LLP	Limited liability partnership, a partnership which has been incorporated, and where the liability of the members is limited to the capital held in the company.
Mazars	Mazars LLP.
Mid Tier	A group of audit firms that are smaller than the Big 4 audit firms, broadly Baker Tilly , BDO , GT , PKF and Mazars , but are larger than the other Group A firms.
NAS	Non-audit services. Any service provided by an audit firm other than statutory audit and audit-related services such as assurance, tax and consulting.
NED	Non-executive director.
Network	A group of international professional services firms.

OFT	Office of Fair Trading.
PCAOB	Public Company Accounting Oversight Board.
PIE	Public Interest Entity. Defined by the European Audit Directive as any entity whose transferable securities are traded on a regulated market, credit institutions such as banks and building societies, and insurance undertakings.
PKF	PKF (UK) LLP.
POB	Professional Oversight Board.
PwC	PricewaterhouseCoopers LLP.
RI	Responsible Individual. An individual authorised to issue an audit report in a firm's name.
SID	Senior Independent Director.
SLC	Substantial lessening of competition.
SOX	Sarbanes Oxley Act of 2002, a US Federal Law that introduced new requirements on corporate governance in response to a number of corporate and accounting scandals in the USA. One of the 11 titles of the act is on auditor independence.
Top Track 100	The largest 100 private companies in the UK by sales.
UKLA	UK Listing Authority.