Oxera

# Competition and choice in the UK audit market

## Prepared for Department of Trade and Industry and Financial Reporting Council

April 2006

# Executive summary

## Key findings of this report

- The Big Four audit firms—Deloitte & Touche, Ernst & Young, KPMG and PricewaterhouseCoopers (PwC)—audit all but one of the FTSE 100 companies, and represent 99% of audit fees in the FTSE 350. The high degree of concentration in the market became more marked after the Price Waterhouse/Coopers & Lybrand merger in 1998 (six-to-five) and the dissolution of Arthur Andersen in 2002 (five-to-four). In addition, switching rates are low (around 4% on average for all listed companies, 2% on average for FTSE 100 companies), and competitive tendering does not occur frequently.
- Reputation is an important driver of choice, favouring the Big Four, whether this is based on real or perceived differences with the mid-tier firms. In the perception of most FTSE 350 companies, the Big Four are better placed to offer two key components of the audit product: value-added services on top of the audit itself, and insurance against catastrophes and reputational risk. The Big Four are also perceived to have greater capacity and international coverage to deliver the third key component: the technical audit itself.
- Oxera has found evidence that higher concentration has led to higher audit fees (in line with economic theory and with several other recent empirical studies). While there is a degree of price sensitivity among companies, and some bargaining on fees takes place during the annual audit firm reappointment process, in general the focus of audit committee chairs is more on quality (and reputation) than on price. Separately from the impact of concentration, audit fees seem to have risen in recent years as a result of cost increases, caused by factors such as changes in regulation.
- On the question of choice, Oxera has found that a limited number of UK-listed companies, primarily in the financial services sector of the FTSE 100, have no effective choice of auditor in the short run. This elimination of choice is driven by high market concentration, auditor independence rules, supply-side constraints, and the need for sector expertise.
- Oxera's analysis of the economics of entry/expansion by mid-tier firms into the FTSE 100 and FTSE 250 segments indicates that the current market structure is likely to persist. Substantial entry is unlikely to be attractive, due to significant barriers, including the perception bias against mid-tier firms, high costs of entry, a long payback period for any potential investment, and significant business risks when competing against the incumbents in the market.
- The loss of another Big Four firm (four-to-three) would exacerbate problems around auditor choice, requiring regulators to make exceptions to auditor independence rules. A lack of audited accounts in the event of a Big Four firm exit would be a significant concern for investors, who also worry about the consequences for audit quality of a further increase in audit market concentration. In the event of a four-to-three scenario, Oxera's analysis indicates that only if the existing barriers, in terms of perception/reputation and low switching rates, could be reduced might substantial market entry by mid-tier firms become feasible.

Oxera's findings are set out in more detail below.

## Context and scope of the study

This Oxera study on competition and choice in the audit market was commissioned in September 2005 by the Department of Trade and Industry (DTI) and the Financial Reporting Council (FRC). A number of recent developments have highlighted concerns about the state of competition and choice in the audit market, in particular in relation to the highly concentrated market structure, with the Big Four audit firms dominating audits for the larger listed companies, in both the UK and globally, and the possibility of this becoming the 'Big Three' if one of them exits the market. The top 10 accounting firms generate UK audit fee income of over £1.5 billion annually, but the significance of the audit market is much broader than this, given that the credibility of financial statements depends critically on audit services.

Although concerns about the audit market are widespread across the investment community, companies and regulators globally, there is as yet little robust analysis of the underlying market dynamics in auditing. The aim of this Oxera study is to contribute to the understanding of the audit market by analysing in depth the factors that determine companies' choice of auditor, and the dynamics of the market structure.

There has been a substantial amount of debate on the audit market over the last few years in the UK and abroad. There has been concern about increased concentration since at least 1989, when two mergers reduced the then Big Eight firms to the Big Six. There is also a wide range of policy issues that are being addressed by different institutions across different jurisdictions, including:

– concerns about auditor independence and quality—the dissolution of Arthur Andersen in 2002 intensified this debate, and led to new rules and practices in many jurisdictions, most notably the Sarbanes-Oxley Act 2002 in the USA;
– the new regulatory framework in the UK—in particular, establishing the FRC's new regulatory powers in 2004;
– current reforms of company law, the Eighth Company Law Directive on statutory audit, and the debate on auditor liability at the UK and EU level.

It is therefore important to explain in detail the scope of the Oxera study and how it relates to the other initiatives. Specifically, Oxera's report:

– contains an objective market analysis, and does not intend to make policy recommendations;
– focuses on the UK, while fully recognising the important links with auditing at the global level;
– deals primarily with market structure and choice in auditing, and not (or to a much lesser extent) with issues such as the impact of regulation, quality, conflicts of interest, or anti-competitive conduct in the market;
– explores the impact of market structure and choice mainly on the larger UK-listed companies, as it is for these companies that the broader policy concerns for a well-functioning audit market are potentially most acute.

## Methodology and data sources

During the course of the study, Oxera has undertaken four main analytical workstreams.

– A total of 67 in-depth interviews with stakeholders, including the Big Four audit firms, the 'mid-tier' audit firms, regulators, industry bodies, chairs of audit committees of UK-listed companies, chief executive officers/finance directors of UK-listed and private companies, institutional investors and their advisers, and other experts.

– A telephone survey of 50 chairs of audit committees of UK-listed companies. The survey was designed and analysed by Oxera and carried out by market research agency, MORI.

– Statistical/econometric analysis of a representative dataset of more than 700 UK-listed companies from across the spectrum of market segments and industries, covering the period from 1995 to 2004 (referred to in the report as the Oxera panel dataset). This database has been compiled by Oxera specifically for this study using data obtained from FAME.

– Development of a strategic entry model, to explore the financial barriers to mid-tier audit firms expanding into the provision of audit services to FTSE 350 companies. Oxera received input from a number of Big Four and mid-tier firms on key parameters for the model.

In all, Oxera is confident that a sufficiently wide range of views from across the financial markets has been gathered, and a large pool of expertise and experience on the audit market has been tapped into. Oxera spoke to each of the Big Four and larger mid-tier firms. The interview programme and survey together covered a total of 69 UK-listed companies, of which 19 are in the FTSE 100, as well as many other stakeholders.

Oxera's report is structured on four themes:

– the dynamics of auditor selection;
– market concentration;
– market outcomes; and
– market dynamics going forward.

Key findings on each of these themes are summarised below.

## The dynamics of auditor selection

### Auditor selection

The audit market contains several features that distinguish it from other product markets. In particular, although the formal audit product output is fairly standardised, what the direct clients (ie, companies) demand and receive is a more varied and more complex product, broadly comprising three parts: the technical audit, value-added services on top of the audit itself, and insurance against catastrophes and reputational risk (this insurance component in part reflects an 'IBM effect'). Oxera's interviews and survey reveal that the Big Four firms are currently perceived to be better placed than the mid-tier firms to offer the last two components, and are also perceived to have greater capacity and international coverage to deliver the technical audit itself.

In line with current regulations and best practice, audit committees play the most important role in the process of auditor selection, although the research highlights that, in practice, company management (in particular, finance directors) also continue to be highly influential. The views of other stakeholders are given less weight, and there seems to be only very limited direct communication between companies and investors regarding auditor selection.

For most companies, the most important determinants of choice are reputation, sector-specific skills, international coverage, and quality of staff. In addition, the need to ensure that the company receives a high-quality audit generally reduces the sensitivity of demand to price changes, as there is a perceived trade-off between price and quality.

With respect to each of the choice factors, there are significant differences between the Big Four and the mid-tier firms, whether these are perceived or real. Less than 10% of FTSE 350 companies surveyed would consider using a mid-tier firm. It is of note that many audit committee chairs actually say they do not know the mid-tier firms that well, which again highlights the importance of perceptions and reputation in this market.

### Tendering and switching

Auditors are subject to reappointment every year, and some bargaining on price and other conditions tends to take place during the reappointment process. During this bargaining, the company can, to some degree, threaten to switch auditor if satisfactory terms cannot be agreed upon.

Tendering is a more formal process initiated by a company to select an auditor from among the invited bidders. Tenders can be highly competitive (data suggests that incumbents only win in one-third of cases). However, they also occur infrequently—nearly 75% of the companies surveyed tender only once every five years or less, and more than 70% of the FTSE 100 have not held a competitive tender in the last 15 years. Organising tenders, and then changing auditors, can be costly, to both auditors and companies.

Switching rates in the market are low—around 4% per year on average for listed companies (and less than 3% for FTSE 350 companies). Few companies have an explicit policy of switching auditors at regular intervals. Oxera's econometric analysis suggests that clients of the leading audit firms are even less likely to switch than the average.

## Market concentration

The audit market in the UK is highly, and persistently, concentrated. Concentration has increased over the last ten years mainly due to the merger of Price Waterhouse with Coopers & Lybrand (1998) and the folding of Arthur Andersen UK into Deloitte (2002).

There are material differences between the Big Four audit firms and the mid-tier firms. In particular, there is a significant gap, in terms of size, between the largest of the mid-tier firms and the smallest of the Big Four. Although, within the UK, PwC is significantly larger than the second-largest firm, worldwide the Big Four are more evenly matched.

Two segments of the market—FTSE 100 and FTSE 250—are supplied audit services almost exclusively by the Big Four, which audit all but one FTSE 100 companies, and 242 FTSE 250 companies. The other segment of the market—smaller listed companies—is supplied by both the Big Four and the mid-tier firms. Even here, the Big Four individually have significantly higher market shares than the mid-tier firms, with the exception of the Alternative Investment Market (AIM).

In addition, there is some indication that the audit of banking and insurance companies, and possibly other sectors with 'complex' audit requirements, may form separate sub-segments within the FTSE 100. Concentration among auditors in the banking and insurance sectors is particularly high, with only three audit firms possessing significant market share in either sector in the FTSE 350.

## Market outcomes

### Concentration and audit fees

The Oxera panel dataset confirms that during 1995–2004, audit fees on average increased 11.7% per annum in real terms (between 2000 and 2004 the growth rate was faster). However, growth in audit fees is less apparent when expressed in terms of percentage of company turnover (which may be a first approximation of the amount of work required to

audit that company). The limited information on operating margins of the Big Four firms suggests that part of the fee increases in recent years is attributable to increases in costs, which might be due to various factors, including the changes in regulation and accounting rules.

The econometric analysis undertaken by Oxera on the relationship between market structure and audit fees controlled for factors specific to each company, sector and year, to isolate the effects on fees of market concentration and auditor market shares. The results, based on data for 1995–2004, show that market concentration (as measured by the HHI per sector in any given year) and the market share of a given auditor in a given sector/year both have a statistically significant and positive impact on audit fees. This result is in line with economic theory and with several other recent empirical studies (and is separate from the impact of increased costs on audit fees).

To illustrate the order of magnitude of this impact, Oxera considered the effects of the merger in 1998 between Price Waterhouse and Coopers & Lybrand, as predicted by the model. The merger has affected the HHI and the market shares of the merged entity, both of which have a separate impact on audit fees in the model. In all, with the benefit of hindsight, Oxera's model indicates that the PwC merger led to a price increase which could have been in the order of around 12% from one year to the next—8% for the market as a whole, and another 4% for the clients of the merged entity.

### Concentration and choice

A small number of UK-listed companies, primarily in the banking sector of the FTSE 100, have no effective choice of auditor in the short run. This elimination of choice is driven by high market concentration, auditor independence rules and supply-side constraints. A wider range of UK-listed companies have a choice of auditor that is circumscribed by auditor independence rules and the prevalence of the Big Four, such that they face an effective choice of only two or three audit firms. Over one-third of the FTSE 350 audit committee chairs surveyed by Oxera do not feel that their company has sufficient choice of auditor.

Oxera's in-depth interviews revealed that companies are concerned about a combination of increased concentration and tighter auditor independence regulation, which has reduced competitive pressure in the market for auditing large listed companies.

Companies are also concerned about the difficulty for the largest multinationals in finding an accounting advisor on complex transactions (in particular, mergers and acquisitions, M&A) that is not conflicted out. This could leave a company without sufficient due diligence advice, unless it can accept a situation where the accounting firm is also acting for a rival bidder or the target company.

A view expressed by some interviewees is that the capital markets are currently vulnerable, given the concern that, at some juncture, one of the Big Four may exit the market (in a situation similar to Arthur Andersen). The vulnerability is particularly acute since the largest companies, which have the most bearing on investor confidence, are also those with the fewest alternatives to their current auditor.

Nonetheless, the general perception is that audit quality in the UK has, as yet, largely been maintained at acceptable standards, and some competitive pressure remains for the audit business of those large companies that still have a choice among the Big Four firms.

## Market dynamics going forward

### Entry/expansion by mid-tier firms

Oxera has analysed the economics of an immediate entry by a mid-tier firm into the large company audit market, and of a similar business case analysis of a stepwise expansion by a mid-tier firm culminating in winning FTSE 100 clients. The overall results indicate that, unless

market conditions and perceptions change, substantial entry into the FTSE 100 and FTSE 250 segments to present a realistic challenge to the Big Four does not seem to be economic as a pure financial investment exercise.

The result of Oxera's analysis is that, while operating in the FTSE 100 and FTSE 250 segments can in principle be profitable, the initial expansion in the short term (beyond a small number of clients) is problematic due to significant barriers to entry, which raise the cost of market entry. The most important barriers, in order of importance, are the need:

– to acquire a credible reputation with FTSE 100 and FTSE 250 companies and their investors, thereby overcoming the perception bias (a long-term process, which involves gaining a 'critical mass' of large audit clients);

– for an extensive, and integrated international network (again, likely to be a long-term process, due to coordination problems);

– for substantial resources and expertise (eg, an audit partner with FTSE 100 experience) to audit large, complex, international companies.

In the model, these entry barriers are reflected in:

– significant investment required for market entry;
– a long investment horizon;
– a long payback period to any potential investment;
– significant business risks when competing against incumbents.

An additional barrier to entry derives from the nature of the partnership structure, which renders the investment unattractive to some of the existing partners even if it is attractive to other partners. Crucially, low tendering and switching rates, as well as significant uncertainties concerning the size of the required initial investment, seem likely to result in an unattractive risk-to-reward trade-off. Building a credible reputation via acquisition of larger clients is difficult, given the low frequency of tendering.

**The four-to-three scenario**
The interviews suggest that any loss of a Big Four firm would most likely be precipitated by the start of a civil or criminal prosecution for professional misconduct, causing a loss of credible reputation. In the medium term, the major effects of a four-to-three scenario would be to exacerbate problems around auditor choice, requiring regulators to make exceptions to auditor independence rules, and causing potential gridlock in complex transactions.

Given the existing problem of choice for certain large companies in complex sectors (particularly financial services), the exit of one Big Four firm could only increase the number of FTSE 350 companies in this situation. A four-to-three scenario could also result in loss of investor confidence in the effective operation of the audit market.

Evidence from the interviews suggests that market entry by a mid-tier firm to become a major challenger to the remaining large audit firms in the event of the four-to-three scenario is unlikely. Further analysis based on the market entry model indicates that only if existing barriers to entry in terms of perception/reputation and low switching rates could be reduced might such market entry become feasible.

## Concluding remarks

In relation to the broader policy issues in the audit market, this research has highlighted that:

– competition is not working as well as it would with a greater number of competitors in the markets for auditing FTSE 100 and FTSE 250 companies;

– in every group interviewed by Oxera, the near 100% combined market share of the Big Four in auditing large companies is not regarded as healthy for competition or choice;
– substantial entry or expansion by the mid-tier firms into the audit of FTSE 350 companies may not be economical unless current market conditions and perceptions change;
– for some companies, the lack of choice has resulted in a certain degree of power for the audit firm in the bargaining process, and an inability to change auditor;
– for these same companies, the potential for gridlock in M&A advice due to lack of choice is an additional concern.

Oxera's findings need to be seen in the wider policy context of the audit market. This report, which focuses on UK-listed companies, has not examined in detail the role of auditor liability, nor attempted to assess the level of quality delivered in the audit market. The conclusions drawn from this study should therefore be set in the context of these wider issues, since in any market where regulation plays a significant role, the operation of competition cannot be seen to deliver market outcomes independently of the wider regulatory environment.

# Contents


| | | |
|---|---|---|
| **1** | **Introduction** | **1** |
| 1.1 | Remit of the Oxera study | 1 |
| 1.2 | Broader context of the Oxera study | 2 |
| 1.3 | Scope of the Oxera study | 7 |
| 1.4 | Structure of this report | 10 |
| **2** | **Methodology and data sources** | **13** |
| 2.1 | Overall analytical approach | 13 |
| 2.2 | Workstream 1: In-depth interviews | 14 |
| 2.3 | Workstream 2: Audit committee chairs survey | 16 |
| 2.4 | Workstream 3: Econometric analysis | 18 |
| 2.5 | Workstream 4: Entry model | 21 |
| **3** | **The dynamics of auditor selection** | **23** |
| 3.1 | The nature of the audit product | 23 |
| 3.2 | Auditor selection | 26 |
| 3.3 | Tendering and auditor switching | 42 |
| 3.4 | Summary | 52 |
| **4** | **Market concentration** | **55** |
| 4.1 | Size of the market and main players | 55 |
| 4.2 | Market segmentation | 57 |
| 4.3 | Indicators of concentration | 60 |
| 4.4 | Summary | 65 |
| **5** | **Market outcomes** | **67** |
| 5.1 | Trends and patterns in audit fees | 67 |
| 5.2 | Concentration and audit fees—econometric analysis | 73 |
| 5.3 | Concentration and the extent of choice | 80 |
| 5.4 | Consequences of the lack of choice | 85 |
| 5.5 | Summary | 90 |
| **6** | **Market dynamics going forward** | **93** |
| 6.1 | Analysis of entry or expansion by the mid-tier firms | 93 |
| 6.2 | Immediate entry into the market for the audit of FTSE 100 companies | 94 |
| 6.3 | Incremental entry into the market for the audit of FTSE 250 and FTSE 100 companies | 98 |
| 6.4 | Implications of a four-to-three scenario | 111 |
| 6.5 | Summary | 115 |
| **7** | **Concluding comments** | **117** |
| **Appendix 1** | **Audit committee chairs survey** | **119** |
| **Appendix 2** | **Econometric analysis** | **137** |

# List of tables


Table 2.1 Interview programme 16
Table 2.2 Size and sector distribution of the survey sample 17
Table 2.3 Which firms has your company used for audit and other accounting services over the last 12 months? 18
Table 2.4 Companies in the Oxera panel dataset, 2004 20
Table 2.5 Descriptive statistics of the Oxera panel dataset, 1995 prices 21
Table 3.1 Average importance attached by audit committee chairs to stakeholders' opinions in audit selection 27
Table 3.2 Average importance attached by audit committee chairs to factors influencing auditor selection 31
Table 3.3 How well do audit committee chairs know each audit firm? Mean for the total sample and by size of company 38
Table 3.4 Proportion of companies who regard a particular audit firm as a reasonable substitute for their current auditor 39
Table 3.5 Approximately what size of reduction in the audit fee would persuade you to consider a mid-tier accounting firm for your company's audit? 41
Table 3.6 Frequency of tendering of audit services in the last ten years 43
Table 3.7 Percentage of listed companies that switched auditors in 1996–2004 44
Table 3.8 Companies with a policy of changing auditors after a set period 45
Table 3.9 Importance attached to factors that might trigger switching by audit committee chairs 46
Table 3.10 Significance attached by audit committee chairs to factors that might discourage switching 48
Table 3.11 Variables included in the econometric analysis on switching 50
Table 3.12 Impact of market characteristics on the number of switches, cross-sectional data for 2004 and panel data for 1995–2004 51
Table 4.1 Largest accountancy firms by audit fee income in the UK, 2004 56
Table 4.2 Largest accountancy firms globally, 2004 57
Table 4.3 Number of FTSE 100 and FTSE 250 companies audited by firm, 2005 60
Table 4.4 Concentration indicators of the audit market measured by number of audit clients, by index, 2005 61
Table 4.5 Concentration indicators of the audit market (by value of audit fees) for the Oxera panel dataset of companies, by index, 2004 61
Table 5.1 Relationship between audit fee and audit fee as a % of turnover, Oxera panel dataset, by index and company type, 2004 70
Table 5.2 Indication of the differential in audit fees between the Big Four and mid-tier firms 71
Table 5.3 Variables included in the econometric analysis of market structure and audit fees 74
Table 5.4 Impact of market characteristics on audit fees, Oxera panel dataset, 1995–2004 76
Table 6.1 Summary of key modelling assumptions 103
Table 6.2 IRR sensitivity to assumptions on liability risk, FTSE 250 foothold (step 1) 104
Table 6.3 IRR sensitivity to assumptions on investment period, FTSE 250 foothold (step 1) 104
Table 6.4 IRR sensitivity to assumptions on initial investment, FTSE 250 foothold (step 1) 105
Table 6.5 NPV sensitivity to assumptions on investment per partner, FTSE 250 foothold (step 1) 105
Table 6.6 NPV sensitivity to assumptions on investment per partner, FTSE 250 expansion and consolidation (step 2) 106
Table 6.7 IRR sensitivity to assumptions on liability risk, FTSE 250 expansion and consolidation (step 2) 106

Table 6.8 IRR sensitivity to assumptions on investment period, FTSE 250 expansion and consolidation (step 2) 107
Table 6.9 IRR sensitivity to assumptions on initial investment, FTSE 250 expansion and consolidation (step 2) 107
Table 6.10 IRR sensitivity to assumptions on liability risk, FTSE 100 foothold (step 3) 108
Table 6.11 NPV sensitivity to investment per partner, FTSE 100 foothold (step 3) 108
Table 6.12 IRR sensitivity to assumptions on investment period, FTSE 100 foothold (step 3) 108
Table 6.13 IRR sensitivity to assumptions on initial investment, FTSE 100 foothold (step 3) 109
Table 6.14 IRR sensitivity to assumptions on investment period, FTSE 250 foothold (step 1) 115
Table A1.1 Which firm(s) has your company used for audit and other accounting services over the last 12 months? 125
Table A1.2 Frequency of tendering 125
Table A1.3 Most important factors influencing choice of auditor 126
Table A1.4 Importance attached to most important factors influencing auditor selection by audit committee chairs 127
Table A1.5 Does your company have a policy of changing auditors after a set period? 127
Table A1.6 Importance attached to factors triggering switching by audit committee chairs 128
Table A1.7 Factors discouraging companies from switching 128
Table A1.8 Importance attached to stakeholders' opinions by audit committee chairs in audit selection 129
Table A1.9 How well do audit committee chairs know each audit firm? 129
Table A1.10 Of the accounting firms you have heard of, which would you consider reasonable substitutes for your current auditor, notwithstanding potential conflicts of interest? 130
Table A1.11 Firms effectively conflicted out from providing audit services 130
Table A1.12 Likelihood of considering a mid-tier firm for audit purposes 131
Table A1.13 Reasons for not considering a mid-tier auditor 131
Table A1.14 What reduction, if any, in the audit fee would persuade you to consider a mid-tier accounting firm for your company's audit? 132
Table A1.15 Which mid-tier firms do you think are technically capable of providing your company's audit? 132
Table A1.16 Do you think there would be any significant differences in the quality of the audit provided by mid-tier firms compared with the Big Four? 133
Table A1.17 Likelihood of choosing a mid-tier firm 133
Table A1.18 Factors that could make a mid-tier firm an alternative to a Big Four firm 134
Table A1.19 Which of the following hypothetical audit firms would represent a serious alternative to a Big Four firm for your company's audit? 134
Table A1.20 Factors excluding a firm other than the current auditor from providing audit services 134
Table A1.21 'Currently, there is enough choice of alternative auditors in the market for my company to choose from' 135
Table A2.1 Step-wise inclusion of explanatory variables in modelling the impact of market characteristics on audit fees, Oxera panel data, 1995–2004 143
Table A2.2 Impact of market characteristics on audit fees, panel data for 1995–2004, random effects versus fixed effects 145
Table A2.3 Impact of market characteristics on audit fees, panel data for 1995–2004, *random effects* estimator 146
Table A2.4 Impact of market characteristics on audit fees, panel data for 1995-2004, *fixed effects* estimator 147
Table A2.5 Panel data unit root test 148
Table A2.6 Dummy coefficients estimated for the impact of market characteristics on audit fees and on the number of switches 151

# List of figures


Figure 1.1 Conceptual framework 8
Figure 1.2 Top 250 UK-listed companies ranked by market value 10
Figure 1.3 Report structure 11
Figure 3.1 Components of the audit product 23
Figure 3.2 Importance attached by audit committee chairs to stakeholders' opinions in audit selection 27
Figure 3.3 Most important factors influencing auditor selection according to audit committee chairs 30
Figure 3.4 Importance attached by audit committee chairs to main factors influencing auditor selection 31
Figure 3.5 Most important reasons for not considering a mid-tier auditor according to audit committee chairs 34
Figure 3.6 Number of audit committee chairs who would consider a mid-tier firm to be technically capable of providing the company's audit 36
Figure 3.7 Audit committee chairs' perception of quality differences between the Big Four and the mid-tier firms 37
Figure 3.8 How well do audit committee chairs know each audit firm? 38
Figure 3.9 Likelihood of considering a mid-tier auditor for the company's audit 40
Figure 3.10 Impact on competition of the components of the audit product 41
Figure 3.11 Importance attached to factors that might trigger switching by audit committee chairs 46
Figure 3.12 Significance attached by audit committee chairs to factors that might discourage switching 48
Figure 4.1 Development of market shares among the largest accounting firms in the UK, 1995–2004 (by audit fee) 62
Figure 4.2 HHI of the listed companies in the Oxera panel dataset, 1995–2004 63
Figure 4.3 C4 and C1 of the listed companies in the Oxera panel dataset, 1995–2004 63
Figure 4.4 C1 by FTSE 350 sector in the Oxera panel dataset, 2004 64
Figure 4.5 C4 by FTSE 350 sector in the Oxera panel dataset, 2004 64
Figure 5.1 Median of UK audit fees, Oxera panel dataset 68
Figure 5.2 Median of audit fees as a percentage of turnover for listed companies in the Oxera panel dataset 69
Figure 5.3 Standard deviation and average of audit fee as % of turnover by sector, 1995–2004 70
Figure 5.4 Audit and assurance turnover of the Big Four, 2002–05 72
Figure 5.5 Operating margins of the Big Four, 2002–05 73
Figure A2.1 Stylised panel dataset 138
Figure A2.2 Logged HHI against logged auditor market share 149

# 1 Introduction

## 1.1 Remit of the Oxera study

This Oxera study was commissioned in September 2005 by the Department of Trade and Industry (DTI) and the Financial Reporting Council (FRC). Both institutions have a core interest in monitoring and improving the effectiveness of auditing in the UK, which is crucial to the credibility of corporate reporting as a whole. Auditors have an important role in ensuring business trust and confidence, and independent audits provide the key link between financial statements and their credibility to the investing public. Shareholders rely on the quality of audits to ensure that the financial statements prepared by directors present a true and fair view of the financial position of a company.

The DTI supports the view that competitive markets, characterised by many competitors and low barriers to entry, are the main drivers of productivity, efficiency, product development, fair pricing and consumer choice. The DTI's policy objectives include the promotion of competitive markets.

A number of recent developments have raised concerns about the state of competition and choice in the audit market, in particular in relation to the highly concentrated market structure, with the Big Four audit firms—Deloitte & Touche, Ernst & Young, KPMG, and PricewaterhouseCoopers (PwC)—being by far the largest auditors (in particular, for the larger listed companies), in both the UK and globally, and the possibility of this becoming the 'Big Three' if one of them exits the market.

Although these concerns are widespread across the investment community, companies and regulators globally, there is as yet little robust analysis of the following fundamental questions.

– What are the drivers of competition and the choice of auditor by companies?

– What would happen if the market structure were to transform into a Big Three or even Big Two of major audit firms?

– What are the implications of the status quo, as well as of a hypothetical further increase in market concentration for the provision of audit services?

– What, if anything, can be done to prevent such an increase in concentration?

The aim of this Oxera study is to contribute to the understanding of the audit market by analysing in depth the factors that determine companies' choice of auditor, and the dynamics of the evolution of the market structure. Specifically, in order to respond to the mandate to assess the competitive environment for audit services, the study seeks to answer the following questions.

– What patterns of concentration exist in the UK audit market and what factors have led to the emergence of these patterns?

– What factors underpin a company's choice of provider of audit services?

– How important are the roles of audit committee chairs, company directors, shareholders and other stakeholders in influencing this choice?

– What factors influence whether companies switch auditors?

– How do supply-side determinants and strategic considerations by the audit firms contribute to the current market structure?

– To what extent do barriers to entry or expansion exist that might contribute to the current market structure, or might prevent the emergence of more competition in the provision of audit services to larger listed companies?

To address these questions, Oxera has undertaken four main analytical workstreams.

– A total of **67 in-depth interviews** with stakeholders, including the Big Four audit firms, the mid-tier audit firms, regulators, industry bodies, chairs of audit committees of UK-listed companies, chief executive officers(CEOs)/finance directors of UK-listed and private companies, institutional investors and their advisers, and other experts.

– A **telephone survey of 50 chairs of audit committees** of UK-listed companies. The survey was designed and analysed by Oxera and carried out by market research agency, MORI.

– **Statistical/econometric analysis** of a representative sample of more than 700 UK-listed companies from across the spectrum of market segments and industries, covering a ten-year period (1995 to 2004). This database (the Oxera panel dataset) has been compiled by Oxera specifically for this study using data obtained from FAME.[1]

– Development of a **strategic entry model**, to explore the financial barriers to mid-tier audit firms expanding into the provision of audit services to FTSE 350 companies. Oxera received input from a number of Big Four and mid-tier firms on key parameters for the model.

These workstreams are described in greater detail in section 2: Methodology.

Sections 1.2 and 1.3 below explain further the broader context and the scope of the Oxera study. Section 1.4 describes the contents of the remaining sections of the report.

## 1.2 Broader context of the Oxera study

### 1.2.1 Concerns about concentration among audit firms

There has been concern about increasing concentration in the audit market globally since at least 1989, when two mergers reduced the then Big Eight accounting firms to the Big Six.[2] These concerns were exacerbated in 1997, when two mergers between Big Six firms were under consideration. Only one of these materialised: Price Waterhouse merged with Coopers & Lybrand to form PwC (the merger between Ernst & Young and KPMG was abandoned).

The European Commission, when reviewing the Price Waterhouse/Coopers & Lybrand merger under competition law, signalled that the existence of only four large audit firms might lead to 'oligopolistic dominance'.[3] Specifically, the Commission focused on what it defined as the market for audit and accounting services to large companies. It considered that although, individually, none of the large audit firms may be dominant, collectively they might have 'joint dominance' if their number were reduced to four. The Commission based this finding on factors such as the slow rate of growth in demand, the low price elasticity of demand, the

[1] The FAME (Financial Analysis Made Easy) database contains information on 3.1m companies in the UK and Ireland.

[2] In 1989 Ernst & Whinney merged with Arthur Young to form Ernst & Young, and, in the USA, Deloitte Haskins & Sells merged with Touche Ross to form Deloitte & Touche. (In the UK, this latter transaction was different, with Coopers & Lybrand merging with Deloitte, and Touche Ross later changing its name to Deloitte & Touche.) A third proposed merger in 1989, between Arthur Andersen and Price Waterhouse, was abandoned.

[3] European Commission (1998), 'Case No IV/M.1016—Price Waterhouse/Coopers & Lybrand: Commission Decision of May 20th 1998'.

relative homogeneity of the audit product, market transparency, and a low rate of innovation.[4] Yet, in part because the Ernst & Young/KPMG merger was abandoned during the course of the investigation, leaving five audit firms in the market, the Commission cleared the Price Waterhouse/Coopers & Lybrand merger in May 1998.

The dissolution of Arthur Andersen in 2002, which led to the current situation of the Big Four, significantly increased the concerns about concentration.[5] In 2003, the US General Accounting Office published a study on consolidation and competition among accounting firms.[6] Competition authorities also looked into this at the time. The European Commission reviewed the acquisition by the UK division of Deloitte of the UK division of Arthur Andersen.[7] In line with its previous merger inquiry into PwC, the Commission considered that collective dominance could not be excluded, but it nonetheless allowed the acquisition on the basis that the reduction from five to four global accounting firms was 'inevitable', and that no other dissolution scenario could be established in which competition would be harmed less.[8]

During 2005, there was a concern (whether perceived or real) that KPMG's global network might collapse due to legal problems in the US market. These problems arose in relation to an alleged fraudulent tax shelter scheme under investigation by the US Department of Justice. In August 2005, a settlement between KPMG and the Department of Justice was announced, with only certain individuals being prosecuted, thereby removing concerns about a collapse of the firm as a whole.[9]

Nevertheless, the KPMG episode highlights the potential systemic risk to the efficient functioning of capital markets if any of the Big Four firms were to go out of business. While the legal arrangements in place might prevent direct cross-border claims and recourse to other partnerships around the world, the concerns are that a collapse of a partnership in a main financial market, such as the USA, might result in the unravelling of the global structure of a particular firm (as happened to Arthur Andersen). The episode also reportedly led to the outgoing chair of the US regulatory body, the Public Company Accounting Oversight Board, remarking that regulators would not know what to do if one of the Big Four failed.[10]

### 1.2.2 Concerns about auditor independence and quality

The dissolution of Arthur Andersen also intensified the policy debate on auditor independence and quality. During the 1980s and 1990s, the large audit firms significantly expanded their non-audit services (mainly tax advice, corporate finance, IT and management consultancy). A potential conflict of interest arises if these services are provided to audit clients, which could affect the independence and quality of the audit—several commentators point to the role of Arthur Andersen in the Enron case as a prime example.[11]

The Sarbanes-Oxley Act 2002 was introduced in the USA following the dissolution of Arthur Andersen. Section 201 of the Act makes it unlawful for audit firms to provide any non-audit service to an audit client, including the following services ('prohibited activities'):

[4] According to economic theory, these factors could all facilitate 'tacit collusion' between the few firms in the market. This theory has been enshrined in the merger control rules in many jurisdictions, which can prohibit mergers in these circumstances on the basis that they 'significantly lessen competition'. See, for example, Competition Commission (2003), 'Merger References: Competition Commission Guidelines', July.

[5] In the UK, Deloitte & Touche acquired Arthur Andersen UK after the dissolution of Arthur Andersen.

[6] US General Accounting Office (2003), 'Public Accounting Firms: Mandated Study on Competition and Consolidation', July. This study was mandated under the Sarbanes-Oxley Act 2002.

[7] European Commission (2002), 'Case No COMP/M.2810—Deloitte & Touche/Andersen (UK)', July 1st.

[8] Indeed, the Commission noted that if PwC rather than Deloitte had acquired Arthur Andersen UK, this would have strengthened PwC's position as market leader and could have raised single-firm dominance issues.

[9] Department of Justice (2005), 'KPMG to Pay $456 Million for Criminal Violations in Relation to Largest-Ever Tax Shelter Fraud Case', press release, August 29th.

[10] *Financial Times* (2005), 'US audit watchdog warns about industry', September 28th.

[11] See, for example, Wyatt, A.R. (2003), 'Accounting Professionalism: They just don't get it!', speech at the American Accounting Association Annual Meeting, Honolulu, August 4th.

– bookkeeping or other services related to the accounting records or financial statements of the audit client;
– design and implementation of financial information systems;
– appraisal or valuation services, fairness opinions, or contribution-in-kind reports;
– actuarial services;
– internal audit outsourcing services;
– management functions or human resources;
– broker/dealer, investment adviser, or investment banking services;
– legal services and expert services unrelated to the audit;
– any other service that is not permitted by regulation.

While some exemptions from the above are possible, overall the Sarbanes-Oxley Act is aimed at preventing conflicts of interest between audit and non-audit services. In addition, Section 203 of the Act makes it mandatory for the lead audit partner and the reviewing partner to be rotated every five years.

Although the Sarbanes-Oxley Act is US law, it has been put to Oxera that the Act has had an impact on auditing practice worldwide, for two reasons: many multinational companies have a US listing; and regulators, auditors and companies in many other jurisdictions have adopted similar rules and practices.

In the UK, auditor independence and quality have also formed part of a broader debate on corporate governance. Following the Higgs and Smith reports (both 2003), the FRC adopted the Combined Code on Corporate Governance (2003), which recommends that listed companies have an audit committee comprising independent non-executive directors.[12] For a FTSE 350 company, the audit committee should be made up of at least three people (two for other UK-listed companies). According to the Code, responsibilities of the audit committee include making recommendations to the board regarding the appointment, re-appointment, and removal of external auditors, along with their remuneration and terms of engagement. An important policy principle behind the Code is that a company's board should be responsible for maintaining an appropriate relationship with external auditors by complying with financial reporting and internal control principles.

Additionally, one of the 'Ethical Standards' of the Auditing Practices Board (issued in December 2004) prohibits audit firms from taking on certain types of non-audit work for the companies they audit, and requires certain safeguards to be put in place to isolate audit from non-audit work.[13]

With regard to audit quality, the Audit Quality Forum (AQF)[14] is an important component in the ongoing dialogue between companies, audit firms and regulators. This forum has established several key areas of interest in its work to enhance confidence in UK independent auditing. One such area is the level of concentration and potential lack of choice in the audit market. An AQF report published in July 2005 called for research on competition and barriers to choice.[15]

### 1.2.3 New regulatory framework in the UK

UK company law requires auditors to be regulated.[16] In 2004 the Companies (Audit, Investigations and Community Enterprise) Act was introduced, securing the FRC's funding through a grant and a levy, and permitting the Secretary of State for Trade and Industry to

[12] See Higgs, D. (2003), 'Review of the Role and Effectiveness of Non-executive Directors', January; Smith, R. (2003), 'Audit Committees: Combined Code Guidance', January; and FRC (2003), 'Combined Code on Corporate Governance', July.
[13] Auditing Practices Board (2004), 'APB Ethical Standards 5: Non-audit services provided to audit clients', December.
[14] A body convened by the Institute of Chartered Accountants in England and Wales.
[15] AQF (2005), 'Audit Quality Forum calls for research into competition and choice in the audit market', press release, July 26th.
[16] Institute of Chartered Accountants in England and Wales (2002), 'Audit Quality—Abridged', November, p. 20.

delegate to the Professional Oversight Board for Accountancy (part of the FRC) the powers to recognise the professional accountancy bodies.

The FRC has a wide range of functions; some of its specific areas of responsibility include:

– the setting of accounting and audit standards;
– their enforcement and monitoring;
– the oversight of major professional accountancy bodies;
– the statutory oversight and regulation of auditors.[17]

The FRC incorporates several operating bodies:

– Accounting Standards Board (ASB);
– Auditing Practices Board (APB);
– Professional Oversight Board for Accountancy (POBA);
– Financial Reporting Review Panel (FRRP);
– Accountancy Investigation and Discipline Board (AIDB); and
– with effect from April 2006, the Board for Actuarial Standards.

Each of these bodies performs functions varying from setting standards to monitoring the quality of audits. For example, the APB sets the auditing standards and addresses other issues relating to independence, objectivity and integrity for auditors. In order to maintain public confidence, the Audit Inspection Unit (AIU) within the POBA monitors the audit quality of economically significant entities. Likewise, the FRRP ensures that the financial information provided by public and large private companies complies with reporting requirements.

As noted above, the APB has issued five Ethical Standards for auditors to follow when auditing financial statements. These standards relate to:

– integrity, objectivity and independence;
– financial, business, employment and personal relationships;
– long association with the audit engagement;
– fees, remuneration and evaluation policies, litigation, gifts and hospitality;
– non-audit services provided to audit clients.

### 1.2.4 Company law in UK and EU

In October 2005 European Finance Ministers gave political agreement to the Eighth Company Law Directive on Statutory Audit of annual accounts and consolidated accounts, which is expected to be implemented in the UK in mid-2008. The objectives of the Directive are to restore credibility of the statutory audit function, and to enhance protection against the type of problems that arose at the Ahold and Parmalat cases.[18] According to Charlie McCreevy, Internal Market Commissioner, the Directive will:

> clarify the duties of statutory auditors, their independence and their ethics. It will also require the application of international standards on auditing and will set the criteria for robust public foresight of the audit profession.[19]

Some key principles of the Directive are as follows:

[17] DTI (2003), 'Review of the Regulatory Regime of the Accountancy Profession', URN 03/589, January, p. 5.

[18] In the 2003 Ahold case, total overstatements of pre-tax earnings of approximately US$880m were identified in relation to its US foodservice subsidiary. See Ahold (2003), 'Ahold announces results of U.S. Foodservice forensic accounting investigation', press release, May 8th.
Parmalat filed for bankruptcy protection in December 2003. The company has since disclosed more than €14 billion of debt, around eight times the amount reported by its former management. See Parmalat Finanziaria Spa (2003), 'Press release', December 29th.

[19] European Commission (2005), 'Charlie McCreevy, Commissioner for Internal Market and Services, welcomes the agreement reached in Council on the 8th Company Law Directive on statutory audit', press release, October 11th.

– Member States must follow a process for the adoption of International Standards on Auditing;
– auditor independence is considered very important and it is recommended that safeguards be adopted to ensure that auditors remain independent;
– the fee for a statutory audit cannot be based on any form of contingency and should not be influenced by the provision of additional services to the audited entity.

The Directive outlines the following additional requirements for auditors of public interest entities:[20]

– to disclose in their financial statements the audit and non-audit fees paid to auditors;
– the audit partner should be changed every seven years;
– at least every three years the audit quality of the accounting firms that audit public interest entities should be reviewed;
– only the audit committee should recommend the appointment of auditors to the shareholders;
– auditors should raise any concerns/threats to their independence with the audit committee, and should give the audit committee written confirmation of their independence.

In the UK, the Company Law Reform Bill was introduced in the House of Lords on November 1st 2005. Its purpose is to make the revised law easier to understand and more flexible, thereby keeping the regulatory burden to a minimum, and promoting shareholder engagement and a long-term investment culture. The bill also addresses auditor liability and audit quality—in particular, it proposes 'to relax the prohibition on provisions preventing auditors from limiting their liability and to deliver further improvements in the quality of the British audit'.[21] This will allow companies to enter into a contractual arrangement with their auditors to limit the audit firm's liability to not less than what a court would interpret as a 'fair and reasonable' amount.

Some short-term initiatives to improve audit quality and value have also been proposed. These include the public disclosure of the audit engagement letters (so as to gain a better understanding of the scope and terms of audit); shareholders' right to question auditors; the lead audit partner's signature on audit reports; and strengthening the process of disclosure in relation to auditor resignations.

### 1.2.5 Policy debate on auditor liability

A final relevant context for this study is the ongoing debate on whether the liability of auditors should be limited. The liability reform proposals mentioned above have been put forward in response to criticisms of the apparent disproportionate liability of auditors in relation to the nature of their work, although the reform has been controversial.

In 2004 the UK Office of Fair Trading (OFT) advised the UK government on the specific issue of capping auditor liability.[22] The argument presented *against* liability caps was based on the contention that unlimited liability might lead to more careful, more in-depth, and higher-quality audit. A counterargument was that other forms of insurance available to auditors, such as professional indemnity insurance, already mitigate the effect of unlimited liability. Other arguments in favour of the reform are that it might reverse the current risk-averse mindset of audit firms and mitigate the drive towards self-protection, and that this capping might reduce

[20] The European Commission defines public interest entities as 'entities that are of significant public relevance because of the nature of their business, their size or their number of employees, in particular companies governed by the law of a Member State whose securities are admitted to trading on a regulated market of any Member State within the meaning of Article 1(13) of Council Directive 93/22/EEC, banks and other financial institutions and insurance undertakings'. See European Commission (2004), 'Proposal by the European Commission for a Directive on Statutory Audit of Annual and Consolidated Accounts', September, p. 17.

[21] DTI (2005), 'Company Law Reform Bill: Auditors' Liability and Audit Quality. Draft Regulatory Impact Assessment', p. 1.

[22] OFT (2004), 'An assessment of the implications for competition of a cap on auditors' liability', July.

barriers to entry for smaller audit firms. However, the OFT concluded that a cap on auditors' liability would be competitively neutral overall.

As part of the Eighth Company Law Directive on statutory audit, the European Commission has commissioned a study which will report by the end of 2006 on the impact of liability rules on European capital markets and related insurance conditions. That study will focus on the economic impact of alternative liability regimes, competition in the market and availability of insurance. In addition, the Commission has set up a forum of market experts from the profession, investors and financial services to provide input into the study. If appropriate, the study will be followed by policy recommendations to Member States.

## 1.3 Scope of the Oxera study

From the above overview of the broader context in which the Oxera study is being carried out, it is clear that there has been a substantial amount of debate on the audit market over the last few years in the UK and abroad. Moreover, different institutions across different jurisdictions are addressing a wide range of policy issues. It is therefore important to explain in detail the scope of the Oxera study and how it relates to the other initiatives.

### 1.3.1 Market analysis versus policy recommendations

Oxera's study is intended as an objective, independent analysis of the competitive environment and choice present in the audit market. The overarching aim of this exercise is to inform the policy debate on the issues of market structure, competition present in the market, and the implications for the stakeholders of audit services.

Importantly, Oxera has not been asked to make policy recommendations, or to assess the costs and benefits of the current legal framework and the policy options that have been considered by others.

### 1.3.2 UK versus international focus

The audit market is a global market: the Big Four dominate auditing across all major financial centres, if not globally. The concerns about auditor concentration are shared across many jurisdictions. Indeed, one key driver behind these concerns is precisely the global nature of the market—concentration is high because only a few audit firms have sufficient international reach and scale to serve multinational companies.

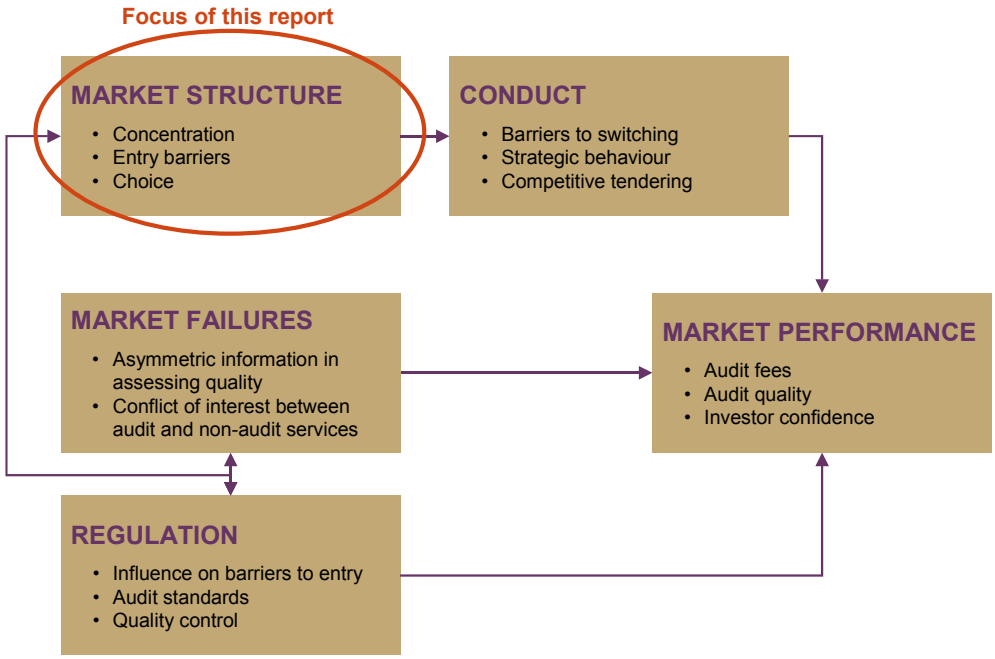
While this study, commissioned by the DTI and FRC in the UK, focuses on audits of UK-listed companies, the global nature of the audit market features prominently in the report, as most of the companies interviewed and surveyed during the course of this research have major international operations. Indeed, Oxera does not consider the primary focus on UK-listed companies a significant shortcoming or limitation of the study. The UK stock market is a major financial centre in its own right, and its efficient functioning is overseen by UK institutions such as the Financial Services Authority (FSA) and the FRC.

### 1.3.3 Focus on market structure and choice

A full market analysis of the audit market would comprise an assessment of the following features, as a minimum: market structure, conduct of firms, and market performance. This is in line with the traditional structure–conduct–performance (SCP) framework for assessing markets, as developed in the industrial organisation literature. This framework would also explore the links between these three features; for example, how market structure influences firm conduct, which in turn influences performance, but also, vice versa, how firm conduct may influence market structure. In addition, structure, conduct and performance are influenced by other factors, such as the regulatory framework and the existence of market failures.

Figure 1.1 illustrates what such an extended SCP framework might look like when applied to the audit market.

**Figure 1.1 Conceptual framework**




Source: Oxera.

The DTI and FRC have asked Oxera to focus on market structure and choice—in particular:

- the drivers behind the current level of concentration among audit firms;
- the dynamics of competition among the Big Four, and between these and the mid-tier audit firms;
- entry and expansion barriers facing the mid-tier audit firms;
- the factors that determine companies' choice of auditor in so far as it has implications for the market structure;
- the implications of the above for the effective provision of audit services—in particular, Oxera considers the implications for audit fees and available choice of auditors.

This focus on market structure and choice means that the Oxera analysis does not go into detail on some other important features of the audit market, such as quality of audit, regulation of conflicts of interest, the impact of regulation on audit firm structure and behaviour, or the investigation of other potential market failures—these features are only covered to the extent that they influence market structure and choice.

In line with the above, it is important to highlight that the following policy issues are *not* the prime focus of the Oxera study.

- **Quality of audit**—quality is an important aspect of market performance. A policy question that is not directly addressed in this study is whether the current audit market structure is delivering the optimal degree of quality. Audit quality is a core focus of the activities of the FRC and its constituent bodies—for example, the POBA, through its AIU, carries out in-depth inspections of UK audits on an annual basis, the first of which were reported upon in June 2005.[23]

[23] AIU (2005), '2004/05 Audit Quality Inspections', June.

However, the need for quality is one of the main drivers of auditor choice, and hence of market structure, and this aspect of audit quality does feature prominently in the Oxera study.

– **Conflicts of interest through non-audit services**—whether auditor independence is affected through the provision of non-audit services by the same firm was a policy question at the centre of the dissolution of Arthur Andersen and the subsequent enactment of the Sarbanes-Oxley Act 2002 in the USA. It has been put to Oxera by various stakeholders that the Sarbanes-Oxley Act has largely resolved the conflict of interest problem, whether de jure for companies with a US listing, or de facto in many other jurisdictions where similar practices have been adopted. The Oxera study does not address this issue in detail.

  Nevertheless, the interaction between audit and non-audit services can have an important impact on the market structure and the choice of auditor. For example, under current practice, the provision of non-audit services by an audit firm may often mean that this firm can no longer offer audit services (hence reducing choice to companies); in that sense, the interaction between audit and non-audit services has important implications for the overall relationship between the service provider and the company. This market feature is covered in the Oxera study.

– **Anti-competitive conduct**—the Oxera study is not intended to examine whether the Big Four (or other audit firms) are engaging in anti-competitive practices, such as collusion (whether overt or tacit) or exclusionary practices targeted at the mid-tier audit firms.[24] Nevertheless, this study does seek to shed light on the degree of competition between the Big Four firms.

### 1.3.4 Focus on the larger UK-listed companies

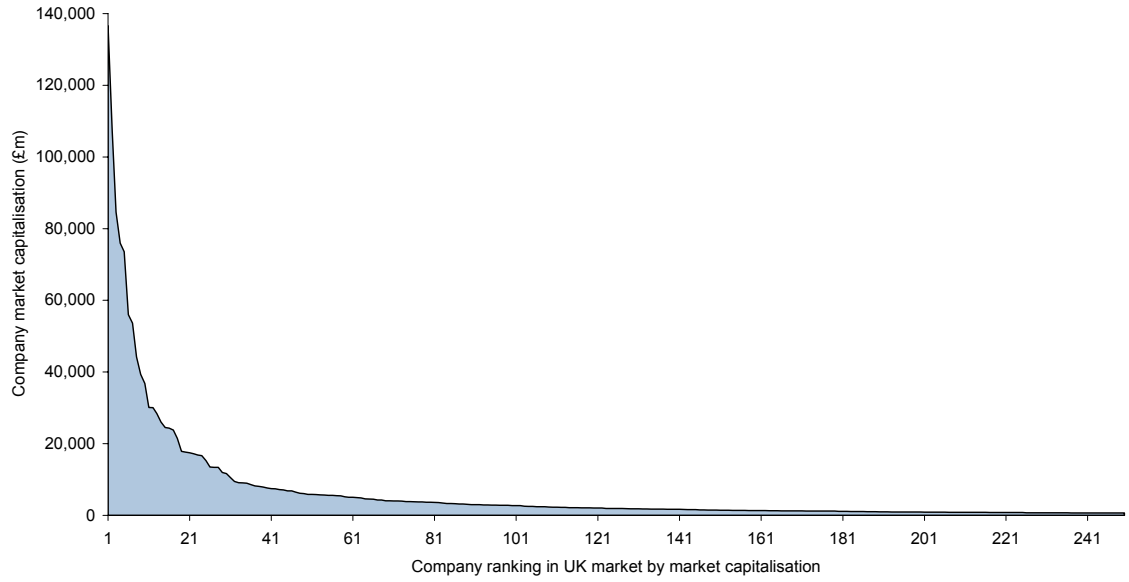
Reliance on the independent audit of financial statements is important for investors in any publicly listed company, regardless of that company's size. Independent audits are also relevant for private companies, for example, for tax purposes. The Big Four have significant audit operations across both listed and private companies. The issues of concentration and choice among audit firms are therefore of relevance to all companies.

Nevertheless, this study places greater emphasis on the larger UK-listed companies (ie, FTSE 100 and 250), not only for practical reasons, but also because, from a public policy perspective, the potential systemic risks and concerns are inherently greater for the larger companies. As illustrated in Figure 1.2, the largest 20 listed companies by market capitalisation represent 55% of the market value of the FTSE All Share.[25] If any of these companies faced a problem due to lack of choice of auditor, the market as a whole could be significantly affected.

[24] Oxera is aware of one formal investigation into collusion. In 2000, the Italian Competition Authority fined the then Big Six for price-fixing, specifically by colluding to standardise fees and coordinate client acquisition. The Authority imposed fines on the six firms totalling 4.5 billion lire (around €2.5m). See Autorità garante della concorrenza e del mercato (2000), 'The Big Six have been found liable for concluding agreements on the auditing markets', press release, February 21st.

[25] Data from Datastream, January 17th 2006.

**Figure 1.2 Top 250 UK-listed companies ranked by market value**



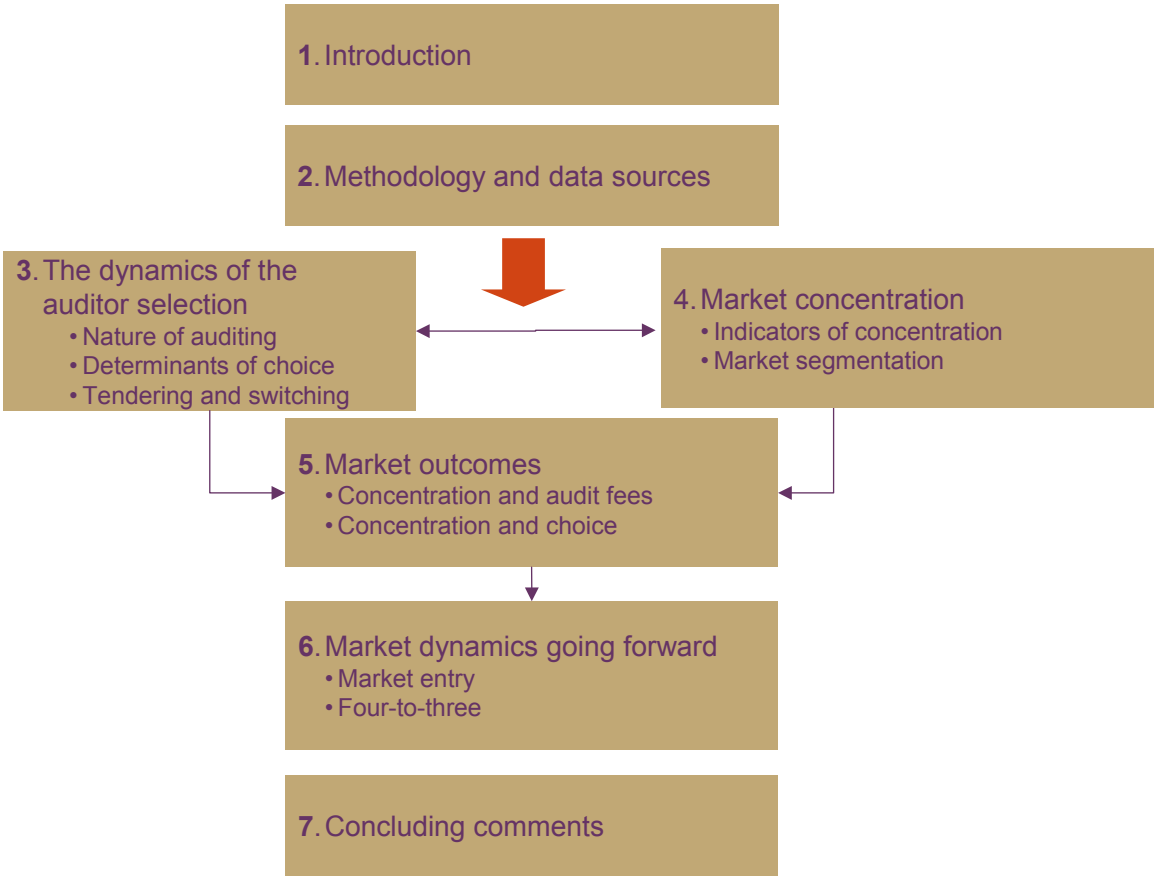

Source: Datastream January 17th 2006, and Oxera calculations.

The report does not draw a clear line between large and small listed firms. Broadly, the emphasis is on the FTSE 350 companies (which represent around 97% of the FTSE All Share), although the in-depth interviews and MORI survey also cover a number of smaller companies. The Oxera panel dataset contains information on more than 700 companies, and hence includes many smaller companies as well as the FTSE 350. Oxera has also interviewed a number of private companies and companies that have recently listed—in particular, in order to explore whether the choice of auditor is influenced at the stage when a private company goes public.

## 1.4 Structure of this report

Figure 1.3 below illustrates the structure of the report and shows how sections 2 to 7 are linked. Appendices with technical and descriptive information on the main workstreams are included at the end of the report.

**Figure 1.3 Report structure**




Source: Oxera.

# 2 Methodology and data sources

## 2.1 Overall analytical approach

In line with the objectives described in section 1, the overall analytical approach followed by Oxera has been designed to address several key questions focused on the structure of the market for audit services.

– What patterns of concentration exist in the UK audit market and what factors have led to the emergence of these patterns?

– What factors underpin a company's choice of provider of audit services?

– How important are the roles of audit committee chairs, company directors, shareholders and other stakeholders in influencing this choice?

– What factors influence whether companies switch?

– How do supply-side determinants and strategic considerations by the audit firms contribute to the current market structure?

– To what extent do barriers to entry or expansion exist that might contribute to the current market structure, or might prevent new entry in the market for the provision of audit services to larger listed companies?

Oxera followed a logical, step-wise approach in seeking to answer these questions. The four main workstreams—interviews, survey, econometric analysis and entry model—were set up to aid in this step-wise process (these workstreams are described further in the following sub-sections). The steps are also broadly reflected in the structure of this report, as illustrated in Figure 1.3.

– The first step of Oxera's analysis was to understand the nature of the audit product in so far as it might have an influence on market structure developments and the nature of competition. This issue is further addressed in section 3.1.

– The second step was to understand the characteristics of the market structure today and its evolution. This is reported upon in section 4.

– Given that the market structure is a product of the combination of the *process* for choosing an audit firm from the demand-side perspective, and changes in the supply side, the third step of the methodology has been to seek to understand in more detail how companies choose their auditor. This is dealt with in sections 3.1 and 3.2.

– The fourth step has been to investigate the supply-side factors that are likely to influence, or have influenced, the current market structure and how they interact with the demand-side processes, as described above. These issues are reported upon throughout sections 3 and 4.

– The fifth step has been to link the selection process, market structure, supply-side determinants, and the other factors described above, to provide information about the overall market dynamics and market outcomes, and hence the nature of competition present today and likely to develop in future. Market outcomes are analysed in section 5, with future market dynamics explored in section 6.

## 2.2 Workstream 1: In-depth interviews

### 2.2.1 Objective

Among the sources of information used by Oxera to analyse the market for audit services, the interview programme was key to gaining insight into the rationale behind the behaviour, perceptions, and strategic positioning of audit firms and their clients. These insights could not be obtained from the statistical data.

A total of 67 semi-structured, in-depth interviews (with 58 organisations) were held with the following types of stakeholder:

- the Big Four audit firms;
- the mid-tier audit firms;
- regulators;
- industry bodies;
- chairs of audit committees of UK-listed companies;
- CEOs/finance directors of UK-listed and large private companies;
- institutional investors;
- intermediaries (investment banks, insurers and law firms);
- academics and industry experts.

The interviews were structured around the following themes:

- current market structure;
- current regulatory framework and its impact on market structure;
- factors that determine the choice of auditor;
- determinants and dynamics of switching between auditors;
- pricing of audit services;
- quality of audit services;
- impact of non-audit services.

The main findings from the interviews are incorporated into Oxera's analysis throughout this report. The identity of the organisations and individuals interviewed has been disclosed to the DTI and FRC only. The content of the interviews has been presented to the DTI and FRC on an anonymous basis.

Oxera gratefully acknowledges the time and efforts of all the interviewees.

### 2.2.2 Selection criteria

The interviewees were not intended to be a fully representative sample of the categories from which they are drawn, but were chosen largely because it was considered that they would be able to offer insight into how, in practice, companies choose auditors, or because they have a good knowledge of specific aspects of the audit market and its operations. Even where all the parties within a category were interviewed (ie, the Big Four), the interviews were carried out on the basis of asking the views of the individuals, which do not necessarily reflect the views of their organisation. Each interviewee was therefore interviewed as an expert, rather than as a representative.

It was considered important that Oxera interview all the Big Four and major mid-tier firms. Oxera also spoke to most of the relevant regulators and industry bodies in the UK.

The largest group of interviewees came from UK-listed companies (where Oxera spoke to the audit committee chair, the CEO and/or the finance director). The criteria for selecting potential interviewees from among these companies were designed to cover the main issues arising in this analysis. In addition to targeting FTSE 100 and FTSE 250 companies

generally, which are of particular interest, Oxera sought to interview companies with certain specific features, as follows.

- **Spread across sectors**—Oxera interviewed at least one company from each SIC2 sector of the economy.[26] This was because it was put to Oxera at the start of the study that sector-specific issues play an important role in competition and choice of auditor. For example, in some sectors, such as banking, insurance and extraction, auditing is particularly complex, and some audit firms may have greater expertise than others, sometimes leading to even higher concentration than in the audit market overall.

- **Multinational companies**—Oxera interviewed several multinational companies of varying sizes (from very large to medium-sized), to explore the importance of the international networks of audit firms when auditing these companies.

- **FTSE Small Cap companies**—while the emphasis was on FTSE 350 companies, a few FTSE Small Cap companies were selected to explore whether company size influences auditor choice, and to what extent similar competition issues arise in this segment of the market.

- **Recently listed companies**—a number of large and small companies that have been listed in the last five years were included, to determine whether there are any differences between recently listed and other companies in terms of the auditors they choose and how they make their choice.

- **Companies using mid-tier auditors**—some FTSE 350 companies use a mid-tier firm. Oxera interviewed a few of these to understand the decision-making procedure that led to this choice.

- **Companies that have switched auditors**—this factor was given special importance. A number of companies that have switched auditors in the last few years were included to gain a better understanding of the factors that led to the change in auditor.

Oxera also interviewed two private companies that might go public at some point, focusing on whether the choice of auditor is influenced by the initial public offering (IPO) and at what stage such influence becomes important.

Particular importance was attached to obtaining views from institutional investors and investment banks, since these play an important role in several aspects of the audit and audit selection process. Oxera spoke to a range of types of entity from this category, including trade associations, large investment funds, brokers and investment analysts.

Finally, Oxera spoke to a number of law firms, insurance companies (to cover the issue of liability and professional indemnity), academics and other industry experts.

### 2.2.3 Overview of interviews undertaken

Table 2.1 below summarises the interviews.

[26] SIC, Standard Industry Classification. The exceptions were public administration and defence; education; health and social work; and other community, social and personal service activities.

**Table 2.1 Interview programme**

| | Total interviews | Number of organisations |
|---|---|---|
| Big Four audit firms | 6 | 4 |
| Mid-tier audit firms | 10 | 6 |
| Regulators and industry bodies | 9 | 7 |
| FTSE 100 listed companies (audit committee chairs and finance directors) | 10 | 10 |
| FTSE 250 listed companies (audit committee chairs, finance directors and CEOs) | 4 | 4 |
| Other listed companies (audit committee chairs and finance directors) | 6 | 5 |
| Private companies (finance directors) | 2 | 2 |
| Institutional investors and advisers | 13 | 13 |
| Intermediaries, academics and industry experts | 7 | 7 |
| **Total** | **67** | **58** |

Note: The interviews were undertaken during the period from September 2005 to January 2006.
Source: Oxera.

The same basic structure was used for each interview, which typically lasted between 45 minutes and 1.5 hours. However, given the nature of the expertise and experiences of the interviewees, not all interviews covered exactly the same ground. Interviews held toward the later stages of the research tended to focus on a few specific issues.

Oxera has spoken to each of the Big Four and six of the largest mid-tier firms, 14 FTSE 350 companies, and 13 organisations representing institutional investors. Together with the audit committee chairs survey (see section 2.3), the views of 19 FTSE 100 companies, 27 FTSE 250 companies, and 23 smaller listed companies have been gathered.

All interviewees were individuals at a very senior level. Within the audit firms, Oxera interviewed partners at the most senior level (including chairmen, managing partners, and heads of audit). With regard to investors, Oxera typically spoke to directors of corporate finance or corporate governance. For the listed companies, Oxera spoke, in the main, to audit committee chairs and finance directors (in some instances, separately interviewing both these representatives from the same company), and to a small number of CEOs.

Most individuals interviewed have in-depth experience of, and expertise in, the audit market. In fact, the majority of them spoke not only from the perspective of their current position, but also from other positions held in the past or currently. For example, it is not uncommon for audit committee chairs to be on (or to chair) the audit committee of other companies as well, or to have previously worked as finance director for another company. More than half of the interviewees had formerly worked at one of the large audit firms. Finally, most interviews were attended by more than one representative of the organisation contacted by Oxera.

In all, Oxera is confident that a sufficiently wide range of views from across the financial markets has been gathered, and a large pool of expertise and experience on the audit market has been tapped into.

## 2.3 Workstream 2: Audit committee chairs survey

As a complement to the in-depth interviews, and to obtain some robust statistics, Oxera surveyed 50 audit committee chairs. Designed by Oxera, this telephone survey was undertaken by market research agency, MORI, between October 2005 and January 2006. The survey contained 21 questions covering the following areas: current auditor; factors determining the choice of auditor; influence of other stakeholders; switching and tendering;

and Big Four versus mid-tier auditors. The full text of the survey, and an overview of the results by question, is presented in Appendix 1.

Table 2.2 shows a breakdown of the size and sector distribution of the 50 respondents. The survey covered a wide range of sectors and included a large proportion of FTSE 350 companies—nine from the FTSE 100 and 23 from the FTSE 250. Oxera is therefore confident that the survey results provide a good picture of the views of audit committee chairs on competition and choice in the audit market, in particular when assessed in conjunction with the findings from the in-depth interviews.

**Table 2.2 Size and sector distribution of the survey sample**

| | No. of respondents | % of respondents |
|---|---|---|
| **Size** | | |
| FTSE 100 | 9 | 18 |
| FTSE 250 | 23 | 46 |
| FTSE Small Cap | 18 | 36 |
| **Total** | **50** | **100** |
| **Sector** | | |
| Aerospace | 2 | 4 |
| Asset managers | 1 | 2 |
| Auto parts | 1 | 2 |
| Banks | 1 | 2 |
| Beverages, brewers | 1 | 2 |
| Biotechnology | 1 | 2 |
| Business support services | 3 | 6 |
| Chemicals, speciality | 1 | 2 |
| Construction | 5 | 10 |
| Defence | 2 | 4 |
| Electricity, gas and water supply | 1 | 2 |
| Electronic equipment | 3 | 6 |
| Engineering, general | 2 | 4 |
| Fixed-line telecommunication services | 3 | 6 |
| Food processors | 1 | 2 |
| Insurance | 3 | 6 |
| Investment companies (eligible for inclusion in FTSE) | 3 | 6 |
| Media agencies | 1 | 2 |
| Oil and gas, exploration and production, and services | 3 | 6 |
| Operators of restaurants and pubs | 1 | 2 |
| Property agencies | 1 | 2 |
| Publishing and printing | 1 | 2 |
| Rail, road and freight | 1 | 2 |
| Real estate holding and development | 5 | 10 |
| Retailers | 2 | 4 |
| Shipping and ports | 1 | 2 |
| **Total** | **50** | **100** |

Source: Audit committee chairs survey.

Table 2.3 shows which firms the surveyed companies use for audit and other services. In line with the market as a whole, most used a Big Four auditor in the last year. Only two used a mid-tier auditor (both FTSE Small Cap companies, one of which used a Big Four firm for their statutory audit).[27] It can also be seen that the Big Four have a sizeable presence in providing tax advice to these companies as well, and a somewhat smaller (but still important) presence in the provision of corporate finance and consulting services. The issue of how these non-audit services affect choice of auditor is explored further in this report.

**Table 2.3 Which firms has your company used for audit and other accounting services over the last 12 months? (number of respondents)**

| | Audit | Tax advice | Corporate finance | Consulting/advisory (eg, IT consultancy) |
|---|---|---|---|---|
| **Big Four** | | | | |
| PwC | 16 | 15 | 7 | 5 |
| Deloitte | 14 | 13 | 7 | 5 |
| Ernst & Young | 12 | 16 | 7 | 6 |
| KPMG | 11 | 16 | 13 | 6 |
| **Mid-tier firms** | | | | |
| BDO | 1 | 0 | 0 | 0 |
| Tenon Group | 1 | 1 | 0 | 1 |
| Grant Thornton | 0 | 0 | 2 | 1 |
| Baker Tilly | 0 | 1 | 0 | 0 |
| **Other responses** | | | | |
| None | 0 | 0 | 15 | 22 |
| Other (non-accounting) firms | 0 | 3 | 9 | 3 |
| Don't know | 0 | 1 | 1 | 6 |
| Refused | 0 | 0 | 0 | 2 |

Base: 50 respondents.
Note: Five companies cited two different firms under audit services; hence the total sums to 55. This related primarily to statutory audit and internal audit, and, in the case of one insurance company, to audit services for a number of separate syndicates.
Source: Q1: Which accounting firm or firms has your company used for audit and other accounting services over the last 12 months?, audit committee chairs survey.

## 2.4 Workstream 3: Econometric analysis

### 2.4.1 Objective

To inform about the general characteristics of the audit market in the UK at present and its development through time, Oxera constructed a database (the Oxera panel dataset) from FAME data containing information on more than 700 UK companies over a ten-year period (1995–2004).[28] This company data details auditors used, audit fees paid and other characteristics of the companies over time. Using panel data—ie, data over time for each company and across companies in each year—allows the behaviour of individual companies to be tracked through time.

[27] As also mentioned in the notes to Table 2.3, five companies used the services of more than one auditor, mainly for statutory audit and internal audit, and, in the case of one insurance company, to audit services for a number of separate syndicates.
[28] The FAME (Financial Analysis Made Easy) database contains information on 3.1m companies in the UK and Ireland.

The purpose of the analysis of financial and statistical data on UK companies has been threefold:

– to provide the necessary factual information about the market for audit services, including the level of fees for audit and audit-related services, and the number of competitors present in different segments of the market;

– to analyse the market in greater depth in a rigorous and comprehensive manner, including insights into specific aspects of the market, such as the evolution of market concentration, frequency of switching, and audit firms' presence in different sectors;

– to undertake more in-depth statistical analysis, including econometric tests of the panel, to examine potential causal relationships between company and market characteristics, such as industry, size, and auditor concentration, on the one hand, and audit fees and levels of switching, on the other.

The main results of this econometric analysis are presented in sections 3.3 (on switching) and 5.2 (on audit fees). A more detailed description of the econometric analysis is provided in Appendix 2.

### 2.4.2 The Oxera panel dataset

A company was included in the Oxera panel dataset if, in 2004, it appeared in the FTSE 350 index, the FTSE Small Cap index, or the FTSE Fledgling index, thus covering all UK-listed companies traded on the Main Market of the London Stock Exchange.[29] Added to this were the 100 largest (by turnover) *private* UK companies in the FAME database in 2004.

For each company, the following data was extracted for use in the analysis:

– current name;
– current industry sector (primary UK SIC code);
– number of employees for 2004;
– UK turnover for 2004;
– overseas turnover for 2004;
– total turnover for each year (1995–2004);
– market capitalisation for 2004;
– name of auditor in each year (1995–2004);
– audit fee in each year (1995–2004);
– non-audit fees paid to the auditor in each year (1995–2004).

Not all companies have data for all years. The company/year (panel) observations included in the analysis are, in general, those for which information on each of the audit fees, auditor, and company turnover was jointly available. Given the importance of these three items for the statistical analysis, observations were excluded if data on one of the items was not available.

In all, the Oxera panel dataset contains information on 739 companies in 2004, as shown in Table 2.4 below. It covers around three-quarters of the FTSE 350 and FTSE Small Cap, and just under 60% of the FTSE Fledgling index. The results for these companies can therefore be considered to be representative. In contrast, the panel includes only 63 private companies (albeit 63 of the 100 largest). The results for private companies should therefore be seen as indicative only.

[29] Companies listed on the Alternative Investment Market (AIM) were excluded from the analysis since reliable data over a sufficiently long period is only available for a few of them.

**Table 2.4 Companies in the Oxera panel dataset, 2004**

| | Number of companies | Total in the UK | Coverage of population in dataset |
|---|---|---|---|
| FTSE 350 | 272 | 350 | 77.7% |
| FTSE Small Cap | 233 | 327 | 71.3% |
| FTSE Fledgling | 171 | 297 | 57.6% |
| Private companies | 63 | n/a | Only largest private companies included |
| **Total** | **739** | | |

Source: Oxera panel dataset.

Taken together, the Oxera panel dataset contains a large number of company/year observations (more than 7,000), which allows a robust econometric analysis. Because the FTSE 350 has the highest representation, the results may be somewhat driven by companies in this index. This is appropriate since the scope of this study focuses on the larger UK-listed companies.[30]

### 2.4.3 Descriptive statistics of the panel dataset

Table 2.5 below provides some basic statistical information on the Oxera panel dataset. It can be seen that there is a high degree of variation in the audit fees and turnover data, as is evident by the high standard deviation of the data reported in the table. In every year, the standard deviation of average audit fees, average turnover, and average audit fee as a percentage of turnover is higher, often considerably so, than the average itself. This indicates that the distribution of the sample is skewed,[31] and information on averages should therefore be interpreted with care. The median may be a more accurate representation of the 'typical' company. The econometric analysis carried out by Oxera looked further into the reasons behind these variations.

[30] The panel selection criterion (ie, by company size) is drawn from 2004 figures, and therefore contains a selection bias—the companies that are large today may have been small, or non-existent, several years ago. Thus, going back in time, the number of companies in the panel each year declines from 739 in 2004 to 470 in 1995 (see Table 2.5).
In general, Oxera considers that this selection bias does not affect the validity of the results of the econometric analysis, and, where there is any uncertainty, this has been highlighted. There does not appear to be any a priori reason for a systematic relationship between the dimensions Oxera is measuring and the data availability. Most of the relevant results relate to company turnover, the size of their audit fee or their sector classification, and not their particular index classification in 2004 (although this is clearly related to their size in 2004). Both turnover and audit fee data are available for each year, and can be appropriately controlled for in the econometric analysis. Again, the large number of observations, even in the earlier years, means that robust econometric analysis is possible.

[31] Skewness tests were carried out and indicate that the audit fees, turnover and audit fees as a percentage of turnover are not distributed normally.

**Table 2.5 Descriptive statistics of the Oxera panel dataset, 1995 prices**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Number of companies** | | | | | | | | | | |
| Listed | 433 | 530 | 555 | 577 | 599 | 642 | 659 | 674 | 684 | 676 |
| FTSE 350 | 140 | 195 | 205 | 215 | 228 | 241 | 249 | 259 | 266 | 272 |
| Small Cap | 151 | 177 | 185 | 192 | 201 | 219 | 222 | 228 | 232 | 233 |
| Fledgling | 142 | 158 | 165 | 170 | 170 | 182 | 188 | 187 | 186 | 171 |
| Private | 37 | 44 | 46 | 51 | 54 | 61 | 70 | 82 | 86 | 63 |
| **Total** | **470** | **574** | **601** | **628** | **653** | **703** | **729** | **756** | **770** | **739** |
| **Audit fees (£000)** | | | | | | | | | | |
| Average | 282.0 | 293.6 | 295.6 | 320.2 | 335.6 | 374.2 | 398.1 | 407.5 | 454.3 | 533.7 |
| Median | 67.0 | 79.1 | 90.1 | 94.4 | 98.7 | 110.9 | 122.3 | 127.1 | 149.8 | 175.5 |
| Standard deviation | 592.4 | 628.0 | 647.7 | 860.3 | 781.9 | 1057.7 | 982.3 | 962.6 | 1,094.0 | 1,353.1 |
| **Turnover (£m)** | | | | | | | | | | |
| Average | 552.1 | 687.3 | 666.5 | 689.9 | 770.4 | 935.6 | 1034.2 | 1027.0 | 1091.5 | 1197.7 |
| Median | 66.4 | 96.4 | 108.9 | 115.9 | 134.8 | 143.5 | 166.3 | 168.5 | 172.7 | 197.7 |
| Standard deviation | 2,097.4 | 2,652.3 | 2,457.1 | 2,392.7 | 2,645.7 | 4,053.6 | 4,764.6 | 4,409.0 | 4,869.2 | 5,589.2 |
| **Audit fees/turnover (%)** | | | | | | | | | | |
| Average | 0.274 | 0.252 | 0.203 | 0.221 | 0.203 | 0.205 | 0.243 | 0.273 | 0.281 | 0.260 |
| Median | 0.116 | 0.102 | 0.098 | 0.098 | 0.093 | 0.089 | 0.091 | 0.095 | 0.093 | 0.100 |
| Standard deviation | 0.769 | 0.945 | 0.511 | 0.510 | 0.436 | 0.420 | 0.789 | 1.379 | 1.187 | 0.883 |

Note: Audit fees, taken from the FAME database, are defined as the sum of the statutory audit fee, fees for audit-related regulatory reporting, and other audit fees. The figures in this table include private companies, unlike Tables 5.1 and 5.2.
Source: Oxera panel dataset.

## 2.5 Workstream 4: Entry model

The objective of developing an entry model was to gain a more rigorous understanding of the underlying economics of expanding an existing mid-tier audit firm (or, indeed, complete new entry) so that it could compete effectively in the market for larger public companies—the market segment where the Big Four have almost 100% market share. The analysis is designed to highlight the economic barriers to entry faced by such a firm. The results of this analysis are discussed in section 6.

Oxera has been greatly helped in this task by some of the larger mid-tier firms and the Big Four, which have provided information on this issue. In particular, some of the mid-tier firms have explained how they might (hypothetically) approach such an expansion, the type of costs that would need to be incurred, and the non-financial problems they envisage in expanding either slowly or rapidly into the larger public company audit market.

As such expansion by a mid-tier firm has not taken place recently, there is a significant amount of uncertainty surrounding the predictions of what expenditures would be required by the mid-tier firms to acquire larger clients, and their level of success in winning clients through tenders (or any other means).

Consequently, the results of this workstream should be taken as indicative, rather than firm, conclusions on the economics of entry. Moreover, the results presented in section 6 should not be interpreted as representing estimates of the actual value of the investment necessary for entry to occur, or any form of investment advice concerning the market for audit services.

# 3 The dynamics of auditor selection

This section analyses the dynamics of auditor selection.

– Section 3.1 explores the nature of the audit product, which has a number of features that significantly influence the characteristics of choice and competition in this market.

– Section 3.2 examines auditor selection, discussing the roles of the stakeholders, the main determinants of choice, price sensitivity, and the (perceived) differences between the Big Four and mid-tier audit firms.

– Section 3.3 assesses company behaviour in terms of tendering their audit business and switching auditors.

## 3.1 The nature of the audit product

### 3.1.1 Components of the audit product

The essence of auditing is to validate the financial statements produced by management for their shareholders. The 'real' audit clients are therefore current and potential investors in the company. At the core of the audit product, as ultimately supplied to investors, is a combination of process and judgement which results in a clear decision: whether or not to give the company's accounts a clean bill of health. However, in practice, the real audit client does not engage, or pay, the audit firm; the company does.

The audit market contains several features that distinguish it from other product markets. In particular, although the formal audit product output is fairly standardised, what the direct clients (ie, companies) demand and receive is a more varied, and more complex product, broadly comprising three parts: the technical audit, value-added services on top of the audit itself, and an insurance component (see Figure 3.1).

**Figure 3.1 Components of the audit product**


#### Technical audit

The ability to carry out the technical audit is essential for any audit firm to compete seriously in the market. Companies often take this ability for granted—there is little doubt among interviewees that the Big Four and the mid-tier firms have highly qualified staff with the required technical skills. Yet, as further explored in section 3.2, there are some mixed views on whether the Big Four have greater technical skills than the mid-tier firms, and an almost uniform view that the Big Four have greater resources and geographic reach to carry out the technical audit for larger companies.

### Value-added

Many audit committee chairs and finance directors interviewed by Oxera stated that they consider the real value-added to be the additional, and often informal, advice provided by auditors on top of the audit itself, in relation to issues such as new developments in accounting standards; best practice in the industry on dealing with certain standards; and how the company could improve its internal processes and controls.

Many audit committee chairs have regular communications (formal and informal) with the audit partner(s) involved, discussing these issues. Audit committee chairs tend to value these communications highly, as they obtain certain insights into how their company is performing (and a degree of comfort from this). At the same time, these communications allow the audit committee chairs continually to probe the quality of the involvement of the auditor (see sub-section 3.1.2 below).

From the interviews, there is a general view that the Big Four are better placed than the mid-tier firms to provide these value-added services. In particular, the Big Four are considered to be better informed on the latest developments in international accounting standards and on best practice across industries and countries.[32] One FTSE 350 company that currently uses a mid-tier auditor commented that, while being happy overall, it found that its auditor is sometimes stretched when it comes to assessing the implications of new standards—the firm frequently has to resort to the texts published by the Big Four firms on these new standards.

### Insurance

The insurance component of the audit product has two aspects.

– Audit committee chairs (and shareholders) want some assurance that the auditor is capable of detecting irregularities and instances of fraud, thus preventing catastrophes. Such catastrophes have the characteristic of a very low probability of occurring, but extremely high damage if they do occur.

– Audit committee chairs seek insurance against the damage that would arise in the unlikely event of a catastrophe. This damage might be reputational as well as (or even more than) financial. Faced with such a situation, audit committee chairs (and company management as well) will want to point out that they had appointed the 'right' auditors.

This 'IBM effect' in auditor selection (ie, 'no one gets fired for hiring IBM') is further explored in section 3.2. From a policy perspective, while the above mechanism creates desirable incentives for audit committee chairs to ensure that the auditors are of the highest quality, it also leads to an outcome in which audit firms are selected on the basis that they have a credible reputation of being the 'right' auditors. In section 3.2 it is shown that only the Big Four are perceived to benefit from this effect.

To conclude this sub-section, it is worth noting that only the technical audit is directly beneficial to the real audit client—shareholders—in providing an ongoing check on the quality of financial reporting. Value-added advisory services are primarily beneficial to company management, and the 'IBM effect' part of the insurance function is primarily beneficial to company management and the audit committee.

## 3.1.2 Asymmetric information

The audit product is characterised by asymmetric information. It is very difficult for company management, audit committee chairs and shareholders to assess the quality of the service they receive from their auditor. (Further indications and implications of information asymmetry are discussed in section 5.)

[32] Indeed, some interviewees have alleged that the Big Four are important drivers behind the new developments and interpretations of accounting standards, thereby perpetuating their advantage over the mid-tier firms.

In a sense, this is somewhat ironic, since auditors were originally put in place to mitigate another information asymmetry, namely that between a company's management and its shareholders. The essence of auditing is to validate the financial statements produced by management for their shareholders.[33]

This information asymmetry between auditors and companies exists independently of the number of auditors in the market—it is the same whether there are Big Four or, say, Big Twelve firms. Nonetheless, this characteristic of auditing does have implications for competition in the market. In particular, where there is asymmetric information on quality, companies will tend to choose audit firms that have an established reputation for providing high quality. Again, this accentuates some of the differences between the Big Four and mid-tier firms, as further discussed in section 3.2.

Another way of looking at this point is to see audit as an experience good, whereby companies only develop an understanding of the quality of the audit product they receive over a period of time. This assumes that companies cannot tell ex ante the quality of the audit, but ex post they are perfectly informed (which may be unlikely in audit given the continuing information asymmetries). In theory, suppliers of an experience good can signal ex ante the high quality of their product by investing heavily in reputation, an investment which is gradually paid back over time by charging a premium price.[34]

The characteristic of asymmetric information is separate from an assessment of the current levels of quality in the market, which is beyond the scope of this report. Although asymmetric information is a feature of the audit product, other mechanisms in the audit market help maintain audit quality.

– Audit quality is subject to regulation by the FRC, through standards, inspections, investigations, and discipline and oversight.
– A fairly universal view was expressed during the interviews that audit quality is now of over-riding concern to companies (in particular to audit committee chairs, as noted above). Audit committee chairs have some ability, as well as the incentive, to evaluate quality, both for the ongoing services they receive and during the annual review process of the auditor. However, quality is still primarily judged through an assessment of the quality of the senior audit team, since the audit committee is not in a position to carry out a detailed independent check of the audit output—they cannot 'audit their auditors'.

### 3.1.3 Long-term nature of the auditor relationship

Two other characteristics of the audit product are important in explaining market dynamics:

– the ability to deliver the audit for a *specific* company takes time to develop and requires the auditor to learn about the detailed operations of the company;
– the process of switching auditors costs both the company and the audit firm significant amounts of time (and money).

Hence, both the company and the auditor benefit from building a long-term relationship. The result is one of the most fundamental characteristics of the audit market, namely, that companies do not change auditors very often. (This is discussed further in section 3.3.)

[33] These fundamental characteristics of auditing are set out in AQF (2005), 'Agency Theory and the Role of Audit', December.

[34] See Shapiro, C. (1983), 'Premiums for High Quality Products as Returns to Reputations', *Quarterly Journal of Economics*, **98**, 659–79. Such a strategy of investing in reputation 'signals' to the market that the firm is committed to a plan which depends on its customers staying loyal year after year, since if the firm drops its standards it will be revealed as a low-quality supplier and the investment in reputation may never be repaid. The signal of investing in reputation is effectively to persuade audit committees that the audit firm has a commitment not to increase its profits in the short run by reducing quality to a minimum. In light of this, audit committees may in practice see an alternative low-price firm (without an equivalent reputation to a Big Four firm) as a low-quality supplier, whether or not its quality is in fact low, since that alternative supplier has not given the same signal of investing in reputation.

## 3.2 Auditor selection

This section explores the following questions:

- what is the role played by different stakeholders in the process of auditor selection (section 3.2.1)?;
- what factors influence the choice of audit firm (section 3.2.2), and which of these are the most important in practice (section 3.2.3)?
- do companies perceive that there are differences between audit firms and, in particular, between the Big Four and the mid-tier firms (section 3.2.4)?
- what impact does the process of auditor selection have on the degree of substitutability between the Big Four and the mid-tier firms (section 3.2.5)?

### 3.2.1 Key parties involved in auditor selection

The process of choosing a company's auditor might be influenced by four stakeholders:

- the audit committee;
- company management, including the company's finance director, CEO, and/or chairman;
- shareholders; and
- external advisers, such as lawyers, brokers and investment bankers.

The Combined Code of Corporate Governance (2003) has given audit committees a key role in the process of auditor selection. According to the principles and provisions of the Code, audit committees should make recommendations to the board, which the board can then put forward for shareholder approval at the general meeting, regarding the appointment, re-appointment or removal of external auditors.[35] The Code, which operates on a 'comply or explain' basis, states that all listed companies should have an audit committee comprising independent non-executive directors. The audit committee is responsible for overseeing the selection process of appointees as external auditors, and agreeing on the fees and terms and conditions of the audit.[36]

The key role of audit committees in the selection process was confirmed by the interviews conducted by Oxera. It was generally recognised that audit committees choose the auditor and that their role has become increasingly important in the last few years. Indeed, one audit committee chair from a FTSE 100 company noted that although there is usually a balance between the audit committee and the board, if 'it came to a dispute over the choice of auditor, the audit committee would have the final say'.

However, evidence from other interviews and the survey of audit committee chairs suggests that senior management still play an important role in the selection of the auditor. The interviews indicate that there is a high degree of collaboration between the audit committee and the company's management in the process of choosing an auditor, and in general the finance director takes day-to-day responsibility for the company's relationship with its auditor.

Finance directors are said to play an important role in the selection process. At the least they play a role in compiling a list of potential auditors from which the audit committee conducts its selection process. However, several audit firms, audit committee chairs and institutional investors commented that it is often actually the finance director who makes the decision on auditor selection and fee negotiation. Some interviewees explained that the importance of finance directors is due to the fact that they are the ones who have to interact and work with

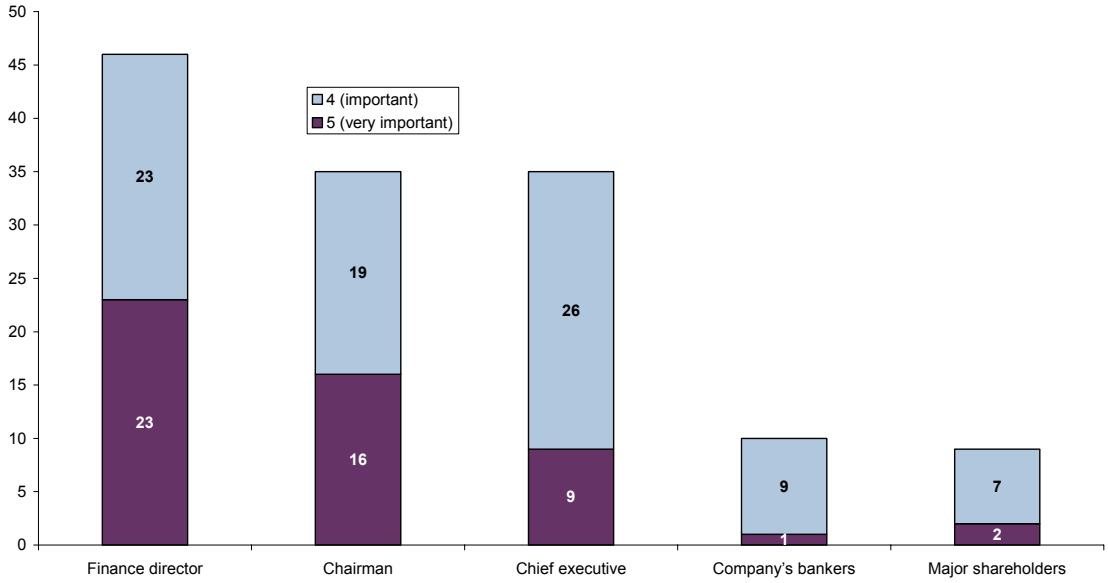
[35] FRC (2003), 'Combined Code on Corporate Governance', July, para C.3.2.

[36] For a detailed discussion on the role of audit committees in ensuring auditor independence from the audited company, and in particular on the provision of non-audit services and rotation of partners, among others, see FRC (2003), 'Guidance on audit committees (The Smith Guidance)' (appended to the Combined Code on Corporate Governance).

the audit firm on a continual basis. In some smaller companies, it seems to be the chairman who, in effect, is the decision-maker.

In the survey, audit committee chairs recognised the important role of finance directors in selecting the audit firm. Survey participants were asked to rate from 1 to 5 the importance of the views of different parties when selecting the company's auditor (1 'not at all important' to 5 'very important'). Figure 3.2 and Table 3.1 summarise the results for the stakeholders that obtained the highest average scores. Figure 3.2 presents the number of audit committee chairs that rated the views of each of these stakeholders as 'very important' (5) or 'important' (4). Table 3.1 summarises the average scores for the various types of stakeholder. The table also includes a t-test performed to assess whether there are statistically significant differences in the determinants of choice between the larger companies (ie, listed in the FTSE 350) and the other companies included in the survey (ie, FTSE Small Cap).

**Figure 3.2 Importance attached by audit committee chairs to stakeholders' opinions in audit selection (number of respondents)**




Base: 50 respondents.
Source: Q8: How important are the views of the following stakeholders when choosing an auditor?, audit committee chairs survey.

**Table 3.1 Average importance attached by audit committee chairs to stakeholders' opinions in audit selection**

| | Sample mean | Mean FTSE 350 companies | Mean FTSE Small Cap companies |
|---|---|---|---|
| Finance director | 4.4 | 4.3 | 4.4 |
| Chairman | 3.9 | 3.8 | 4.3** |
| Chief executive | 3.8 | 3.7 | 3.9 |
| Major shareholders | 2.6 | 2.5 | 2.7 |
| Company's bankers | 2.5 | 2.4 | 2.6 |
| Company's corporate broker | 2.3 | 2.1 | 2.7** |
| Credit rating agencies | 2.2 | 2.4 | 2.3 |
| Company's lawyers | 1.8 | 1.7 | 2.1* |

Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
* Significant difference at a 10% confidence level. ** Significant difference at a 5% confidence level.
Source: Q8: How important are the views of the following stakeholders when choosing an auditor?, audit committee chairs survey.

As the figure and table show, the views of the company's management appear to be the most important to audit committee chairs. Within this group, the opinion of the finance director is considered to be the most influential, with 23 audit committee chairs rating it as 'very important' and another 23 as 'important' (an average score of 4.4). The company chairman's opinion is the second in importance, with an average score of 3.9, followed by the chief executive's (3.8). It is of note that, in line with comments from the interviews, the chairman appears to be a more influential figure for the audit committee chairs of smaller-scale companies: the opinion of the chairman obtained a higher average score for audit committee chairs of FTSE Small Cap companies.

The interviewees expressed mixed opinions on the role of shareholders in the process of auditor selection. Some audit committee chairs and mid-tier firms commented that shareholders have an important influence on the selection of auditor. In contrast, various institutional investors commented that shareholders generally play a limited role in the auditor selection process (their lack of active involvement was contrasted with, for example, their role in decisions on executive remunerations). Of the 50 audit committee chairs that participated in the survey, 18 gave a score of 3 (neutral on a scale of 1 to 5) to the importance of the views of shareholders when selecting the audit firm, a further 15 a score of 2 (unimportant), and eight, 1 (not important at all).

The contradiction between the views of different stakeholders seems to be related to an apparent lack of communication between audit committees and investors. It would seem that, in general, investors are rarely asked directly by audit committees what they think about an audit firm—it is simply assumed that they would prefer a Big Four firm. As one investor put it, companies themselves are risk-averse; by choosing a Big Four firm they avoid the need to consult investors. The same applies to investors, who are generally reluctant to interfere in auditor choice, which is seen by some of them as a minor issue in the wider potential set of concerns regarding corporate governance.

In relation to the external advisers, according to the survey and interviews, it appears that their views are of less importance in the decision-making process, with the exception of certain points of change in the company, such as an IPO, when the opinion of banks is often solicited.

### 3.2.2 Determinants of choice

Interviewees, including audit committee chairs and finance directors, audit firms and investors, generally agreed on the following key factors determining the choice of auditor:

- reputation of the firm and the 'IBM effect';
- quality and expertise of staff;
- international reach;
- relationships between the firm (ie, audit partner) and the company's finance director and audit committee.

Each of these factors is discussed below.

#### The reputation of the firm and the 'IBM effect'

As discussed in section 3.1.2, when choosing an auditor, companies have limited information on the quality of the services they will receive. Some information can be gathered during the process of selecting an auditor (eg, during the tendering) and from other companies in the same sectors. Given that there is some degree of uncertainty surrounding the quality of the inputs that will be used for the audit (ie, quality of staff, international coverage of the audit firm), the following form a key part in the decision-making process: the audit process (ie, the methodology used for auditing the company and the degree of cooperation between the company and the audit firm), and the actual audit output, the reputation of potential suppliers in relation to the quality of staff, the degree of integration of their international operations, and, in the end, their ability to deliver a 'high quality output'.

Hiring a firm with a good reputation (termed by some interviewees as an 'A list' auditor) allows the agents that choose the auditor (ie, audit committee chairs/management) to prevent criticism by the shareholders and external advisers of their decision of hiring a particular audit firm in the event of a problem with the audit. Hiring a Big Four firm is seen as a way of minimising this risk: many interviewees are of the view that the market is subject to the 'IBM effect', which refers to the perception that 'no one will ever get fired for buying IBM'—or, in this context, for employing a Big Four firm. This corresponds to the third component of the audit product—insurance (discussed in section 3.1.1 above).

#### Quality and expertise of staff

The 'quality of people' appears to have three components, which correspond to the first two components of the audit product—technical audit and value-added:

– the accounting expertise of the audit team (ie, audit partner and supporting staff), including the technical expertise and experience;
– sector knowledge and experience;
– the ability to provide value-added advice on issues such as new regulation, best practice, and internal control processes.

Companies require from the audit team not only high technical accounting quality, but also experience in auditing 'complex' businesses, the capacity to provide additional advisory services while conducting the audit, and to ensure that the company has reliable financial reporting systems, and therefore provide it with some degree of insurance against any catastrophic events.

It is generally recognised that the process of audit is determined by very detailed regulation. In fact, several investors commented that auditing has moved to some extent towards a rules-based, 'tick-box' exercise, with a diminishing role for the judgement of the audit partner.

However, the standardisation of the audit process does not mean that it is a simple procedure. Businesses are complex and changing entities, and companies expect auditors (and particularly the audit partner) to be able to understand and infer, in a timely and efficient fashion, the impact of such complexity and transformations on the company's financial position and reporting. Companies also consider that the auditor should be able to identify any problematic areas in the business and therefore provide a check on the state of the business. In addition, depending on the life cycle of the company, auditors are expected to provide information and value-added to some areas that are new to the company, such as new regulation, and internal control processes as the company grows larger and becomes more complex.

One interviewee described the value of the auditor's understanding of a company as follows. In the process of audit, the auditors will interact with a wide swathe of management. They will encounter situations where processes (other than those covered by the audit) do not follow best practice, and can advise accordingly. The company therefore wants its auditors to be proactive. When integrating a company, the advice of the auditor can accelerate the integration process, by helping to standardise the acquired company's accounting processes with group practice.

#### International coverage

The international reach of an audit firm relates not only to the capacity to provide audit services in a number of countries, but also to the ability of the firm to provide a consistent service across different countries. Companies generally prefer to have the same audit firm across the countries where they operate, or into which they are planning to expand, for various reasons, including the following.

– One private company noted that, although its current international operations were limited, the potential to expand internationally without having to change auditors was important.

– One FTSE 100 company saw as significant the requirement that the auditor be recognised by investors and regulators in all relevant countries.
– One investor noted that the international dimension of the auditor is key for companies even if they do not have international operations, since they raise capital in both domestic and foreign markets. In the case of foreign markets, investors would need to recognise the name of the auditor certifying the reliability of the company's accounts.
– It was noted that companies like to have one point of contact in the audit firm who takes responsibility (whether formally or informally) for dealing with any issues arising in the audit of foreign parts of the company.

In relation to the consistency of the audit service, one audit committee chair noted that this is an important requirement, in particular for subsidiaries in countries with relatively low standards of corporate governance. Having a single group auditor would provide this company with 'one more level of assurance'. Furthermore, an institutional investor commented that investors are generally concerned that companies get a consistent international audit.

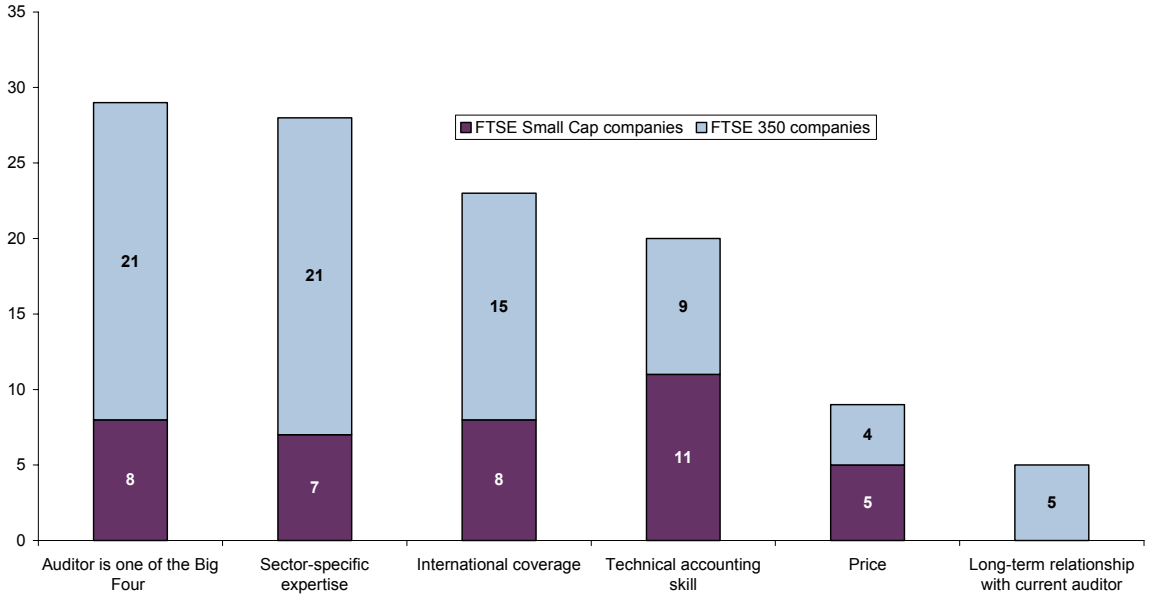
#### Relationship between the company and the firm

Several companies regarded a good relationship between the (potential) audit partner and the audit committee and/or other members of the board as an important determinant of choice. Several audit committee chairs and audit firms noted that, in order to choose an auditor, it is essential to have the 'the right chemistry' with the audit partner. Some others pointed to the importance of having an auditor that can be trusted by the stakeholders (ie, the audit committee chair, management, shareholders).

### 3.2.3 Relative importance of each determinant of choice

To establish the relative importance of the determinants of choice noted above, the survey asked audit committee chairs to mention the three most important factors influencing their choice of auditor. Figure 3.3 presents the six factors cited most frequently (unprompted): auditor is one of the Big Four; the firm's sector-specific expertise; its international coverage; its technical accounting skills; the price of the audit; and long-term relationship with the auditor.

**Figure 3.3 Most important factors influencing auditor selection according to audit committee chairs (unprompted answers)**

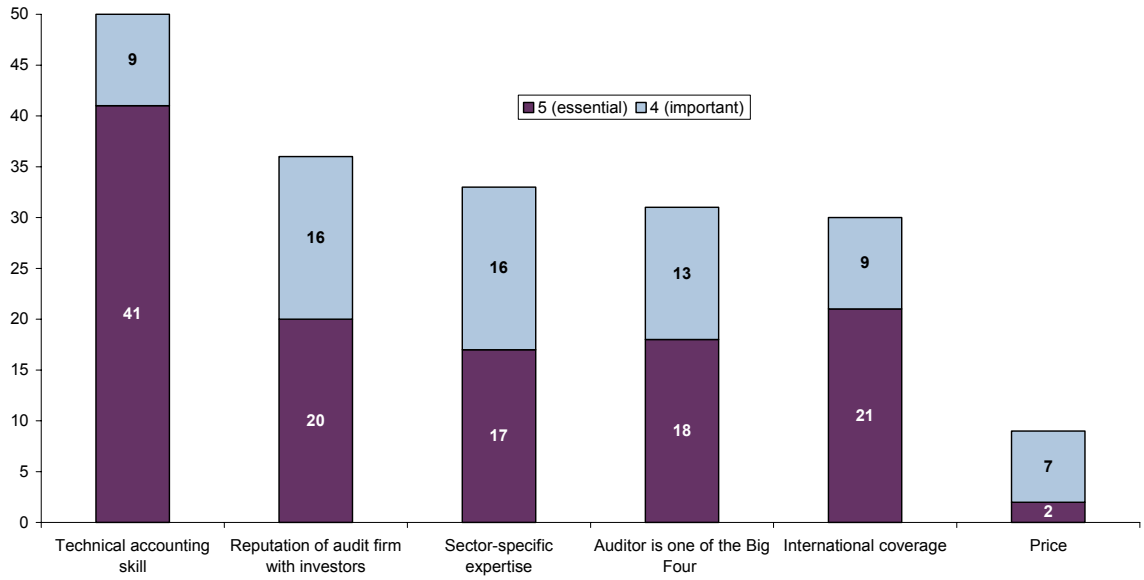



Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
Source: Q3: What are the three most important factors influencing your company's choice of auditor?, audit committee chairs survey.

After a question asking for the three most important factors influencing auditor choice, the fourth question asked survey participants to rate these three factors on a scale of 1–5, where 1 is 'irrelevant' and 5 is 'essential', and to rate the importance of other factors. The overall ranking of all factors influencing choice from question 4 produced a slightly different result from question 3, with 'reputation of audit firm with investors' being scored very highly.

Figure 3.4 presents the results for the five factors ranked most important in responses to question 4. Included in the figure is the number of respondents who considered each factor to be either 'essential' (5) or 'important' (4). Table 3.2 summarises the average scores for the total sample and by company size for the main factors cited by the survey participants.

**Figure 3.4 Importance attached by audit committee chairs to main factors influencing auditor selection (prompted)**




Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies, except for 'price'. Price was cited by only nine audit committee chairs in Q3, and not prompted separately in Q4 (see also Figure 3.3).
Source: Q4: On a scale of 1 to 5, how do you rate the three most important factors for choosing auditors? How would you rate other additional factors?, audit committee chairs survey.

**Table 3.2 Average importance attached by audit committee chairs to factors influencing auditor selection (overall averages and by size of company)**

| | Average score (total sample) | Mean FTSE 350 companies | Mean FTSE Small Cap companies |
|---|---|---|---|
| Technical accounting skill | 4.8 | 4.8 | 4.8 |
| Reputation of audit firm with investors | 4.0 | 3.9 | 4.2 |
| Sector-specific expertise | 3.9 | 3.7 | 4.0 |
| Auditor is one of the Big Four | 3.8 | 4.0 | 3.4* |
| International coverage | 3.7 | 3.8 | 3.7 |
| Reputation of audit firm with other external advisers | 3.1 | 3.1 | 3.1 |
| Reputation of audit firm with corporate broker | 2.9 | 2.9 | 2.9 |
| Long-term relationship with current auditor | 2.8 | 2.7 | 2.8 |
| Management preference for specific auditor | 2.1 | 1.9 | 2.3 |

Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
* Significant difference at a 10% confidence level.
Source: Q4: On a scale of 1 to 5, how do you rate the three most important factors for choosing auditors? How would you rate other additional factors?, audit committee chairs survey.

### The 'IBM effect'

Having a Big Four auditor appears to be a key determinant of choice, especially for the audit committee chairs of FTSE 350 companies.

When asked about the three most important determinants of choice (Q3), 29 of the 50 survey respondents commented that having a Big Four firm as the company's auditor was an important determinant of choice (Figure 3.3); of these 29, 20 gave this factor as their first response. When asked to rate the determinants of choice (Q4), having a Big Four auditor had an average score of 3.8 (Table 3.2). This factor is a significantly (at the 10% confidence level) more important determinant of choice for larger companies, obtaining an average score of 4.0 (ie, important) for this group of audit committee chairs and of 3.4 for the audit committee chairs of FTSE Small Cap companies (see Table 3.2).

In relation to the reputation of the audit firm with investors, 40% of the survey participants (20 out of 50) considered it essential when selecting an auditor, while a further 16 considered it very important (see Figure 3.4). This is interesting, given that, in the survey, audit committee chairs also commented that the opinions of investors have limited influence in the process of selecting the company's auditor (see Figure 3.1) and that, in the interviews, investors recognised that they are generally not involved in the selection process.

As stated previously, this apparent contradiction might be explained by the fact that, although the participation of investors is less important in the selection process itself than that of company management, audit committee chairs nonetheless endeavour to act in accordance with what they believe to be investors' preferences.

### Quality of people

According to the results in Figures 3.3 and 3.4, factors related to the quality of staff are among the most important determinants of the choice of auditor for audit committee chairs. As Figure 3.3 shows, 28 of the 50 audit committee chairs surveyed cited as important determinants of choice the 'sector-specific skills' of the auditor, and a further 20 its 'technical accounting skill'. 12 audit committee chairs gave the sector-specific skills of the auditor as their first choice and another nine its technical accounting skills. In addition, the technical accounting skill of the firm was classified as essential, with an average score of 4.8—ie, 41 of the 50 respondents gave it a score of 5, and nine gave it a score of 4. The sector-specific expertise of firms received an average score of 3.9 (see Table 3.2).

### Sector expertise

According to evidence from the interviews, the importance of sector expertise was relatively consistent across the companies contacted. Banking, insurance, telecoms, and the extraction industries were typically held to be specialist sectors in which particular audit firms could gain a relative advantage. In fact, only manufacturing sectors seem to place less weight on sector-specific expertise. In general, finance directors emphasised the importance of sector expertise—more importantly, an auditor with sector expertise can provide significant value-added to the company, having a dialogue on relevant industry best practice and trends, and providing advice on improvements to company processes. (Sector expertise is further discussed in section 4.2.)

### International coverage

In the interviews programme, international reach was often the first criterion cited by audit committee chairs in both listed and private companies when asked about their choice of auditor. In the survey, 23 of the 50 audit committee chairs noted this as one of the three most important determinants of choice.

### Relationship between the company and the auditor

Survey evidence indicates that the relationship between the company and the auditor may be a factor of relatively limited importance when choosing the auditor, although the in-depth interviews suggested that it is relatively more important. According to the survey results,

auditor committee chairs rated this relationship as relatively unimportant when selecting the auditor, with an average score of 2.8 (see Table 3.2).

The survey suggested that this relationship might be more important for companies outside the FTSE 100. In particular, five audit committee chairs commented that the relationship is a determinant of choice. Of these five, two are FTSE 350 companies (one of which is not a multinational) and another is listed in the FTSE Fledgling index. This might explain the fact that mid-tier firms have a stronger position beyond the FTSE 100 index—one audit committee chair commented that mid-tier firms regularly win smaller listed clients due to the close relationship of a regional office partner with the company's CEO or finance director (see section 4).

#### Price

In the survey, only 9 of the 50 audit committee chairs cited price as a determinant of choice; two considered it essential, while seven considered it important (see Figure 3.4).

According to evidence from the in-depth interviews, the level of the audit fee appears to be of relatively minor importance when selecting the auditor (particularly for large companies). This appears to be related to the concern among audit committee chairs that the quality of the audit might be compromised if they pay a lower price. For instance, one interviewee commented that when his company tendered the audit, a quote that was unusually low was rejected because the low price was seen as evidence of low ethical standards—ie, an intention to cross-sell other services or minimise the scope of the audit.

The audit committee chairs of some FTSE Small Cap and Fledgling companies commented that the level of the audit fee was more of an issue for them.

### 3.2.4 Perceived differences between audit firms

This section explores the (perceived) differences between the Big Four, and between the Big Four and the mid-tier firms, for each of the determinants of choice discussed in the previous section.

#### Perceived differences between the Big Four

Several interviewees noted that the Big Four are 'similar', although there is less agreement on what is meant by 'similarity' in this context, with some interviewees pointing to similarities in audit inputs, processes, and/or output. Some audit committee chairs commented that the Big Four have the same 'capabilities'. These capabilities might be related to inputs such as the quality of staff and the international coverage of the Big Four, or to their reputation or 'brand'. As one Big Four firm put it, on the demand side it is brand, rather than size, that influences choice.

Some interviewees noted that the methodologies applied by the Big Four during the audit process are very similar and that the differentiating factor is the quality of the people. In relation to output, some interviewees commented that the Big Four provide a 'homogeneous product', although some audit committee chairs were of the opinion that two of the Big Four firms are of lower quality than the other two.

In practice, the similarities of the Big Four at different levels sometimes make it hard for companies to differentiate between them in a tender; a view that was shared by audit committee chairs and audit firms. Due to the inability to differentiate between the inputs, process or outputs of the Big Four, the real difference may ultimately be specific to the people making the pitch (even though it is likely to be a long-term relationship and personnel will change).

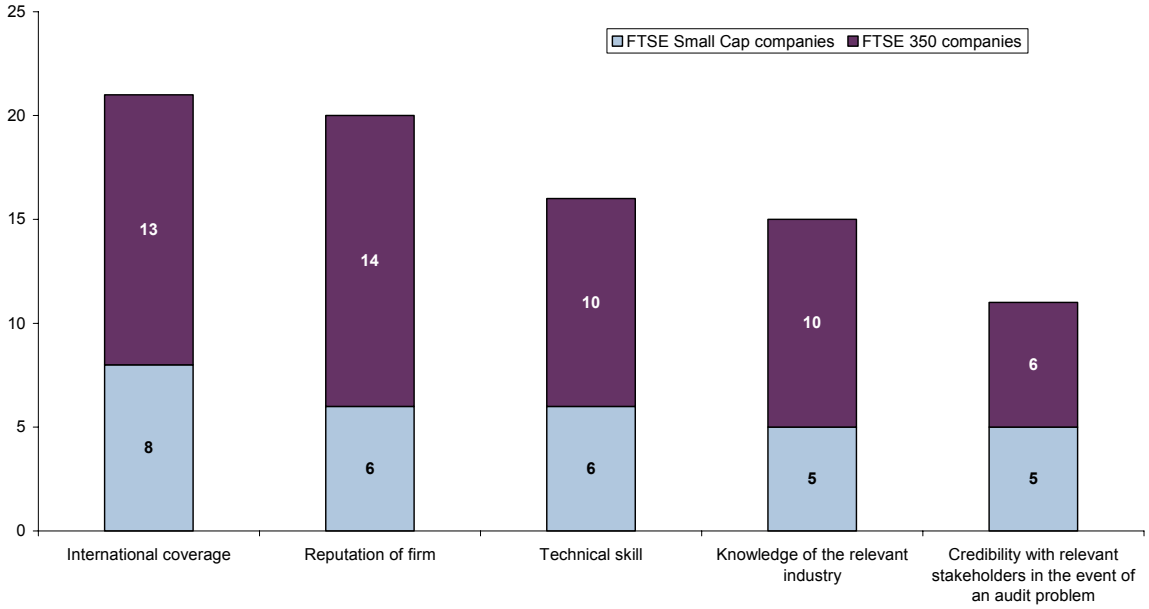
#### Perceived differences between the Big Four and the mid-tier firms

According to most audit committee chairs, finance directors, institutional investors and some audit firms, there are some significant differences between the Big Four and the mid-tier

firms in terms of quality of staff, international coverage and reputation—ie, all the factors that appear to be the most important determinants of choice (see Figure 3.4 above). This indicates that there is a restricted substitutability between these two groups of firms, an issue that is explored throughout this study.

To gather information about the perceived differences between the mid-tier firms and the Big Four, the survey asked audit committee chairs to list the most important reasons for not considering a mid-tier auditor for the company's audit. Figure 3.5 summarises the results of the most important factors.

**Figure 3.5 Most important reasons for not considering a mid-tier auditor according to audit committee chairs (number of companies) (unprompted answers)**




Base: 40 respondents who said that they were 'neither likely nor unlikely', 'fairly unlikely', or 'very unlikely' to consider a mid-tier for the company's audit (Q12). Of these 40, 29 are audit committee chairs of FTSE 350 companies and 11 of FTSE Small Cap companies.
Source: Q13: For what reason(s) would you not consider a mid-tier accounting firm for your company's audit?, audit committee chairs survey.

The survey results indicate that the main reason for not considering a mid-tier auditor is their lack of international coverage (21 of 40 respondents), followed closely by the reputation or name recognition of the audit firm (20 audit committee chairs cited this factor), while 11 interviewees highlighted the credibility of the mid-tier firm with the relevant stakeholders in the event of an audit problem. The perceived quality of people in relation to both their technical skill and industry-specific knowledge was also among the main reason given for not considering a mid-tier firm.

To gain a better understanding of the views of different parties in relation to each of these factors, the interview results are discussed below.

### Reputation

A frequent comment, particularly among the larger companies interviewed, was that the board of the company would typically seek 'A list' advisers, which would encompass their choice of auditor, tax adviser, law firm and investment bank. Only the Big Four accounting firms are seen to be A list. One interviewee commented that for a FTSE 100 company to choose a mid-tier firm would be incompatible with the company's image—if such a company did choose a mid-tier firm then shareholders and other corporate advisers would assume that a special reason (ie, not price) existed to justify that choice, and a clear explanation would be required.

The fact that the Big Four are perceived as A list advisers seems to relate to the two criteria of 'quality of people' and 'reputation', since A list advisers are typically expected to have experience in providing services to FTSE 100 clients and to have credibility with investors. In relation to the effect of reputation on choice, most mid-tier firms said that companies choose the Big Four due to their reputation, suggesting that this is the differentiating factor between the Big Four and the mid-tier. The value of reputation was described in various ways, which roughly fall into two categories:

– the '**IBM effect**'—audit committees are seen as risk-averse and, as mentioned previously, to prevent criticism of their choice of auditor in the event of a problem with the audit, they choose a Big Four firm.
– the **quality effect**—companies are seen to want investors to have the fullest confidence in their financial reports. Using a Big Four auditor is considered to reflect well on the company in this respect.

Some audit committee chairs suggested that having a mid-tier firm might provide a negative signal to investors. One audit committee chair noted that investors and advisers (mainly investment bankers) believe the Big Four have a more rigorous risk analysis process to select the companies they audit. In addition, the audit committee chairs of two companies that have recently listed suggested that having a Big Four auditor could make it easier to raise capital, which suggests that the Big Four boost investor confidence. Furthermore, it was noted that, at the time of listing, a great deal of work needs to be done, and a smaller firm may not have the resources to cover it.

One investor stated that institutional investors, as a group, are 'open-minded' towards non-Big Four audit firms. One interviewee noted that it is difficult to ascertain whether there are any quality differences between the audit firms—either within the Big Four, or between the Big Four and the mid-tier firms. Another investor commented that companies themselves are risk-averse—by choosing a Big Four firm they avoid the need to consult investors. The same applies to investors, who are generally reluctant to interfere in auditor choice, which is seen as a minor issue in the wider potential set of concerns regarding corporate governance.

There is a sense that investors overall would prefer to have a diversity of auditors, but in individual cases they may be somewhat reluctant to see companies in which they invest themselves switch away from the Big Four. One investor commented that it is difficult to say exactly what set of circumstances would make the choice of a mid-tier firm acceptable to the investor community. However, for audit firms that are not well known, some investors said that they would take some account of the other companies that are audited by the auditor—ie, reputation is created by an audit firm's client list. In this regard, if company A were audited by a firm that audited other companies with a poor track record, this might reflect badly on company A from the investors' perspective.

Having a Big Four auditor appears to be especially important during an IPO. A Big Four name is considered to give substantial reassurance to investors, given the significance of the reputation of a company's auditor at this stage. Once a company is listed, the reputation need is somewhat less important. Although some investors noted that mid-tier firms are possibly becoming more acceptable at the IPO stage, they recognised that this is a relatively recent trend that appears to be restricted to the smaller companies (eg, those listed on AIM) and the largest mid-tier firms.

### International coverage

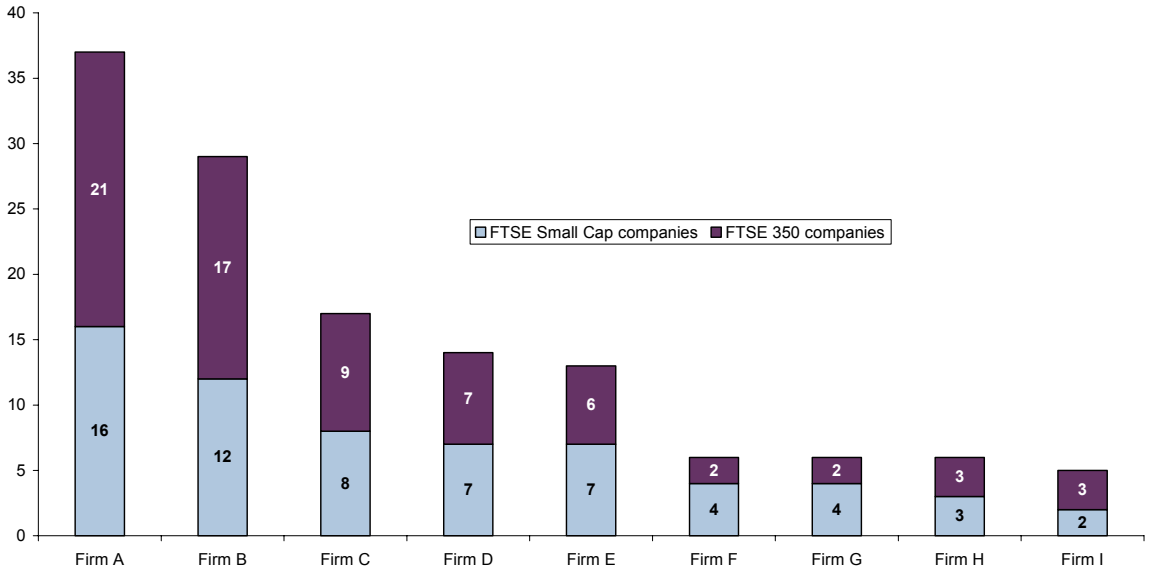
In the interviews the audit committee chairs of both large- and small-scale listed companies noted that the Big Four are able to provide the best international coverage in terms of both the number of cities and countries covered, and the consistency of the audit service. Indeed, as shown in Table 4.1 (see section 4), the Big Four have an international network of offices covering more than 140 countries. While some mid-tier firms also have quite extensive networks, interviewees commented that their international offices are substantially smaller.

From the interviews, Oxera found a mixed picture on how well the Big Four actually operate as integrated networks (with some expressing the view that they share not much more than the brand name). However, many interviewees consider that they are clearly more integrated than the mid-tier firms. One audit committee chair commented that while the Big Four offer uniform services across all major countries, the mid-tier firms do not—ie, they are perceived to offer a superior service in some locations and an inferior one in others. Another noted that although, following the dissolution of Arthur Andersen, the Big Four ceased to portray themselves publicly as single firms, their international consistency is still perceived as greater than that of mid-tier firms. The lack of international coverage has made some companies reject a mid-tier firm after initially considering it as a potential auditor.

### Quality of staff

The quality of the mid-tier firms' staff ranked third when considering the factors preventing companies from using their services (see Figure 3.5). However, Figure 3.6 suggests that the survey participants are of the view that the larger mid-tier firms do have the technical skills to provide audit services. The survey asked respondents to name which mid-tier firms they consider have the technical capabilities to audit their company (Q15). Of the 45 respondents to this question,[37] 39 noted that at least one mid-tier firm could have such skills.

**Figure 3.6 Number of audit committee chairs who would consider a mid-tier firm to be technically capable of providing the company's audit**



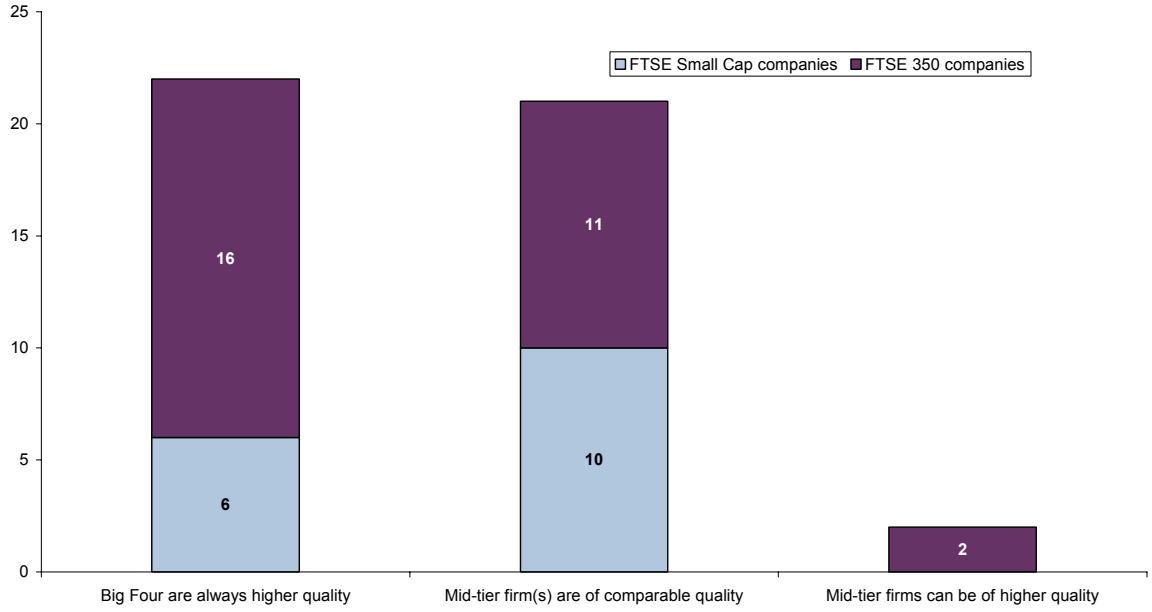

Base: 45 observations for the whole sample, 29 for FTSE 350 companies and 16 for FTSE Small Cap companies. Five audit committee chairs did not respond to this question.
Source: Q15: Outside of the Big Four firms, which, if any, accounting firms do you think are technically capable of providing your company's audit?, audit committee chairs survey.

Although the survey participants appear to consider that some of the mid-tier firms have the technical skills to audit their company, there are mixed views in relation to the differences in the quality of audit provided by the mid-tier and the Big Four. As Figure 3.7 below shows, 21 of the 50 respondents are of the opinion that 'mid-tier firms are of comparable quality' to the Big Four. Nevertheless, only one of these actually used a mid-tier firm audit services in the previous year, so it is not clear how the others would be able to judge the quality of the mid-tier firms. This suggests that factors other than quality, such as international coverage of the firm, relationships, or reputation, might also be important when choosing an auditor, and that the mid-tier firms might also be perceived to be inferior in relation to these factors.

[37] Five audit committee chairs refused to answer this question.

A similar number of interviewees (22 of the 50) said that the 'Big Four are always of higher quality' than the rest of the firms. A higher proportion of FTSE 350 companies are of this opinion (16 out of 32, compared with six out of 18 small companies).

**Figure 3.7 Audit committee chairs' perception of quality differences between the Big Four and the mid-tier firms**




Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
Source: Q16: Do you think there would be any significant differences in the quality of the audit provided by mid-tier firms compared with the Big Four?, audit committee chairs survey.

Similarly, among many of the people interviewed, there is a perception that the Big Four are able to recruit the best graduates and, overall, have the 'best quality' staff. There is a 'virtuous circle', where bright staff are attracted by the reputation and extensive training programmes of the Big Four, while having the best recruits allows the Big Four to offer the best quality of output. In addition, some large-scale companies noted that the staff of the Big Four are more experienced in auditing 'complex businesses', such as FTSE 100 companies and companies with operations abroad.

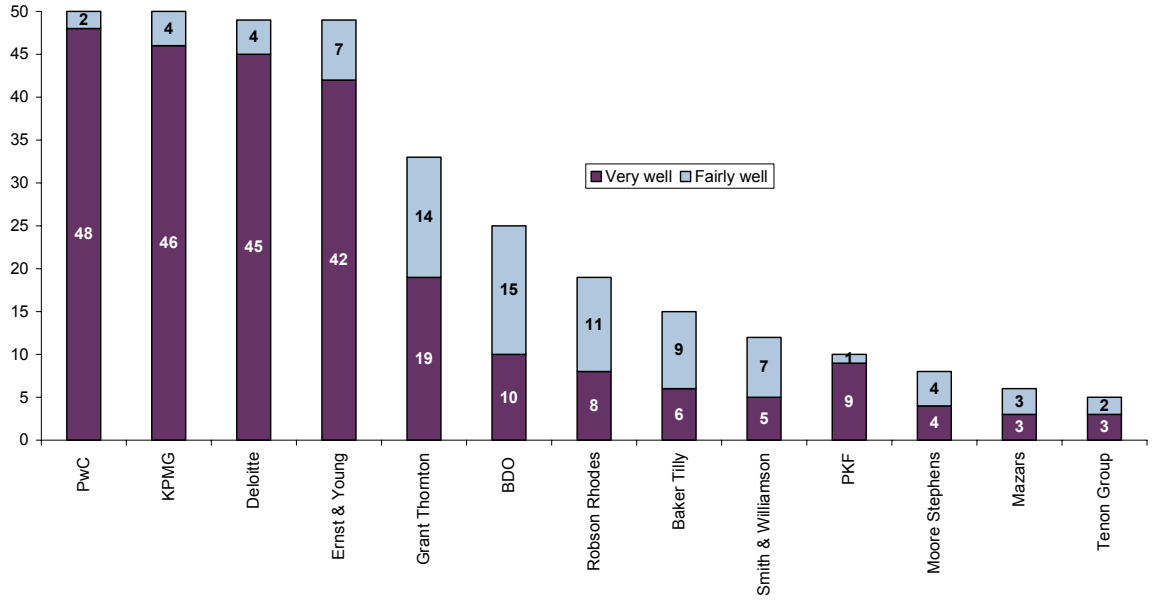
The mid-tier firms said that the quality of staff is the same in the mid-tier firms as in the Big Four firms, a view that was shared by some other interviewees. One mid-tier firm emphasised that quality is its key priority, claiming to be able to offer the same quality as, or better than, the Big Four. According to this firm, it was told by a client that it delivers the same quality of services as a Big Four firm; nevertheless the client said: 'I have to go with a Big Four firm'.

The mid-tier firms did, however, recognise that there may be differences in terms of the depth of the training received by Big Four staff. In this respect, one mid-tier firm was of the view that Big Four firms have the resources to invest more in training and technical departments. Another mid-tier firm accepted that it could not offer the same audit service to a very large company as a Big Four auditor, due to a lack of equivalent resources.

### Perceived or real differences?

The survey asked audit committee chairs to rate how well they know firms, on a scale from 1 to 5 where 5 corresponds to 'very well', 4 to 'fairly well', 3 to 'a little', 2 to 'heard of the firm but know nothing about it', and 1 to 'never heard of the firm'. Figure 3.8 indicates the number of respondents who commented that they know each firm either very or fairly well, while Table 3.3 ranks firms in descending order according to their average scores.

**Figure 3.8 How well do audit committee chairs know each audit firm? (number of respondents) (prompted answers)**




Source: Q9: For the firms in the table, how well do you feel you know each one?, audit committee chairs survey.

**Table 3.3 How well do audit committee chairs know each audit firm? Mean for the total sample and by size of company**

| | Sample mean | Mean FTSE 350 companies | Mean FTSE Small Cap companies |
|---|---|---|---|
| **Big Four** | | | |
| PwC | 5.0 | 5.0 | 5.0 |
| Deloitte | 4.9 | 4.9 | 4.8 |
| KPMG | 4.9 | 4.9 | 4.9 |
| Ernst & Young | 4.8 | 4.9 | 4.7 |
| **Mid-tier firms** | | | |
| Grant Thornton | 3.9 | 3.7 | 4.2 |
| BDO | 3.5 | 3.5 | 3.6 |
| RSM Robson Rhodes | 3.3 | 3.3 | 3.4 |
| Baker Tilly | 3.0 | 3.0 | 2.9 |
| Moore Stephens | 2.8 | 2.7 | 3.0 |
| PKF | 2.8 | 2.7 | 3.0 |
| Smith & Williamson | 2.5 | 2.2 | 3.2 |
| Mazars | 2.1 | 2.1 | 2.0 |
| Tenon Group | 2.1 | 1.9 | 2.4 |

Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
Source: Q9: For each of the firms in the table, how well do you feel you know each one?, audit committee chairs survey.

As Figure 3.8 shows, on average 45 of the 50 respondents noted that they know the Big Four very well, while 11 were of the same opinion in relation to the top four mid-tier firms (BDO,

Grant Thornton, Baker Tilly and PKF[38]). In general there seems to be little difference between how well the audit committee chairs of FTSE Small Cap and FTSE 350 companies know each firm, although the audit committee chairs of FTSE Small Cap companies seem to have greater knowledge of some of the mid-tier firms, particularly Grant Thornton, Smith Williamson and Tenon Group.

Overall, audit committee chairs seem to have a relatively poor knowledge of the mid-tier firms, which contrasts with the perceived good knowledge of the Big Four. This suggests that the differences noted by the audit committee chairs between the Big Four and the mid-tier firms are to some extent based on perception rather than fact.

### 3.2.5 Substitutability between the Big Four and the mid-tier firms

As discussed, according to audit committee chairs, finance directors and institutional investors (and, in some cases, audit firms), there are perceived differences between the Big Four and the mid-tier firms in terms of quality of staff, international coverage and reputation. Since these factors appear to be the most important determinants of choice, there might be a limited degree of substitutability between the Big Four and the mid-tier firms. This issue was explored in the survey, which confirmed that, in effect, the audit committee chairs included in the sample (especially those of FTSE 350 companies) are unlikely to employ a mid-tier firm. This would be the case even if they were offered a substantial reduction in the audit fee.

Survey participants were asked to rate the perceived level of substitutability between auditors (Q10) and how likely they were to consider a mid-tier firm as their company's auditor (Q12).

**Table 3.4 Proportion of companies who regard a particular audit firm as a reasonable substitute for their current auditor**

| | Whole sample (%) | FTSE 350 companies (%) | FTSE Small Cap companies (%) |
|---|---|---|---|
| Big Four firm A | 92 | 96 | 83 |
| Big Four firm B | 74 | 70 | 80 |
| Big Four firm C | 75 | 79 | 67 |
| Big Four firm D | 76 | 81 | 69 |
| Mid-tier firm A | 26 | 16 | 44 |
| Mid-tier firm B | 20 | 16 | 28 |
| Mid-tier firm C | 10 | 6 | 17 |
| Mid-tier firm D | 10 | 6 | 17 |
| Mid-tier firm E | 4 | – | 11 |
| Mid-tier firm F | 4 | – | 6 |

Note: Proportion of audit committee chairs that cited the firm in Q10 but who are not currently using the particular firm for audit according to the answers to Q1. For example, according to the responses to Q1, 16 audit committee chairs use Big Four firm D's audit services and 34 do not. According to Q10, 26 respondents would consider Big Four firm D as a potential auditor. Therefore, these 26 respondents represent 76% of the respondents that do not use Big Four firm D's audit services—ie, 26/34.
Source: Q10: Of the accounting firms you have heard of, which would you consider reasonable substitutes for your current auditor, notwithstanding potential conflicts of interest?, audit committee chairs survey.

As Table 3.4 shows, larger companies that do not currently use a mid-tier firm as their auditor are unlikely to consider a mid-tier firm as a reasonable substitute for their current auditor. The responses to this part of the survey suggest that the larger mid-tier firms are regarded as a reasonable alternative by up to 20–26% of all respondents who do not

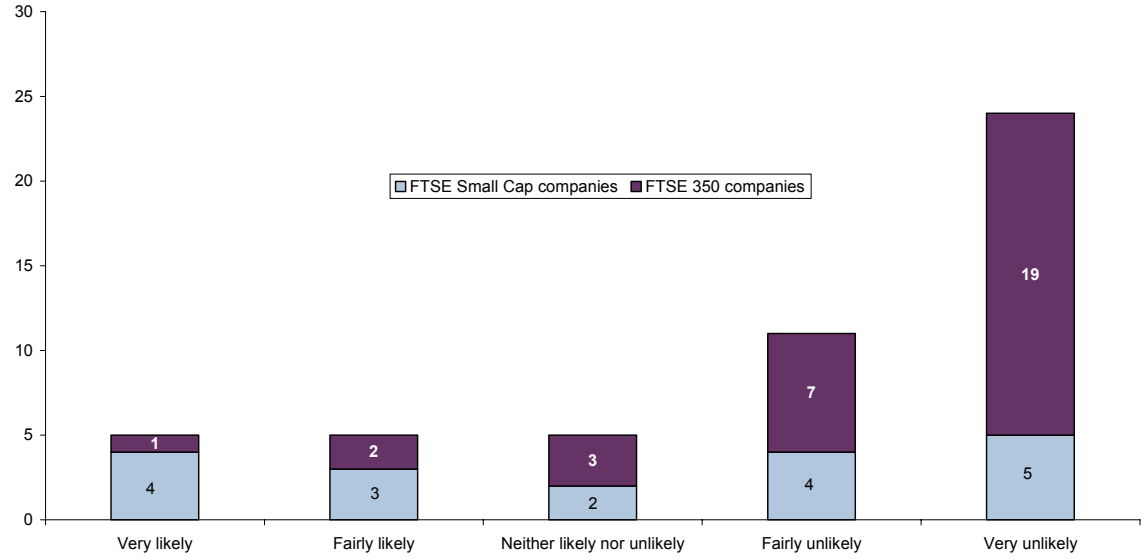
[38] These are the top four mid-tier firms according to their audit revenues in 2004. See Table 4.1 for a ranking of the audit firms.

currently use these firms. However, only up to 16% of FTSE 350 respondents stated that they would consider a larger mid-tier firm a reasonable potential alternative.

In contrast, around 75–90% of companies not using a particular Big Four firm (ie, using an alternative Big Four firm or a mid-tier firm) would consider that firm as a reasonable substitute for their present auditor, indicating that all Big Four firms are widely regarded as close substitutes for a company's current auditor.

To gain further insight into this issue, audit committee chairs were also asked to rate how likely they were to consider using a mid-tier auditor. The results are presented in Figure 3.9. Of the 50 respondents, ten stated that they would be 'very likely' or 'fairly likely' to do so. In contrast, 35 audit committee chairs said that they were very or fairly unlikely to consider a mid-tier firm as their auditor.

**Figure 3.9 Likelihood of considering a mid-tier auditor for the company's audit (number of companies)**




Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
Source: Oxera calculations based on Q12: How likely or unlikely are you to consider a mid-tier accounting firm for your company's audit?, audit committee chairs survey.

In addition, the audit committee chairs were asked about the size of a hypothetical price reduction they would require to consider a mid-tier firm as the company's auditor. As Table 3.5 indicates, 37 out of 40 audit committee chairs who answered this question agreed with the statement: 'I would not consider a mid-tier auditor at any price', indicating that, in many cases, price is not a determinant in auditor choice.

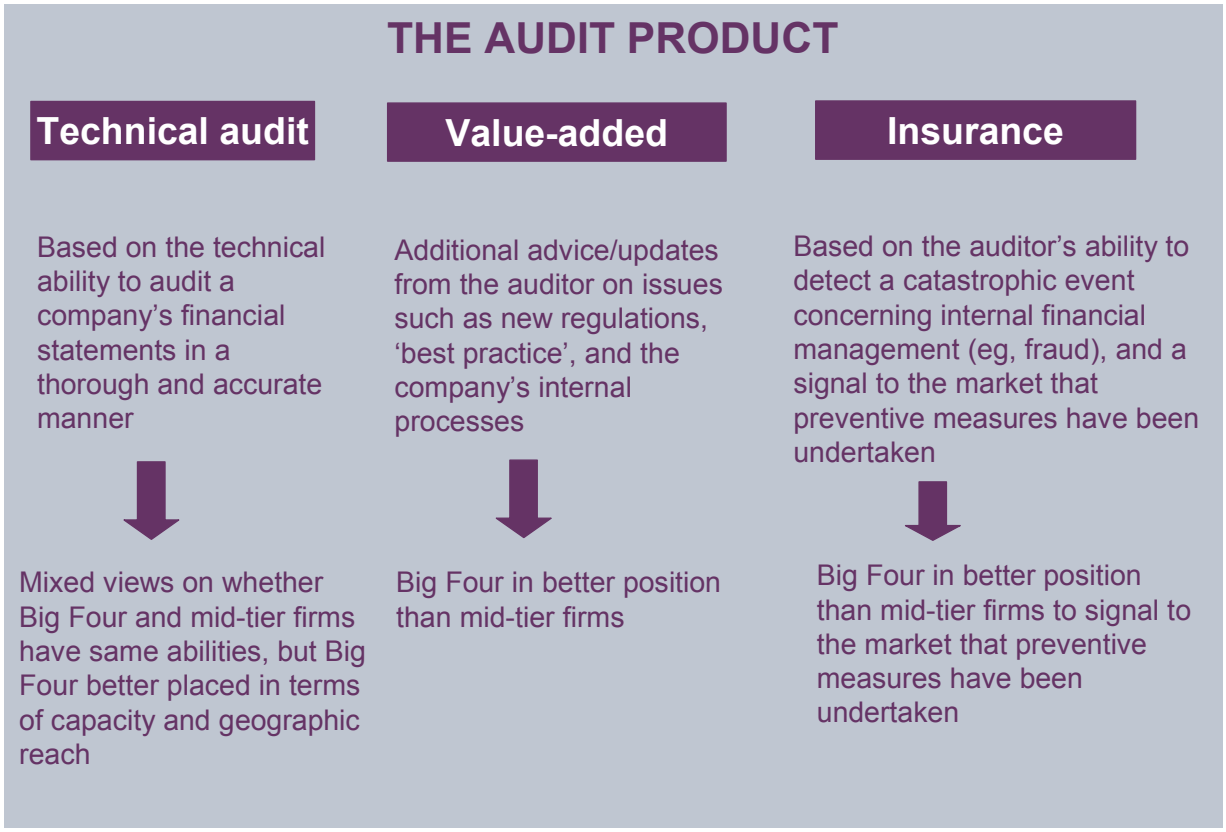
**Table 3.5 Approximately what size of reduction in the audit fee would persuade you to consider a mid-tier accounting firm for your company's audit?**

| Size of price reduction | Total number of respondents | FTSE 350 companies | FTSE Small Cap companies |
|---|---|---|---|
| Up to 10% | 0 | 0 | 0 |
| 11–20% | 1 | 1 | 0 |
| 21–30% | 1 | 0 | 1 |
| 31–40% | 1 | 0 | 1 |
| 41–50% | 0 | 0 | 0 |
| 51–60% | 0 | 0 | 0 |
| 61–70% | 0 | 0 | 0 |
| More than 70% | 0 | 0 | 0 |
| 'I would not consider a mid-tier auditor at any price' | 37 | 28 | 9 |
| **Total of respondents** | **40** | **29** | **11** |

Note: This question was asked to those who responded 'neither likely nor unlikely', 'fairly unlikely' or 'very unlikely' to Q12.
Source: Q14: Approximately what size of reduction, if any, in the audit fee would persuade you to consider a mid-tier accounting firm for your company's audit?, audit committee chairs survey.

In conclusion, from the above analysis it follows that the Big Four firms are generally perceived to be better placed than the mid-tier firms to provide the components of the audit product discussed in section 3.1 (see Figure 3.10 below). This is one of the key drivers of the strong competitive advantage that the Big Four have over the mid-tier firms.

**Figure 3.10 Impact on competition of the components of the audit product**



## 3.3 Tendering and auditor switching

The section discusses the following:

– the relationship between tendering and switching (section 3.3.1);
– switching rates for the listed companies over the period 1995–2004, and differences in switching behaviour between small and large companies (section 3.3.2);
– factors influencing switching (section 3.3.3);
– barriers to switching (section 3.3.4);
– indicative evidence from Oxera's econometric analysis on factors influencing switching (section 3.3.5).

### 3.3.1 Tendering of the audit contract

Auditors are subject to reappointment every year, and some bargaining on price and other conditions tends to take place during the reappointment process (see also section 5.1). During this bargaining, the company can, to some degree, threaten to switch auditor if satisfactory terms cannot be agreed upon.

Tendering is a more formal process initiated by a company to select an auditor from among the invited bidders. Companies may decide to put their contract out to tender for a number of reasons, including:

– to obtain better terms of engagement from the auditors (eg, lower fees);
– to address corporate governance issues;
– 'auditor rationalisation', which typically happens following a merger;
– to choose a new auditor when the company is dissatisfied with the incumbent.

According to Oxera's interviews, incumbents often retain some advantage over competitors when the tender is 'routine' or when it is the result of a company merger. Routine tenders take place infrequently (see below) and are occasionally used to put pressure on the incumbent to obtain better terms of engagement, or to address corporate governance issues. Only if the relationship between the company and the incumbent has somehow been damaged might the incumbent auditor find itself at a disadvantage to potential competitors.

Notwithstanding some expectation that the incumbent may retain the client, the Big Four audit firms generally tend to respond to a tender offer. Indeed, according to the interviews, tenders are in general perceived to be quite competitive—both companies and audit firms have emphasised this. The typical tender by the larger companies involves two or three Big Four firms (companies often consider each of the Big Four, but then narrow down the formal tender for practical reasons). Outside the FTSE 350, one or two of the mid-tier firms may also be invited to tender alongside some of the Big Four firms. The Big Four firms tend to put considerable efforts into the bid. It has been put to Oxera that:

– these firms have specific resources devoted to putting bids together;
– they may spend ('invest') up to 6–12 months' worth of fees in this process;
– non-incumbents sometimes offer to undertake the audit for the same fee as the incumbent (which is public information), or at a discount to the current fee, hence absorbing the necessary up-front and learning costs involved in auditing a new client.

Information provided by one of the Big Four firms suggests that in tenders by FTSE 100 companies over the past 15 years, the incumbent has been retained only one-third of the time; in two-thirds of the tenders, a new auditor has been appointed. However, the information also indicates that about one-third of audit tenders were held due to auditor rationalisation (normally following a company merger), in which generally only one audit firm can expect to retain the audit. This means that a significant proportion of 'switching' is likely to be driven by company mergers. Even so, the overall number of switches would suggest that tendering does indeed allow competition, and can lead to switching.

Nevertheless, while tendering may be competitive, evidence from Oxera's audit committee chairs survey (and confirmed in several interviews) suggests that tendering of audit services does not occur very often in practice. As Table 3.6 shows, 36 of the 50 audit committee chairs stated that, in their company, a tender or similar process to select an auditor has not been held for at least five years, with ten having done so once in the last five years and 26 less often. At most, nine companies said they have tendered once every three years in the last ten years (of which four had indeed switched auditor).

Consistent with this, one of the Big Four firms informed Oxera that, of the FTSE 100 constituents in December 2004, it was aware of only 28 companies that had held competitive tenders in the last 15 years. As far as the firm is aware, these 28 companies had held only 33 competitive tenders between them over that 15-year period. This is consistent with a frequency of audit tendering that is not very substantially greater than the frequency of switching.

**Table 3.6 Frequency of tendering of audit services in the last ten years**

| | Number of respondents | Companies that had switched auditor | Companies that had not switched auditor |
|---|---|---|---|
| Once every two years or less | 0 | 0 | 0 |
| Once every three years | 9 | 4 | 5 |
| Once every four years | 2 | 1 | 1 |
| Once every five years | 10 | 4 | 6 |
| Less often | 26 | 4 | 22 |
| Don't know | 3 | 1 | 2 |
| **Total number of respondents** | **50** | **14** | **36** |

Source: Oxera calculations based on Q2: Approximately how frequently has your company held a tender or similar process to select an auditor in the last ten years?, audit committee chairs survey; switching figures sourced from Oxera panel dataset.

### 3.3.2 Rates of switching

In line with a low frequency of tendering among UK companies, there appears to be a very limited degree of switching between auditors. With low levels of tendering and switching, market shares are likely to be stable, and high levels of concentration, once established, are likely to persist.

Table 3.7 below presents the percentage of listed companies included in the Oxera panel dataset that switched auditors over the 1996–2004 period. As the table shows, the general level of switching is low, although there are some differences by company size. In particular, switching is more common among smaller companies, with average switching rates at around double the rate for FTSE 100 and FTSE 250 companies. In 2004 only 1% of FTSE 100 and 2% of the FTSE 250 companies changed auditors, while 3.1% of FTSE Small Cap companies, and 3.8% of the FTSE Fledgling companies switched.

**Table 3.7 Percentage of listed companies that switched auditors in 1996–2004**

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | Average |
|---|---|---|---|---|---|---|---|---|---|---|
| **Listed companies (%)**[1] | 3.0 | 4.4 | 6.2 | 4.5 | 3.5 | 4.9 | 5.5 | 3.4 | 2.8 | 4.2 |
| FTSE 100 (%) | 2.0 | 0.0 | 1.9 | 1.6 | 3.1 | 2.9 | 2.6 | 3.8 | 1.2 | 2.1 |
| FTSE 250 (%) | 0.7 | 3.2 | 4.9 | 2.4 | 0.6 | 3.9 | 4.9 | 2.7 | 1.6 | 2.8 |
| FTSE Small Cap (%) | 3.2 | 4.1 | 7.4 | 5.2 | 4.6 | 5.9 | 4.5 | 3.2 | 3.1 | 4.6 |
| FTSE Fledgling (%) | 4.5 | 6.3 | 7.3 | 6.4 | 3.4 | 5.8 | 8.5 | 4.6 | 3.8 | 5.6 |

Note: The panel dataset includes data on companies in the FTSE 350, Small Cap and Fledgling indices, where information on audit fees, name of auditor, and turnover was available from FAME.[1] By company listing status in 2004.
Source: Oxera calculations based on Oxera panel dataset.

Although the overall switching rate remained low, it seems to have peaked somewhat in the years when the number of audit firms decreased—ie, in 1998 following the Price Waterhouse and Coopers & Lybrand merger, and in 2002 following the dissolution of Arthur Andersen.

Some 'switches' are driven by mergers between companies, which result in only one auditor remaining. Analysis of the Oxera panel dataset indicates that mergers account for around 20% of switches over the period of analysis.

Low switching rates might have important implications for the level of competition in the audit market, although the number of audit tenders (which cannot be quantified here) is expected to be moderately higher than the number of switches. The combination of low switching rates and a relatively low frequency of audit tenders implies a limited number of competitive interactions in which different providers of audit services are competing directly for the same business. This combination of factors also makes it more difficult for potential new competitors to gain a foothold in the market (or for smaller firms to expand their activities). This conclusion has implications for Oxera's analysis of the potential entry into the market for large company audit, as presented in section 6.

### 3.3.3 Factors influencing switching

Given the above observations, it is important to analyse the reasons behind the low levels of switching observed in the UK market. The survey and the interviews addressed this question explicitly by asking audit committee chairs about company policy on changing auditors, as well as about the primary drivers of companies' decisions to switch or to retain the incumbent.

#### Company's switching policy

One factor that might explain the low switching rates is the lack of an internal policy concerning periodic changes in the company's auditor. As Table 3.8 below shows, according to the survey results, only four of the 50 audit committee chairs indicated that their company has a policy of changing auditor after a set period—three of these stated that the policy is to switch auditor every five years, and one did not specify the frequency, but indicated that they have a policy of switching auditor less than every five years. These four are all FTSE Small Cap companies, and, according to information from the Oxera panel dataset, only one of them actually switched auditor in the 1995–2004 period.

**Table 3.8 Companies with a policy of changing auditors after a set period**

| | Total number of respondents | Percentage of respondents |
|---|---|---|
| No | 46 | 92 |
| Yes | 4 | 8 |
| Every five years | 3 | |
| Less than every five years | 1 | |
| **Total** | **50** | **100** |

Source: Q5: Does your company have a policy of changing auditors after a set period (eg, 3 or 5 years)?, audit committee chairs survey.

According to the evidence from the interviews, very few companies have a policy of changing auditor or even audit partner, which is in line with the above survey results. One audit committee chair commented that, although his company has thought about changing auditors every 5–7 years, there is no formal policy of auditor rotation (although the audit partner changes every 3–5 years). Another audit committee chair commented that auditor choice is reviewed annually (as recommended by industry guidelines), but there is no 'set arrangement' to change auditor.

In summary, according to evidence from the survey and the interviews, very few companies have an explicit policy on periodic switching. This may be related to the fact that the relationship between companies and their auditors is, by nature, long-term (as set out in section 3.1 above), and that switching is a costly process (see below).

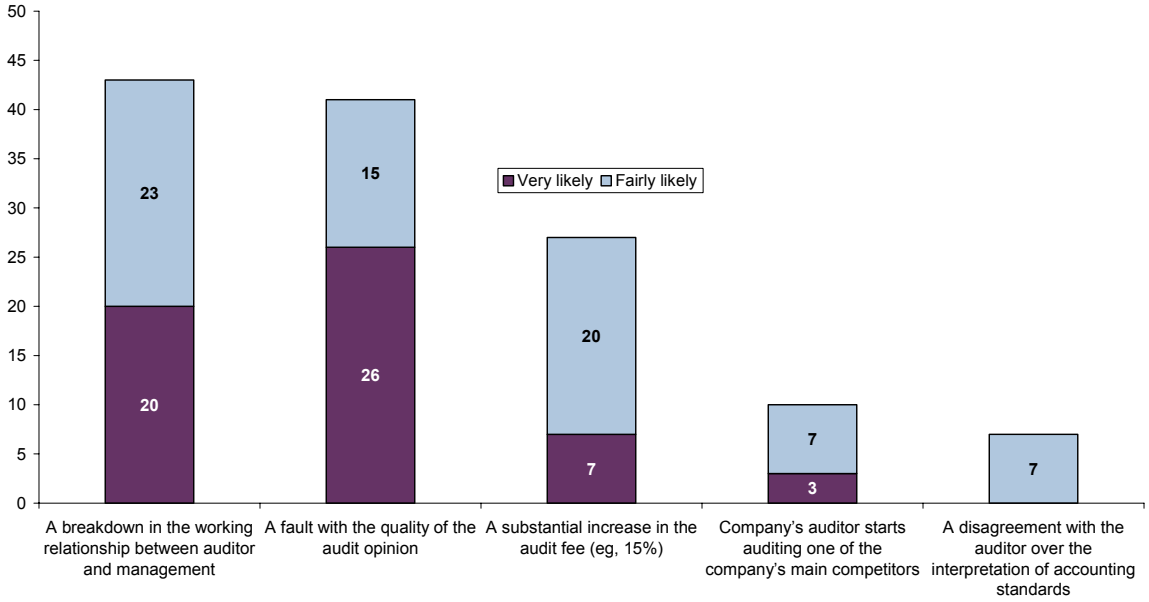
### Triggers of switching

A number of factors that could trigger switching have been considered in the course of Oxera's analysis. Among these, company mergers appear to be the most significant. Several interviews noted that mergers provide the opportunity (partly out of necessity, as at least one of the incumbent auditors normally needs to be replaced) explicitly to review the relationship between the company and the auditor.

In addition to mergers, other circumstances might trigger switching. This was explored in the interviews and in the survey. Several companies interviewed by Oxera commented that switching may occur (or has occurred) when companies lose confidence in their auditor, for example, because of a fault with the quality of the audit opinion, a breakdown in the working relationship between auditor and management, or an instance of fraud.

The survey asked audit committee chairs how likely they were to switch under various scenarios. Figure 3.11 presents the number of those who were either 'very likely' or 'fairly likely' to change auditor under the different scenarios. As the figure shows, 26 of the 50 audit committee chairs stated that they would be very likely to consider switching auditor (and a further 16 said that they would consider it fairly likely) if there were a fault with the quality of the audit opinion. In addition, 20 respondents stated that a breakdown in the working relationship between auditor and management would be very likely to make them consider switching, and a further 23 respondents said that they would be fairly likely do so.

**Figure 3.11 Importance attached to factors that might trigger switching by audit committee chairs (number of respondents)**




Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
Source: Q6: How likely is it that any of the following scenarios would lead you to consider changing your company's current auditor?, audit committee chairs survey.

Table 3.9 presents the average scores of the responses given by audit committee chairs of FTSE 350 companies and FTSE Small Cap companies.

**Table 3.9 Importance attached to factors that might trigger switching by audit committee chairs (average scores by size of company)**

| | Sample mean | Mean FTSE 350 companies | Mean FTSE Small Cap companies |
|---|---|---|---|
| A fault with the quality of the audit opinion | 4.4 | 4.5 | 4.2 |
| A breakdown in the working relationship between auditor and management | 4.2 | 4.2 | 4.2 |
| A substantial increase in the audit fee (15% or above) | 3.4 | 3.3 | 3.5 |
| Your company's auditor starts auditing one of your company's main competitors | 2.5 | 2.7 | 2.2* |
| A disagreement with the auditor over the interpretation of accounting standards | 2.5 | 2.5 | 2.6 |

Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
*Significant difference at a 10% confidence level.
Source: Q6: How likely is it that any of the following scenarios would lead you to consider changing your company's current auditor?, audit committee chairs survey.

As the table shows, there appears to be no statistically significant difference between these two groups of respondents in relation to how likely they would be to switch if there were a fault with the audit quality or a breakdown in the relationship with the auditor. The only exception is switching after a company's auditor begins to audit a rival company, which was given more importance by the larger companies. Oxera also found no statistically significant

differences between companies that had switched and those that had not, in respect of their responses on triggers for switching presented in Table 3.9.[39]

There are mixed views on the impact of an increase in the audit fee, with 20 respondents considering that they would be fairly likely to switch auditors following a price increase and 12 considering it neither likely not unlikely. As Table 3.9 shows, on average this factor obtained a score of 3.4, which indicates that there is some degree of price sensitivity in the demand for audit services. This may mitigate the findings from the interviews discussed in section 3.2 regarding price sensitivity, which suggested that the focus of audit committee chairs is much more on quality than price, and that there is some degree of willingness to pay for extra quality assurance.

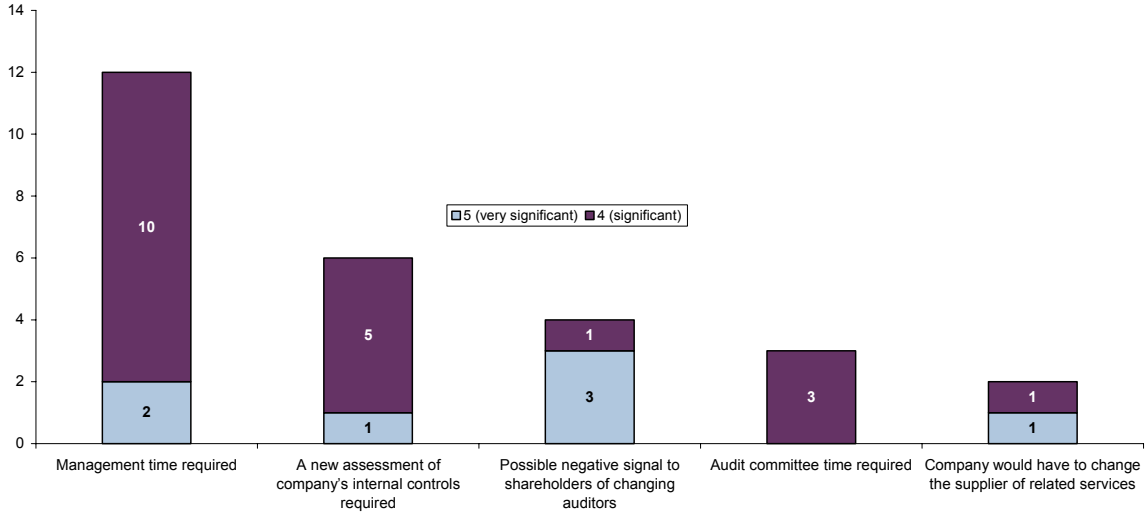
Finally, although not directly specified in the survey, according to several audit committee chairs interviewed by Oxera, issues related to corporate governance might also trigger switching—the general point being that switching once in a while may be healthy. The audit committee chair of one FTSE 100 company believed that there is a notion that good corporate governance means that a company cannot retain the same auditor for ever. Another audit committee chair commented that a new auditor might highlight important accounting issues that were not discovered by the previous incumbent. Yet, there is some tension between the corporate governance goals and the practical difficulties of changing auditor. Several audit committee chairs supported the 'concept' of changing auditor because of corporate governance issues, but in practice were reluctant to switch due to the perceived high costs (as further discussed below).

### 3.3.4 Barriers to switching

To obtain a clearer idea of the relative importance of the factors that might constitute a barrier to switching, the survey asked audit committee chairs to rate the significance of a number of the above factors on a scale of 1–5, where 1 means that the factor is 'not at all significant' in discouraging companies from changing auditors and 5 that it is 'very significant'. Figure 3.12 below presents the number of audit committee chairs who gave to a score of 5 or 4 to each factor. Table 3.10 summarises the average scores by size of company and indicates whether there is a statistically significant difference between the results for each group of companies. It suggest that audit committee chairs on average view these barriers to switching as not very significant, since each factor receives an average score of less than 3.

[39] For the purposes of this calculation, to determine whether the company switched auditor, information from the Oxera panel dataset was used. In total, 14 of the 50 companies included in the survey switched.

**Figure 3.12 Significance attached by audit committee chairs to factors that might discourage switching (number of respondents)**




Base: 50 respondents.
Source: Q7: How significant or not, are each, if any, of the following factors in discouraging you from changing your company's auditor?, audit committee chairs survey.

**Table 3.10 Significance attached by audit committee chairs to factors that might discourage switching (prompted)**

| | Sample mean | Mean FTSE 350 companies | Mean FTSE Small Cap companies |
|---|---|---|---|
| Management time required | 2.8 | 2.9 | 2.5* |
| A new assessment of your company's internal controls required | 2.4 | 2.3 | 2.6 |
| Possible negative signal to shareholders of changing auditors | 2.0 | 1.8 | 2.3* |
| Company would have to change the supplier of related services such as tax or corporate finance | 2.0 | 2.0 | 2.1 |
| Audit committee time required | 1.9 | 1.9 | 2.0 |

Base: 50 observations for the whole sample, 32 for FTSE 350 companies and 18 for FTSE Small Cap companies.
* Significant difference at a 10% confidence level.
Source: Q7: How significant or not, are each, if any, of the following factors in discouraging you from changing your company's auditor?, audit committee chairs survey

According to the survey results, the time required from management in the event of switching auditor appears to be the most significant barrier, albeit that even this factor received a mean score of less than 3. Two of the 50 audit committee chairs said that this was a very significant factor discouraging them from changing auditor, and a further ten considered it significant. This factor appears to be of greater importance for FTSE 350 companies than for FTSE Small Cap companies. The audit committee time required for switching appears to be the least important barrier for the audit committee chairs of both large and small-scale companies, with an average score of 1.9 (ie, not important).

The barriers to switching appear, at least partly, to result from the nature of the audit product and the relationship between auditor and company, and include the costs generated by:

– the process of 're-educating' a new auditor;
– the auditor selection process;
– the potential costs of sending a negative signal to the capital market.

In the course of Oxera's interviews, it was generally recognised by the audit committee chairs, finance directors and audit firms themselves that it takes time for a new audit team to understand the company's business and provide an audit opinion that the board and shareholders can trust. Several audit committee chairs commented that the process of becoming familiar with the company can take up to two years, a period during which the company management will have to invest time in bringing the auditor up to speed. One Big Four firm commented that this process could take up to three years in the case of complex sectors such as financial services. The firm noted that, in the process of learning, errors can be made, potentially quite frequently during the first year, and if such errors are noticed, they will create (at the least) some disruption to the audit process.

In addition to the potential costs generated from losing the incumbent's knowledge and re-educating the new audit firm, the process of selecting a new auditor can form an important barrier to switching. Tenders generate considerable costs both to the company organising them and the audit firms that participate. Companies have to assume not only the financial costs, but also the costs of management and audit committee time required to choose a new auditor. Indeed, in its 'Guidance for audit committees', the Institute of Chartered Accountants in England and Wales recognises that: 'Putting audits out to tender is a time-consuming process and the frequent appointment of new auditors will be very costly financially and in terms of management time'.[40]

However, alternative audit firms may be able partly to compensate for these costs by offering a lower price if the company switches its audit away from the incumbent firm. Evidence on the relationship between audit fees and switching behaviour presented in section 5.2 provides some support for this hypothesis, indicating that switching may lead to lower audit fees.

Changing auditor might also send a negative signal to the capital markets, since it might be associated with problems with the company's financial statements. However, evidence from the survey (as shown above) and from the interviews indicates that this perceived effect on capital markets of changing auditor is not (or no longer) seen as a significant barrier to switching. Some investors confirmed that they would not be concerned by a change in auditor, provided the switch was between Big Four firms. In the words of one investor, if a company moves from a Big Four auditor to a mid-tier firm, on 'gut instinct' he would feel that 'there was an issue'. The switch would then require an explanation by the company; for example, that the mid-tier firm is well qualified to undertake the audit, and that the Big Four firm charged much higher fees. Companies appear to be aware of these concerns. For instance, one audit committee chair said that meetings with the two or three largest shareholders would be required to explain the company's decision to switch to a mid-tier firm.

Finally, due to potential conflicts of interest, the number of firms from which a company can choose might be restricted. Therefore, even if the company were willing to switch auditor, it might have to stay with the incumbent. This possible lack of choice is further explored in section 5.

### 3.3.5 Econometric evidence on factors influencing switching

A statistical analysis of the Oxera panel dataset (switching data from which were presented in Table 3.7) gives some further insight into factors that influence switching. The specific hypotheses tested in this context are that the following three factors might have an impact on the frequency of switching:

– company mergers—which, as noted above, may often be associated with switching;
– the degree of market concentration—there may be less switching in sectors where auditor concentration is highest (for data on concentration by sector, see section 4.3).

[40] Institute of Chartered Accountants in England and Wales (2003), 'Guidance for audit committees. Evaluating your auditors', May, p. 2.

Concentration is measured through the Hirschman–Herfindahl Index (HHI), as often used in competition policy to express market concentration;[41]
– the market share of a company's auditor—are the clients of the leading audit firms less likely to switch?

Appendix 2 sets out in greater detail the econometric analysis undertaken by Oxera. The analysis used the information on switching by company (summarised in Table 3.7) as the 'dependent variable', in two specifications:

– a cross-sectional model for observations in 2004 (ie, with effects across sectors only, but not over time). Here, the dependent variable was defined as the total (cumulative) number of switches by a company over the period 1995–2004;
– a panel data model for 1995–2004 (ie, with observations across sectors and over time). Here, the dependent variable was a binary variable indicating whether a company had switched in a particular year or not.

In addition to variables capturing mergers, market concentration and audit market share (the three explanatory variables of interest), the model includes a number of 'control variables', which account for other factors that may drive switching. There are potentially many factors that influence switching (as discussed above), but quantifiable data is only available for some of these. Table 3.11 gives a brief explanation of the variables included in the model.

### Table 3.11 Variables included in the econometric analysis on switching

| Variable | Description | Reason for inclusion |
|---|---|---|
| **Dependent variable** | | |
| Cumulative number of switches from 1996 to 2004 | Number of times the company has changed auditor in the period from 1996 to 2004 | Dependent variable in the cross-section model |
| Switch | Whether a company switches in a particular year or not | Dependent variable in the panel data model |
| **Explanatory variables of main interest** | | |
| Mergers | Cumulative number of mergers (approximated by whether year-on-year increase in turnover of a company exceeds 40%) from 1996 until a given year | To assess whether mergers have a positive impact on the number of switches |
| HHI | Sum of the audit firms' squared market shares in a given sector in a given year | To assess whether switching occurs less in more concentrated sectors |
| Auditor market share | Share of company's auditor in total audit fees in a given sector in a given year, reported as a ratio from 0 to 1. In the panel data model the value of the previous year is taken. | To assess whether clients of the leading audit firms in a sector tend to switch less |
| **Other explanatory (control) variables** | | |
| Turnover | Turnover of the audited company in a given year (in £'000, 1995 prices). In the panel data model the value of the previous year is taken. | To control for company size (larger or smaller companies might systematically differ in terms of switching behaviour) |
| Audit fee as % of turnover | Ratio of audit fee paid by the audited company to total company turnover in a given year, reported as a percentage. In the panel data model the value of the previous year is taken. | To control for the effect of the relative size of the audit fee paid (the fees paid may influence decisions to switch) |
| Initial auditor=Big Four | Binary variable equal to 1 if, in the earliest year in the sample, a given company was audited by one of the Big Four (or Big N) firms and 0 otherwise | To explore whether companies that used the Big Four from the start switch less frequently |

[41] The HHI is calculated by adding up the squares of the market shares of all auditors. It ranges between 0 (numerous market participants with very low market shares) and 10,000 (monopoly with 100% market share). For example, in a market with five firms, each with 20% of the market, the HHI is 2,000. According to the US merger guidelines, an HHI above 1,800 indicates that the market is highly concentrated, and a market with an HHI between 1,000 and 1,800 is moderately concentrated. See Department of Justice and Federal Trade Commission (1992), 'Horizontal Merger Guidelines' (revised in 1997).

| Variable | Description | Reason for inclusion |
|---|---|---|
| Sector dummies | Indicate which of 13 sectors a given company belongs to (with the base sector being 'Real estate activities') | To control for any systematic differences between sectors that are not captured by the other variables |
| Year dummies | Indicate year of the observation (from 1995 to 2004), with the base year being 1999 | To control for any systematic differences between years that are not captured by the other variables (only relevant for the panel data model) |

Note: For more detail, see Appendix 2.
Source: Oxera panel dataset.

The results of the tests of the above hypotheses are reported in Table 3.12 below, which contains three specifications for the cross-section model and two specifications for the panel data model. These results are statistically significant (see Appendix 2 for more detail).

**Table 3.12 Impact of market characteristics on the number of switches, cross-sectional data for 2004 and panel data for 1995–2004**

| | I | II | III | I | II |
|---|---|---|---|---|---|
| | Cross-sectional model for 2004 | | | Panel data model for 1995–2004 | |
| Turnover (logs) | –1.74e–07 | –8.24e–08 | –8.24e–08 | 0.051 | 0.127 |
| | (2.13)** | (1.09) | (1.15) | (0.87) | (1.75)* |
| Audit fee as % of turnover (logs) | –0.099 | –0.170 | –0.085 | 0.324* | 0.394* |
| | (0.69) | (0.92) | (0.48) | (3.56)*** | (3.81)*** |
| Auditor market share (logs) | –3.471 | –3.219 | –1.436 | –0.288 | –0.293 |
| | (5.06)*** | (4.40)*** | (1.86)* | (8.32)*** | (7.96)*** |
| Mergers | 0.235 | 0.254 | 0.219 | 0.436 | 0.471 |
| | (3.52)*** | (3.51)*** | (3.02)*** | (2.69)*** | (2.76)*** |
| HHI (logs) | | –0.002 | –0.002 | | 0.141 |
| | | (2.47)** | (3.21)*** | | (0.31) |
| Initial auditor=Big Four | | | –1.348 | | |
| | | | (6.06)*** | | |
| Market-type dummies | no | yes | yes | no | yes |
| Year dummies | n/a | n/a | n/a | no | yes |
| Sector dummies | no | yes | yes | no | yes |
| Number of observations | 739 | 739 | 739 | 5,705 | 5,705 |

Note: The cross-sectional model was estimated using the ordered logit estimator; the panel data model for 1995–2004 was estimated using the panel data logit estimator. Absolute values of z statistics are reported in parentheses. * Significant difference at a 10% confidence level, ** significant difference at the 5% level; *** significant difference at the 1% level. For more detail see Appendix 2.
Source: Oxera panel dataset.

The main findings of this analysis can be summarised as follows.

– Company mergers do have a statistically significant, and positive, effect on the number of switches (the coefficient for mergers is significant at the 1% level in each of the five specifications). In other words, companies that have merged are more likely to have switched auditor as well. This confirms the finding on mergers reported earlier in this section.

– Auditor concentration in a particular sector (as measured by the HHI) has a negative effect on switching in the cross-sectional model (although not in the panel model), suggesting that companies in concentrated sectors tend to switch less.

– The market share of the company's auditor in that particular sector has a statistically significant, and negative, effect on switching. This seems to suggest that the clients of the leading audit firms are less likely to switch. In line with this, one of the control variables (initial auditor=Big Four) also shows a significant negative effect on switching (see specification III).[42]

  It is of interest to note that this result corresponds with findings from a study by Ghosh and Lustgarten (2006), who investigated instances of auditor switching among US companies, and concluded that clients of the Big Four firms switch less often than other companies.[43]

– The control variables show a mixed picture (and, accordingly, should not be given too much weight). Company turnover is significant in the first specification only, where it suggests that larger companies tend to switch less than smaller companies. Likewise, audit fees as percentage of turnover have a significant and positive effect in the panel data model, which suggests that those companies which typically pay higher audit fees relative to their turnover switch more often.[44]

These results from the econometric analysis provide some further insight into factors behind switching. It is important, however, to treat these results only as indicative of the potential relationship between switching rates and the various factors, given that the very low rate of switching overall makes the tests dependent on a relatively small share of all observations.[45] Finally, it is noteworthy that in the ten-year panel dataset, no FTSE 100 or 250 company has ever switched from a Big Four firm to a mid-tier firm.

## 3.4 Summary

### Dynamics of auditor selection—key findings

#### Nature of the audit product

The essence of auditing is to validate the financial statements produced by management for their shareholders. The 'real' audit clients are therefore current and potential investors in the company. At the core of the audit product, as ultimately supplied to investors, is a combination of process and judgement which results in a clear decision: whether or not to give the company's accounts a clean bill of health. However, in practice, the real audit client does not engage, or pay, the audit firm. This is done by the company.

What companies expect to receive from their auditor, however, is a complex product with three main components: technical audit; value-added advisory services; and insurance against catastrophic events.

Only the technical audit is directly beneficial to the real audit client—shareholders—in providing an ongoing check on the quality of financial reporting. Value-added advisory services are primarily beneficial to company management, and the 'IBM effect' part of the insurance function is primarily beneficial to company management and the audit committee.

The audit product is characterised by asymmetric information—it is very difficult for company management, audit committees or shareholders to assess the quality of service they receive from their auditor. Where there is asymmetric information on quality, it is typically expected that

[42] There is some degree of correlation between this control variable and the market share variable, particularly for the very large companies in the dataset. However, this control variable is only included in one specification for illustrative purposes, and both variables in essence capture a similar effect.

[43] Ghosh, A. and Lustgarten, S. (2006), 'Pricing of Initial Audit Engagements by Large and Small Audit Firms', *Contemporary Accounting Research*, forthcoming.

[44] In the cross-sectional model, the relationship tested is different. This model refers to 2004 and has the cumulative number of switches up to 2004 as the dependent variable. The variable audit fee as percentage of turnover is here defined as the average for each particular company over the period. Assuming a normal distribution of switches over time, the effect of this variable is expected to be neutral (this is confirmed by the fact that the estimated coefficients are not significant).

[45] Potential statistical problems that could arise in these estimations are limited, as explained in Appendix 2.

companies will choose a supplier with a reputation for providing high quality. The importance of reputation in the audit market accentuates some of the differences between the Big Four and mid-tier firms.

Audit quality is of over-riding concern to companies, particularly for audit committee chairs. However, it is difficult for audit committees to observe audit quality directly. They therefore rely to a large extent on an assessment of 'inputs' to the audit process, such as their confidence in the audit partner involved.

As a consequence of the difficulty for the audit customer in observing audit quality, regulation appears to have a significant role to play in monitoring audit quality.

### Auditor selection

In line with current regulations, audit committees play the most important role in the process of auditor selection, although the research highlights that, in practice, company management, in particular finance directors, also continue to be highly influential. The views of other stakeholders are given less weight, and there seems to be only limited direct communication between companies and investors regarding auditor selection.

For most companies, the most important determinants of choice are reputation, sector-specific skills, international coverage, and quality of staff. The audit firm is also expected to have the ability to understand the company's business in a timely and efficient manner, and to provide advisory services in areas that are new to the company as it grows larger and moves into new markets. More importantly, companies expect their auditor to be able to identify irregularities in an efficient way, and help to insure them (and investors) against (unlikely) catastrophic events. The choices of audit firms are also driven by the concerns of those making the decisions as to their ability to justify the choice, should some kind of catastrophic event actually occur.

In addition, the need to ensure that the company receives a high-quality audit generally reduces the sensitivity of demand to price changes, as there is a perceived trade-off between price and quality.

With respect to each of the choice factors, there are significant perceived differences between the Big Four and the mid-tier firms. Of the 32 FTSE 350 companies surveyed, 28 were unlikely to consider a mid-tier firm even with a substantial reduction in audit fee, indicating that, in many cases, price is not a key determinant of auditor choice. It is of note that many audit committee chairs do not know the mid-tier firms very well—it is reputation of the audit firm that matters.

### Switching

Auditors are subject to reappointment every year, and some bargaining on price and other conditions tends to take place during the reappointment process. During this bargaining, the company can, to some degree, threaten to switch auditor if satisfactory terms cannot be agreed upon.

Tendering is a more formal process initiated by a company to select an auditor from among the invited bidders. Tenders can be highly competitive (data suggests that incumbents only win in one-third of cases). However, they also occur infrequently—nearly 75% of the companies surveyed tender only once every five years or less. Organising tenders, and then changing auditors, can be costly, to both auditors and companies.

Switching rates in the market are low—around 4% per year on average for listed companies (and less than 3% for FTSE 350 companies). Few companies have an explicit policy of switching auditors at regular intervals. Oxera's econometric analysis suggests that the clients of the leading audit firms are even less likely to switch than the average.

# 4 Market concentration

This section looks at the current market structure, and how it has developed over time.

– Section 4.1 presents an overview of the size of the market and the main players.

– Section 4.2 explores possible further segmentation of the market, in particular by company size (FTSE 100 and FTSE 250 versus other companies) and by industry sector.

– Section 4.3 provides information on how market shares and market concentration have changed over time, for both auditing as a whole and for specific segments.

## 4.1 Size of the market and main players

In 2004 the top 50 UK accounting firms generated audit revenues of £2.4 billion, and employed more than 50,000 people, including partners and non-partner professional staff.[46] The total combined revenue of these firms was £6.7 billion; audit services thus represent around 36% on average of the accounting firms' revenues.

Although there are several thousand accounting firms in the UK at present, the Big Four audit most of the large public and private companies. This pattern is repeated in other countries around the world (see Table 4.2 below). Among other accounting firms present in the UK market are some sizeable mid-tier firms, which include BDO Stoy Hayward, Grant Thornton, Baker Tilly, PKF, Mazars and RSM Robson Rhodes.

Audit firms with an international presence are typically set up as networks of smaller national member firms that work under the same brand name and network agreement, but are legally separate entities. To work under the same brand name, these member firms have to follow a common set of principles and policies. In return, along with using the same brand name, they have access to common resources and expertise. Thus, the accounting firms can be described as a set of independent member firms bound together by a contractual relationship across countries. The Big Four firms are generally perceived to be more integrated along these lines than the mid-tier firms (see also section 3.2).

The Big Four have a clear lead in the market in terms of audit fees and number of staff. Table 4.1 presents audit revenues, total revenues, number of principals, number of offices in the UK, and international presence of the largest audit firms in the UK in 2004. In that year, the Big Four received almost 80% of the audit fees of this group, and their revenues from audit services were almost four times higher than the aggregate revenues of the next tier of audit firms: £1.3 billion versus £338m, respectively.

[46] 'Accountancy Age 2005 survey', June 30th 2005, p. 18. The staff figures refer to the total number of staff, including those in audit and other services, such as tax, consultancy and corporate finance.

**Table 4.1 Largest accountancy firms by audit fee income in the UK, 2004**

| Name | UK audit fee income (£m) | UK total fee income (£m) | No. of principals[1] | No. of UK offices | International presence, by no. of countries |
|---|---|---|---|---|---|
| PwC | 465.0 | 1,568.0 | 752 | 35 | 148 |
| KPMG | 306.0 | 1,066.0 | 549 | 22 | 148 |
| Deloitte | 259.0 | 1,246.3 | 602 | 18 | 148 |
| Ernst & Young | 229.0 | 828.0 | 391 | 23 | 140 |
| BDO | 84.1 | 187.9 | 213 | 16 | 105 |
| Grant Thornton | 58.0 | 234.0 | 232 | 33 | 110 |
| Baker Tilly | 50.0 | 160.0 | 261 | 32 | 85 |
| PKF | 46.5 | 110.0 | 101 | 23 | 119 |
| Mazars | 24.8 | 63.5 | 78 | 18 | 61 |
| RSM Robson Rhodes | 14.1 | 75.2 | 93 | 9 | >70 |
| Howarth Clark Whitehill | 13.9 | 35.6 | 59 | 9 | 280[2] |
| Blueprint Audit (Tenon Group)[3] | 10.0 | 10.0 | 9 | 27 | UK only |
| Bentley Jennison | 9.5 | 38.1 | 56 | 10 | UK only |
| Chantrey Vellacott DFK | 7.5 | 19.9 | 50 | 7 | >70[4] |
| UHY Hacker Young | 6.9 | 24.0 | 67 | 10 | 51[5] |
| Kingston Smith | 6.5 | 20.3 | 42 | 6 | 49[6] |
| Cooper Parry | 3.8 | 11.3 | 20 | 3 | UK only |
| Smith & Williamson (Solomon Hare)[7] | 2.7 | 14.8 | 22 | 27[8] | 96[9] |

Note: [1] Principals are equivalent to partners in a partnership and members in a limited liability partnership (LLP). The number of principals is stated as the total for each UK partnership, including audit and non-audit activities. [2] The number of cities in which Howarth International has an office. [3] In February 2005, Blueprint Audit Ltd changed its name to Tenon Audit Ltd. Tenon Group plc is a separate company that provides professional resources and certain services on an arm's-length basis to Tenon Audit Ltd under the terms of a formal agreement. The number of offices of Blueprint Audit corresponds to those of the Tenon Group. [4] The number of countries in which DFK International operates. [5] The number of offices of UHY International. [6] The number of offices of Kingston Smith International. [7] In 2005 Solomon Hare LLP merged with Smith & Williamson. [8] The number of offices of Smith & Williamson. [9] The number of countries in which Dexia International operates (Smith & Williamson is the principal UK member of Dexia International).
Source: *UK total fees and UK audit fees*: FRC (2005), 'Key facts and trends in the accountancy profession', POBA, February. *Number of UK offices*: '2005 *Accountancy Age* Top 50 survey', June 30th 2005, p. 18. *International presence by number of countries*: firms' websites.

Similar differences exist in terms of the number of principals employed by the Big Four and the other accounting firms. In 2004, an average Big Four firm had 574 principals, while only the largest three mid-tier firms employed more than 200. In addition, the Big Four have an extensive network of offices in the UK and abroad. The mid-tier firms also have quite extensive networks, but their offices are often smaller.

Differences also exist within the Big Four—in particular, between PwC and the other three firms. In 2004, KPMG, Deloitte, and Ernst & Young had a similar size of audit revenues, of between £200m and £300m, while PwC's audit revenues (at £465m) were 50% higher than those of the next largest firm, KPMG. The difference between the Big Four is somewhat less marked at the global level, as shown in Table 4.2, although the gap with the mid-tier firms also exists globally.

**Table 4.2 Largest accountancy firms globally, 2004**

| International network | Fee income (£m) | No. of principals | No. of staff |
|---|---|---|---|
| PwC | 10,497 | 7,753 | 122,471 |
| Deloitte | 9,781 | 7,700 | 115,000 |
| Ernst & Young | 8,648 | 6,973 | 100,604 |
| KPMG International | 8,016 | 6,448 | 93,983 |
| BDO International | 1,799 | 2,202 | 25,118 |
| Grant Thornton International | 1,248 | 2,026 | 20,486 |
| RSM International | 1,245 | 2,140 | 20,371 |
| MRI | 1,088 | 2,113 | 19,176 |
| Baker Tilly International | 1,085 | n/a | 18,600 |

Note: Revenues for international firms have been converted from USD to GBP using the annual exchange rate for the 12 months ending 31/10/2004 ($1.7 = £1).
Source: '2005 *Accountancy Age* Top 50 survey', June 30th 2005.

## 4.2 Market segmentation

This section provides a framework for the analysis in section 4.3 on market concentration, and shows that some segmentation of the audit market by market index and industry sector is of relevance. This section:

– places Oxera's analysis in the context of the market definition undertaken by the European Commission in the Deloitte & Touche/Arthur Andersen (UK) and Price Waterhouse/Coopers & Lybrand mergers;

– summarises the views of companies, investors and audit firms about possible market segmentation from both the demand side (the companies' perspective) and the supply side (the auditors' perspective);

– explores briefly the reasons for the inability or unwillingness of mid-tier firms to expand into the large listed company audit market (this issue is also examined in section 6).

### 4.2.1 Segmentation by market index and company size

In the merger reviews in 1998 and 2002, the Commission segmented the market by market index and company size. Its decision on the Deloitte & Touche/Arthur Andersen (UK) merger in 2002 confirmed its earlier reasoning in the Price Waterhouse/Coopers & Lybrand decision;[47] namely that the activities of the major accounting firms can be divided into the following product markets:

– audit and accounting services to quoted and large companies;
– audit and accounting services to small and medium-sized companies;
– tax advisory and compliance services;
– corporate finance advisory services;
– management consultancy services.

In the Price Waterhouse/Coopers & Lybrand decision, the Commission also referred to the 'possible existence of still narrower markets for the provision of audit and accounting services in some sectors, in particular the banking and insurance sectors.' In the Deloitte & Touche/Arthur Andersen (UK) decision, the Commission identified the main reasons why it

[47] European Commission (2002), 'Case No COMP/M.2810 Deloitte & Touche/Andersen (UK)', July 1st, para. 21. European Commission (1998), 'Case No IV/M.1016—Price Waterhouse/Coopers & Lybrand: Commission Decision of May 20th 1998'.

considered that audit and accounting services to quoted and large companies form part of a separate product market:

– the necessity for such companies to have audit and accounting services provided by a firm with the required reputation in the financial markets (in the case of quoted companies);
– the geographic breadth to cover companies' needs worldwide (in the case of multinationals);
– the depth of expertise in the particular sector (large companies in general and, in particular, regulated sectors such as banking and insurance);
– significant resources (all large companies).[48]

This analysis is supported by the evidence gathered from the interviews, which indicates that, from a demand-side perspective, audit services provided to larger FTSE companies and other listed companies are in separate product markets, with the Big Four acting as virtually the only suppliers to larger FTSE companies.

The primary market segmentations used in this report are therefore the FTSE 100, the FTSE 250, and smaller listed companies. From the *demand-side perspective*, the customers in each of these segments have different needs. The next question—addressed to some extent below, and in more detail in section 6—is whether, from the *supply-side perspective* there are significant differences between the Big Four and mid-tier firms in terms of their ability to compete for business in each of these segments.

Extensive evidence is available from the interviews on this primary market segmentation, some of which was analysed in section 3.2. The interviews confirm that the market outcome reflects, at least partly, a difference in client requirements. The requirements for auditing large public companies are materially different from those of smaller companies, and at present only the Big Four are considered by the audit committee chairs and finance directors interviewed as being able to provide the services required by the larger (and certainly the largest) public companies. Indeed, many audit committee chairs and finance directors consider that, for large listed companies (and certainly the FTSE 100), the Big Four are the only real choice. By contrast, several firms highlighted AIM as a segment where mid-tier firms can compete effectively with Big Four firms (more mixed views were obtained regarding FTSE Small Cap and FTSE Fledgling companies).

Audit firms themselves also seem broadly to share this view on market segmentation. For example, at least two mid-tier firms thought that the main division in large company audit was around the FTSE 100–150 level. Another two, smaller, mid-tier firms considered that the division fell around the FTSE 350 level.

The sole dissenting view on market structure came from one Big Four firm, which considered that the market differs, if at all, according to whether the company is public or private, as reflected in different legal and regulatory requirements. According to this view, the legal/regulatory ability to audit public companies is held by many UK audit firms (ie, many more than four), and these could enter the market for large company audits if they so desired. Under this market dynamic, the mid-tier audit firms simply choose not to compete in the large company audit market.

### 4.2.2 Segmentation by sector

Oxera's analysis also considers further segmentation within large listed companies, namely by sector. From the interviews it became clear that some sectors have particularly complex audit requirements. Consistent with this, it was shown in section 3.2 that sector-specific expertise is an important determinant of choice of auditor. Since this research is not intended

[48] European Commission (2002), 'Case No COMP/M.2810—Deloitte & Touche/Andersen (UK)', July 1st, paragraph 23.

to include a formal exercise in market definition, it is not possible to conclude that particular industry sectors form separate markets. Rather, the analysis supports the view that at least some differentiation exists between these sectors.

The 'complex' sector most frequently highlighted in the interviews was banking and insurance. (Section 5.3 identifies some more specific market dynamics in the supply of audit services to banking and insurance companies). It is worth noting here that the Commission's analysis in the merger investigations supports the view that this market segment has characteristics that differentiate it from other sectors:

> The Commission considered the possibility that there were separate markets for the provision of audit services in the case of sectors where there were indications that the particularly complex nature of the sector's activities required a significant level of specialist expertise on the part of the auditor. However, the only sectors where the Commission's market investigation confirmed this possibility were the financial sectors of banking and insurance. Indeed, both clients and competitors concurred in distinguishing these two sectors from all others, including the other regulated sectors and public companies.[49]

Other sectors that have been highlighted to Oxera as having complex audit requirements are extraction and mining, media and high-tech industries, retailing and tobacco. In fact, only a few sectors were specifically identified by interviewees as *not* having any specific complex requirements (basic manufacturing, manufacturing of clothes and consumer goods, and property). However, the evidence overall points to banking and insurance as being differentiated from other sectors in terms of audit complexity.

From a supply-side perspective, it was generally put to Oxera that the Big Four have expertise in most sectors, including the more complicated ones, which means that these are not really separate markets—in other words, there is a degree of supply-side substitution. Yet, in some sectors, including banking and insurance, UK companies perceive certain Big Four firms to be market leaders and others to be weaker, even if the latter have expertise in that sector in other countries. Thus, sector specialisation is often said to be path-dependent—even a Big Four firm would find it difficult to become established in a new sector, since prior experience is the main qualification for sector expertise.[50]

### 4.2.3 Views of mid-tier firms on expanding into the large company segment

The above segmentations have been made from the demand-side perspective. From the supply-side perspective, most mid-tier firms interviewed noted that they would not be particularly keen to audit just one of the largest public companies (around the top 100 to 150 by market capitalisation), since such an audit would absorb a large proportion of their resources. Directly pursuing the audit of the largest listed companies from their current position is generally seen as a risky strategy.

However, not all of the largest companies have particularly complex or high-risk audits, and Oxera was told by some mid-tier firms that they would be willing, and able, to audit less complex or risky companies even within the top 100–150 companies, particularly if the firm already had the right sector experience. Therefore, size (in the form of market capitalisation) does not seem to be an absolute barrier to entry by mid-tier firms, but it does, in general, limit their ability to provide a credible competitive threat in the large company segment.

[49] European Commission (1998), 'Case No IV/M.1016—Price Waterhouse/Coopers & Lybrand: Commission Decision of May 20th 1998', para. 34. However, the Commission finally concluded that the provision of audit and accounting services to the banking and insurance sectors does not constitute separate product markets for the purposes of 'assessing the competitive effects of the present operation' (para. 49).

[50] From the interviews, it followed that there are indeed sectors, such as shipping and on-line gaming, where mid-tier firms are sometimes perceived to have greater sector expertise.

Indeed, around half of FTSE 350 companies surveyed by Oxera believe that the larger mid-tier firms would be 'technically' capable of performing their company's audit. In this regard, it is notable that, in the interviews, mid-tier firms tended to define their peers in the market as a group of only three or four firms, with Grant Thornton generally seen as the closest competitor for the Big Four. The finding that 'technical' auditing capability is not the main driver of market segmentation was confirmed in the interviews with mid-tier firms.

One mid-tier firm commented that it could certainly audit 90% of all companies with a main market listing, with the remaining 10% being mainly in financial services and the very largest companies of the FTSE 350. A typical opening for a mid-tier firm is seen to be sector specialisation, for example, in the shipping industry. However, for the largest listed companies, even sector expertise is considered insufficient, since these companies are described by mid-tier firms as choosing on the basis that they have an auditor with an acceptable name to investors, regardless of mid-tier firms' sectoral expertise (a description that is consistent with the findings on factors determining choice presented in section 3.2).

The expansion by mid-tier firms into the FTSE 100 and FTSE 250 segments is explored in greater detail in section 6.

## 4.3 Indicators of concentration

### 4.3.1 Concentration by company size

As shown in Table 4.3, the Big Four firms currently audit all but one company in the FTSE 100—the exception being PartyGaming plc, which went public in June 2005 and which has retained its mid-tier audit firm (BDO). The Big Four currently also audit 242 companies in the FTSE 250.

**Table 4.3 Number of FTSE 100 and FTSE 250 companies audited by firm, 2005**

| Auditor | FTSE 100 companies | FTSE 250 companies |
|---|---|---|
| PwC | 43 | 82 |
| KPMG | 22 | 64 |
| Deloitte | 17 | 54 |
| Ernst & Young | 17 | 42 |
| BDO | 1 | 4 |
| Grant Thornton | – | 1 |
| RSM Robson Rhodes | – | 1 |
| Mazars | – | 1 |
| Begbies Everett Chett | – | 1 |
| **Total** | **100** | **250** |

Source: Datastream and company accounts.

Table 4.4 provides more detail on concentration by number of UK-listed companies audited. The table also presents the HHI. An HHI value of above 1,800 indicates that the market is highly concentrated. Each market segment, with the exception of AIM, has an HHI above 1,800, and the Big Four have a combined market share well in excess of 60%, the typical benchmark for characterising a market as a 'tight oligopoly'.

The FTSE 250 has an HHI of just under 2,500, which is the level that represents a market dominated by four equally-sized competitors, and the HHI for the FTSE 100 is substantially above this level (2,912), indicating further concentration in this segment. In contrast, in AIM

the HHI is low, and the Big Four hold less than a 40% combined market share (by number of audit clients).

**Table 4.4 Concentration indicators of the audit market measured by number of audit clients, by index, 2005**

| | Sample size | Top audit firm | Market share of top audit firm (%) | Market share of Big Four (%) | HHI |
|---|---|---|---|---|---|
| **Listed companies (excluding AIM)** | 865 | PwC | 30.2 | 92.7 | 2,236 |
| FTSE 100 | 100 | PwC | 43.0 | 99.0 | 2,912 |
| FTSE 250 | 242 | PwC | 32.8 | 96.8 | 2,483 |
| FTSE Small Cap | 294 | PwC | 29.3 | 92.9 | 2,242 |
| FTSE Fledgling | 229 | PwC | 23.1 | 85.6 | 1,893 |
| AIM[1] | 979 | Grant Thornton | 13.4 | 38.7 | 892 |

Note: Figures are given only for companies where information on the identity of the auditor was available from Datastream; hence, not all listed companies are included.
Source: Datastream. [1] Information on AIM taken from *Accountancy Magazine* (2006), 'Falling into rank: new auditor league tables reveal a story of Big Four domination in every market except AIM', January 1st, p. 70.

The analysis of the Oxera panel dataset confirms that the level of concentration in the audit market is high and has increased over time. Concentration by audit fees indicates that the Big Four represented around 97% of audit fees paid by UK listed companies in 2004.[51]

**Table 4.5 Concentration indicators of the audit market (by value of audit fees) for the Oxera panel dataset of companies, by index, 2004**

| | Sample size | Top audit firm | Market share of top audit firm (C1) (%) | Market share of Big Four (%) | HHI |
|---|---|---|---|---|---|
| **Listed companies** | 676 | PwC | 37.6 | 96.8 | 2,561 |
| FTSE 100 | 81 | PwC | 39.9 | 100.0 | 2,801 |
| FTSE 250 | 191 | PwC | 36.8 | 96.9 | 2,609 |
| FTSE Small Cap | 233 | KPMG | 25.5 | 88.3 | 2,015 |
| FTSE Fledgling | 171 | PwC | 32.3 | 74.7 | 1,739 |

Notes: The panel dataset includes data on companies in the FTSE 350, Small Cap and Fledgling indices, where information on audit fees, name of auditor, and turnover was available from FAME. Since the Big Four firms were the top four auditors in 2004, the market share of this group is equal to the four-firm concentration ratio C4. The C4 ratio is calculated by summing the market shares of the top four firms in the market.
Source: Oxera panel dataset.

Despite the overall high concentration of the audit services market, this concentration varies according to the size of firms audited in the market—ie, the share of the Big Four firms declines with the size of companies audited.

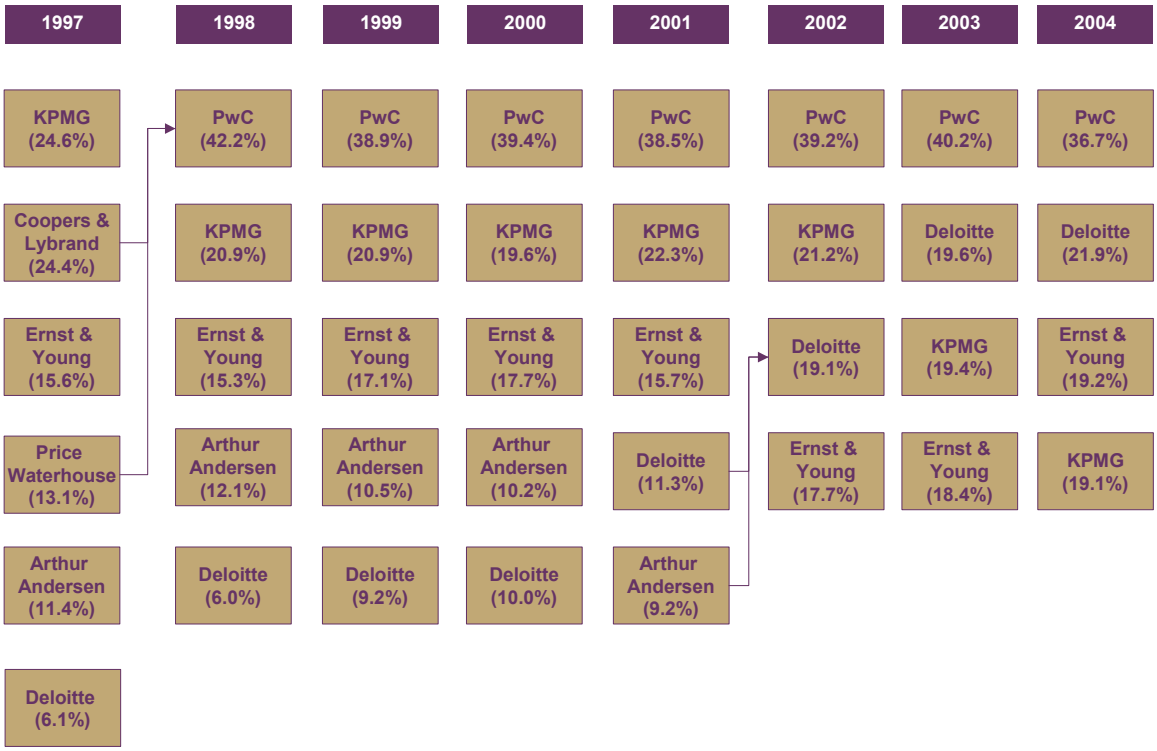
### 4.3.2 Concentration over time

Over the 1995–2004 period, the audit market became significantly more concentrated. In terms of audit fees, the HHI increased from 1,762 in 1995 to 2,561 in 2004. Mergers among the audit firms and the dissolution of Arthur Andersen are the primary drivers of this greater

[51] A result not shown in the table is that the Big Four audited 79% of the top 100 *private* companies (as included in the Oxera panel dataset) in 2005, and their market share in terms of audit fees was 87% in 2004.

concentration. Specifically, the merger between the second-largest (Coopers & Lybrand) and the fourth-largest (Price Waterhouse) audit firms in 1998 reduced the then Big Six accounting firms to the Big Five. Subsequently, Arthur Andersen's dissolution in 2002 reduced this number to the Big Four. Figure 4.1 illustrates the evolution of the largest audit firms in the 1990s and tracks the changes in their market shares. It shows some evidence of variation in market shares over time, excluding the effects of mergers.[52]

**Figure 4.1 Development of market shares among the largest accounting firms in the UK, 1995–2004 (by audit fee)**



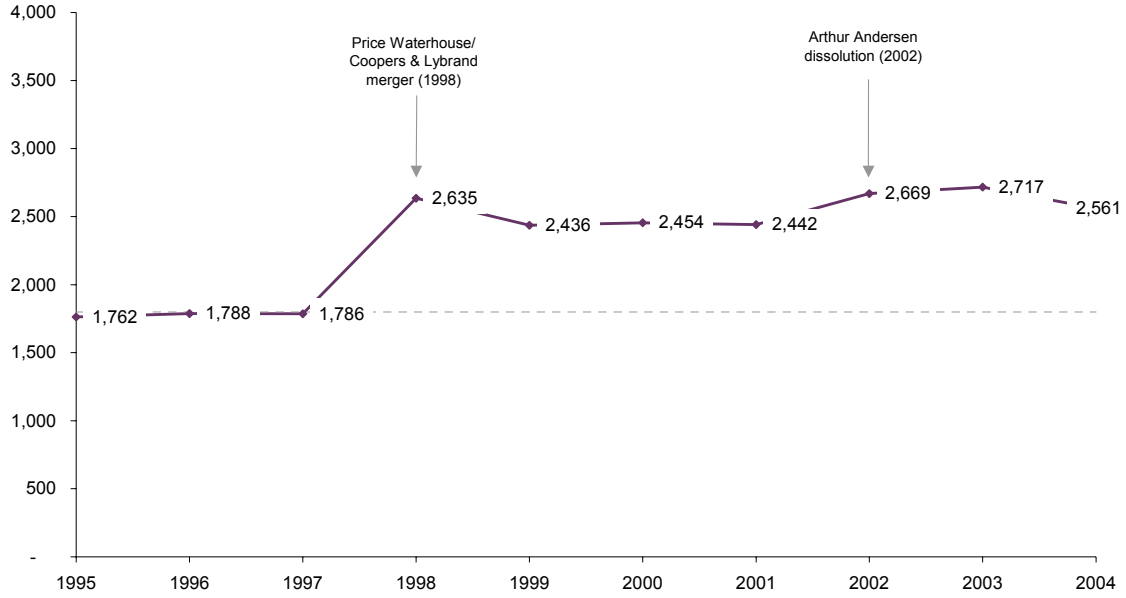

Note: See the notes to Table 4.5. A similar figure on the US market was included in US General Accounting Office (2003), 'Public Accounting Firms: Mandated Study on Competition and Consolidation', July.
Source: Oxera panel dataset.

Figure 4.2 below presents the evolution of the HHI over the 1995–2004 period, while Figure 4.3 presents the trend in market concentration by tracking the four-firm concentration ratio C4 and the market share of the market leader (C1) in the Oxera panel dataset. As is clear from the figures, the levels of concentration in the market increased significantly following the merger of Price Waterhouse and Coopers & Lybrand in 1998. Following this merger, the HHI increased from 1,786 to 2,635. This was due not only to the convergence of these two firms' market shares, but also to the merged entity gaining some new clients (the pre-merger shares summed to 37.5%, while the post-merger share was 42.2%).

The dissolution of Arthur Andersen, which resulted in the Big Four, appears to have had a temporary effect on the HHI of the panel, which increased by nearly 10% between 2001 and 2002, before returning in 2004 close to its pre-Arthur Andersen dissolution levels. Importantly, PwC, the firm with the highest market share, did not significantly increase its market share after the dissolution of Arthur Andersen—if it had, the HHI would have increased more. In contrast, due to fact that the market went from Big Five to Big Four, there was a clear and permanent increase in the C4 concentration ratio, from 87.8% in 2001 to around 97% from 2002.

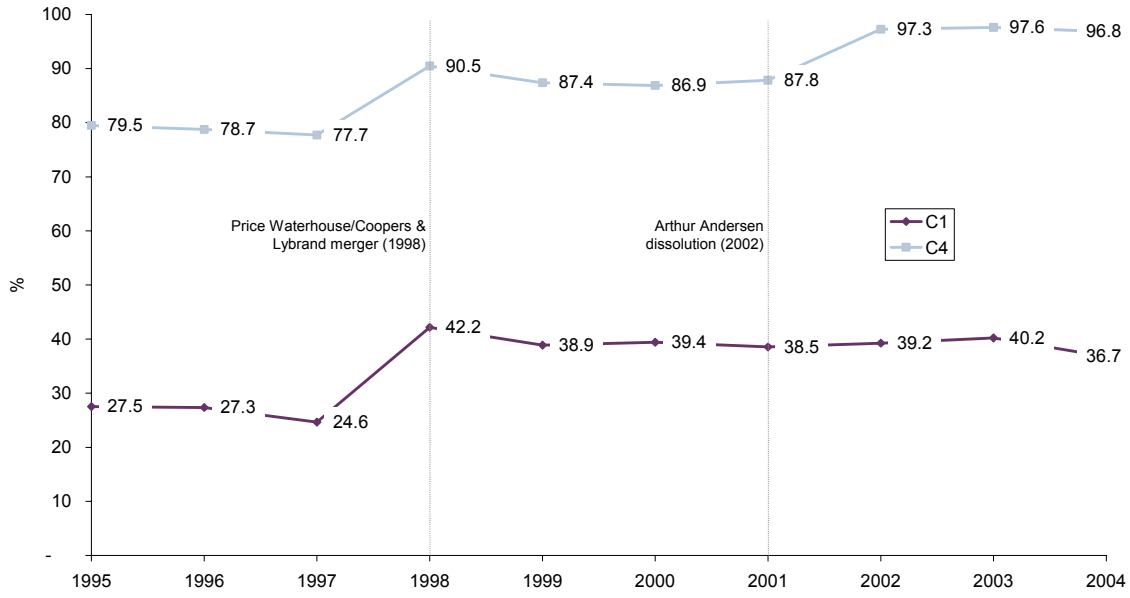
[52] Since auditors' market shares for all years 1995–2004 have been calculated on the basis of the selection of companies in the Oxera panel dataset of companies listed in 2004, large companies are potentially under-represented in the early years. This could result in a bias underestimating the market share of leading audit firms in those years.

**Figure 4.2 HHI of the listed companies in the Oxera panel dataset, 1995–2004**




Note: See note to Table 4.5.
Source: Oxera panel dataset.

**Figure 4.3 C4 and C1 of the listed companies in the Oxera panel dataset, 1995–2004**



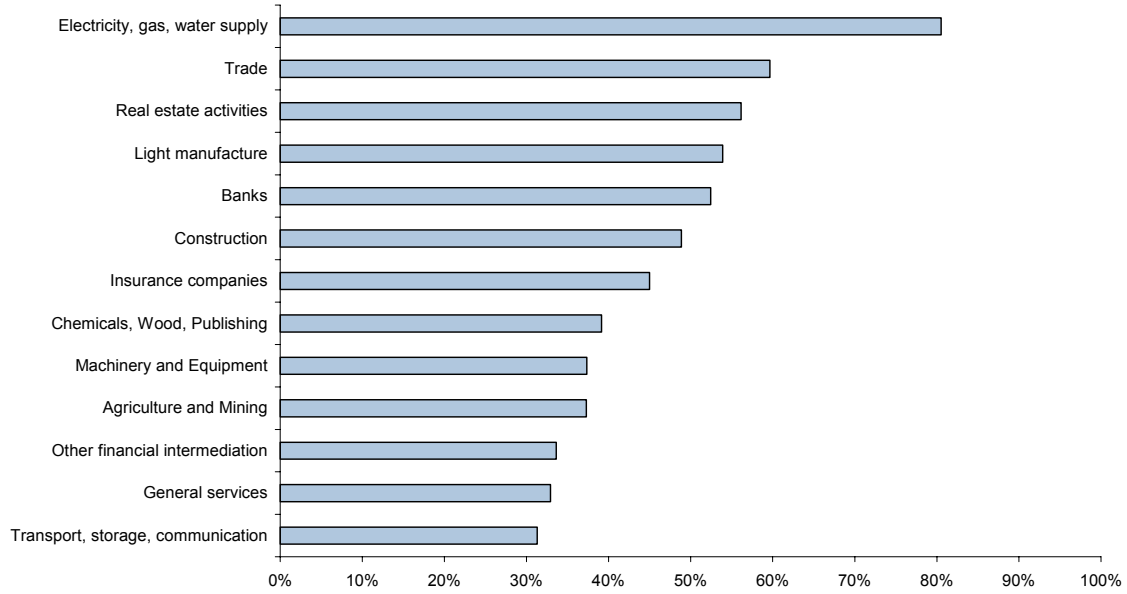

Note: See note to Table 4.5.
Source: Oxera panel dataset.

### 4.3.3 Concentration by sector

Figure 4.4 shows the C1 for audit firms for a number of FTSE 350 sectors in 2004, while Figure 4.5 presents the C4 for the same sectors, including the market share of the Big Four audit firms. The C1 index varies by sector, and appears to be particularly high for electricity, gas and water supply, at 80%, and other sectors, including trade, real estate, banking and insurance, where the leading audit firm has a market share of around 40–60%. The share of the top four (C4) firms according to sector reflects the overall concentration at the C4 level of the full panel dataset. Together, the Big Four firms audit most of the companies in all FTSE 350 sectors, except in construction, insurance and banking, where only three of them supply audit services to any significant extent. In particular, KPMG represented 45% of the audit

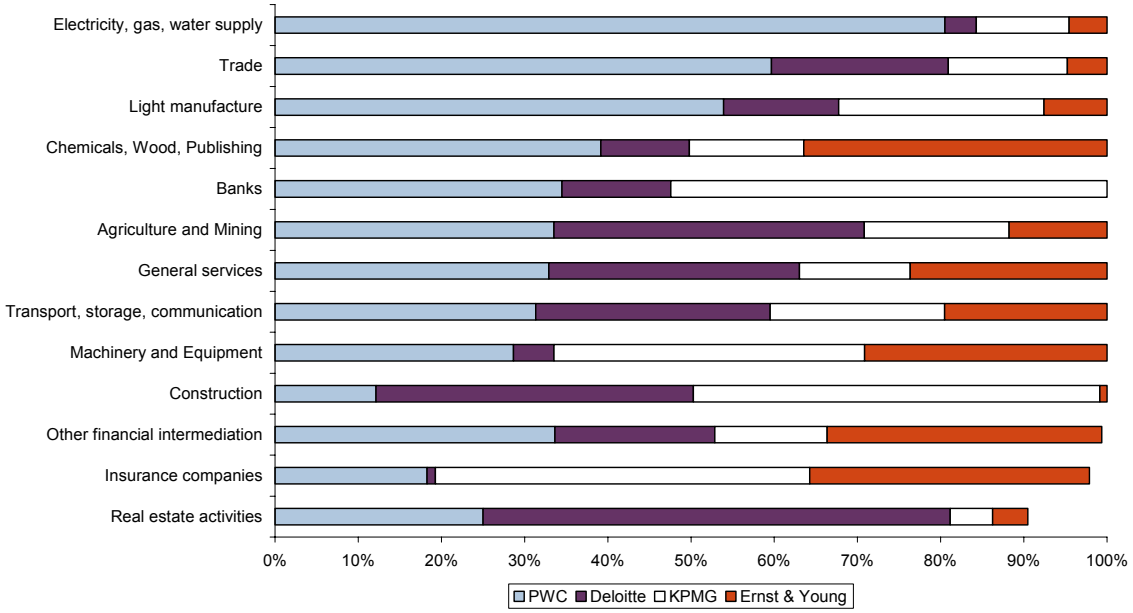
fees paid by companies in the insurance sector in 2004. Similarly, in banking, KPMG was the market leader, with 52% of the audit fees, followed by PwC, with 34%.

**Figure 4.4 C1 by FTSE 350 sector in the Oxera panel dataset, 2004**




Note: The panel includes data on companies in the FTSE 350, Small Cap, and Fledgling, where information on audit fees was available from FAME.
Source: Oxera panel dataset.

**Figure 4.5 C4 by FTSE 350 sector in the Oxera panel dataset, 2004**




Note: See note to Figure 4.4. In the insurance sector, Mazars occupies the fourth position with a share of 2%. Deloitte is the fifth largest auditor with the share of 1%.
Source: Oxera panel dataset.

## 4.4 Summary

### Market structure—key findings

The audit market in the UK is highly, and persistently, concentrated. As shown in section 3.3, switching is low, which helps to perpetuate this concentrated market structure. Concentration has increased over the last ten years mainly due to the merger of Price Waterhouse with Coopers & Lybrand (1997) and the folding of Arthur Andersen UK into Deloitte (2001).

There is a significant gap, in terms of size, between the largest of the mid-tier firm and the smallest of the Big Four. Although, within the UK, PwC is significantly larger than the second-largest firm, worldwide the Big Four are more evenly matched.

The primary market segmentations used in this report are the FTSE 100, the FTSE 250, and smaller listed companies. From the *demand-side perspective*, the customers in each of these segments have different needs.

While market index labels are used to delineate market segments, this is not intended to be a 'bright line' market segmentation. The FTSE 100, 250 and smaller companies are labels which reflect the underlying pattern that, as companies get larger, more complex and more international, their audit requirements change. The importance of an audit firm's global reputation, international coverage and value-added services grows with a company's size, and the market index labels are a convenient characterisation of this relationship.

The FTSE 350 segment of the market is supplied audit services almost exclusively by the Big Four. In the FTSE 100 and 250, the Big Four have a collective market share of around 99% by audit fee, auditing all but one FTSE 100 companies, and 242 FTSE 250 companies. The other segment of the market—smaller listed (and private) companies (ie, FTSE Small Cap and FTSE Fledgling)—is supplied by both the Big Four and the mid-tier firms. Even in these markets, however, the Big Four individually have significantly higher market shares than the mid-tier firms. In the FTSE Small Cap, the Big Four have a combined market share of 88% by audit fee, and 93% by number of audit clients. In the FTSE Fledgling, the combined share by audit fee is 75%, and by number of clients, 86%. Only in AIM do the Big Four have a combined market share which does not meet the standard criterion for characterising a market as a 'tight oligopoly', usually defined as a C4 ratio in excess of 60%.

In addition, there is some indication that the audit of banking and insurance companies, and possibly other sectors with 'complex' audit requirements, may form separate sub-segments within the top tier. Concentration in banking and insurance is even higher than average, and only three of the Big Four firms have any significant presence in these FTSE 350 sectors.

Although larger companies have more complex requirements for audit, this does not necessarily mean that mid-tier firms cannot satisfy these demands. As highlighted in section 3.2.4, Oxera's survey indicates that 39 of 45 audit committee chairs (87%) consider that a mid-tier firm would be technically capable of providing their company's audit. Moreover mid-tier firms commented (section 4.2.3) that they should be considered technically capable of auditing many FTSE 250 and FTSE 100 companies.

Thus, the high and stable market share of the Big Four would not appear to derive mainly from differences in providing the technical audit product, but from the existence of barriers to entry to the large company audit market. First, there are 'real' demand-side differences for the audit of most FTSE 100 and 250 companies:

– the additional need for international networks (with associated coordination problems);
– the additional requirement for large resources and sector-specific expertise;
– the additional demand for value-added services (eg, advising on internal controls).

Second, and more importantly, there is a demand-side difference derived from the reputation/insurance component of the audit product—ie, the significant importance attached to an audit firm's reputation with investors. As a consequence of these differentiating factors on the demand side, the mid-tier firms currently have significant market share only in the FTSE Fledgling and AIM segments.

The next question—addressed in more detail in section 6—is whether, from the *supply-side perspective* there are significant differences between the Big Four and mid-tier firms in terms of their ability to compete for business in each of these segments.

# 5 Market outcomes

This section sets out the evidence that Oxera has collated on market outcomes. To a large extent these outcomes can be ascribed to the underlying dynamics and structure of the audit market, as analysed in sections 3 and 4 above.

There are four main aspects of market outcomes: price (audit fees), quality, choice, and investor confidence. This section deals with the effects of market structure on audit fees (sections 5.1 and 5.2) and on choice (section 5.3). For the reasons given in section 1.3, the effects on quality and investor confidence are not explored in full, although some observations are made on these aspects in the discussion on choice.

## 5.1 Trends and patterns in audit fees

### 5.1.1 Views from market participants

In the audit market, prices are represented by the audit fee—that is, the total charge for an audit per client. This charge is made up of the hourly rates that a firm charges and the number of hours involved in the audit. The analysis below focuses on the total audit fees, since this provides the observable data in the audit market. Somewhat unusually compared with other markets, companies report in their annual accounts the audit fees they pay, alongside the fees paid for non-audit services provided by the same audit firm. This is in line with company law.[53] It introduces a certain degree of transparency of pricing in the market.

The companies and other parties interviewed by Oxera were generally of the perception that audit fees have increased in recent years—this is borne out by the data presented in section 5.1.2. There were mixed views on the factors that caused this increase, and on whether it is justified, with the following explanations put forward:

– exercise of market power by the Big Four;
– increase in costs (staff, insurance, workload due to new accounting rules and regulatory changes);
– an apparent tendency for audit divisions in Big Four firms to seek to become more 'stand-alone' profit centres.

As to the exercise of market power, several companies, both medium-sized and large, have indicated that there is a consistent upward pressure on fees from the Big Four. For example, some companies indicated that the Big Four have insisted on price increases of 20–30% in recent years. Nonetheless, the same companies that indicated this pressure also pointed out that the subsequent negotiations have typically led to a settlement at approximately a 10% increase. Indeed, it was explained to Oxera that audit prices are typically set each year in the course of a bargaining process between the auditor, the company's financial director and its audit committee chair, prior to the vote by the audit committee. The negotiation is usually on the number of hours required rather than on the hourly rates. The bargaining process is often successful in setting the audit fees for the next year.

It seems that only on rare occasions does this negotiation process actually collapse due to a lack of agreement, in which case a tender is organised. Some companies indicated that auditors typically take the threat of the open tender seriously, although they also noted that in recent years auditors appear to have become more 'self-confident' concerning price increases and more persistent in the course of the bargaining process.

[53] Statutory Instrument 2005 No. 2417, The Companies (Disclosure of Auditor Remuneration) Regulations 2005.

Some companies (both large and small) in the panel dataset consider that auditors still offer good value for money. A few interviewees representing FTSE 100 companies indicated that the current prices of audit fees are justifiable, given the amount of work involved in the audit of a large company. This view might be partly explained by the fact that the general level of audit fees is very small in comparison with companies' total costs—in particular for FTSE 350 companies—as shown in more detail in section 5.1.2. Smaller listed companies could potentially be more sensitive to the audit fee, as it represents a larger proportion of their cost base.

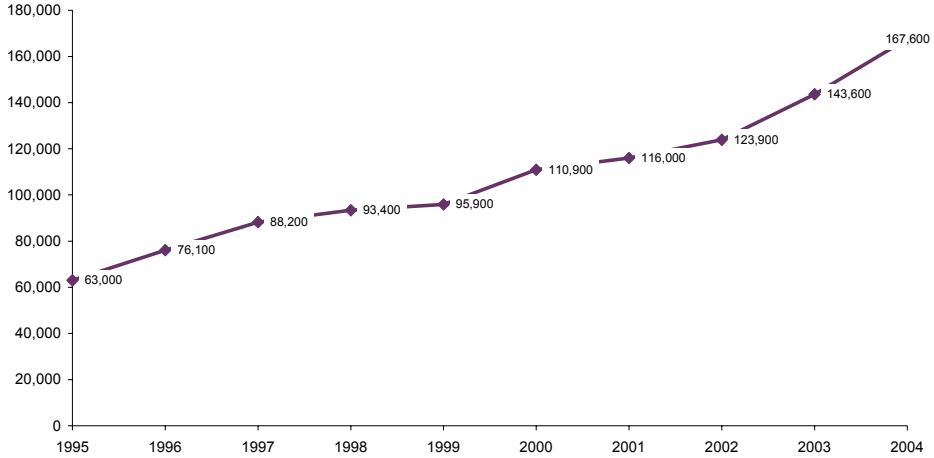
Some market participants and audit firms indicated to Oxera that prices of audit have increased because of the introduction of international accounting standards, the increases in the scope of audit, and the introduction of the Sarbanes-Oxley Act. This has meant significantly larger workloads, and hence higher total fees. One company observed that it is this extra audit-related work through which the Big Four have really increased their fees, rather than through the main audit itself.

Other possible reasons indicated to Oxera for auditors' cost increases relate to staff and professional indemnity insurance. (It was suggested by the Big Four firms that it is becoming increasingly difficult to find high-quality staff to meet the increased need to perform complex audits globally—Oxera has not assessed this further). It was also explained that there is a tendency for Big Four firms to make their audit divisions more 'stand-alone' profit centres, rather than the business model in which auditing is used to 'cross-subsidise' the other divisions.[54] This means that audit divisions have had some internal pressure to raise their prices, which they have been able to do in the market circumstances of the last few years.

### 5.1.2 Evolution of audit fees through time

Figure 5.1 presents the evolution of the median of the audit fees in the Oxera panel dataset at 1995 prices (ie, correcting for inflation).[55] As can be seen, during the 1995–2004 period, the median audit fee increased 11.7% per annum on average in real terms (around 13.3% in nominal terms). The growth rate, however, was not constant over the period of analysis. Between 2000 and 2004, fees seem to have grown at a faster rate.

**Figure 5.1 Median of UK audit fees, Oxera panel dataset (£,1995 prices)**




Source: Oxera's calculations based on Oxera panel dataset.

The above fee increases are in absolute terms. To put them into context, Oxera compared the increase with the growth in company turnover. Company turnover may be a first

[54] The audit division is typically still very important to other parts of the firm for training new staff.

[55] Median rather than average audit fees are used because the distribution of audit fees is skewed.

approximation of the amount of work required to audit that company.[56] The average company size measured by turnover has also increased over the same period—this is the case for the whole market, but also, in particular, for Oxera's panel dataset, which includes companies listed in 2004 and traces their history through time (as explained in section 2.4).

Figure 5.2 shows the median audit fee expressed as a percentage of company turnover. This shows a decrease until 1999 and an increase from 2000 to 2004. This suggests that the absolute increases in audit fees are at least partly driven by the increases in the size of the UK-listed companies, but, as shown in section 5.2.4, increases in turnover are generally associated with less than proportionate increases in audit fees.

**Figure 5.2 Median of audit fees as a percentage of turnover for listed companies in the Oxera panel dataset**


Source: Oxera's calculations based on Oxera panel dataset.

### 5.1.3 Audit fees by company size

Table 5.1 shows the relationship between audit fees and company size in 2004. The median of the audit fees paid by FTSE 350 companies was £600,000 (the average was £1,331,800), and for FTSE 100 companies £2,100,000, compared with £165,000 for the FTSE Small Cap companies, and £62,000 for FTSE Fledgling companies. However, the inverse relationship is observed for the median of the audit fees as a proportion of turnover: audit fees represented 0.06% of the median turnover of FTSE 350 companies, 0.13% of the FTSE Small Cap, and 0.20% of the FTSE Fledgling.

[56] However, there are also economies of scale in auditing—ie, audit fees (and presumably costs) are typically larger as a percentage of turnover for small companies than for the large companies, as further discussed below.

**Table 5.1 Relationship between audit fee and audit fee as a % of turnover, Oxera panel dataset, by index and company type, 2004**

| | Median audit fee (£, 2004, 1995 prices) | Median audit fee (£, 2004, nominal terms) | Average audit fee (£, 2004, nominal terms) | Median of audit fee/turnover, 2004 (%) |
|---|---|---|---|---|
| **Listed companies** | 167,600 | 191,000 | 632,447 | 0.11 |
| FTSE 350 | 526,600 | 600,000 | 1,331,800 | 0.06 |
| FTSE 100 | 1,843,200 | 2,100,000 | 2,927,000 | 0.05 |
| FTSE 250 | 342,300 | 390,000 | 655,300 | 0.07 |
| FTSE Small Cap | 144,800 | 165,000 | 217,900 | 0.13 |
| FTSE Fledgling | 54,400 | 62,000 | 84,900 | 0.20 |
| **Large private companies** | 254,500 | 290,000 | 346,500 | 0.03 |

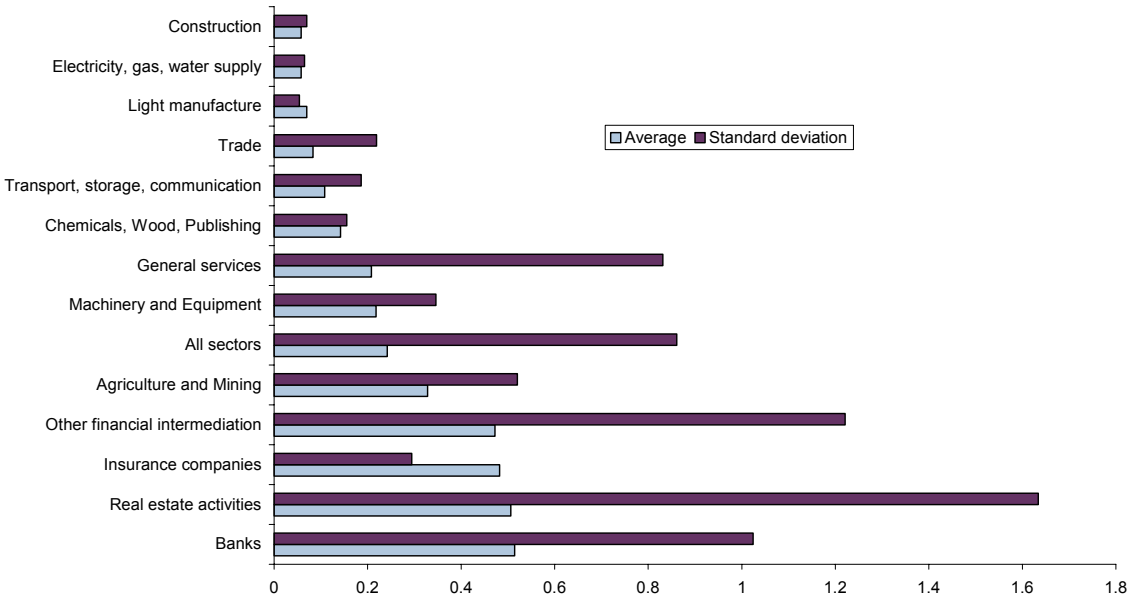
Source: Oxera's calculations based on Oxera panel dataset.

### 5.1.4 The relationship between audit fees and sector

In addition to varying by company size, audit fees vary by industry sector. Figure 5.3 indicates that certain sectors consistently pay higher audit fees as a percentage of turnover than others. This may be due to a range of factors, such as the relative size of the companies in a sector, and the relative complexity of auditing in that sector.

Overall, the audit fees seem to be highest for banking, other financial institutions including insurance, and real estate, while they are considerably lower in construction, utilities, and trade sectors. This distinction broadly corresponds with the findings indicated by both the audit firms and companies during the interviews regarding the difficulties posed by particular sectors for audit.

**Figure 5.3 Standard deviation and average of audit fee as % of turnover by sector, 1995–2004**




Note: 'Banks' includes other credit granting and monetary intermediation services.
Source: Oxera's calculations based on Oxera panel dataset.

Similarly, the standard deviation of audit fees varies significantly among sectors. Where it is high, this seems to indicate either that there is a very wide distribution of the size of

companies in a given sector, or that other factors are driving the differences in audit fees among companies in the sector. Oxera's statistical analysis presented below investigates these potential factors on a per-sector basis, including the impact of market concentration and market shares of individual audit firms on fees.

### 5.1.5 Audit fees for the Big Four and the mid-tier firms

In light of the differences between the Big Four and the mid-tier firms (identified in sections 3 and 4), a question that has been raised during this research is whether the former tend to charge higher fees than the latter.

A like-for-like comparison is difficult, given that the mid-tier firms have much smaller presence in the market for listed companies overall, and for larger companies in particular. Yet, indicative analysis by Oxera suggests that, where such a comparison is possible, the Big Four audit firms do indeed seem to charge higher audit fees on average than the mid-tier firms.

Table 5.2 divides the panel dataset by company size bracket. Across each of these brackets (except for the largest companies, for which no comparison was possible given the lack of presence of mid-tier firms), the companies audited by the Big Four paid more of their turnover for the audit services than those using the mid-tier audit firms.

**Table 5.2 Indication of the differential in audit fees between the Big Four and mid-tier firms**

| Turnover bracket (£m)[1] | | Big Four | Non Big Four | Differential (absolute) | Differential (relative) |
|---|---|---|---|---|---|
| ≤50 | Average audit fee, % of turnover | 0.59 | 0.56 | +0.03 | 5.36% |
| | Number of clients | 1,477 | 602 | | |
| 50–100 | Average audit fee, % of turnover | 0.15 | 0.14 | +0.01 | 7.14% |
| | Number of clients | 548 | 195 | | |
| 100–500 | Average audit fee, % of turnover | 0.10 | 0.07 | +0.03 | 42.86% |
| | Number of clients | 1,726 | 295 | | |
| 500–5,000 | Average audit fee, % of turnover | 0.06 | 0.05 | +0.01 | 20.00% |
| | Number of clients | 1,499 | 44 | | |
| >5,000 | Average audit fee, % of turnover | 0.04 | – | n/a | n/a |
| | Number of clients | 237 | 0 | n/a | |

Note: [1] Based on average company turnover, 1995–2004, in 1995 prices.
Source: Oxera's calculations based on Oxera panel dataset.

A difference can also be inferred from the results of the statistical tests performed by Oxera (presented in section 5.2). This suggests that, all other things equal, audit fees for clients of the Big Four are on average around 18% higher than for companies using mid-tier firms.[57]

There are a number of potential explanations for the prices of the Big Four audit firms being persistently higher than those of the mid-tier firms. For example, the fact that companies are prepared to pay higher fees for audit services by the Big Four might be associated with certain perceived qualities of the Big Four firms' audits, since, as discussed in section 3, the price of audit is regarded as less important than, for example, the quality of audit. Similarly, some Big Four firms have suggested that their prices might be higher because they provide

[57] The coefficient on the 'Big Four dummy' (as explained in more detail in section 5.2), included in regression IV in Table 5.4, is statistically significant and has a value of 0.169. The appropriate interpretation of the coefficient is $e^{0.169} - 1$. See Appendix 2 for further explanation.

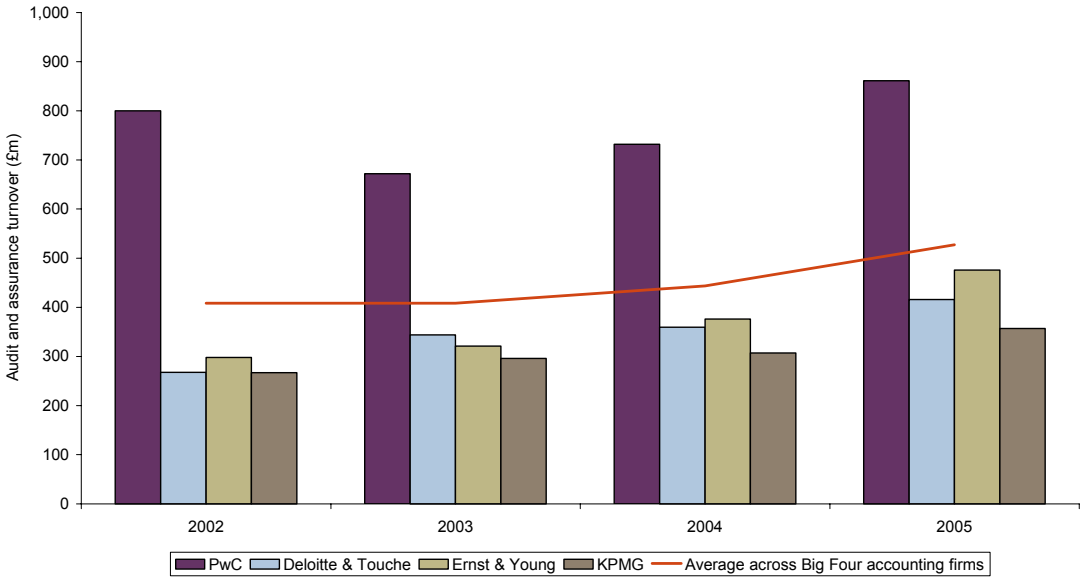
additional value through other components of the audit product as well as through technical expertise.

### 5.1.6 Profitability

Oxera has obtained some, very limited, financial data from the audit firms, for a limited time period. Only the data on the Big Four firms was fully available to illustrate recent (2002–05) trends in revenue and profitability. Given the apparent increase in audit fees over time, it is of interest to investigate, through analysis of profitability, whether this might be explained by corresponding cost increases (as discussed above).

Figure 5.4 seems to confirm that audit turnover has indeed increased somewhat in the last three years (2003–05) for the Big Four. It is based on the published accounts of the Big Four UK LLPs.

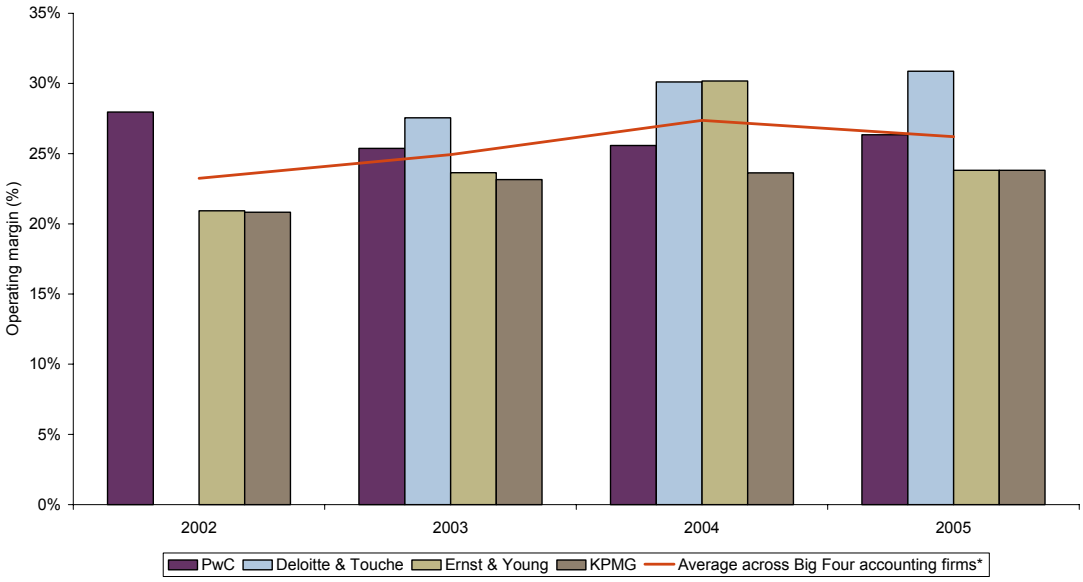
**Figure 5.4 Audit and assurance turnover of the Big Four, 2002–05**




Source: Annual reports and firm data supplied to Oxera.

Figure 5.5 below shows that operating margins (operating profit/turnover) on turnover for the Big Four firms as a whole have remained relatively stable over this short period. This suggests that the increase in turnover shown in Figure 5.4 has indeed been accompanied by a corresponding increase in operating costs over the 2003–05 period, although data published by the firms on profits per partner suggests that profitability has increased in recent years. However, these figures are only indicative, since the underlying economic profitability of auditing in the UK depends on a range of other factors, such as the way costs are allocated between divisions, and the relevant capital base against which to compare these margins. Therefore, a full profitability assessment cannot be determined from the available data.

**Figure 5.5 Operating margins of the Big Four, 2002–05**




Source: Annual reports and firm data supplied to Oxera.

## 5.2 Concentration and audit fees—econometric analysis

### 5.2.1 Objective of the analysis

The objective of Oxera's statistical analysis has been to explore the relationship between audit fees and the characteristics of the prevalent market structure by sector. Two main hypotheses are tested:

- **industry concentration hypothesis**—standard oligopoly theory suggests that high industry concentration by itself, controlling for other factors, results in higher prices for audit;
- **market share hypothesis**—if a particular audit firm has a high market share in a certain sector, it may have a degree of market power allowing it to charge higher prices for audit services, other things equal. This is also in line with predictions of some microeconomic models of price setting.

These hypotheses would be confirmed if the analysis established a statistically significant link between audit fees, on the one hand, and market concentration and market share, on the other, controlling for other factors.

### 5.2.2 Model specifications and explanation of the variables used

To test these hypotheses, Oxera used the panel dataset containing financial data on the UK-listed companies (including audit fees) as well as market characteristics, over the past ten years, as explained in section 2.

The particular benefits of using the Oxera panel dataset with two dimensions—ie, across both companies and years—have been that it provides a very large number of observations, making statistically robust analysis possible, and that it has allowed for any time-invariant factors, such as sector- or company-specific characteristics, to be controlled for.

In the basic set-up of the model, the level of audit fees paid by a particular company in a given year has been linked to explanatory variables such as measures of market concentration and market share, calculated for each (company, year) observation, in addition to a set of control variables. These control variables reflect company-specific factors:

turnover, level of international activity, company mergers and company switching. The model also includes 'dummy' (control) variables specific to the industry sector, to control for sector differences, such as the degree of complexity to audit a sector, and for each year, to control for any exogenous factors that affect audit fees year on year, such as changes in regulation or accounting rules that may lead to change in the cost of auditing.

In all, Oxera has tested for the effect of several possible control variables in different model specifications in order to isolate the impact of concentration and market share on audit fees (and switching behaviour). The final model specification contains the control factors that have been identified as significant, based on Oxera's analysis and the evidence from the existing literature (only possible quality differences between firms in any given year could not be explicitly controlled for due to lack of information).[58] The results of the tests of this model specification are robust, and exhibit high R-squared, as indicated in Table 5.4. This points at the fact that the variables included do indeed explain a large part of the variation in audit fees, hence suggesting that the impact of any omitted variables would not significantly affect the results.

Table 5.3 presents all the variables used in the tests and explains the rationale for their inclusion.

**Table 5.3 Variables included in the econometric analysis of market structure and audit fees**

| Variable | Description | Reason for inclusion |
|---|---|---|
| **Dependent variable** | | |
| Audit fee (£'000, 1995 prices) | Audit fee paid by a given company in a given year, as reported in the FAME database | Dependent variable in models, specified alternatively in levels and logs |
| Audit fee as % of turnover | Ratio of audit fee paid by the audited company to total company turnover in a given year, reported as a percentage | Dependent variable in models, specified in logs |
| Change in audit fee (£'000, 1995 prices) | Change in a given year from the previous year in audit fee paid by a given company | Dependent variable in models, specified in logs |
| **Explanatory variables of main interest** | | |
| HHI | Sum of the audit firms' squared market shares in a given sector in a given year, ranges from 1 to 10,000 | To assess whether audit fees are higher in more concentrated sectors |
| Auditor market share | Share of company's auditor in total audit fees in a given sector in a given year, reported as a ratio | To assess whether clients of auditors with a large market share pay a higher audit fee |
| Number of switches | Cumulative number of times the company changed auditor in the period from 1996 to a given year | To assess whether switching has an impact on audit fees |
| Auditor=Big Four | Binary variable equal to 1 if a given company in a given year was audited by one of the Big Four (or Big N) firms and 0 otherwise | To assess whether Big Four clients pay higher audit fees |
| **Other explanatory (control) variables** | | |
| Mergers | Cumulative sum of the number of times that turnover of a given audited company increased by more than 40% from 1996 up to a given year (proxy for merger) | To assess whether company mergers have an impact on audit fees |
| Turnover (£'000, 1995 prices) | Turnover of the audited company in a given year | To control for size of audit |

[58] This would not affect the estimated relationship between concentration and audit fees, which reflects the variation in concentration and audit fees both over time and across sectors (these results are presented below).

| Variable | Description | Reason for inclusion |
|---|---|---|
| Turnover (lag) (£'000, 1995 prices) | Turnover of the audited company in the previous fiscal year | To control for the phase of a company's life cycle (growing companies might pay higher audit fees) |
| Turnover squared (£'000, squared 1995 prices) | Squared turnover of the audited company in a given year | To control for non-linear (scale) impact of turnover on audit fees (ie, large companies pay lower fees relative to their turnover) |
| International turnover | Ratio of company's international turnover to total turnover, as at 2004 | To control for complication in audit work if client has international operations |
| Sector dummies | Indicate which of 13 sectors a given company belongs to (with the base being 'Real estate activities') | To control for any systematic differences between sectors that are not captured by other variables |
| Market-type dummies | Indicate segment of stock market (FTSE 350, FTSE Small Cap, FTSE Fledging) and private companies, with the base being FTSE 350 | To control for any systematic differences between different segments of public companies and private companies that are not captured by other variables |
| Year dummies | Indicate year of the observation (from 1995 to 2004), with the base year being 1999 | To control for any systematic differences between years that are not captured by other variables (eg, cost increases caused by exogenous factors, such as increased complexity and scope of the audit product due to regulatory changes) |

Note: For more detail, see Appendix 2.
Source: Oxera panel dataset.

### 5.2.3 Main results of the estimations

The results of the econometric analysis are presented in Table 5.4. More technical details, including specific statistical robustness checks are presented in Appendix 2. To further test the robustness of the results, different specifications are presented, including one with the variables in linear form (I), three with the variables in logarithmic (log) form (II to IV), one with audit fees as a percentage of turnover as the dependent variable (V) and one specification relating *changes* in audit fees to *changes* in specific explanatory variables (VI).[59] The log specifications II to IV in Table 5.4 are theoretically preferable—these specifications do not impose a particular relationship between the variables (these relationships can be linear or non-linear), and the coefficients can be readily interpreted as elasticities. In this respect, specifications I, V and VI in Table 5.4 are included to confirm the robustness of the results in specifications II to IV.

[59] Specifications (I) to (V) in levels and logs seek to investigate impact of market concentration and market share on audit fees, controlling for a set of factors that might also influence audit fees. Specification VI, in differences, controls for the impact of factors that might be important for the level of audit fees but that do not affect the evolution of audit fees, which may include quality differences between audit firms, or company-specific complexities in auditing. This specification helps test the robustness of the model.

## Table 5.4 Impact of market characteristics on audit fees, Oxera panel dataset, 1995–2004

| | I | II | III | IV | V | VI |
|---|---|---|---|---|---|---|
| | Linear | Log | Log | Log | Log | Log |
| Dependent variable | Audit fee | Audit fee | Audit fee | Audit fee | Audit fee as % of turnover | Change in audit fee |
| Dependent variable (lag) | | | 0.0001447 | 0.0001434 | 0.566*** | –0.195*** |
| | | | (13.74)*** | (13.55)*** | (61.28)* | (14.65)* |
| Turnover | 0.000223 | 0.433 | 0.427 | 0.434 | –0.225 | 0.300 |
| | (48.94)*** | (54.18)*** | (49.64)*** | (50.38)*** | (34.10)*** | (24.67)*** |
| Turnover squared | –5.19e–13 | | | | | |
| | (15.21)*** | | | | | |
| Auditor market share | 232.811 | 0.051 | 0.051 | | 0.042 | 0.049 |
| | (5.53)*** | (10.76)*** | (10.34)*** | | (9.99)*** | (8.56)*** |
| HHI | 0.019 | 0.144 | 0.164 | 0.157 | 0.134 | 0.048 |
| | (2.29)** | (6.07)*** | (6.03)*** | (5.78)*** | (4.34)*** | (1.62)* |
| Number of switches | –20.757 | –0.059 | –0.057 | –0.062 | –0.027 | –0.019 |
| | (1.64)* | (4.51)** | (4.26)*** | (4.63)*** | (2.13)** | (2.41)** |
| Mergers | 11.532 | 0.065 | 0.051 | 0.052 | –0.028 | 0.020 |
| | (1.65)* | (7.64)*** | (5.75)*** | (5.76)*** | (4.09)*** | (4.58)*** |
| International turnover | 135.276 | 0.552 | 0.520 | 0.521 | 0.278 | |
| | (2.91)*** | (7.87)*** | (8.07)*** | (7.90)*** | (10.98)*** | |
| Auditor=Big Four | | | | 0.169 | | |
| | | | | (7.18)*** | | |
| Turnover (lag) | | | | | | 0.113 |
| | | | | | | (9.70)*** |
| Auditor market share (lag) | | | | | | 0.021 |
| | | | | | | (3.84)*** |
| Year dummies | yes | yes | yes | yes | yes | yes |
| Sector dummies | yes | yes | yes | yes | yes | yes |
| Market-type dummies | yes | yes | yes | yes | yes | yes |
| Number of observations | 6,623 | 6,623 | 5,705 | 5,705 | 5,705 | 4,895 |
| $R^2$ | 0.737 | 0.784 | 0.801 | 0.796 | 0.893 | 0.189 |

Note: * Significant difference at a 10% confidence level. ** Significant difference at a 5% confidence level. *** Significant difference at a 1% confidence level.
Source: Oxera panel dataset, Oxera calculations.

### 5.2.4 Interpretation of results: influence of the control variables

Since the audit fee is necessarily related to company size, company turnover has been used as a proxy for company size in all tests. As expected, the relationship between the audit fee and company turnover is consistently positive and significant across all specifications.[60]

Economies of scale in audit can be identified from the results presented in Table 5.4. First, the linear specification I shows that the squared turnover has a negative coefficient, which means that fees increase with turnover but at a diminishing rate. Second, in the log specifications II to IV, the coefficient on turnover, which indicates elasticity of the audit fee with respect to turnover (specification in logs), is less than 1. In other words, the audit fee is increasing with turnover, but at a diminishing rate. On average across sectors, a 10% increase in turnover is associated with a 4.3% increase in the audit fees.

It has also become apparent from the interviews that mergers represent critical periods for audited companies with respect to the demand for audit services that they require in that particular year, while posing additional challenges to auditors. Moreover, mergers present important decision points and opportunities for companies to review their choice of auditor (as discussed in section 3.3). This highlights the desirability of including controls for mergers in the tests. As expected, the coefficient on mergers is positive and significant in all specifications: the audit fees rise in years when a company is involved in a merger or acquisition (which is a separate effect from the influence of turnover on audit fees).[61]

A company's international presence poses particular challenges in terms of undertaking audits. Companies with significant international presence might therefore be expected to pay additional audit fees, other things equal. This is confirmed when a proxy for international presence in the form of the ratio of international turnover to the company's total turnover is included in the regression.

Several other explanatory variables are added to control for other potential factors influencing the level of audit fees. First, in line with the interpretation presented earlier in this section, sector controls are included to control for the time-invariant, sector-specific effects. These effects could originate from the idiosyncratic characteristics of particular sectors and their relationship to the nature of audit in particular sectors. As expected, many of the sector controls are statistically significant (see Appendix 2).[62]

Moreover, to control for time-specific effects related to particular events in specific years or other factors that are related to the time dimension but are not captured by other explanatory variables, such as changing market characteristics, time controls are included in all regressions. As expected, year controls included in the tests tend to be significant as a group as well as individually in selected cases, reflecting the time pattern presented in the first part of this section. Indeed, year controls are significant and positive from year 2000 onwards, which may indicate exogenous cost increases for audit firms in each year since 2000. The use of year dummies as controls helps to isolate the relationship between concentration and audit fees, by controlling for year-on-year exogenous cost changes for audit firms that may be driven by more complex audit regulation, more liability risk, or other factors.

[60] In addition to this effect, the market segment controls are significant, and indicate that, controlling for all other effects, the FTSE 350 companies tend to pay higher audit fees that the smaller listed companies and private companies (see Appendix 2).

[61] As shown in section 3.3, Oxera's results also suggest that mergers may indirectly lead to *lower* audit fees in later years if they increase the likelihood of switching (see also Appendix 2).

[62] Additional tests have been carried out to check whether differences in the average audit fee across sectors are driven by certain sector-specific characteristics or, alternatively, by the fact that some sectors could include, on average, larger (or smaller) companies than other sectors *and* the audit fee-to-turnover relationship is different in those sectors. This is important since, in the standard specification, it would not be possible to separate the impact of the company size from that of any sector-specific factors. To test for such potential effects, the entire sample has been divided into 45 sector- and company size brackets in order to compare the average audit fee across sectors, controlling explicitly for the company size within each sector. The results of this analysis (not reported here) suggest that these controls are largely insignificant, indicating that, for each sector, there are enough companies of different size to separate the sector-specific effects from the size-specific effects with sector controls and turnover explanatory variables jointly estimated in the regression.

### 5.2.5 Interpretation of results: the effect of concentration and market shares

The fundamental result of the presented tests is that they confirm the market structure hypotheses presented above, as the analysis points at a statistically significant link between audit fees, on the one hand, and market concentration and market share on the other, controlling for other factors. In other words, the tests indicate that, when controlling for a variety of factors,[63] as discussed above:

– market concentration, as measured by the HHI index per sector in any given year, has a consistently positive impact on audit fees;

– the market share of a given auditor, as measured by the share of the total pool of audit fees collected in a given sector/year, has a consistently positive impact on audit fees for the clients of that audit firm.[64]

These results are significant under all tested specifications (further discussion of robustness checks is presented in Appendix 2). In this context, it is important to stress that there is no evidence that this could be due to the particular nature of some sectors; this result is significant after controlling for sector, company size and market type.

Furthermore, the relationship is equally valid for sub-samples of companies audited by Big Four firms only. That is, differences in the market shares of the Big Four firms are similarly associated with variances in the audit fees among their clients, when clients of other firms are eliminated from the sample. This indicates that the largest of the Big Four firms in any particular sector is able to charge higher prices than the smaller Big Four firms in the same sector.

These results are also in line with oligopoly theory, and with several other recent empirical studies (see further below).

It is not straightforward to quantify the magnitudes of the effects implied by the estimated coefficients. The interpretation of the coefficients differs between the linear and log specifications, and depends on the starting point. As noted above, the log specifications II to IV in Table 5.4 are theoretically preferable—these specifications do not impose a particular relationship between the variables (these relationships can be linear or non-linear), and the coefficients can be readily interpreted as elasticities.

To obtain some idea of the magnitudes of the effects, consider, purely for illustrative purposes, the effects that the model predicts for the merger in 1998 between Price Waterhouse and Coopers & Lybrand.[65] This merger simultaneously increased the HHI and the market share of the merged entity—therefore, both variables have a separate impact on audit fees, as below.

– This merger increased the HHI from 1,786 in 1997, to 2,635 in 1998, for the market as a whole (see Figure 4.2 in section 4). In percentage terms, this is an increase in the HHI of 47.5%. (For individual sectors this might be different; the example here is to illustrate the order of magnitude of the overall effect.) The coefficient of 0.164 (specification III)

[63] As noted earlier, only quality differences between audit firms in any given year could not be directly controlled for. However, this would not affect the estimated relationship between concentration and audit fees, which reflects the variation in concentration and audit fees both over time and across sectors.

[64] In specification IV, the auditor market share variable has been replaced by the Big Four dummy (both are correlated, so cannot be included in the same regression). This Big Four dummy also has a statistically significant and positive coefficient.

[65] This predicted result does not necessarily correspond exactly to what happened to fees after the merger. The estimation results used for the 'merger simulation' below are valid on average across the whole sample for the full ten-year period, and are therefore only indicative of what happened at specific points in time.

means that the resulting price increase could have been in the order of 7.8% (0.164 times 47.5%) from one year to the next. This is the effect of concentration on price.[66]

– Furthermore, there is a 'unilateral effect' on price, driven by the increase in market share of the merged entity. According to the data presented in Figure 4.1, the market shares of Coopers & Lybrand and Price Waterhouse were, respectively, 24.4% and 13.1% in 1997 (again, this is for the market as a whole; in individual sectors the market shares differ). The merged entity had a 42.2% market share in 1998 (part of the difference came from new clients). From the perspective of Coopers & Lybrand, this meant an increase in market share by 73.0% (from 24.4% to 42.2%). The coefficient for auditor market share of 0.051 (specification III) implies that there was an additional 'unilateral' price increase which could have been in the order of 3.7% after the merger (0.051 times 73.0%) for those customers using Coopers & Lybrand previously.

– In all, with the benefit of hindsight, Oxera's model indicates that the PwC merger led to a real-terms price increase which could have been in the order of around 12% from one year to the next—8% for the market as a whole, and another 4% for the clients of the merged entity.

### 5.2.6 Interpretation of results: the impact of switching on audit fees

The results indicate that companies that have changed their auditors in the past tend to pay lower audit fees—the coefficient for number of switches is statistically significant and negative in all specifications. This can be interpreted as supporting the proposition that the threat of switching provides additional opportunities for the audited companies in their bargaining with the auditor—despite the fact that actual switching rates are low in this market (as discussed in section 3.3). Companies could weight such a potential fee decrease against the costs of switching.[67]

Like the econometric results on determinants of switching presented in section 3.3, this result should be treated as indicative, given the limited number of observations on actual switching, even though the result is statistically robust (see also Appendix 2) and in line with other recent empirical studies, as mentioned below.

### 5.2.7 Related findings on market concentration and audit fees from other studies

The above findings have broad support in other recent research on the subject.

– For example, McMeckling, Peasnell and Pope (2005) found results that correspond closely to the conclusions from Oxera's analysis.[68] In particular, company size, international presence, and switching rate were reported to have similar effects on audit fees in terms of sign and magnitude. The authors also found that auditors' mergers lead to increased audit fees.

– In another study, Sankaraguruswamy and Whisenant (2003) reported that if a company is audited by one of the Big Five firms (prior to the collapse of Arthur Andersen), it typically pays higher audit fees after various cost drivers and specific audit

[66] The linear specification (I) is more difficult to interpret in terms of orders of magnitude of the effect. For example, the coefficient for the HHI of 0.019 implies that an increase in the HHI by 1,000 points leads to an increase in audit fee by, on average, £19,000 (1,000 times 0.019 times £1,000). However, this will have a different impact for different companies (large versus small) and for different years (as audit fees have increased during the period covered by the analysis). This is another reason why the log specifications are preferable.

[67] The interpretation of the coefficient on the switching variable is as follows—a single 'switch' (ie, a change of auditor in the past) is associated with a fall of around 6% in the company's audit fees. This is because $e^{0.057}-1=0.06$.

[68] McMeckling, K.P., Peasnell, K.V. and Pope, P.F. (2005), 'The effect of audit firm mergers on audit pricing in the UK', paper presented at the BAA Auditing SIG conference 2005.

characteristics have been controlled for.[69] The author also found that company size and international operations have a positive impact on audit fees. Moreover, the identified effect in this case is of similar magnitude to that in Oxera's findings.

– Likewise, Basioudis and Ellwood (2005) reported the existence of the Big Five 'price premium' in the audit fees, after controlling for a variety of other factors, but found no premium due to industry specialisation.[70]

– Beattie, Goodacre, Pratt and Stevenson (2000) investigated the price of audits in the charity sector.[71] The results closely correspond with Oxera's findings: the authors found evidence that the Big Six (prior to the PwC merger) charged higher audit fees, which the authors associate with a 'brand premium'. They also reported that other studies have consistently shown that Big Six auditors charge higher fees than other firms.

– Ghosh and Lustgarten (2006) investigated instances of auditor switching among US companies, as well as the extent to which auditors of US companies reduce their fees on the initial audit engagements, using data from Standard & Poor's for 2000–03 with over 20,000 observations.[72] Apart from testing whether clients of large audit firms switch auditors less frequently than other clients (as noted in section 3.3 above), these authors focus on the nature of competition between audit firms. Although their focus is different from that of Oxera's research, their results are similar in terms of signs, magnitudes and significance of the key control variables. For example, company size is reported to be a significant factor in explaining audit fees. Similarly, a company's international presence has a significant and positive impact on audit fees.

## 5.3 Concentration and the extent of choice

This section explores whether the high degree of concentration in the audit market has led to a restriction of choice for UK-listed companies.

Although there are several thousand accounting firms in the UK, only a few are considered capable of auditing a FTSE 100 or FTSE 250 company (as discussed in sections 3 and 4). In fact, as shown in Table 4.4, 99% of FTSE 100 companies and over 98% of FTSE 250 companies employed a Big Four auditor in the previous financial year. The survey of audit committee chairs found that 88% (28 out of 32) companies in the FTSE 350 would not consider the mid-tier firms as substitutes for the Big Four firms (Table 3.5).

Thus, the maximum choice, or at least the perceived choice, for all but a minority of FTSE 350 companies is of four audit firms. The focus of this section is whether further limitations to choice are operating in the market for audit of large listed companies, reducing a company's effective choice to three, two, or even just one audit firm.

In particular, the section looks at the largest listed companies—approximately the largest 20 companies in the FTSE 100, which together account for more than half of the total market value of the FTSE All-Share.[73] This is because it has been suggested in the interviews that these companies are most likely to have a highly restricted choice. Oxera has conducted in-depth interviews with five of the largest 20 companies in the FTSE 100 (and additionally surveyed one top 20 company), and the analysis below draws on these interviews, as well as

[69] Sankaraguruswamy, S. and Whisenant, S. (2003), 'Pricing Initial Audit Engagements: Empirical Evidence Following Public Disclosure of Audit Fees', Singapore Management University, School of Accountancy.

[70] Basioudis, I.G. and Ellwood, S. (2005), 'An Empirical Investigation of Price Competition and Industry Specialisation in NHS Audit Services', *Financial Accountability & Management*, **21**:2, 219–50, May.

[71] Beattie, V., Goodacre, A., Pratt, K. and Stevenson, J. (2001), 'The Determinants of Audit Fees—Evidence from the Voluntary Sector', *Accounting and Business Research*, **31**:4, Autumn, 243–74.

[72] Ghosh, A. and Lustgarten, S. (2006), 'Pricing of Initial Audit Engagements by Large and Small Audit Firms', *Contemporary Accounting Research* (forthcoming).

[73] Source: Data from Datastream, January 17th 2006.

material from the interviews with audit firms, investors and others. However, some of the findings on restricted choice also apply to some extent to other FTSE 100 and 250 companies.

### 5.3.1 Demand-side restriction: considerations on auditor independence

The potential restriction of choice from three alternative audit firms to none was explored in many of the in-depth interviews with companies. When asked specifically about auditor choice, a range of answers was given, with the largest multinational companies expressing the most concern about lack of choice. One such large multinational was described by its audit committee chair as a 'poster child for being constrained by the number of accounting firms'. Large multinational companies tend to have relationships with all the Big Four firms across the range of audit and non-audit services, which constrains the company's choice of auditor due to the requirements for auditor independence (discussed in section 1.2).

According to the audit committee chairs survey, around one in eight FTSE 350 companies have two audit firms conflicted out as alternatives to their current auditor, leaving them only one alternative among the Big Four in the event of an audit tender.[74] Oxera also found that around one in eight companies in the survey use all of the Big Four firms across audit and non-audit services, potentially restricting their effective short-term choice of auditor to zero.[75] This is consistent with the findings of a survey of 400 US companies by J.D. Power & Associates, which demonstrated that, in 2004, about one in eight (12.5%) public companies retained three or more Big Four firms for audit and non-audit work.[76]

In a typical example, a large multinational (company X) would have:

– Big Four firm 1 as auditor;
– Big Four firm 2 providing advice on internal financial controls and processes;[77]
– Big Four firm 3 providing valuation of key assets;
– Big Four firm 4 providing financial strategy advice.

In principle, a company using all three alternative Big Four firms for non-audit services will have to significantly reduce its involvement with at least one of these firms before it can change auditor.

In the interviews, some companies stated that it would damage shareholder interests (ie, disrupt business operations) to abruptly disengage one of the Big Four firms providing non-audit services. Oxera's interviews indicated that in a scenario where company X needed to change auditor without prior planning for the change, it would consider approaching the Securities and Exchange Commission (SEC) for short-term special dispensation regarding compliance with the Sarbanes-Oxley Act, to avoid having straight away to end the non-audit services relationship with the company's new auditor. Smaller companies were typically less concerned about changing their provider of non-audit services in order to enable them to switch.

### 5.3.2 A hard or soft restriction on choice?

According to the interviews with audit committee chairs, many companies are concerned that their auditor remains independent *in appearance* as well as *in fact*. Independence is typically seen to be impaired where the audit firm provides services that:

[74] Source: Oxera calculations based on Q11 of Audit Committee Chairs Survey.

[75] Source: Oxera calculations based on Q1 of Audit Committee Chairs Survey. Six out of 50 companies use all Big Four firms.

[76] As reported in Solomon, D. and Gullapalli, D. (2005), 'SEC Weighs A "Big Three" World: Officials Discuss Steps to Take if KPMG or Another Large Accounting Firm Fails', *Wall Street Journal*, June 22nd, p. C1.

[77] Guidance to audit committees on reviewing auditor independence states: 'A self-review threat may be created when an audit firm provides internal audit services to an audit client'. Institute of Chartered Accountants in England and Wales (2003), 'Guidance for audit committees: Reviewing auditor independence', May, p. 14.

– create conflicts of interest between the audit firm and the company;
– result in the audit firm functioning in the role of management;
– place the audit firm in a position of auditing its own work;
– place the audit firm in a position of being an advocate for the company.

Despite the wording of the UK rules and guidance on auditor independence (discussed in section 1.2), which does not place a blanket ban on non-audit work being undertaken by an auditor, some companies place a strict interpretation on auditor independence to minimise any apparent potential conflict of interest, influenced by a perception that investors would prefer a tight interpretation of independence rules. A stringent policy on auditor independence is particularly relevant for companies with a US listing, which are also subject to the Sarbanes-Oxley rules on auditor independence. However, other companies are also influenced by the US rules—one interviewee commented that Sarbanes-Oxley is now regarded as the 'dominant legislation of the world' for auditor independence.[78]

There is some evidence that investors are keen to see a separation of audit and non-audit work. Although investors interviewed by Oxera did not express any significant concerns about the current environment for auditor independence, and were generally happy to rely on monitoring by boards of potential conflicts, some audit committee chairs interviewed believe that their investors are sensitive to conflict of interest issues, and that good corporate governance requires a strict auditor independence policy. In this regard, certain investment bodies have indeed pushed for such a policy. For example, the recent Council of Institutional Investors 'Corporate Governance Policies' state that:

> The company's external auditor should not perform any non-audit services for the company, except those required by statute or regulation to be performed by a company's external auditor, such as attest services.[79]

These guidelines are produced by a US institution; however, many UK companies have a US stock market listing, and several of those interviewed by Oxera expressed the view that SEC rules on auditor independence influence their policy on the purchasing of non-audit services. Given these concerns, companies audited by a Big Four firm which use the other three Big Four firms for non-audit services are likely to face a significant barrier to switching.

However, with planning, it appears that companies can restrict their use of all Big Four firms for non-audit services, in order to keep an alternative in the event of an audit tender. Indeed, a small number of FTSE 100 companies have adopted a policy of not using one of the Big Four firms for any audit or non-audit work, in order to retain a potential alternative auditor in the event of an audit tender. Auditor independence restrictions can therefore be regarded as a 'soft' constraint on choice—ie, one that might be overcome should the need arise.

Overall, the implementation of auditor independence rules by some companies appears to go beyond the basic requirements of the APB Ethical Standards. This means that the restriction on choice identified thus far constitutes a barrier to switching in the short term, but not a permanent elimination of choice (as noted in section 3.3). To some extent it appears that, if necessary, companies following these policies could relax their rules in order to be able to switch auditor.

### 5.3.3 Supply-side restriction: commercial incentives of auditors

In some cases there are further restrictions on choice, which cannot be mitigated by rationalising the number of suppliers used for non-audit services.

[78] See, also, the discussion on the broader context of this Oxera study in section 1.2.

[79] Council of Institutional Investors (2005), 'Corporate Governance Policies—updated November 18, 2005', Policy statement, November 18th, p. 4.

– Certain audit firms may lack the capacity or expertise to bid for audits in certain sectors (or be perceived to lack such expertise and hence not invited to bid)—multinational bank audits are an example.

– Audit firms may lack a commercial incentive to bid for certain audits—ie, when the firm would find it more profitable to remain as a supplier of non-audit services to the particular company.

– In banking, prohibitions on financial relationships between auditors and their clients create a further restriction, as explained below.

The interviews revealed that, in general, the Big Four firms do not want to bid for every FTSE 100 audit, particularly where the firm has:

– a perceived small chance of winning;
– a valuable stream of non-audit work.

Certain FTSE 100 companies also made it clear to Oxera that Big Four firms sometimes make a conscious decision not to bid for an audit, based on the value of non-audit work obtained from the company, which is often worth more than the audit fee to the audit firm.

This clearly reduces a company's options, sometimes to the extent that they will have to specifically ask a Big Four firm to bid for the audit, in order to avoid having an 'uncompetitive tender' (ie, one where only the incumbent is present). One Big Four firm commented that in a couple of recent tenders, it was the only alternative to the incumbent, and had it refused to bid, these companies would have had no choice but to remain with their current auditor. Elsewhere in the interviews, it was noted that the situation where a client wants a Big Four firm to bid for the audit, and that firm does not want to bid, arises 'occasionally'.

When considering whether to bid for an audit contract, it is likely that, in the first instance, a Big Four firm will take a commercial decision based on the net fee benefit of gaining the audit. As a consequence, it is feasible to consider scenarios in which the only Big Four firm which the client considers as an alternative to the incumbent auditor actually refuses to bid, leaving the company with no choice.

However, the Big Four firms claimed that there are times when a simple commercial decision may not be taken—it is argued that if a firm refused to bid for a FTSE 100 audit without good reason (eg, a lack of capability in the sector) there could be significant reputational damage. As a consequence, the firm may bid for these audits to preserve reputation, even if it does not make commercial sense in respect of that particular client (but note that audit firms' incentives regarding the pricing of the audit bid in these circumstances are distorted).

Outside the banking sector, Oxera has been given no specific examples of where this particular process has led to a company being left with no alternatives to the incumbent. However, examples have been provided of one (non-bank) company having a very limited choice owing to client sensitivity about their auditor also auditing a competitor. This appears to be a significant issue for a minority of companies, especially in the oil and gas and media sectors. For example, it has led one Big Four firm to the conclusion that it will 'never' be asked to bid for a particular company's audit since it already audits that company's main rival. Again, this seems to be a relatively 'soft' restriction on choice.

### 5.3.4 Choice restrictions specific to banking

Certain banks have established specific policies on the amount of non-audit work that can be undertaken by their auditor. For example, in its 2004 Annual Report, HBOS stated that:

> For 2004 the Audit Committee established a limit such that the fees for non-audit services undertaken by KPMG Audit Plc and its associates should not exceed the fees for audit services.[80]

These policies tend to lead to the engagement of other Big Four firms for non-audit work rather than the auditor, even if this is not strictly required under UK regulations. Although mid-tier firms can provide some non-audit work, the largest companies in financial services and other sectors told Oxera that these firms are 'unsuitable for complex international non-audit services'.

More significantly, choice is more constrained in the financial sector due to rules on banking relationships and auditor independence. Financial services companies face an exceptional restriction on choice, since auditors or their staff cannot bank with a company that they audit. According to one Big Four firm, this can be as strict as checking whether an audit partner's spouse has a store card issued by a financial services company audited by the partner's firm. Interviews with audit firms suggested that the prospect of changing every auditor's financial arrangements, from current accounts to personal pensions, means that an audit firm whose staff bank with a potential client will almost certainly never bid to undertake that client's audit. Thus, many significant financial services organisations have their effective choice reduced by a minimum of one audit firm.

Additionally, interviews with Big Four firms, companies and regulators indicated that there are several UK financial services companies for whose audit, in practice, only one audit firm is likely to bid in a tender, due to a reluctance among audit firms to realign all banking relationships, a lack of suitable expertise or capability, and other conflict of interest problems. In light of these restrictions, it has emerged in the course of Oxera's research that, in effect, a limited number of UK-listed financial services companies have no choice of auditor in the short run, even though in the long run a reconfiguration of non-audit services and other relationships is possible and alternative Big Four audit firms could invest in the relative sector expertise. (This point is covered below.)

### 5.3.5 Supply-side restriction: the need for sector expertise

Although, in general, all Big Four firms have sufficient reputation and resources to be seen as a viable supplier of audit services across all industry sectors, for the largest and most complex multinational companies this is not the case. For a limited number of these companies, only two or three Big Four firms are regarded as capable suppliers, and one or two of these may in fact be conflicted out by banking relationships or the provision of non-audit services, effectively eliminating a company's choice of auditor in the short term.

In the medium term, non-audit services relationships can be realigned, and audit firms can invest in new expertise and capital in order to become a credible competitor, but both of these processes have costs attached.[81] Indeed, it was highlighted in several interviews that, relative to other professional services organisations, partners and staff move between firms relatively infrequently, which means that sector expertise usually cannot be 'bought' from another firm. The implication of these factors is that, even if, ultimately, it is feasible for a fully competitive tender to be held:

- the year-on-year competitive pressure on the incumbent auditor is likely to be abated due to restricted choice;
- it would not be feasible for a company without short-term choice to change auditor quickly, since:
  - the alternative Big Four firms may prefer to supply non-audit services than tender for the audit;

[80] HBOS (2005), 'HBOS plc Annual Report and Accounts 2004', Annual Report, March 1st, p. 92.

[81] Banking relationships are very unlikely to be unwound, even in the medium term.

- the alternative Big Four firms may not have the right expertise and capacity in the right location;
- cancelling existing long-term projects within non-audit services is potentially damaging to the company's operations;
- some companies are unsure about the sensitivity of investors regarding switching the audit to a firm which has until now been supplying non-audit services,[82] and are concerned that this may affect a reputation for good corporate governance.

Furthermore, as explained in section 3.3, there are two barriers particularly relevant to the complex sectors that may reduce a company's willingness to switch:

- the time needed for an alternative Big Four firm to reach the same level of competence as their incumbent auditor (the learning effect);
- the costs to the client of switching, in terms of disruption and investment of their management time, and the importance they attach to the trust and confidence in their auditor, which is only built up over a long-term relationship.

Overall, the effect of restricted choice for particular sectors and particular companies is to further attenuate the motivation to switch, and this can be expected to produce a corresponding weakening of the competitive pressure on the incumbent auditor. For companies and sectors with very restricted choice, it appears that the normal process of tender-driven competition for the audit contract is difficult to operate in practice. Therefore, as one interviewee put it, 'the company and its audit firm both know that it would be very difficult for the company to change auditors', which leads to an environment in which the competitive pressure on the incumbent is weakened.

## 5.4 Consequences of the lack of choice

### 5.4.1 Possible detriments

According to the survey, more than one-third of FTSE 350 audit committee chairs feel that their company does not have sufficient choice of auditor.[83] Indeed, in every group interviewed by Oxera (ie, Big Four, mid-tier firms, audit committee chairs, finance directors, investors, private companies and advisers), at least some interviewees felt that there was a problem, of more or less importance, with regard to choice. Many interviewees analysed the problem as a combination of increased concentration and tighter auditor independence regulation, which they believe has reduced competitive pressure in the market for auditing large UK-listed companies. This section explores how this limited choice may have an impact on the effective operation of the audit market.

It is apparent from section 5.3 that for some companies and certain industry sectors the effective level of choice of auditor is restricted to only one or two firms. In theory, this situation could lead to oligopolistic behaviour and detrimental effects on the pricing and quality of audit services. The specific detriments that might arise are as follows:

- supplier-imposed price increases (some evidence on this has been obtained in Oxera's econometric analysis presented in section 5.2);
- a reduction in the quality of service, due to lack of competitive pressure;

[82] That is, services which a company's current auditor is prohibited from providing.

[83] Q21 of Audit Committee Chairs Survey. 11 out of 32 FTSE 350 companies 'strongly disagreed' with the statement 'Currently, there is enough choice of alternative auditors in the market for my company to choose from', and one 'tended to disagree' with this statement. Although this indicates that a majority of respondents feel they have sufficient choice, the most acute concerns about choice highlighted throughout this report are in relation to the larger of the FTSE 350 companies—the degree of choice is not uniform across the FTSE 350. To put the responses to Q21 into context, of the 50 survey participants, nine were FTSE 100 audit committee chairs, of which only one represented a top 20 company. The responses to Q21 are therefore considered to be consistent with the pattern of choice in the UK audit market, in which the largest companies typically experience the greatest restriction on choice.

– a reduction in innovation (albeit that, for audit, interviewees stated that innovation is also constrained by regulation);
– a reduction in the quality of auditing due to a reluctance on the part of regulators to impose sanctions that would lead to the exit of a major audit firm ('Too big to fail?');
– a failure of audit firms to respond to changes in demand from companies and investors regarding the nature of an audit;
– damage to investor and company confidence in auditing, due to a perception that the major players have market power, or because the market structure is seen as vulnerable to the exit of a Big Four firm.

Until now, evidence on these detriments has been limited. In this report, the primary source for evidence on the effects of limited choice is the 67 in-depth interviews. This section focuses on four potential areas of concern arising from restricted choice in the audit market:

– pricing;
– choice in related services;
– quality;
– investor confidence.

### 5.4.2 Pricing

The impact of concentration on pricing is covered earlier in section 5. However, it is worth stating here that the link between concentration and price may be even more marked for companies with highly limited choice. The OFT's report on the competition implications of a cap on auditors' liability noted that:

> Audit firms have a captive market (demand is inelastic) due to the statutory obligation to have an audit, the small size of audit fees relative to the turnover of the largest firms and switching costs from changing auditors.[84]

In the context of the difficulties highlighted earlier in this section, the frequency and even the practical operation of a competitive tender process are likely to be limited for certain companies.

As described in section 3.3 on switching, a company may decide to put the audit contract out to competitive tender even after a long-term relationship, because it feels that it could obtain better value elsewhere, or to constrain a threatened price increase by its incumbent auditor. When this process is effective, the price of audit and accounting services can be expected to be determined by the competitive tenders that occur over time. Moreover, clients are able, to some degree, to use the implicit threat of putting out the audit contract to tender to constrain the power of their auditor.

However, for companies that already have a very limited choice, it is expected that competitive tendering will be a less effective means of ensuring competitive pricing. The credibility of the threat to hold a competitive tender and switch to another supplier is undermined by the lack of choice. Indeed, one company interviewed, which faces significantly restricted choice, told Oxera that, although it would not be right to see the audit firms as 'setting prices' (ie, having relatively unlimited pricing power), nonetheless this company's auditor has some 'ability to make their [price] rises stick', due to the audit firm's awareness that the company is unlikely to switch.

### 5.4.3 A problem in other assurance activities

For the largest companies interviewed, the issue of a restriction on choice appears to be relevant not only for audit, but also for other audit-related services. It has been put to Oxera by various interviewees that a particular problem arises in accounting advice for transactions

[84] OFT (2004), 'An assessment of the implications for competition of a cap on auditors' liability', OFT 741, July, p. 8.

(mergers and acquisitions, or M&A), where auditor independence rules combine with audit market concentration to create a significant restriction on a company's choice.

Some of the companies interviewed are not infrequently involved in considering transactions with three or more counterparties. In such transactions, there is often the need for at least four firms, yet the mid-tier firms are seen as not really being substitutes for a Big Four firm due to a lack of international coverage and experience at the highest level of M&A activity. For example, in a typical transaction for company X:

– Big Four firm 1 is acting for the seller;
– Big Four firm 2 is acting for one competing buyer;
– Big Four firm 3 is acting for another competing buyer;
– Big Four firm 4 is company X's auditor.

In the absence of satisfactory 'Chinese wall' arrangements, company X is left without an accounting adviser on the transaction. Where Chinese wall arrangements cannot satisfy the clients on both sides of the deal, one interviewee from a major FTSE 100 company stated that there is a 'distinct possibility' that his company would be 'unable to proceed with a transaction' owing to the lack of an effective supplier of due diligence services.

These advisory activities are closely related to the statutory audit: in terms of client requirements for sector expertise and international coverage the Big Four firms are regarded as the only suitable suppliers of due diligence work on complex international M&As. In this respect, it is notable that, in 2002, the European Commission regarded these services as being part of the same economic market as statutory audit:

> 'Audit and accounting' services consist of the performance of statutory and other audits of companies' accounts and other 'audit-related' accounting services. In this context, 'audit related' accounting services include such services as general accounting services, systems assurance, business risks assessment, internal audit, *due diligence work preparatory to the acquisition of new businesses*, the preparation of reports in connection with stock exchange listings and post acquisition reviews.[85] [Italics added]

However, under SEC rules, 'appraisal or valuation services, fairness opinions, or contribution-in-kind reports' are all on the list of prohibited services for a company's auditor. Only if the results of these services 'will not be subject to audit procedures' during an audit of the company's financial statements are the services permitted to be carried out by a company's auditor.[86]

Similarly, under APB Ethical Standards, 'Transaction related services', including due diligence investigations, are highlighted as an area in which there is a risk of compromising auditor independence (although due diligence is not prohibited per se for a company's auditor).[87] Thus, there is a restriction for a company regarding the feasibility of engaging its auditor for due diligence work, but not an absolute prohibition. This restriction often means that companies cannot, in reality, engage their auditors to carry out due diligence work, which leads to the occasional 'gridlock' situation outlined above.

However, for some companies, the gridlock problem of sufficient access to Big Four advice in a multi-party transaction is not regarded as insurmountable. One finance director told Oxera that he would find it acceptable, but not desirable, to have a Big Four firm as an advisor to the vendor and the bidder in a complex transaction, provided there were robust 'firewalls' within the accounting firm.

[85] European Commission (2002), 'Case No COMP/M.2810—Deloitte & Touche/Andersen (UK)', July 1st, para. 22.

[86] US Securities and Exchange Commission (2003), 'Commission adopts rules strengthening auditor independence', press release, January 22nd.

[87] Auditing Practices Board (2004), 'APB Ethical Standard 5: Non-audit services provided to audit clients', December, pp. 33–6.

Some investors also expressed concern over restricted choice in audit-related services, with particular focus on the limited choice of advisors around IPOs and M&A events. Although they recognised that similar issues exist in actuarial services and in investment banking, investors told Oxera that they are significantly 'more concerned' about concentration in audit than in other markets in financial services.

### 5.4.4 Quality

The potential detriment to quality arising from a lack of competitive constraint is influenced by other factors, such as liability, regulation and reputation. The impact of liability and regulation on quality falls outside the scope of this report (see sections 1.2 and 1.3).

Reputation concerns may provide incentives to the major audit firms to offer quality, despite the constraints on effective competition from limited choice. As the OFT found in 2004:

> A history of repeated business without problems creates a reputation that can help overcome the asymmetric information problem … Reputation is an important factor in the audit market because a statutory audit is a service bought regularly by a large client, where the purchasers (management) can measure 'output' (not necessarily the same as the 'quality' shareholders desire) and the audit firm benefits from the client acting on this knowledge to make repeat purchases. A dispute involving shareholders over the quality of an audit damages reputation and the ability to win future business and retain existing business.[88]

The risk of losing reputation (and associated financial liabilities) is therefore a major constraint on audit firms' behaviour. Moreover, those companies identified earlier in section 5 as having restricted choice are also some of the audit firms' key strategic customers—ie, high-profile audits upon which the Big Four's reputation depends to a large extent. In principle, an audit firm may have strong incentives to maintain quality on these audits, even if the client in question is very unlikely to switch to an alternative in the event of a fault with audit quality, since the audit firm's reputation is built on its high-profile blue-chip clientele.

However, the power of the reputational constraint may be mitigated by two factors:

– an audit client has an incentive to avoid any publicity around problems with its audit. It seems to be unheard of for a company to criticise its auditor publicly, and an audit firm's public reputation is therefore protected to some extent in the absence of other quality checks, such as regulatory inspections;

– there are significant information asymmetries, which make it difficult for an audit client, or indeed other stakeholders, to judge the quality of the auditor.

As also highlighted in section 3.1, information asymmetries and the potential for ex ante and ex post assessment of audit quality were discussed with many interviewees. One noted that the audit committee relies on the internal audit function and the finance function to spot potential problems with the audit. Another said that the committee could typically spot where an auditor had missed an important item. However, if the auditor had looked at an item and made a mistake, the audit committee would be unlikely to spot the error. As a consequence, for this interviewee, quality is primarily judged through an assessment of the quality of the senior audit team—an ex ante assessment of audit inputs rather than an ex post assessment of the audit product. Overall, the interviews suggested that it is difficult for the audit committee to judge the quality of the auditor and the audit. In turn, this may lead to a certain reliance on the reputation of the audit firm in the overall assessment of quality.

From the investor perspective, one investment firm told Oxera that before the dissolution of Arthur Andersen there were signs that an unusual number of that audit firm's clients had financial problems. This apparently had some influence on investing decisions—the identity

[88] OFT (2004), 'An assessment of the implications for competition of a cap on auditors' liability', OFT 741, July, pp. 5–6.

of the auditor became an extra marginal piece of information in the decision to buy or sell. In view of the earlier discussion of the limited communication between companies and investors (section 3.2), it is interesting to note that this investor stated that if concerns do arise about poor audit quality, an investor is much more likely to sell the shares than talk to the company about their choice of auditor.

A further constraint on audit firms' behaviour is via liability, which changes the strategic incentives of an audit firm to maximise quality. This issue was examined in 2004 by the OFT:

> Liability also helps to maintain audit quality, given the prospect of severe financial penalties in the event of an auditor being found at fault due to negligence or incompetence leading to harm. Audit has an outcome that is relatively easily measured and linked to inputs, so the threat of being sued is likely to be an important discipline on quality alongside reputation and the regulatory factors already discussed.[89]

Despite a lack of direct competition in some market segments, reputational importance and unlimited liability serve to limit an audit firm's motivation to reduce quality. As one Big Four firm commented, the audit firms typically want to widen the scope of the audit for high-risk clients—they want to 'audit it to death'—but companies usually resist such a wide-ranging audit. However, Oxera's research indicates that audit quality is not easily measured. This implies that the constraint that can be imposed on auditor behaviour by reputational and liability risk is to some extent limited by asymmetric information.

### 5.4.5 Impact on investor confidence

Notwithstanding some market dynamics that help to maintain quality, the confidence that investors have in the audit product is a key outcome in an effective market for audit services. According to some investors interviewed, the market is moving in the 'wrong direction'—ie, demand for audit services is increasing, while supply is decreasing, which raises concerns about the effectiveness of competition. Furthermore, some investors believe that the failure of Arthur Andersen has resulted in the Big Four being 'too big to fail', which, according to some investors, is recognised by the regulators and the audit firms, and consequently presents concerns for investors in terms of the maintenance of audit quality.

Several investors that Oxera interviewed raised concerns about the structural links between the Big Four via institutions that regulate audit and accounting, complaining that the influence of the Big Four on rules-setting has led to an audit product which does not meet the needs of investors, and which benefits the Big Four, to the possible exclusion of the mid-tier firms. This issue has not been investigated further by Oxera.

A more significant impact on investor confidence may come from wider general concerns that the current level of concentration is undesirable. Other than a general feeling that choice is restricted and that the market worked better when there were six or eight major audit firms, investors expressed some concern about the vulnerability of the current market structure. It appears that the experience of the dissolution of Arthur Andersen has led to a perception that the audit market is close to a tipping point (ie, the loss of another large audit firm), which would compound existing market dynamics and could lead to a crisis of confidence in the financial status of a large number of 'high-risk' companies, due to a short-term logjam in the audit services market.

Overall, investors are keen to see a wider range of accountancy firms present in the market for the audit of large listed companies, both to insure against the consequences of a Big Three scenario and to provide a degree of comfort that competition is operating effectively to ensure that the largest audit firms are producing high-quality audits.

[89] OFT (2004), 'An assessment of the implications for competition of a cap on auditors' liability', OFT 741, July, pp. 5–6.

## 5.5 Summary

**Market outcomes—key findings**

### Concentration and audit fees

#### Trends and patterns in audit fees

The companies and other parties interviewed by Oxera were generally of the perception that audit fees have increased in recent years. There were mixed views on the factors that caused this increase: possible explanations given include the exercise of market power by the Big Four, increases in costs (staff, insurance, workload due to new accounting rules), and an apparent tendency for audit divisions in Big Four firms to seek to become more 'stand-alone' profit centres.

The Oxera panel dataset confirms that during 1995–2004, audit fees increased by 11.7% per annum in real terms on average (between 2000 and 2004 the growth rate was faster). However, growth in audit fees is less apparent when expressed in terms of percentage of company turnover (which may be a first approximation of the amount of work required to audit that company).

Audit fees are relatively small compared with the overall cost base of a company, in particular for larger companies (which may explain a certain lack of price sensitivity). In 2004, audit fees represented 0.06% of the median turnover of FTSE 350 companies, 0.13% of the FTSE Small Cap, and 0.20% of the FTSE Fledgling. Fees also differ by sector, and seem to be highest for banking, other financial institutions including insurance, and real estate. This broadly corresponds with the findings from the interviews regarding difficulties that particular sectors pose in terms of audit complexity.

Analysis of, very limited, financial data from the audit firms suggests that the operating margins of the Big Four on audit turnover have remained relatively stable over the last three years, which might indicate that the increases in fees have indeed been accompanied by a corresponding increase in operating costs in the period 2003–05.

#### Concentration and audit fees—econometric analysis

The econometric analysis on the relationship between market structure and audit fees used the Oxera panel dataset, controlling for factors specific to each company, sector and year, to isolate the effects on fees of market concentration (measured by the HHI) and auditor market shares. The results obtained are statistically robust (as explained in detail in Appendix 2).

- First, as expected, the relationship between the audit fee and company turnover is consistently positive and significant. Economies of scale in audit have also been identified—ie, the audit fee increases with turnover, but at a diminishing rate.
- Second, market concentration, as measured by the HHI per sector in any given year, and the market share of a given auditor in a given sector/year both have a statistically significant and positive impact on audit fees. This result is in line both with oligopoly theory and several other recent empirical studies.

To illustrate the order of magnitude of this effect, Oxera considered what the model predicts for the merger in 1998 between Price Waterhouse and Coopers & Lybrand. The merger has affected both the HHI and the market shares of the merged entity, and both have a separate impact on audit fees. In all, with the benefit of hindsight, Oxera's model indicates that the PwC merger led to a price increase which could have been in the order of around 12% from one year to the next: 8% for the market as a whole, and another 4% for the clients of the merged entity.

#### Concentration and choice

The impact of market concentration on choice is a core issue for Oxera's research. The programme of 67 in-depth interviews and the survey of 50 audit committee chairs have created a substantial body of evidence regarding the nature and extent of the choice of auditor for UK-listed companies.

Key findings on the extent of choice are as follows.

- A limited number of UK-listed companies, primarily in the banking sector of the FTSE 100, have no effective choice of auditor in the short run. This elimination of choice is driven by auditor independence rules and supply-side constraints.

– A wider range of UK-listed companies have a choice of auditor that is circumscribed by auditor independence rules and the prevalence of the Big Four, such that they face an effective choice of only two or three audit firms. According to the survey, around one in eight FTSE 350 companies have two audit firms conflicted out as alternatives to their current auditor, leaving them only one alternative among the Big Four in the event of an audit tender.

– Also according to the survey, over one-third of FTSE 350 audit committee chairs do not feel that their company has sufficient choice of auditor.

– A small number of FTSE 100 companies have adopted a policy of not using one Big Four firm for any audit or non-audit work, in order to retain a potential alternative auditor in the event of an audit tender. However, one in five FTSE 350 companies in the audit committee chairs survey reported that they had used all four Big Four firms in the previous 12 months, which may eliminate their choice in the event of an audit tender in the short term, and another one in ten have used three of the Big Four.

Key findings on the consequences of the lack of choice are as follows.

– In every stakeholder group interviewed by Oxera, several interviewees felt that there is currently a problem related to choice.

– Many interviewees felt that the problem is a combination of increased concentration and tighter auditor independence regulation has reduced competitive pressure in the market for auditing large listed companies.

Specifically, the perceived problem is:

– evidence of higher prices in concentrated industry sectors;

– a view that, for companies that have significantly restricted choice, the auditor has some 'ability to make their [price] rises stick';

– a widely held view that, due to a lack of alternatives, switching auditor is not a viable means of exerting competitive pressure on audit firms for certain companies and industry sectors.

The perceived problem is also manifested in other respects:

– a significant problem for the largest multinationals in finding an accounting advisor on complex transactions (in particular M&As), that is not conflicted out, potentially leaving a company without sufficient due diligence advice, unless it can accept a situation where the accounting firm is also acting for a rival bidder or the target company;

– a view expressed by some interviewees that the capital markets are currently vulnerable if, at some juncture, one of the Big Four were to exit the market (in a similar situation to Arthur Andersen). The vulnerability is particularly acute since the largest companies, which have the most bearing on investor confidence, are also those with the fewest alternatives to their current auditor;

– several investors that Oxera interviewed raised concerns about the structural links between the Big Four via institutions that regulate audit and accounting, complaining that the influence of the Big Four on rules-setting has led to an audit product which does not meet the needs of investors, and which benefits the Big Four, to the possible exclusion of the mid-tier firms. While this issue has not been investigated further by Oxera, it does seem to be of crucial importance from a public policy perspective.

Nonetheless, the general perception is that audit quality in the UK has (as yet) largely been maintained at acceptable standards, and some competitive pressure remains for the audit business of those large companies that still have a choice among the Big Four.

Mechanisms that seem to keep current audit quality standards at acceptable levels include:

– a strong focus on quality by companies—in particular, audit committee chairs;

– incentives for the Big Four firms to maintain high quality, via liability and reputational risk;

– regulation of quality by the FRC (through standards, inspections, investigations, and discipline and oversight).

# 6 Market dynamics going forward

This section explores market dynamics that might arise in the near future, based on the analysis of market dynamics, market structure and market outcomes in the previous sections. The starting point is the market segmentation outlined in section 4, which provided for three market segments (while recognising that these market index labels are a broad classification of the segments, not bright-line demarcations):

– FTSE 100 (99% Big Four market share);
– FTSE 250 (98–99% Big Four market share);
– smaller listed companies (around 90% Big Four market share).

Sections 6.1 to 6.3 explore the economics of entry/expansion by the mid-tier firms into the FTSE 100 and FTSE 250 audit market segments. The objective of developing an entry model was to gain a more rigorous understanding of the underlying economics of expanding an existing mid-tier audit firm (or, indeed, complete new entry) so that it could compete effectively in the market for larger public companies—the market segment where the Big Four have almost 100% market share. The analysis is designed to highlight the economic barriers to entry faced by such a firm and, thus, to provide a basis for the development of policy, should there be a need to intervene to facilitate market entry. Section 6.4 discusses the Big Four to Big Three scenario.

## 6.1 Analysis of entry or expansion by the mid-tier firms

The material set out in this report has described the demand and supply characteristics of the audit market. As noted, excluding the effects of mergers, the market shares of the major audit firms have been remarkably stable. In addition, outside the Big Four (and their merged partners), there has been little change in the very low incidence of mid-tier firms auditing large listed companies (in particular, those in the FTSE 100 and FTSE 250, as shown in section 5.4.3).

This section looks at this phenomenon by analysing the potential entry by a mid-tier firm that wished to become a viable and sustainable competitor in the market for large, publicly listed companies. This analysis has three key objectives.

– According to Oxera's analysis of choice and prices in the audit market, as presented in sections 3 to 5, new entry would be likely to improve competition, increase choice available to listed companies, and possibly lower audit fees. It is therefore of interest to consider the conditions for such entry to occur.

– Several mid-tier firms have indicated to Oxera in the course of the interviews that such potential entry straight into the FTSE 100 market would not be economically viable. Oxera's entry analysis aims to shed some light on the factors that might be consistent with this view.

– Market observers have made a number of suggestions as to how potential entry could be encouraged. Oxera's entry analysis aims to evaluate a non-exhaustive range of potential key business drivers influencing the overall entry considerations.

Overall, Oxera's analysis of the potential entry is based on an investment appraisal methodology analysing a potential entry by a mid-tier firm into the market dominated by the Big Four firms, and proceeds in two parts.

– general arguments are outlined (in section 6.2) concerning a hypothetical entry of a mid-tier firm into the market for audit of the largest listed companies of the FTSE 100. This part asks what would have to occur for a mid-tier firm to move immediately into the FTSE 100 segment, and reviews the main potential factors behind the observed persistence of the concentrated market structure;

– a more detailed, and potentially more realistic, entry investment strategy is presented (in section 6.3) based on the gradual and *incremental* expansion by a mid-tier firm, first in the FTSE 250 (beyond their existing clients), culminating in gaining a foothold in the FTSE 100. This more formal analysis is performed with the help of a simple investment model outlining the potential value drivers and barriers to entry.

As noted in section 2.5, this Oxera analysis has benefited from some input (directly and indirectly) by both Big Four and mid-tier firms. It is important to stress that the results of the analysis should be interpreted as only indicative of several possible approaches for assessing the likelihood of market entry in the market for audit services to large UK companies, and of potential triggers and considerations of such entry. In particular, the results presented in this section should not be interpreted as definitive estimates of the actual value of the investment necessary for the entry to occur, or of the return to that investment, should additional clients be forthcoming. The type of entry depicted in the model has not occurred recently.

The more detailed analysis in section 6.3, which models a gradual move up the size scale from a foothold in the FTSE 250 to a sustainable market presence in the FTSE 100, is based around analysis of four potential barriers to entry for mid-tier firms:

– the need for enhanced reputation/perception;
– the need for additional resources/expertise;
– the need for an enhanced international network;
– financial constraints.

The 'demonstration effect' described in this section is intended to model the process of building a credible reputation for large company audit. The analysis is based on comments from the in-depth interviews, in which audit committee chairs emphasised the importance of a credible reputation with investors, and experience of auditing similar-sized companies, as prerequisites for selecting a suitable audit firm.

The model is based around three steps, and at each step there is a phase of expansion (into the new segment) and consolidation (as reputation is built in that segment), reflecting the detailed comments provided to Oxera in the interviews on how an audit firm's reputation is created and sustained.

Due to low switching rates in the audit market, each phase of expansion and consolidation takes significant time (7–10 years in the model), meaning that the process of incremental expansion is a long-term strategy. More rapid expansion possibilities are explored in section 6.2.

## 6.2 Immediate entry into the market for the audit of FTSE 100 companies

### 6.2.1 Supply-side issues

#### Structural differences between mid-tier firms and the Big Four

Albeit similar, the internal structures of the Big Four and the mid-tier firms are not identical, and part of this difference is a reflection of the differing demands of their client base, in particular the demands of the larger listed companies. Although the interviews revealed that there is no uniform agreement on what these differences are, there is a reasonably consistent view that they at least include the strength of the international network, the resources of the technical department, and that of internal control systems, alongside highly

developed recruitment and training functions, which might contribute to higher levels of productivity in terms of greater revenue per staff and per partner. This might also be related to the perceived enhanced capability to deliver the value-added services part of the audit service, as described in section 3.1. All these capabilities are again generally agreed to have significant economies of scale.

### International network

Necessary scale might also be important in several different dimensions at the same time, and might be characterised by different threshold levels. For example, in terms of the coverage of foreign jurisdictions, the number of offices cannot be taken to be the exclusive dimension of the scale of an international network. The outreach of individual offices as well as significant and consistent market penetration across all countries might be equally critical. In this context, some of the interviewees stressed that taking up a single, large international client by a mid-tier firm might significantly stretch the resources of some of its local offices, while adding to its business risk due to both the potential annual variation in revenues as well as the additional liability risk.

Entry into the large company audit market might be achieved by targeting only those companies that do not have significant foreign operations, which could mean that the cost of strengthening the international network could be avoided. However, this would limit the number of target clients and, given the relatively small number of audits tendered each year, would increase the time taken to overcome any other scale disadvantages that exist.

The most critical issue concerning the international network might be the problem of coordination. In particular, expansion of a mid-tier firm in a single country might not be successful unless similar expansion is undertaken by the same network partnerships in other leading markets. This poses potentially significant coordination problems and limits the likelihood of the expansion occurring. Nevertheless, the investment model presented in this section has been developed on the basis of a single country expansion with the underlying assumption that a similar expansion would be undertaken in parallel by the new entrant partnership network in other countries.

### Investments in capabilities and the new client portfolio

The new entrant firm might also find that the first large company audit was not profitable because to service that company would require a significant increase in fixed costs without a fully compensating increase in revenues. Subsequent audit clients of this size would be more profitable (measured on an incremental basis). In addition, the firm would almost certainly need to have these capabilities in place *before* obtaining its first audit client. Thus, the expense of this capability would be likely to be incurred some time before any additional revenues.

The firm would also face some difficulties in creating the capacity to carry out the technical audit itself. The required proportionate increment of the capacity of the entering firm to service its first large company audit will be considerably higher than that required by any of the Big Four taking on a new client of the same size. To take a hypothetical example, a new audit client with a fee of £2m would represent around 0.5% of the average Big Four firm's total audit sales and around 4% of those of the larger mid-tier firms.[90]

The scale of this additional revenue could also raise some issues with respect to client dependence. The APB Ethical Standards provide that audit and non-audit fees from one client should in general not exceed 10% of an audit firm's revenues,[91] and this rule would therefore not be breached by the acquisition of one new audit client in the FTSE 100 by any of the larger mid-tier firms. However, mid-tier firms have expressed some reservations about

[90] £2m represents between 0.9% and 0.4% of the Big Four's UK audit fee income, and between 2.4% and 8% for the five largest mid-tier firms. See Table 4.1.

[91] APB (2004), 'APB Ethical Standard 4: Fees, Remuneration and Evaluation Policies, Litigation, Gifts and Hospitality', December, paragraphs 23–35, Auditing Practices Board.

how a *single* audit client of this size added to their existing client base would unbalance their client portfolio. Individual audits have some lumpy demand characteristics, and a firm with even just one large client could find it more difficult to keep the workflow reasonably even throughout the year and across its different offices.

Other aspects of the internal operation of the firm (including some interactions with the regulatory rules and practices on independence) also make a single large client more difficult to sustain. The (long) length of the audit relationship, combined with audit partner rotation and the (good practice) requirement to have a robust internal review capability, means that firms need several audit partners capable of auditing one or more clients of this size. Although the indications from the interviews and survey were that there is a broad agreement that some mid-tier firms already have the necessary know-how to audit selected large clients, additional resources are likely to be necessary in the course of expansion as more large companies are added to the client base (see section 3.2).

The result of these interactions is that, even under a scenario when a mid-tier firm acquires one FTSE 100 client, the continued servicing of that one client is unlikely to be economically attractive because there are economies of scope in servicing FTSE 100-type clients. The unit cost base of the one client will be significantly higher than the average cost base of similar clients serviced by the existing auditors in that segment of the market. If prices in this market are set with reference to the actual costs of the existing firms, the new entrant will be disadvantaged in maintaining this one client unless it has a significantly lower cost base overall, or it cross-subsidises this client from its other, smaller, clients. Not until the new firm had a number of clients of this size would the unit costs be likely to approach those of the existing Big Four competitors. In this transitional phase the cost penalty of higher unit costs is paid for by partners by reducing distributable profits. To persuade partners to accept this reduced income in the short term requires some kind of payback in the longer term, so forms part of the investment made by partners in expanding into this market.

Finally, according to the interviews, the mid-tier firms also have some concern about the impact of such potential expansion on the culture of their organisations. For example, the mid-tier firms would need to be able to recruit and retain the type of staff they would require to deliver larger-scale audits (which may in itself require a change in perception/reputation). This is likely to be particularly challenging in sectors characterised by significant technical expertise, such as financial services. At least initially, the new entrant may therefore only be able to target a small part of the market for audit of large companies.

### 6.2.2 Demand-side issues

#### Perception

A successful entry into the market for the audit of large companies is predicated on the requirement that prospective clients would find an audit from a mid-tier firm acceptable from both the internal and external perspective (as discussed in section 3.2). This means that the generally accepted assumption that large companies need a Big Four auditor would have to change. A number of interviewees expressed the view that this was a prerequisite before they could seriously contemplate attempting to enter this market. In the absence of such a change the probability of getting a FTSE 100 client as a result of a tender would be so low that the firm would not be willing to incur the necessary costs to participate in that tender.

It therefore appears that a significant shift in the perception of mid-tier firms' capabilities in delivering all three components of the audit product (see Figure 3.10) relative to the Big Four would also have to occur as a precondition for entry.

For this to happen, the position of some investors (ie, those who interpret the absence of a Big Four auditor as an automatic negative investment factor) and the position of audit committees (ie, those who see using a Big Four auditor as an automatic insurance against any reputational damage in case of problems) would have to change.

In this context, the interviews seem to indicate that audit committee chairs' perspective might be more conservative than that of investors, as at least some of the latter have claimed to be comfortable if companies they invest in were to consider a non-Big Four auditor (provided a good explanation was provided by the company). Nevertheless, it is generally accepted by interviewees that it would be difficult to change this overall market perception, at least in the short term. For the purposes of this analysis, however, this change has been assumed as the prerequisite of a successful entry, so as to illuminate the other economic barriers to entry that would need to be overcome.

#### Timing

As described in section 3.3, the degree of switching between auditors is low. Based on the number of switches presented in Table 3.7 (and excluding merger-related switches), and estimating the number of tenders by grossing up the observed change of auditor, it would take at least 5–10 years for a sufficient number of suitable companies to put their audit out to contract so that a non-incumbent could build up its initial market foothold, given a success rate assumed to be equal to that of the Big Four. This time would be proportionally longer if a new entrant were to find itself at a disadvantage to the incumbents in terms of the likelihood of winning each tender. Therefore, the low tendering rate is likely to prolong the investment horizon to break-even significantly for the new market entrant.

In this context, some of the interviewees indicated that the individual partner investment horizon might be as short as 3–5 years. Therefore, the absence of long-term capital might pose a problem in this respect because of the mismatch between the time horizon of partners and the payback period. Further discussion of the possibility of employing external capital to fund the new investment is presented below.

#### Demonstration effects

A mid-tier audit company wishing to move directly into the large public company market would also find itself at a disadvantage, particularly for its first few clients, in terms of being able to demonstrate that it was capable of undertaking an audit of that size. Unlike the Big Four, a mid-tier firm would not be able to point to the successful execution of previous audits of this size. Given the difficulty that companies face in evaluating the likely quality of audits in the tender process (see section 3.1), asking the prospective company to accept, without evidence, that the firm can successfully scale up its existing audit team/project structure to cope with a markedly different size may be difficult. A firm with overseas experience of such larger audits might be able to use this as a demonstration of its capabilities. However, even here, potential clients would need to be convinced that the overseas experience could be successfully transferred to the UK (and mid-tier firms are at any rate also small in most other countries).

This problem of demonstrating ability to operate at this size might be overcome, for instance, by offering lower prices or more value-added. Yet, however this is overcome, the most likely impact will be either to reduce the income (absolutely or relative to input costs) or to increase the time taken to gain the first few clients.

### 6.2.3 Scope for immediate entry

Even after assuming away the perception bias against mid-tier firms auditing FTSE 100 companies, there are still significant economic barriers to immediate new entry into this market. The range and severity of these barriers (ie, high costs of entry) means that an immediate entry on a sustainable scale (ie, more than one client) by a mid-tier firm into the market for audit services for large listed companies is likely to be infeasible. This conclusion has been articulated by various mid-tier firms and other interviewees.

## 6.3 Incremental entry into the market for the audit of FTSE 250 and FTSE 100 companies

### 6.3.1 Approach to modelling incremental entry

As an alternative to an attempt at immediate entry into auditing FTSE 100 companies, the interviewees have indicated that an incremental approach of continually acquiring larger companies through time—possibly over 20 years or more—may be the only approach that might make entry into the FTSE 100 market plausible. As explained in section 6.1, the incremental approach is necessarily a long-term strategy due to the process of expansion and consolidation, which builds a firm's credible reputation as it moves up the size scale. A more aggressive approach to expansion is rendered uneconomic by the failure to acquire a credible reputation, and thereby achieve a sustainable market share.

However, even such an incremental expansion of any significant size was thought to require some changes in the underlying dynamics of auditor selection. In particular, the presumption that investors place significant value on a Big Four auditor would need to weaken. Without this, the probability of being successful in gaining new larger clients from the Big Four (or retaining existing clients as they grow into large companies against competition from the Big Four) would be so low that the costs involved in market entry would make the exercise uneconomic.

With this precondition, incremental rather than immediate expansion might allow the firm to obtain the following benefits:

– the existing audit client base itself provides an adequate demonstration effect—in terms of delivering audits of similar size and complexity—so the additional costs of 'proving' to potential clients that the firm is capable of the job are reduced or eliminated;

– activity in non-audit services provides some direct contact with prospective clients (also for significantly larger companies), so additional marketing costs are reduced;

– the new client(s) do not unbalance client size distribution within the firm, and each incremental client represents a relatively small proportion of the firm's existing capacity;

– the range of *additional* services that clients of the new size require is limited, so economies of scale enjoyed by the existing suppliers in this market are limited (if they exist at all). This, in turn, means that the cost disadvantage of mid-tier firms is limited.

Incremental entry might also provide the following advantages:

– the different employment structure—with more partners per staff member—may provide a (positive) differentiator, by highlighting particular attention that a mid-tier firm would pay to new clients;

– if required, the existing firm structure can be relatively easily adapted to meet the demands of the (slightly) larger clients;

– at least in the initial stages of expansion, the pool of suitable companies is larger, particularly those that do not require a strong international network.

Moreover, although the incremental approach is still likely to involve significant investment, the relative size of the investment in each step is thought to be considerably smaller than in the case of immediate targeting of the largest companies. In addition, the probability of the outright failure of the strategy is thought by the firms to be significantly lower. Hence, the business risks are thought to be lower and the payback periods shorter.

### 6.3.2 Investment by partners

Given the partnership structure of the audit firms, the investment analysis carried out by Oxera was undertaken at the individual partner's decision level, while being simultaneously based on the assumptions about the expansion of the firm as a whole. That is, firm-wide assumptions, corresponding to the entry into the market for the audit of large companies, have been translated into 'per partner' decision variables, in order to model individual member's risks and rewards from the hypothetical investment/expansion into audits of larger companies. This is consistent with the assumption that individual partners would have to vote collectively to make the investment decision.

Oxera's analysis assumes that existing partners would be required to share the benefits of a successful entry with the new partners that are necessary to service additional clients, while they would incur the initial costs of the investment themselves. The parallel underlying assumption is that existing partners of the firm wishing to enter the large company market would finance such necessary investments themselves. As indicated above, this could be attractive to partners if the remuneration available for distribution among partners for carrying out large audits is significantly higher than that for carrying out audits of smaller companies.

### 6.3.3 Critical investment phases of the step-wise analysis

Oxera's analysis of potential entry is based on looking at three distinct incremental investment and expansion steps. The particular steps set out here do not necessarily mirror the type of expansion that any one firm would need to go through. They are, however, likely to illuminate the general constraints that would face a firm as it attempted to expand into auditing progressively larger companies. The three steps analysed are:

Step 1 establishing a significant foothold in the lower end of the FTSE 250 market by gaining up to ten medium-sized clients (ie, an expansion beyond the current small client base in this segment);

Step 2 expanding and consolidating its position in the FTSE 250 market by acquiring up to 20 additional clients among the FTSE 250 companies;

Step 3 establishing a significant foothold in the lower end of the FTSE 100 market by gaining up to ten large clients from the group of largest listed companies, but refraining from expanding into highly specialised sectors such as banking or insurance.

These steps have been identified in the course of interviews as the necessary and most natural incremental steps leading towards eventual entry into the FTSE 100 market. The investment analysis undertaken by Oxera has considered these steps in turn as a separate investment decision in order to inform about the business rationale of each step.

### 6.3.4 Ramifications of the investment model

The fundamental principle behind any investment model is the estimation of mean expected returns, discounted by the required rate of return, corresponding to the level of risk embedded in the investment and reflecting the opportunity cost of assuming this level of risk elsewhere.

The required rate of return is particularly difficult to estimate in this case, due to the lack of meaningful comparators as well as, as some interviewees put it, partners' potentially 'idiosyncratic appetite for risk', and/or varying alternative investment opportunities, as represented by alternative lifetime choices.

Therefore, Oxera has estimated internal rates of return as outputs of the model, which can be subsequently compared with specific, individual benchmarks. No attempt has been made to take a view on the appropriate discount rate to calculate the net present values (NPVs);

rather, sensitivity analysis using a broad range of discount rates has been provided. Nevertheless, for guidance purposes, it could be assumed that returns below 10–15% are unlikely to be sufficient for partners. Moreover, the partner-based investment model analysed by Oxera might imply higher required returns for risk due to partners' limited opportunities to diversify their investment in contrast to external capital.

To arrive at the profile of mean expected returns, Oxera's analysis has combined the assumptions about returns to a representative partner when the hypothetical entry is successful (the success scenario), with the assumption about the potential downside risks faced by a partner (the failure scenario).

The returns in the success scenario have been based on the assumption of successful entry under realistic market conditions—ie, acquiring the maximum target number of clients assumed in each step. The general conditions compatible with the success scenario are discussed below, and include the estimate of the necessary investment and payback periods, the required investment per partner, assumptions regarding revenues and profit margins, as well as other considerations such as companies' tendering and switching.

In the failure scenario, the downside risk assumed in the analysis has been divided into two parts:

– the likelihood of failure based on the potential inability to gain new clients, which would result in the investment bringing in no new revenues. A 35–50% range for the probability of failure in different steps has been assumed in the base case to reflect significant uncertainty about the potential success of the investment strategy;

– the increased liability risk representing the incremental addition to the overall risk of the firm, as explained further below. The incremental addition of 0.5%, 2% and 4% has been assumed in the base case.

In the course of the interviews, both the mid-tier firms and the Big Four indicated that the increased liability risk to be faced by the mid-tier firm following entry into the large company market is likely to be significant, and conditional on the type and size of acquired clients. This risk is equivalent to the likelihood of a company going bankrupt owing to the size of potential liability claims it could face.

### 6.3.5 Modelling assumptions

#### Investment horizon: the investment period

The investment analysis incorporates assumptions about two distinct periods characterising the investment in each step:

– the investment period during which new clients are gained;
– the payback period when the returns on the investment are realised.

During the investment period, new clients are likely to be acquired incrementally. Given the low frequency of tendering, the investment period must have a lower bound specified by the feasibility of acquiring new clients, given the actual number of tenders per year and the prevalent switching rate. For the purposes of the investment model, Oxera has assumed that the frequency of tenders will not increase in the near future.[92] Therefore, given the historical tendering and switching rates (discussed in section 3.3), it might be realistic to expect no more than ten tenders among the lower end of the FTSE 250 per year.

[92] The existence of another credible competitor in the market may increase the propensity of companies to switch auditor. To the extent that this happens, expansion is made easier. However, at least at the beginning of step 1, this effect is likely to be small or non-existent. The impact of a change of this sort is explored in Tables 6.3, 6.8 and 6.12, by shortening the period required to gain a given number of new clients.

It would be unrealistic to expect the new entrant to win all of these tenders. As reported in section 3.3, historically, incumbents have tended to be retained in approximately 30% of tenders. Assuming that the new entrant would be equally likely to win a tender as the three non-incumbent Big Four firms, its probability of winning any tender would be 17.5%.[93] This would mean that ten audit clients could be acquired over the period of approximately 5–7 years in the success scenario.[94]

As a result of these considerations, Oxera has assumed that the new entrant would be able to secure no more than one to three new clients per year in each investment step under the success scenario. In particular, this rate could be lower for the first and third investment periods (establishing footholds in specific segments) and higher for the second investment period (expansion and consolidation).[95] In the base case, Oxera has assumed one additional client per year in steps 1 and 3, and approximately 2.8 additional clients per year in step 2.

One major difference of the incremental approach is the shorter time taken before the new entrant could represent a realistic competitive threat in the large company market. This mainly arises because the rate of new client acquisition in each incremental investment step is likely to be inversely proportional to the size of the difference between the existing client base and potential new clients. That is, a successful entry into the market for audit services to companies only marginally larger than the existing client base is likely to require lower upfront investment.

### Investment horizon: the payback period

The payback period is limited by the returns horizon of each individual partner. Oxera's interviews indicate that it is reasonable to assume that existing partners would only benefit from the payback to investment prior to their retirement. On the basis of discussions with audit firms, it has been assumed that the average partner age of the hypothetical entrant could be approximately 40–45 years, while partners would generally remain active until the age of 60–65. Therefore, the combined investment and payback periods—the investment horizon—has been assumed not to exceed 20 years.

However, if audit partners are partners for, on average, a period of 30 years or less, most of the rewards from making the investment will go to partners who have not made the investment. If the investment costs and rewards were linked to seniority, the uneven returns would be exacerbated. Therefore, if collective decisions are needed for the firm to make the investment, the probability of partners agreeing to the investment required is low. Since only younger partners would reap the rewards, they might be the only ones to support the investment and a more equal reward-sharing scheme from the new investment might be required.

[93] As noted in section 3.3, companies typically invite only two or three firms to bid in the tender, although they often consider more firms initially. The analysis here assumes that all firms are participating in the tender (whether only initially or formally in the bidding process).

[94] If the success rate for the new entrant were lower than 17.5%, the time taken to obtain new clients would necessarily increase, and the total investment would also be higher under Oxera's analysis. If the success rate were higher than 17.5%, the time taken to reach any given number of clients would decline and the required (gross) investment would fall. In addition, as discussed in section 3.3, some of the existing firms could be conflicted out in any given tender. Therefore, the average number of participants in any tender is likely to be fewer than five. Moreover, with time, a new entrant might marginally increase the rate of tendering among companies, as it consolidates its position, and its presence by itself encourages switching. Yet, the new entrant is also likely be at a disadvantage to the Big Four (in particular in terms of reputation), and its likelihood of winning any tender could be lower than that for the Big Four, at least initially. However, the central assumption has been that the new entrant has an equal probability of winning any tender.

[95] For modelling purposes, Oxera has also assumed that the average time to acquire a new client is half the investment period. That is, if the investment period is assumed to be ten years, Oxera has assumed that the new clients are acquired, on average, after five years. Under the NPV-neutral modelling approach, this is equivalent to the assumption that the client acquisition profile is linear, and that all target clients are acquired by the end of the investment period. In contrast, the assumption of a uniform rate of client acquisition during the investment period would imply a slightly higher NPV. However, the actual rate of new client acquisition is likely to be slow initially and accelerate towards the end of the investment period, compensating for the above effect.

### Size of required investments

Oxera's interviews indicated that investment of around £10m–£30m would be required to support an initial entry into the FTSE 250 market, at the level that would achieve a sustainable client base. This is equivalent to an average investment of £1m–£3m per year in the course of the chosen hypothetical investment period of ten years, although there is some consensus that this could represent a conservative assumption. To check the robustness of the results to this and other assumptions, Oxera has undertaken a sensitivity analysis. This includes variations of the required investment, as well as one scenario with a very significant increase in the overall investment (see below).

In general, the initial investment would cover the costs of advertising and promotion, including the costs of supporting an information campaign with the objective of communicating the entry strategy to the market. The interviews indicated that such a campaign might involve sponsored seminars, meetings and other events, as well as other forms of promotion of a new entrant. In addition to marketing, investment costs would include the costs of participating in all tenders (ie, both those resulting in obtaining a new client and, crucially, a large number of failed tenders).

Moreover, the investment would necessarily incorporate any expenses related to upgrades of internal networks and control systems required to audit large companies. The total gross investment needed depends on the economies of scale in providing audits to these larger clients. If these economies are more limited, the total gross investment required will fall significantly, as the necessary investment can be phased with the increase in revenues.

Overall, the potential costs of expansion into the lower end of the FTSE 250 market might be estimated with greater confidence (not withstanding the probability of success) than the estimate of the size of necessary investment in the last step of the analysis to enter the FTSE 100 market, which is necessarily more speculative and would require careful sensitivity analysis, given the potential variance of likely estimates.

### Revenue gains and margins

The amount that would need to be invested will vary depending on how successful (or unsuccessful) the firm is in gaining its new, larger, clients and on the economies of scale that exist. However, whatever investment is required, it is unlikely to take place unless it produces adequate rewards. If it is assumed that the firm entering this market has to pay the same wages and salaries for non-partners as the existing firms, the return on this investment would be included in the partners' profit share.

If the new entrant firm adopts the same structure as the existing firms, it follows that, in the transition period, the amount of money that can be returned to partners is *lower* than that which would be distributed in the existing firms, from the same clients, as a result of their higher (unit) costs. After successful entry in each step—when the new firm has its new clients and the economies of scale are exhausted—the amount returned to partners is the *same* as that for the existing firms.

Given the above principles, it has been assumed that the average audit fee from each new company in the first step would be £750,000, on the basis of the average audit fees for the lower end of the FTSE 250. The same assumption has been made for companies gained in the course of the expansion and consolidation (step 2) in the FTSE 250 market. However, a significantly larger company size was assumed for the third step—the expansion into the FTSE 100—namely an audit fee of £3.5m per client, which is consistent with the prices currently observed in the marketplace. An *operating* profit margin of 40% (ie before the specific investment costs being modelled) has been assumed for all steps, excluding fixed costs.

In addition to operating costs, Oxera's model incorporates the necessary compensation to additional partners or executive directors to be employed in the course of each new step. The basic assumption is that new partners or directors would need to be compensated in line

with existing partners initially, starting at £350,000 gross in the first step, increasing to £450,000 gross in the last step. Moreover, the number of new partners or directors added in each step would be a function of new revenue, but productivity per new partner would increase with each new step—ie, revenue per partner would increase. These assumptions lower the profit margin that can be distributed to existing partners, after compensating the new partners, to approximately 26–27% of the new revenues generated.

### Other considerations

Some of the factors described above might depress the profitability of new audit clients, especially in the early years, for the new entrant compared with the Big Four. For the audit partners who would reap the rewards of the fees from the large company audits, this means that their own rewards would be lower than those of the audit partners of the Big Four, unless the firm could somehow provide these audits at lower input costs than the Big Four.

Assuming that the fundamental costs of inputs (eg, salaried staff, offices, IT) are similar between the existing auditors and the new entrant, it may still be worthwhile for the new entrant to make the investments required to acquire larger clients if the additional fees from these clients provide a suitable return on this investment once a sufficient client base has been established, and the forward-looking costs of the new entrant and the Big Four are similar. However, for this to hold, the prices charged by the Big Four must now be higher than forward-looking costs (ie, pricing at the level of cost at which an efficient provider can operate). This is because if there is no margin above forward-looking costs, there is no surplus to reward the *additional* costs (ie, investments) incurred by the new entrant to establish its new market position.

The summary of the modelling assumptions is presented in Table 6.1.

**Table 6.1 Summary of key modelling assumptions (base case)**

| | Step 1: FTSE 250 foothold | Step 2: FTSE 250 expansion and consolidation | Step 3: FTSE 100 foothold |
|---|---|---|---|
| Initial investment (£m per year) | 2 | 2 | 3 |
| Number of newly acquired clients | 10 | 20 | 10 |
| Revenue from new clients (£m per client) | 0.75 | 0.75 | 3.5 |
| Number of new partners required | 3 | 5 | 10 |
| Revenue per new partner (£m) | 2.5 | 3 | 3.5 |
| Compensation to new partners (£m) | 0.35 | 0.40 | 0.45 |
| Investment period (years) | 10 | 7 | 10 |
| Effective payback period (years)[1] | 15 | 16.5 | 15 |
| Overall investment horizon (years) | 20 | 20 | 20 |
| Likelihood of failure (downside scenario) | 50% | 35% | 50% |
| Investment per partner (£m, cumulative) | 0.27 | 0.19 | 0.47 |
| Ex post liability risk (following entry) | 1.0% | 2.5% | 4.5% |
| Operating margin (prior to new partners' compensation) | 40% | 40% | 40% |
| Effective operating margin to existing partners | 26.0% | 26.6% | 27.2% |

Note: [1] This represents the period since the first year when the revenues from the new clients begin to accrue to the last year of the investment horizon.
Source: Oxera calculations based on the interviews.

### 6.3.6 Results of the incremental entry model

#### Gaining foothold in the FTSE 250 market (step 1)

The results from Oxera's investment model suggest that, under the base case, gaining an initial, meaningful foothold in the FTSE 250 market is likely to be unattractive (negative or very low internal rate of return, or IRR) (see Table 6.2). In other words, based on the obtained IRRs, it seems highly unlikely that the first step alone would provide sufficient returns to justify the initial investment. It is worth noting that different assumptions about the downside scenario—ie, different probabilities of success as indicated by the business risk—would not fundamentally change this result. Similarly, different assumptions about the liability risk could not render the IRR positive.

**Table 6.2 IRR (%) sensitivity to assumptions on liability risk, FTSE 250 foothold (step 1)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Liability risk (%) | 30 | 40 | 50 | 60 | 70 |
| 0.0 | –9.8 | –6.6 | –4.0 | –1.7 | 0.3 |
| 0.5 | –10.3 | –7.2 | –4.6 | –2.3 | –0.4 |
| 1.0 | –10.8 | –7.8 | **–5.2** | –3.0 | –1.0 |
| 1.5 | –11.4 | –8.4 | –5.9 | –3.7 | –1.8 |
| 2.0 | –12.0 | –9.0 | –6.5 | –4.4 | –2.5 |

Source: Oxera calculations based on the interviews.

The estimated IRRs to the new entrant are likely to be low or negative under a range of potential variations to all the basic assumptions made for the first investment step. For example, as shown in Tables 6.3 and 6.4, Oxera's analysis indicates that not only is the investment unlikely to compensate for the assumed risks under a shorter investment period of, say, eight years (ie, when the target client base is acquired within eight years), but also if the assumed initial investment were to be reduced by approximately 25%. Only the combination of a very high probability of success (70%) and a halving of the necessary investment would be sufficient for the IRR to approach 10%, as shown in Table 6.4.

**Table 6.3 IRR (%) sensitivity to assumptions on investment period, FTSE 250 foothold (step 1)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Investment period (years) | 30 | 40 | 50 | 60 | 70 |
| 6 | –3.2 | 0.0 | 2.7 | 5.2 | 7.4 |
| 8 | –7.2 | –4.1 | –1.6 | 0.7 | 2.7 |
| 10 | –10.8 | –7.8 | **–5.2** | –3.0 | –1.0 |
| 12 | –14.9 | –11.5 | –8.9 | –6.6 | –4.5 |
| 14 | –20.1 | –16.2 | –13.1 | –10.6 | –8.4 |

Source: Oxera calculations based on the interviews.

**Table 6.4 IRR (%) sensitivity to assumptions on initial investment, FTSE 250 foothold (step 1)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Initial investment (£m) | 30 | 40 | 50 | 60 | 70 |
| £10m | –3.0 | 0.7 | 3.9 | 6.6 | 9.1 |
| £15m | –7.8 | –4.4 | –1.7 | 0.7 | 2.9 |
| £20m (£2m x 10 years) | –10.8 | –7.8 | **–5.2** | –3.0 | –1.0 |
| £25m | –13.1 | –10.2 | –7.8 | –5.7 | –3.8 |
| £30m | –14.9 | –12.0 | –9.7 | –7.8 | –6.0 |
| £50m | –19.5 | –16.9 | –14.9 | –13.1 | –11.5 |

Source: Oxera calculations based on the interviews.

This result indicates the challenges faced by existing mid-tier firms when considering expansion into the large company market from the business investment perspective. Moreover, since the first investment step is broadly believed to be necessary for further expansion, low returns to establishing the initial foothold represent a significant barrier to entry.

From the individual partner's perspective, Table 6.5 indicates that the necessary investment of £267,000 per partner under the base case would result in a loss of £64,800 in NPV terms (assuming a discount rate of 15%).

**Table 6.5 NPV (£'000) sensitivity to assumptions on investment per partner, FTSE 250 foothold (step 1)**

| | Discount rate (%) | | | | |
|---|---|---|---|---|---|
| Investment per partner (£'000) | 9 | 12 | 15 | 18 | 21 |
| 133 | –15.7 | –19.5 | –21.3 | –22.0 | –21.9 |
| 200 | –43.5 | –44.0 | –43.1 | –41.5 | –39.5 |
| 267 (£2,000/75 partners x ten years) | –71.3 | –68.5 | –64.8 | –60.9 | –57.1 |
| 333 | –99.1 | –92.9 | –86.6 | –80.4 | –74.6 |
| 400 | –126.9 | –117.4 | –108.3 | –99.9 | –92.2 |

Source: Oxera calculations based on the interviews.

The above results indicate that the critical drivers of the profitability of entry include the size of the necessary investment per partner compared with the realistic expectations of the number of new clients that can be acquired, as well as the length of the required investment period given the current tendering rate, and the significant business risks associated with the low likelihood of acquiring new clients in open tenders.

### Expansion and consolidation in the FTSE 250 market (step 2)

In contrast to step 1, expansion and consolidation of the new entrant position in the FTSE 250 market, once the initial foothold has been established, can be profitable according to the model. Oxera's investment analysis indicates that positive NPV could be obtained under reasonable assumptions about the required rate of return in this step of the investment model, as shown in Table 6.6. For example, under the base case, the investment per partner of £187,000 in this step would produce an NPV of the investment programme of –1% at a 15% discount rate.

**Table 6.6 NPV (£'000) sensitivity to assumptions on investment per partner, FTSE 250 expansion and consolidation (step 2)**

| | Discount rate (%) | | | | |
|---|---|---|---|---|---|
| Investment per partner (£'000) | 9 | 12 | 15 | 18 | 21 |
| 93 | 76.9 | 52.1 | 35.1 | 23.2 | 14.8 |
| 140 | 55.1 | 32.3 | 17.1 | 6.7 | –0.4 |
| 187 (£2m/ 75 partners x seven years) | 33.3 | 12.6 | –1.0 | –9.8 | –15.6 |
| 233 | 11.5 | –7.2 | –19.0 | –26.3 | –30.8 |
| 280 | –10.3 | –27.0 | –37.0 | –42.8 | –46.0 |

Source: Oxera calculations based on the interviews.

The overall range of Oxera's results obtained from the sensitivity analysis of modelling the expansion and consolidation in the FTSE 250 market suggests that the NPV of the second investment step can be positive, after controlling for the required return on risk.

In IRR terms, under the base case assumption of 65% probability of success, the project would produce returns of approximately 14.7%. Moreover, this result appears robust to basic changes in the probability of success and different assumptions about the liability risk. For example, a low probability of success of just 45% (ie, assuming that failure is more likely in this step), combined with liability risk of more than 3%, would still produce an IRR to the second step of the investment programme of above 7%, as shown in Table 6.7 below.

**Table 6.7 IRR (%) sensitivity to assumptions on liability risk, FTSE 250 expansion and consolidation (step 2)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Liability risk (%) | 45 | 55 | 65 | 75 | 85 |
| 1.5 | 9.3 | 12.8 | 16.0 | 19.0 | 21.8 |
| 2.0 | 8.8 | 12.2 | 15.4 | 18.3 | 21.1 |
| 2.5 | 8.3 | 11.7 | **14.7** | 17.6 | 20.4 |
| 3.0 | 7.8 | 11.1 | 14.1 | 16.9 | 19.6 |
| 3.5 | 7.2 | 10.5 | 13.5 | 16.2 | 18.9 |

Source: Oxera calculations based on the interviews.

Oxera's sensitivity analysis further indicates that, under a variety of plausible assumptions around the base case presented above, the second incremental step is likely to produce IRRs above 10% and possible as high as 50%, which might be regarded as attractive by mid-tier firm partners, as shown in Tables 6.8 and 6.9.

**Table 6.8 IRR (%) sensitivity to assumptions on investment period, FTSE 250 expansion and consolidation (step 2)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Investment period (years) | 45 | 55 | 65 | 75 | 85 |
| 3 | 28.3 | 35.4 | 42.5 | 49.7 | 57.0 |
| 5 | 14.8 | 19.0 | 23.1 | 27.0 | 30.8 |
| 7 | 8.3 | 11.7 | **14.7** | 17.6 | 20.4 |
| 9 | 3.9 | 6.9 | 9.6 | 12.0 | 14.3 |
| 11 | 0.2 | 3.1 | 5.6 | 7.9 | 9.9 |

Source: Oxera calculations based on the interviews.

**Table 6.9 IRR (%) sensitivity to assumptions on initial investment, FTSE 250 expansion and consolidation (step 2)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Initial investment (£m) | 45 | 55 | 65 | 75 | 85 |
| 7 | 21.7 | 26.7 | 31.3 | 35.6 | 39.6 |
| 11 | 13.2 | 17.2 | 20.8 | 24.2 | 27.5 |
| 14 (£2m x seven years) | 8.3 | 11.7 | **14.7** | 17.6 | 20.4 |
| 18 | 4.9 | 7.9 | 10.7 | 13.2 | 15.6 |
| 21 | 2.4 | 5.2 | 7.7 | 10.0 | 12.2 |
| 35 | –3.6 | –1.4 | 0.6 | 2.4 | 4.1 |

Source: Oxera calculations based on the interviews.

Overall, Oxera's analysis of the second step of the investment programme—consolidation at the lower end of the FTSE 250—indicates potential attractive rates of return. It is not unexpected that, once a new entrant establishes a foothold in the large company market, further expansion might be profitable.

However, the critical necessary condition for the second step is the successful implementation of the first step, as presented above. Because the first step is unattractive, the conditions necessary for a successful second step may never arise. Moreover, although the combined returns of step 1 and 2 are difficult to assess—joint IRRs on the investment steps 1 and 2 are positive, but low—the combined investment horizon of both steps may be too long to attract interest from existing partners, even if these two steps were to produce the required rate of return when taken together.

### Gaining foothold in the FTSE 100 market (step 3)

The last step of Oxera's investment analysis based on expansion into the FTSE 100 by gaining a foothold in the market for the largest listed companies seems profitable in nominal terms, but might be unattractive from the investment perspective, due to the levels of return that are likely to be insufficient to compensate for the risks involved. As before, the results of this step depend on the successful implementation of the previous investment steps; namely entry and consolidation of the entrant's position in the lower half of the FTSE 250 market.

Oxera's analysis indicates that a successful entrant into the FTSE 250 market might still find the final step of the investment programme relatively unappealing, despite being established as a significant player in the audit market for large listed companies. While the IRR to this investment step might be around 8–9% under the base case, as shown in Table 6.10, it is characterised by significant variation subject to assumptions. For example, a lower probability of success (30% instead of 50%) would reduce returns to close to zero.

**Table 6.10 IRR (%) sensitivity to assumptions on liability risk, FTSE 100 foothold (step 3)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Liability risk (%) | 30 | 40 | 50 | 60 | 70 |
| 3.5 | 1.4 | 5.6 | 9.1 | 12.2 | 15.0 |
| 4.0 | 1.2 | 5.4 | 8.9 | 12.0 | 14.7 |
| 4.5 | 1.0 | 5.1 | **8.6** | 11.7 | 14.5 |
| 5.0 | 0.8 | 4.9 | 8.4 | 11.4 | 14.2 |
| 5.5 | 0.6 | 4.7 | 8.1 | 11.2 | 13.9 |

Source: Oxera calculations based on the interviews.

From the individual partner's perspective, Table 6.11 indicates that the large necessary investment for entry into the FTSE 100 market of £467,000 per partner assumed under the base case might result in a loss of £46,700 assuming a 15% discount rate (after 20 years). An existing partner would also be likely to sustain losses in terms of the risk-adjusted NPV if the assumed discount rate were as low as 9%.

**Table 6.11 NPV (£'000) sensitivity to investment per partner, FTSE 100 foothold (step 3)**

| | Discount rate (%) | | | | |
|---|---|---|---|---|---|
| Investment per partner (£'000) | 9 | 12 | 15 | 18 | 21 |
| 333 | 51.2 | 17.9 | –3.2 | –16.5 | –25.0 |
| 400 | 23.4 | –6.6 | –24.9 | –36.0 | –42.6 |
| 467 (£3,500/75 partners x ten years) | –4.4 | –31.0 | –46.7 | –55.5 | –60.1 |
| 533 | –32.2 | –55.5 | –68.4 | –75.0 | –77.7 |
| 600 | –60.0 | –80.0 | –90.2 | –94.4 | –95.3 |

Source: Oxera calculations based on the interviews.

In IRR terms, extending the investment period by four years or increasing the investment requirement by £30m would produce negative rates of return below –6%, as shown in Tables 6.12 and 6.13. However, a probability of success of more than 50% under the base case and an investment period of ten years or less would be sufficient to ensure IRRs of 10–30%.

**Table 6.12 IRR (%) sensitivity to assumptions on investment period, FTSE 100 foothold (step 3)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Investment period (years) | 30 | 40 | 50 | 60 | 70 |
| 6 | 9.9 | 15.1 | 19.9 | 24.3 | 28.5 |
| 8 | 4.9 | 9.3 | 13.2 | 16.7 | 19.9 |
| 10 | 1.0 | 5.1 | **8.6** | 11.7 | 14.5 |
| 12 | –2.5 | 1.6 | 5.0 | 7.8 | 10.4 |
| 14 | –6.1 | –1.8 | 1.6 | 4.5 | 7.0 |

Source: Oxera calculations based on the interviews.

**Table 6.13 IRR (%) sensitivity to assumptions on initial investment, FTSE 100 foothold (step 3)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Initial investment (£m) | 10 | 30 | 50 | 70 | 90 |
| 25 | 5.9 | 10.5 | 14.5 | 17.9 | 21.0 |
| 30 | 3.2 | 7.5 | 11.2 | 14.5 | 17.4 |
| 35 (£3.5m x ten years) | 1.0 | 5.1 | **8.6** | 11.7 | 14.5 |
| 40 | –0.8 | 3.2 | 6.5 | 9.4 | 12.1 |
| 45 | –2.3 | 1.5 | 4.7 | 7.5 | 10.0 |
| 65 | –6.7 | –3.3 | –0.4 | 2.0 | 4.2 |

Source: Oxera calculations based on the interviews.

Overall, the analysis of the last investment step based on modelling entry into the FTSE 100 must be taken with some caution. First, while the results of the investment steps 1 and 2 seem relatively robust, those of step 3 appear more volatile. Second, given the considerations outlined at the beginning of this section, it is difficult at this stage to estimate the conditions of the potential entry into the top market segment. Third, the necessary investment period in the course of steps 1 and 2—which are prerequisites for establishing a foothold in the FTSE 100 segment in step 3—is rather long, making any precise estimates about the business conditions so far in advance extremely difficult.

### 6.3.7 Investment with outside capital

So far, Oxera has considered an entry strategy based on the investment per partner and funded by partners' own funds. An alternative might consider the use of external capital.

If the investment were to be funded by external capital, the effective rate of return on that investment to partners would be infinite, since partners would be expected, on average, to earn some additional returns without any personal cash outflows. In reality, this investment proposition might not be as attractive as it first appears, since each partner's opportunity cost, if they were employed by one of the current Big Four firms, would be effectively greater than their hypothetical post-investment remuneration from the new entrant. That is, after the successful entry of the firm into the new market, they would be rewarded *less* than partners doing the same job in the Big Four firms. As a consequence, an outside investor may hesitate before making the initial investment, as their return relies on audit partners *permanently* working for this lower remuneration once these partners (and the firm) have demonstrated their capability to audit larger companies.

As a result, the risk-adjusted remuneration per partner for the entrant might be close to that for the incumbent firms. The latter would fundamentally depend on the terms of the investment by the outside equity, as well as the risk-sharing arrangements. For example, partners might hold a preferred stock-type of a claim in order to secure their seniority over the outside equity. Oxera's interviews provide some evidence that partners in the mid-tier firms might be more risk-averse than their Big Four counterparts, given their generic work/investment-reward profile.

In addition, outside investment has the key advantage of extending the investment horizon as well as potentially diversifying the investment portfolio outside the audit market, and thus lowering the required rate of return—something partners could not realistically achieve.

### 6.3.8 Conclusions of the entry model

While expansion into the FTSE 100 from a position of sustainable market share in the FTSE 250 may be profitable, the prior foothold phase of expansion into the FTSE 250 is not

economic, due to high entry costs. Such a foothold would involve gaining a substantial number of clients in the market beyond the current client base, and thus becoming a challenger to the Big Four across many potential large clients. This result is in spite of the assumption in the model that market entrants have the same likelihood of winning tenders as the Big Four—an assumption predicated on a weakening of the perception barrier against entrants.

To establish the resources, expertise and international capability necessary to gain such a substantial foothold in the FTSE 250, the level of required investment exceeds the potential returns. Thus, on the basis of the entry model, immediate market entry does not appear feasible, nor does entry over a three-step process lasting at least 20 years, unless current market dynamics change (for example, increased tendering and switching) and the perception gap narrows. Section 6.4 below discusses the implications of one such (radical) change in market conditions—ie, the four-to-three scenario.

The result of Oxera's analysis is that, while operating in the FTSE 100 and FTSE 250 segments can in principle be profitable, the initial expansion in the short term (beyond a small number of clients) is problematic due to significant barriers to entry, which raise the cost of market entry. The most important barriers, in order of importance, are the need:

– to acquire a credible reputation with FTSE 100 and FTSE 250 companies and their investors, thereby overcoming the perception bias (a long-term process involving gaining a 'critical mass' of large audit clients);

– for an extensive, and integrated international network (again, likely to be a long-term process, due to coordination problems);

– for substantial resources and expertise (eg, an audit partner with FTSE 100 experience) to audit large, complex, international companies.

In the model, these entry barriers are reflected in:

– significant investment required for market entry;
– a long investment horizon;
– a long payback period to any potential investment;
– significant business risks when competing against incumbents.

An additional barrier to entry is presented by the nature of the partnership structure, which renders the investment unattractive to some of the existing partners even if it is attractive to other partners. Crucially, low tendering and switching rates, as well as significant uncertainties concerning the size of the required initial investment, seem likely to result in an unattractive risk-to-reward trade-off. Building a credible reputation via acquisition of larger clients is difficult, given the low frequency of tendering.

The model does not show that non-Big Four firms currently cannot gain any FTSE 350 clients (they already have a small number of clients—see Table 4.3). However, it would suggest that, overall, these clients are mainly UK rather than international companies, and limited to the relatively less complex sectors. Overall, the analysis indicates that a strategic decision to invest in a way that will result in substantial market entry (and therefore a change in the competitive conditions in the market) is not likely under current market dynamics.

In addition, some of Oxera's modelling assumptions have been favourable to entry, including abstracting from any problem of international coordination and assuming that the audit fees earned reflect a (generous) average of fees in the lower ranges of the FTSE 250 and the FTSE 100.

The results of Oxera's analysis are broadly in line with the opinions expressed during the course of the interviews by market participants.

## 6.4 Implications of a four-to-three scenario

As indicated in section 1, concerns have been expressed regarding the potential loss of a Big Four firm, in particular following the legal case in 2005 involving KPMG in the USA. These concerns are driven by fears that another major firm could suffer the same outcome as Arthur Andersen, and have been confirmed by many of the parties interviewed by Oxera. This section presents the views of audit firms, audit committee chairs, finance directors and investors on the causes and consequences of market exit by one of the Big Four firms.[96]

### 6.4.1 Why is the market vulnerable?

The difficulty of entering the large public company audit market (particularly for international companies) means that if, for some reason, the number of very large audit firms were to fall, it would be difficult to avoid an outcome in which the Big Four moved to the Big Three. A number of scenarios could result in such a contraction:

– a voluntary decision by one of the Big Four to exit auditing (currently regarded by interviewees as extremely unlikely);
– behaviour by one of the Big Four that leads to a loss of its auditing licence in one of its major markets;
– behaviour that leads directly or indirectly (ie, via regulatory or legal intervention) to such a loss of reputation that the firm is not seen as providing the services required for a large public company audit (which is the focus of this section).

Some interviewees told Oxera that a repeat of the Arthur Andersen dissolution is quite conceivable if a Big Four firm were subject to a criminal prosecution in a major audit market, such as the USA. There are a number of ways this could occur, but the general view is that reputational risk is potentially more important than financial, or indeed criminal indictment, risk for audit firms, since it is believed that, post-Arthur Andersen, the loss of reputation concomitant with the start of significant legal proceedings can cause the collapse of a firm's client base before those legal proceedings conclude.

### 6.4.2 Consequences of four to three

In general, interviewees indicated that the consequences of four-to-three would be significantly worse than the consequences of five-to-four. However, the basic nature of the long-term problems that could exist under a market dominated by the Big Three would not be different to the issues under the current market structure, as set out in section 5:

– restricted choice in audit;
– restricted choice in related markets for non-audit work;
– a price–concentration relationship.

These issues are considered briefly below, followed by a discussion of whether the economics of market entry would change following the exit of a Big Four firm (potentially mitigating the increase in market concentration). First, there is a specific short-term problem of the transition from the Big Four to the Big Three, and the impact of this transition on investor confidence.

#### Transitional issues

The impact on investor confidence of the exit of a major audit firm would depend to a great extent on the nature of the circumstances leading to that exit, and it is impossible to generalise quantifiable impacts such as increased risk premia or decreased liquidity in capital markets. However, investors were quite specific in stating that the lack of audited accounts in

[96] Typically, this is understood to mean the dissolution of one of the Big Four firms, in similar circumstances to that of Arthur Andersen.

the event of a Big Four firm exit would be a significant concern. In a typical scenario, if an investor already had any concern whatsoever about a company's financial state, the lack of audited statements would be a sufficient marginal incentive to sell the shares. For other companies (ie, those where no concerns exist regarding financials), one year of unaudited financial statements would not raise serious concerns, but two years of accounts without an auditor would create a serious problem. In this scenario, company directors would be in a difficult position, since they would be at risk of failing to discharge properly their obligations under Company Law, which requires audited financial statements.

### Medium-term problems

Evidence from the interviews, survey and Oxera's econometric analysis indicates that a further increase in concentration would in the first instance compound all the existing issues in the large company audit market. Therefore, the full analysis of these market dynamics is not replicated here, partly to avoid repetition, and because the impact of the loss of a Big Four firm on the market is sensitive to the circumstances in which the loss occurs.

The interviews highlight, however, some effects of a four-to-three scenario generally regarded as specific to that scenario (ie, not necessarily applicable to the current situation). Two such medium-term effects are briefly examined below:

– a problem for high-risk companies in finding a suitable auditor;
– a need for companies and audit firms to request exceptional treatment from regulators to avoid contravening auditor independence rules.

First, one Big Four firm told Oxera that in a repeat of the Arthur Andersen case the remaining Big Three firms would 'think hard' about staying in audit. Similarly, other interviewees commented that the Big Three would only take the 'high quality' clients of the failing firm, and might go even further by disengaging from some their existing higher-risk clients. For the remaining firms, interviewees commented that the situation would present 'a risk management nightmare'. The remaining firms would be cautious (and overloaded with work) in terms of the risk management process they use to assess potential new clients. Additionally, transferring the failed firm's staff to a new employer would take considerable time, and until this process was well under way, the remaining three firms would be capacity-constrained.

In this situation, a number of high-risk companies could find themselves without access to an auditor (or at least to a Big Three auditor). It would be precisely these firms for which investors would want a Big Three audit and a smooth continuation of any audit service (an 'adverse selection' problem common in the insurance industry). Hence, there is some reason to believe that certain companies would be without an auditor for a period of more than one year.

Second, four-to-three is different from five-to-four because of the ability of the remaining firms to pick up the work, given the heightened conflict of interest issues. Several interviewees noted that the largest companies would require regular waivers from the SEC regarding auditor independence rules, having been forced to switch to an alternative firm following the loss of their current audit firm. Indeed, in the short term following the loss of a Big Four firm, auditor independence rules could be unworkable for some companies. Additionally, investors and companies alike expressed concerns that a Big Three market would lead to further problems with gridlock in M&A, and cause an escalation of the existing issues in the audit market around choice, barriers to switching and price.

### Possible impact on price and choice

One aspect of the four-to-three scenario is the relationship between concentration and audit fees. To illustrate the possible order of magnitude of the price effect of losing one of the Big Four firms, Oxera considered the potential impact of the hypothetical exit of one Big Four firm from the market, following the same logic and econometric results as set out in section 5.2.

The results below assume, perhaps unrealistically, that the current market dynamics would not change substantially in the event of the exit of one of the Big Four firms.

– This hypothetical scenario would increase the HHI from 2,561 (2004 figure), to 3,405 for the market as a whole. In percentage terms, this is an increase in the HHI of 33.0%. (For individual sectors this might be different; the example here is to illustrate the order of magnitude of the overall effect.) The coefficient of 0.164 (specification III in Table 5.4) means that the resulting price increase is 5.4% (0.164 times 33.0%) from one year to the next. This is the effect of concentration on price.

– Furthermore, there is a 'unilateral effect' on price, driven by the increase in market share of the remaining firms. Following the exit of one Big Four firm, the remaining three would see an increase in their market shares (assuming the exiting firm's audit fees are distributed among the Big Three in proportion to their old market shares). The coefficient for auditor market share of 0.051 (specification III) implies that there would be an additional 'unilateral' price increase of 1 to 2% after the exit of one Big Four firm.

– In all, Oxera's model indicates that the four-to-three scenario could, under the stated assumptions (ie, that the current market dynamics carry over into a Big Three market), lead to a structural (one-off) price increase of around 7%: 5.4% for the market as a whole, and around 1–2% for the clients of each of the remaining Big Three firms.

Another key aspect of the long-term issues is choice and the feasibility of companies switching from one audit firm to another. Given the existing problem of choice for certain large companies in complex sectors (particularly financial services), the exit of one Big Four firm could only increase the number of FTSE 100 companies in this situation, further reducing long-term switching rates (even if, in the short term, switching would increase as a result of the market exit). Indeed, the analysis in section 6.3 would suggest that, while prospects for market entry (which would mitigate concerns about choice) might improve in parts of the FTSE 250, most companies in the FTSE 100 would be likely to face a choice of three audit firms or fewer.

As interviewees commented, four-to-three is different from five-to-four because it is much more difficult for the remaining three to pick up work from the failed firm than it was after the dissolution of Arthur Andersen. Conflict of interest problems and compatibility with the auditor independence provisions of the Sarbanes Oxley Act would severely limit the ability of the remaining Big Three to immediately step into the role of auditor for clients to whom they already provide non-audit services.

A similar choice problem could arise in transaction services, since in the scenario of only three major audit firms interviewees generally believed that gridlock could occur—there would simply not be sufficient accounting advisors to go around in complex international transactions.

### Possible impact on entry by mid-tier firms

The static assumption that the four-to-three scenario would lead to a market structure permanently dominated by the major audit firms must be tested. The analysis of this point is in two parts:

– qualitative evidence from the interviews on whether mid-tier firms would become a viable option in the event of the four-to-three scenario;

– an exploratory analysis based on Oxera's market entry model considering whether the barriers to entry for mid-tier firms would be sufficiently reduced in the four-to-three scenario to permit successful market entry.

Qualitative evidence from the interviews suggests that for a typical FTSE 100 company, the mid-tier firms, even if merged or expanded to some extent, would not be perceived as viable

alternatives in the event of the loss of a Big Four firm. Interviewees commented that mid-tier firms would not be able to provide the right service to large international companies—as at least some of the larger companies would require the strong international networks and capacity that only the Big Three would have (in line with the analysis in section 3.2).

A typical view was that a viable entrant would require global presence and resources equivalent to those of a Big Four firm. Furthermore, such a firm would need to establish a reputation and track record with FTSE 100 clients before being considered as an alternative—'getting a mid-tier firm up to the right level would take forever', as one interviewee commented. Thus the 'chicken and egg' problem would remain of how to find the first set of FTSE 100 clients who would take the initial step of switching to a mid-tier firm before that mid-tier firm becomes established with a sufficiently high reputation to be generally acceptable to FTSE 100 audit committee chairs.

This view was shared by some interviewees at Big Four firms, who commented that it would be very hard for a mid-tier firm to substitute for a Big Four firm in the four-to-three scenario, at least in the short term. In addition, if the remaining Big Three were shedding their more risky clients, these are not the clients that a mid-tier firm expanding into the large company market would want, as it would leave the firm with a comparatively risky large company portfolio. Even if a mid-tier firm had access to risk capital, this would not, in the view of one Big Four partner, facilitate real market entry in the event of a Big Three market.

Investors generally commented that their sentiment towards the mid-tier firms would not change substantially following the loss of one of the Big Four firms, although some expressed the opposite view, and felt strongly that the investment community as a whole would have to re-address the structure of the audit market in the event of a further increase in concentration. However, investors' concerns about four-to-three were typically directed towards the potential for some companies to find it hard to find an auditor in the short term, rather than the long-term consequences of an increase in market concentration.

For the reasons set out above, the short-term fall-out from the loss of one of the Big Four would be increased market concentration. The remaining Big Three would be expected to have a market share similar to that of the Big Four, particularly in the large public company market. As noted above, the results of the econometric analysis suggest that this increased concentration would result in higher audit fees.

However, if the additional concentration in the market helped to persuade the decision-makers that they should actually be more willing to consider a mid-tier firm, the impact on the economics of entry might actually improve. In particular:

– the general perceived credibility of the mid-tier firms might counteract the reduction in switching as a result of companies thinking they had 'no choice', and even lead to an overall increase in switching due to improved choice;

– once in the tender, the number of Big Three competitors facing the mid-tier firm would be lower. All other things being equal, this should increase the probability of a mid-tier firm being successful;

– the achievable rate of acquisition of new, larger, companies as audit clients could actually increase. Because the time taken to reach a critical mass of new, larger, clients is a significant factor in the economics of entry, this would improve the economics of entry (and thus encourage new entrants);

– at least in the short term there may be more appropriately skilled labour available to underpin any expansion by the mid-tier firms. This would also potentially improve the success rate of mid-tier firms in audit tenders for larger companies, since an ex-Big Four audit team joining a mid-tier firm could bring relationships and perceived reputation across.

If these factors were significant the overall impact on the entry scenarios set out above would be to shorten the investment period and to increase the probability of success of the expansion venture.[97] In the entry phase (step 1), as set out in Table 6.14, the project would tend to move towards the top right-hand corner of the table, into a region of more attractive (but still not necessarily sufficient) rates of return.

**Table 6.14 IRR (%) sensitivity to assumptions on investment period, FTSE 250 foothold (step 1)**

| | Probability of success (%) = (1 – probability of downside scenario) | | | | |
|---|---|---|---|---|---|
| Investment period (years) | 30 | 40 | 50 | 60 | 70 |
| 6 | –3.2 | 0.0 | 2.7 | 5.2 | 7.4 |
| 8 | –7.2 | –4.1 | –1.6 | | 2.7 |
| 10 | –10.8 | –7.8 | **–5.2** | –3.0 | –1.0 |
| 12 | –14.9 | –11.5 | –8.9 | –6.6 | –4.5 |
| 14 | –20.1 | –16.2 | –13.1 | –10.6 | –8.4 |

Source: Oxera calculations based on the interviews.

Thus if the perception barrier were reduced, and tendering and switching rates increased, the probability of success in step 1 would improve. This means that mid-tier firms could find it more attractive to make a strategic investment choice to enter the FTSE 250 market with the aim of becoming a substantial competitor to the Big Four across all potential clients (including complex sectors such as financial services and international companies).

The reputation of a market entrant would, however, have to develop over time, according to the analysis of Oxera's entry model and interviews with audit committee chairs. The entrant would therefore still initially face perception barriers to expansion into the FTSE 100, as reputation is built through the process of expansion and then consolidation in each segment. This implies that, even with success in step 1, it would take 10–20 years (even assuming an increase in switching rates) for the mid-tier firm to become a significant competitive constraint to the Big Four across most of their FTSE 100 clients.

## 6.5 Summary

### Market dynamics going forward—key findings

Oxera's assessment of market dynamics going forward has focused on the following:

- an appraisal of immediate entry by a mid-tier firm into the large company audit market;
- a similar business case analysis of a stepwise expansion by a mid-tier firm culminating in winning FTSE 100 clients;
- a discussion of the potential causes and consequences of the collapse of one of the Big Four firms.

#### Entry model

In general, a UK firm faces a coordination problem in taking a decision to make a large investment for market entry—similar investments might be required by other firms in the international network, and the decision must suit the interest of partners in non-audit parts of the firm, as well as in audit.

The overall results of Oxera's entry model indicate that, in general, substantial entry into the audit market for large companies in the UK to become a challenger to the Big Four does not seem to be economic as a pure financial investment exercise.

[97] Any increase in audit fees due to higher concentration would also make the case for entry more positive.

The result of Oxera's analysis is that, while operating in the FTSE 100 and FTSE 250 segments can in principle be profitable, the initial expansion in the short term (beyond a small number of clients) is problematic due to significant barriers to entry, which raise the cost of market entry. The most important barriers, in order of importance, are the need:

- to acquire a credible reputation with FTSE 100 and FTSE 250 companies and their investors, thereby overcoming the perception bias (a long-term process involving gaining a 'critical mass' of large audit clients);
- for an extensive, and integrated international network (again, likely to be a long-term process, due to coordination problems);
- for substantial resources and expertise (eg, an audit partner with FTSE 100 experience) to audit large, complex, international companies.

In the model, these entry barriers are reflected in:

- significant investment required for market entry;
- a long investment horizon;
- a long payback period to any potential investment;
- significant business risks when competing against incumbents.

An additional barrier to entry is presented by the nature of the partnership structure, which renders the investment unattractive to some of the existing partners even if it is attractive to other partners. Crucially, low tendering and switching rates, as well as significant uncertainties concerning the size of the required initial investment, seem likely to result in an unattractive risk-to-reward trade-off. Building a credible reputation via acquisition of larger clients is difficult, given the low frequency of tendering.

### The four-to-three scenario

The loss of a Big Four firm would most likely be precipitated by the start of a civil or criminal prosecution for professional misconduct, causing a loss of credible reputation—ie, not by merger, as any further mergers are generally expected to be blocked by the competition authorities. In the transition period, unaudited statements would cause a crisis of confidence only for 'high risk' companies. In the medium term, the major effects of a four-to-three scenario would be to compound existing market dynamics:

- further problems around auditor choice, requiring regulators to make exceptions to auditor independence rules, and causing gridlock in complex transactions. Given the existing problem of choice for certain large companies in complex sectors (particularly financial services), the exit of one Big Four firm could only increase the number of firms in this situation, further reducing long-term switching rates;
- probable increases in price, due to increased costs of liability insurance and the increment to market concentration. A simulation of the (purely illustrative) exit of KPMG from the market indicates that prices could rise by around 7% in real terms;
- a loss of investor confidence in the effective operation of the audit market. A lack of audited accounts in the event of a Big Four firm exit would be a significant concern for investors. In a typical scenario, if an investor already had any concern whatsoever about a company's financial state, the lack of audited statements would be a sufficient marginal incentive to sell the shares.

Evidence from the interviews suggests that market entry by a mid-tier firm to become a major challenger to the remaining large audit firms in the event of the four-to-three scenario is unlikely. Further analysis based on the market entry model indicates that only if existing barriers to entry in terms of perception/reputation could be reduced, and increased tendering and switching took place, might substantial market entry become feasible.

# 7 Concluding comments

### 7.1.1 Dynamics of the audit market

Certain features of the nature of the audit product and the mechanism for auditor selection lead to the following effects.

– Difficulties in assessing audit quality result in a high dependence on the reputation of an audit firm in the process of auditor selection.

– The institutional incentives for an audit committee tend to limit the role of price as a determinant of auditor choice, emphasising the importance of reputation and the 'IBM effect'.

– The learning curve for a new auditor and associated switching costs, together with the difficulty in assessing the quality of alternatives to the incumbent auditor, lead to low switching rates and thus inertia in the market structure.

– The importance of the value-added and insurance components of the audit product imply that an auditor with a long-term client relationship can potentially deliver a better audit product to the client, further decreasing the motivation to switch.

In short, low switching rates and the significant role of reputation are expected outcomes from the nature of the audit product and the process of auditor selection. These outcomes occur to some extent independently of the level of market concentration; however, a high level of market concentration can potentially further reduce switching, and intensify market inertia, as set out in the report.

### 7.1.2 Nature of competition

Market concentration, auditor independence rules and the strategic incentives for audit firms have led to a restriction on the effective choice of auditor for a limited number of companies, at least in the short term. The study has also found evidence that audit fees have increased in recent years. In part, this may be due to corresponding cost increases in auditing, but there are also indications that concentration in the market has led to higher prices.

The limitation of choice, and the impact of this on competition, is not uniform across the audit market. Indeed, there is a problem of choice associated with the largest, most complex (to audit) multinational companies, but many companies in the FTSE 100, and certainly the FTSE 250, have an effective choice of three or more audit firms. For a minority of large listed companies, the lack of choice is expected to affect the bargaining process between the client and its auditor, such that the audit firm faces less constraint on its pricing behaviour.

A separate issue exists in the smaller listed company market segment (ie, outside the FTSE 350). Here it is unclear why, when the larger mid-tier firms are accepted for their technical ability, a greater number of non-multinational companies do not switch to a mid-tier firm, given the existing price differentials. Only for AIM companies do the Big Four firms have limited market shares.

The role of reputation—in particular, the perception of audit committee chairs that investors prefer a Big Four firm—appears to have led to a barrier to entry for mid-tier firms that is not necessarily associated with any differences in technical ability between the mid-tier and the Big Four.

### 7.1.3 Dynamics of market entry

In the short to medium term, it is difficult to see any substantial entry occurring into the FTSE 100 market segment. The economics of providing audit services and the slow turnover of audit supplier mean that firms find it hard to expand quickly into new market segments, including auditing companies of a significantly larger size than their current clients. In the absence of external shocks or changes in perceptions, therefore, the current market environment is likely to persist.

In the event of a Big Three market, there are two likely effects:

– a transitional problem of unaudited financial statements, which may then have a significant impact on investor confidence in the probable scenario that (some) 'high risk' companies find it hard to switch to a new auditor quickly;

– a long-term exacerbation of the existing market dynamics, with further restrictions on choice in audit and non-audit services, some increase in prices, and some systemic risk through damage to investor confidence in the effective operation of the audit market. Market entry by mid-tier firms might become commercially more attractive, but only if existing barriers to entry in terms of perception/reputation and low switching rates could be reduced.

### 7.1.4 Broader policy context

In relation to the policy issues that are topical in the audit market, this research has highlighted that:

– competition is not working as well as it would with a greater number of competitors in the markets for auditing FTSE 100 and FTSE 250 companies;

– in every group Oxera interviewed, the near 100% combined market share of the Big Four in auditing FTSE 350 companies is not regarded as healthy for competition or choice;

– substantial entry or expansion by the mid-tier firms into auditing of large companies does not seem economical under current market conditions;

– for some companies, the lack of choice has resulted in a certain degree of power for the audit firm in the bargaining process, and an inability to change auditor;

– for these same companies, the potential for gridlock in M&A advice due to lack of choice is an additional concern;

– some investors and other market participants interviewed by Oxera expressed their concern that the Big Four firms have an important role in shaping the definition and delivery of the audit product to suit themselves, rather than the client(s) of the audit product.

Oxera's findings need to be seen in the wider policy context of the audit market. This report has not examined in detail the role of auditor liability, nor attempted to assess the level of quality delivered in the audit market or of competition in auditing at the global level. This report provides analysis of competition and choice in the audit market, but is not intended to set out policy recommendations.

The conclusions drawn from this study should therefore be set in the context of the wider policy context, since in any market where regulation plays a significant role, the operation of competition cannot be seen to deliver market outcomes independently of the wider regulatory environment.

# Appendix 1 Audit committee chairs survey

## A1.1 Overview

The survey of 50 audit committee chairs was designed by Oxera and carried out by market research agency, MORI, by means of telephone interview between October 2005 and January 2006. This appendix presents the full text of the survey (section A1.2), as well as tables summarising the headline results for each survey question (section A1.3).

The survey contained 21 questions on current auditor; factors determining the choice of auditor; influence of other stakeholders; switching and tendering; and Big Four versus mid-tier auditors. The breakdown of the size and sector distribution of the 50 respondents is presented below. The aim was to obtain a large proportion of responses from FTSE 350 companies, as well as a good spread across sectors. This aim has been achieved.

**Size and sector distribution of the survey sample**

| | No. of respondents | % of respondents |
|---|---|---|
| **Size** | | |
| FTSE 100 | 9 | 18 |
| FTSE 250 | 23 | 46 |
| FTSE Small Cap | 18 | 36 |
| **Total** | **50** | **100** |
| **Sector** | | |
| Aerospace | 2 | 4 |
| Asset managers | 1 | 2 |
| Auto parts | 1 | 2 |
| Banks | 1 | 2 |
| Beverages, brewers | 1 | 2 |
| Biotechnology | 1 | 2 |
| Business support services | 3 | 6 |
| Chemicals, speciality | 1 | 2 |
| Construction | 5 | 10 |
| Defence | 2 | 4 |
| Electricity, gas and water supply | 1 | 2 |
| Electronic equipment | 3 | 6 |
| Engineering, general | 2 | 4 |
| Fixed-line telecommunication services | 3 | 6 |
| Food processors | 1 | 2 |
| Insurance | 3 | 6 |
| Investment companies (eligible for inclusion in FTSE) | 3 | 6 |
| Media agencies | 1 | 2 |
| Oil and gas, exploration and production, and services | 3 | 6 |
| Operators of restaurants and pubs | 1 | 2 |
| Property agencies | 1 | 2 |
| Publishing and printing | 1 | 2 |
| Rail, road and freight | 1 | 2 |
| Real estate holding and development | 5 | 10 |
| Retailers | 2 | 4 |
| Shipping and ports | 1 | 2 |
| **Total** | **50** | **100** |

Source: Audit committee chairs survey.

## A1.2 Full text of the questionnaire

'Hello, my name is _____ and I'm calling from MORI regarding the DTI and FRC study into competition in the UK audit market. You should have received a letter about this study, which Oxera is conducting on behalf of the DTI and FRC to help government and regulators gain a better understanding of the view of audit committee chairs regarding audit market competition and choice.

Can I first confirm that you chair the audit committee at _____ plc? [*If no, ask interviewee's position and try to find out the correct name for the audit committee chair*]

Your opinions are very important for the research. The interview should take approximately 10 minutes. The questions will be about your company's choice of auditor and related subjects.

I'd like to assure you that your participation is voluntary and that any information you provide will be used only for the indicated purposes in conformity with the 1998 Data Protection Act. Your participation in this study will not be made public. Your name will be supplied only to Oxera, which will not use your name to identify individual answers in the published study, nor to identify your answers to the DTI or FRC.

Only grouped responses will be presented in the report prepared from this study. You will receive a complimentary copy of the report, which is due to be published in spring 2006.

Is now a good time to proceed with the interview? [*If no, ask to schedule a callback at a more convenient time. If individual does not wish to participate at any time, thank them for their time and terminate the call*.]

My first questions are about your company's current accounting firm.'

### BACKGROUND QUESTIONS

**Q1 Can you tell me which accounting firm or firms your company has used for audit and other accounting services over the last 12 months?**
[*Prompt for audit, tax advice, corporate finance, consulting/advisory. Tick as appropriate.*]

| Accounting firm | Audit | Tax advice | Corporate finance | Consulting/advisory (eg, IT consultancy) |
|---|---|---|---|---|
| PricewaterhouseCoopers | | | | |
| Deloitte | | | | |
| KPMG | | | | |
| Ernst & Young | | | | |
| Grant Thornton | | | | |
| BDO | | | | |
| Baker Tilly | | | | |
| Smith & Williamson | | | | |
| PKF | | | | |
| Tenon Group | | | | |
| RSM Robson Rhodes | | | | |
| Moore Stephens | | | | |
| Mazars | | | | |
| Other (please specify) | | | | |
| Don't know | | | | |
| Refused | | | | |

**Q2 Approximately how frequently has your company held a tender or similar process to select an auditor in the last ten years?** [*Read out and code. Single code only.*]

- Every year
- Once every two years
- Once every three years
- Once every four years
- Once every five years
- Less often
- Don't know

## DETERMINANTS OF THE CHOICE OF AUDITOR

**Q3 What are the *three* most important factors influencing your company's choice of auditor?**
[*Unprompted. Multicode up to three*.]

- Auditor is one of the Big Four accounting firms
- Technical accounting skill
- Sector-specific expertise
- International coverage
- Management preference for specific auditor
- Long-term relationship with current auditor
- Reputation of audit firm with investors
- Reputation of audit firm with corporate broker
- Reputation of audit firm with other external advisers (please name)
- Other (please specify)

**Q4 On a scale of 1 to 5, where 5 is essential and 1 is irrelevant, how do you rate these three factors? And how would you rate the following additional factors?**
[*Read out the three items mentioned at Q3, followed by the remaining factors. Ask respondent to rate on a scale of 1–5*.]

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Auditor is one of the Big Four accounting firms | | | | | |
| Technical accounting skill | | | | | |
| Sector-specific expertise | | | | | |
| International coverage | | | | | |
| Management preference for specific auditor | | | | | |
| Long-term relationship with current auditor | | | | | |
| Reputation of audit firm with investors | | | | | |
| Reputation of audit firm with corporate broker | | | | | |
| Reputation of audit firm with other external advisers (please name) | | | | | |
| Other (please specify) | | | | | |

**Q5 Does your company have a policy of changing auditors after a set period (eg, 3 or 5 years)?**

- Yes, ..... number of years
- No
- Don't know

**Q6 How likely is it that any of the following scenarios would lead you to consider changing your company's current auditor?**
[*Read out. Rotate start. Single code only for each statement. Scale: very likely, fairly likely, neither likely nor unlikely, fairly unlikely, very unlikely, and don't know*. ]

- A breakdown in the working relationship between auditor and management
- A fault with the quality of the audit opinion
- A disagreement with the auditor over the interpretation of accounting standards
- A substantial increase in the audit fee (eg, 15% or above)
- Your company's auditor starts auditing one of your company's main competitors

**Q7 How significant are the following factors in discouraging you from changing your company's auditor?**
[*Read out all items and rate on a scale of 1 to 5, where 1 is not at all significant and 5 is very significant*.]

- Management time required
- Audit committee time required
- A new assessment of your company's internal controls required
- Possible negative signal to shareholders of changing auditor
- Company would have to change the supplier of related services such as tax or corporate finance

**Q8 How important are the views of the following stakeholders when choosing an auditor?**
[*Rate on a scale of 1–5, where 5 is very important, 1 not at all important. Single code for each stakeholder*.]

- Finance director
- Chief executive

- Chairman
- Major shareholders
- Credit rating agencies
- Your company's lawyers
- Your company's corporate broker
- Your company's bankers

## Competition between accounting firms in audit services

'Audit firms are commonly divided into the Big Four firms (PricewaterhouseCoopers, Deloitte, KPMG, Ernst & Young) and mid-tier firms such as Grant Thornton, BDO Stoy Hayward, and Baker Tilly.

The following questions are about the dimensions of your choice between a Big Four firm and a mid-tier firm.'

[Ask all.]

**Q9 For each of the following firms I read out, please tell me how well you feel you know each one.**
[*Single code only for each company. Read out and rotate start. Scale: know very well/know a fair amount/know a little/heard of but know nothing about/never heard of/don't know.*]

- PricewaterhouseCoopers
- Deloitte
- KPMG
- Ernst & Young
- Grant Thornton
- BDO
- Baker Tilly
- Smith & Williamson
- PKF
- Tenon Group
- RSM Robson Rhodes
- Moore Stephens
- Mazars

[Ask all.]

**Q10 Thinking about all of the accounting firms you say that you have heard of, which would you consider to be reasonable substitutes for your current auditor, notwithstanding potential conflicts of interest?**
[*Unprompted, please tick off response against list below.*]

- PricewaterhouseCoopers
- Deloitte
- KPMG
- Ernst & Young
- Grant Thornton
- BDO
- Baker Tilly
- Smith & Williamson
- PKF
- Tenon Group
- RSM Robson Rhodes
- Moore Stephens
- Mazars
- Other (please specify)
- Don't know
- Refused

**Q11 How many of the firms you mentioned just now are effectively conflicted out from providing audit services to your company?**

- More than four
- Four

- Three
- Two
- One
- None

**Q12 How likely are you to consider a mid-tier accounting firm for your company's audit?**

- Very likely
- Fairly likely
- Neither likely nor unlikely
- Fairly unlikely
- Very unlikely
- Don't know

[*Ask all who are 'neither likely nor unlikely', 'fairly unlikely', or 'very unlikely' at Q12. Others go to Q15.*]

**Q13 For what reason(s) would you *not* consider a mid-tier accounting firm for your company's audit?**
[*Unprompted.*]

Shortcomings of the mid-tier firms in terms of…

- technical skill
- knowledge of the relevant industry
- reputation or name recognition of the accounting firm
- credibility with relevant stakeholders in the event of an audit problem
- price
- international coverage
- ability to work with the company's management
- other (please specify)

**Q14 Approximately what size of reduction in the audit fee would persuade you to consider a mid-tier accounting firm for your company's audit?**
[*Prompted.*]

- Up to 10%
- 11–20%
- 21–30%
- 31–40%
- 41–50%
- 51–60%
- 61–70%
- More than 70%
  ..... %
- I would not consider a mid-tier firm at any price

[Ask all.]

**Q15 Outside of the Big Four firms, which accounting firms do you think are technically capable of providing your company's audit?**

- Grant Thornton
- BDO
- Baker Tilly
- Smith & Williamson
- PKF
- Tenon Group
- RSM Robson Rhodes
- Moore Stephens
- Mazars
- Other (please specify)
- None
- Don't know

[Ask all.]

**Q16 Do you think there would be any significant differences in the quality of the audit provided by mid-tier firms compared with the Big Four?**
[*Prompt, read out.]*

- Yes, the Big Four are always higher quality
- No, mid-tier firm(s) are of comparable quality
- Other, mid-tier firms can be of higher quality
- Don't know

## MARKET DYNAMICS

[*Ask all who code A–D at Q1.*]

**Q17 How likely would you be to consider a mid-tier accounting firm if:**

[*Prompt for options A and B*]

(A) your company's audit firm went out of business
(B) another Big Four firm went out of business

- Very likely
- Fairly likely
- Not very likely
- Not at all likely
- Don't know

**Q18 For each of the following statements I read out, please tell me how important you think each factor or development is in making mid-tier accounting firms a realistic alternative to a Big Four firm for the provision of audit services to your company?**
[*Read out each statement. Scale: very important, fairly important, not very important, not at all important, don't know*.]

A mid-tier firm with…
- technical auditing ability equivalent to a Big Four firm
- international coverage equivalent to a Big Four firm
- reputation among major shareholders equivalent to a Big Four firm
- reputation among company advisers (such as the corporate broker) equivalent to a Big Four firm

**Q19 Which of the following hypothetical audit firms would represent a serious alternative to a Big Four firm for your company's audit?** [*Prompted.*]

- A firm formed from a merger of several mid-tier firms to create an accounting firm of comparable size to the Big Four
- A well-established financial services company with a new auditing subsidiary
- A new entrant to the auditing market engaged purely in audit, with ex-Big Four staff
- Other (please specify)
- None

**Q20 Which of the following factors would effectively exclude an accounting firm other than your current auditor from providing audit services to your company?**

- It already provides consulting services to my company
- It already provides tax advice to my company
- It already provides corporate finance advice to my company
- It already audits one of my company's main competitors
- None of these

**Q21 To what extent do you agree or disagree with the following statement:**

'Currently, there is enough choice of alternative auditors in the market for my company to choose from.'

- Strongly agree
- Tend to agree

- Neither agree nor disagree
- Tend to disagree
- Strongly disagree
- Don't know

## A1.3 Summary of the responses by question

Tables A1.1 to A1.21 summarise the responses of the audit committee chairs to the 21 questions contained in the survey.

### Table A1.1 Which firm(s) has your company used for audit and other accounting services over the last 12 months? (number of respondents)

| | Audit | Tax advice | Corporate finance | Consulting/advisory (eg, IT consultancy) |
|---|---|---|---|---|
| **Big Four** | | | | |
| PwC | 16 | 15 | 7 | 5 |
| Deloitte | 14 | 13 | 7 | 5 |
| Ernst & Young | 12 | 16 | 7 | 6 |
| KPMG | 11 | 16 | 13 | 6 |
| **Mid-tier firms** | | | | |
| BDO | 1 | 0 | 0 | 0 |
| Tenon Group | 1 | 1 | 0 | 1 |
| Grant Thornton | 0 | 0 | 2 | 1 |
| Baker Tilly | 0 | 1 | 0 | 0 |
| **Other responses** | | | | |
| None | 0 | 0 | 15 | 22 |
| Other (non-accounting) firms | 0 | 3 | 9 | 3 |
| Don't know | 0 | 1 | 1 | 6 |
| Refused | 0 | 0 | 0 | 2 |

Base: 50 respondents.
Notes: Five companies mentioned two different firms under audit services; hence the total sums to 55. This related mostly to external and internal audit services, and, in the case of one insurance company, to audit services for a number of separate syndicates.
Source: Q1: Which accounting firm or firms has your company used for audit and other accounting services over the last 12 months?, audit committee chairs survey.

### Table A1.2 Frequency of tendering

| | No. of respondents | % of respondents |
|---|---|---|
| Once every two years or less | 0 | 0 |
| Once every three years | 9 | 18 |
| Once every four years | 2 | 4 |
| Once every five years | 10 | 20 |
| Less often | 26 | 52 |
| Don't know | 3 | 6 |
| **Total number of respondents** | **50** | **100** |

Source: Q2: Approximately how frequently has your company held a tender or similar process to select an auditor in the last ten years?, audit committee chairs survey.

## Table A1.3 Most important factors influencing choice of auditor (unprompted answers)

| | No. of respondents | % of respondents |
|---|---|---|
| Auditor is one of the Big Four accounting firms | 29 | 58 |
| Sector-specific expertise | 28 | 56 |
| International coverage | 23 | 46 |
| Technical accounting skill | 20 | 40 |
| Cost/price | 9 | 18 |
| Long-term relationship with current auditor | 5 | 10 |
| Quality of audit team | 5 | 10 |
| Reputation of audit firm with investors | 3 | 6 |
| Lack of conflict | 2 | 4 |
| Management preference for specific auditor | 1 | 2 |
| Reputation of audit firm with other external advisers | 1 | 2 |
| Reputation of audit firm with corporate broker | 1 | 2 |
| Other | 6 | 14 |
| of which: | | |
| General reputation | 1 | |
| In-depth professional back-up | 1 | |
| Professional competence | 1 | |
| Speed of advice | 1 | |
| Integrity | 1 | |
| Don't know | 1 | |

Base: 50 respondents.
Source: Q3: What are the three most important factors influencing your company's choice of auditor?, audit committee chairs survey.

### Table A1.4 Importance attached to most important factors influencing auditor selection by audit committee chairs (number of respondents) (prompted answers)

| | 5 (essential) | 4 | 3 | 2 | 1 (irrelevant) | Don't know | Sample mean |
|---|---|---|---|---|---|---|---|
| Technical accounting skill | 41 | 9 | 0 | 0 | 0 | 0 | 4.8 |
| Reputation of audit firm with investors | 20 | 16 | 11 | 1 | 2 | 0 | 4.0 |
| Sector-specific expertise | 17 | 16 | 13 | 3 | 1 | 0 | 3.9 |
| Auditor is one of the Big Four accounting firms | 18 | 13 | 11 | 5 | 3 | 0 | 3.8 |
| International coverage | 21 | 9 | 8 | 4 | 7 | 1 | 3.7 |
| Reputation of audit firm with other external advisers | 5 | 15 | 15 | 9 | 6 | 0 | 3.1 |
| Reputation of audit firm with corporate broker | 4 | 13 | 14 | 11 | 8 | 0 | 2.9 |
| Long-term relationship with current auditor | 1 | 12 | 18 | 12 | 7 | 0 | 2.8 |
| Management preference for specific auditor | 0 | 5 | 15 | 9 | 21 | 0 | 2.1 |
| Cost/price | 2 | 7 | 0 | 0 | 0 | 0 | 4.0 |
| Quality of audit team | 4 | 1 | 0 | 0 | 0 | 0 | 4.8 |
| Lack of conflict | 2 | 0 | 0 | 0 | 0 | 0 | 5.0 |
| Other | 5 | 0 | 0 | 0 | 0 | 0 | 5.0 |
| of which | | | | | | | |
| General reputation | 1 | | | | | | 5.0 |
| In-depth professional back-up | 1 | | | | | | 5.0 |
| Professional competence | 1 | | | | | | 5.0 |
| Speed of advice | 1 | | | | | | 5.0 |
| Integrity | 1 | | | | | | 5.0 |

Base: 50 respondents.
Source: Q4: On a scale of 1 to 5, where 5 is essential and 1 is irrelevant, how do you rate the three most important factors for choosing auditors? How would you rate other additional factors?, audit committee chairs survey.

### Table A1.5 Does your company have a policy of changing auditors after a set period?

| | No. of respondents | % of respondents |
|---|---|---|
| No | 46 | 92 |
| Yes | 4 | 8 |
| Every five years | 3 | |
| Less than every five years | 1 | |
| **Total** | **50** | **100** |

Source: Q5: Does your company have a policy of changing auditors after a set period (eg, 3 or 5 years)?, audit committee chairs survey.

### Table A1.6 Importance attached to factors triggering switching by audit committee chairs (prompted answers) (number of respondents)

| | Very likely | Fairly likely | Neither likely nor unlikely | Fairly unlikely | Very unlikely | Don't know | Sample mean |
|---|---|---|---|---|---|---|---|
| A fault with the quality of the audit opinion | 26 | 15 | 4 | 1 | 1 | 3 | 4.4 |
| A breakdown in the working relationship between auditor and management | 20 | 23 | 5 | 1 | 1 | 0 | 4.2 |
| A substantial increase in the audit fee (eg, 15% or above) | 7 | 20 | 12 | 8 | 3 | 0 | 3.4 |
| Your company's auditor starts auditing one of your company's main competitors | 3 | 7 | 15 | 11 | 13 | 1 | 2.5 |
| A disagreement with the auditor over the interpretation of accounting standards | 0 | 7 | 21 | 12 | 10 | 0 | 2.5 |

Base: 50 respondents.
Source: Q6: How likely is it that any of the following scenarios would lead you to consider changing your company's current auditor?, Audit committee chairs survey.

### Table A1.7 Factors discouraging companies from switching (number of respondents)

| | 5 (very significant) | 4 | 3 | 2 | 1 (not significant at all) | Don't know | Sample mean |
|---|---|---|---|---|---|---|---|
| Management time required | 2 | 10 | 19 | 12 | 7 | 0 | 2.8 |
| A new assessment of your company's internal controls required | 1 | 5 | 18 | 10 | 15 | 1 | 2.4 |
| Possible negative signal to shareholders of changing auditors | 3 | 1 | 9 | 16 | 21 | 0 | 2.0 |
| Audit committee time required | 0 | 3 | 11 | 16 | 20 | 0 | 2.0 |
| Company would have to change the supplier of related services such as tax or corporate finance | 1 | 1 | 9 | 20 | 18 | 1 | 1.9 |

Base: 50 respondents.
Source: Q7: How significant or not, are each, if any, of the following factors in discouraging you from changing your company's auditor?, audit committee chairs survey.

## Table A1.8 Importance attached to stakeholders' opinions by audit committee chairs in audit selection (number of respondents)

| | 5 (very important) | 4 | 3 | 2 | 1 (not at all important) | Don't know | Sample mean |
|---|---|---|---|---|---|---|---|
| Finance director | 23 | 23 | 3 | 1 | 0 | 0 | 4.4 |
| Chairman | 16 | 19 | 12 | 2 | 1 | 0 | 3.9 |
| Chief executive | 9 | 26 | 11 | 3 | 1 | 0 | 3.8 |
| Major shareholders | 2 | 7 | 18 | 15 | 8 | 0 | 2.6 |
| Your company's bankers | 1 | 9 | 17 | 9 | 14 | 0 | 2.5 |
| Your company's corporate broker | 0 | 6 | 15 | 17 | 12 | 0 | 2.3 |
| Credit rating agencies | 2 | 6 | 10 | 16 | 15 | 1 | 2.2 |
| Your company's lawyers | 1 | 3 | 10 | 8 | 28 | 0 | 1.8 |

Base: 50 respondents
Source: Q8: How important are the views of the following stakeholders when choosing an auditor?, audit committee chairs survey.

## Table A1.9 How well do audit committee chairs know each audit firm? (prompted answers) (number of respondents)

| | Very well | Fairly well | A little | Heard of but know nothing about | Never heard of | Sample mean |
|---|---|---|---|---|---|---|
| **Big Four** | | | | | | |
| PwC | 48 | 2 | 0 | 0 | 0 | 5.0 |
| Deloitte | 45 | 4 | 1 | 0 | 0 | 4.9 |
| KPMG | 46 | 4 | 0 | 0 | 0 | 4.9 |
| Ernst & Young | 42 | 7 | 1 | 0 | 0 | 4.8 |
| **Mid-tier firms** | | | | | | |
| Grant Thornton | 19 | 14 | 10 | 7 | 0 | 3.9 |
| BDO | 10 | 15 | 17 | 8 | 0 | 3.5 |
| RSM Robson Rhodes | 8 | 11 | 21 | 10 | 0 | 3.3 |
| Baker Tilly | 6 | 9 | 16 | 17 | 2 | 3.0 |
| Moore Stephens | 4 | 4 | 22 | 17 | 3 | 2.8 |
| PKF | 9 | 1 | 23 | 7 | 10 | 2.8 |
| Mazars | 3 | 3 | 8 | 17 | 19 | 2.1 |
| Tenon Group | 3 | 2 | 7 | 22 | 16 | 2.1 |
| Smith & Williamson | 5 | 7 | 10 | 16 | 12 | 2.5 |

Base: 50 respondents
Source: Q9: For each of the following firms I read out, please tell me how well you feel you know each one, audit committee chairs survey.

**Table A1.10 Of the accounting firms you have heard of, which would you consider reasonable substitutes for your current auditor, notwithstanding potential conflicts of interest? (prompted answers)**

| | No. of respondents | Percentage of respondents who currently do not use the firm?[2] |
|---|---|---|
| **Big Four** | **43**[1] | |
| KPMG | 36 | 92 |
| Ernst & Young | 28 | 74 |
| Deloitte | 27 | 75 |
| PwC | 26 | 76 |
| **Mid-tier firms** | **14**[3] | |
| Grant Thornton | 13 | 26 |
| BDO | 10 | 20 |
| RSM Robson Rhodes | 5 | 10 |
| Baker Tilly | 5 | 10 |
| PKF | 2 | 4 |
| Moore Stephens | 1 | 2 |
| None | 2 | |
| Don't know | 1 | |
| **Total of respondents** | **50** | |

Note: [1] Number of respondents that mentioned at least one Big Four firm. [2] Proportion of audit committee chairs that mentioned the firm in Q10 but who are not currently using the firm's audit services according to the answers to Q1. [3] Number of respondents that mentioned at least one mid-tier firm.
Source: Q10: Of the accounting firms you have heard of, which would you consider reasonable substitutes for your current auditor, notwithstanding potential conflicts of interest?, audit committee chairs survey.

**Table A1.11 Firms effectively conflicted out from providing audit services**

| Number of firms conflicted out | No. of respondents | % of respondents |
|---|---|---|
| None | 40 | 80 |
| One | 3 | 6 |
| Two | 4 | 8 |
| Three or more | 0 | 0 |
| Don't know | 3 | 6 |
| **Total** | **50** | **100** |

Source: Q11: How many of the firms you mentioned just now are effectively conflicted out from providing audit services to your company?, audit committee chairs survey.

### Table A1.12 Likelihood of considering a mid-tier firm for audit purposes

| | No. of respondents | % of respondents |
|---|---|---|
| Very likely | 5 | 10 |
| Fairly likely | 5 | 10 |
| Neither likely nor unlikely | 5 | 10 |
| Fairly unlikely | 11 | 22 |
| Very unlikely | 24 | 48 |
| **Total** | **50** | **100** |

Source: Q12: How likely or unlikely are you to consider a mid-tier accounting firm for your company's audit?, audit committee chairs survey.

### Table A1.13 Reasons for not considering a mid-tier auditor (unprompted answers)

| | No. of respondents | % of respondents |
|---|---|---|
| International coverage | 21 | 53 |
| Reputation or name recognition of the accounting firm | 20 | 50 |
| Technical skill | 16 | 40 |
| Knowledge of the relevant industry | 15 | 38 |
| Credibility with relevant stakeholders in the event of an audit problem | 11 | 28 |
| Ability to work with the company's management | 3 | 8 |
| Price | 1 | 3 |
| Other | 5 | 13 |
| of which | | |
| Size/resources | 4 | 10 |
| If you are a FTSE 100 company, you have to use a Big Four audit firm | 1 | 3 |
| **Total of respondents** | **40** | **100** |

Base: 40 respondents. This question was asked to those who responded 'neither likely nor unlikely, 'fairly unlikely' or 'very unlikely' to Q12.
Source: Q13: For what reason(s) would you not consider a mid-tier accounting firm for your company's audit?, audit committee chairs survey.

### Table A1.14 What reduction, if any, in the audit fee would persuade you to consider a mid-tier accounting firm for your company's audit? (unprompted answers)

| Price reduction required | No. of respondents | % of respondents |
|---|---|---|
| Up to 10% | 0 | 0 |
| 11–20% | 1 | 3 |
| 21–30% | 1 | 3 |
| 31–40% | 1 | 3 |
| 41–50% | 0 | 0 |
| 51–60% | 0 | 0 |
| 61–70% | 0 | 0 |
| More than 70% | 0 | 0 |
| Not consider a mid-tier firm at any price | 37 | 93 |
| **Total of respondents** | **40** | **100** |

Base: 40 respondents. This question was asked to those who responded 'neither likely nor unlikely, 'fairly unlikely' or 'very unlikely' to Q12.
Source: Q14: Approximately what size of reduction, if any, in the audit fee would persuade you to consider a mid-tier accounting firm for your company's audit?, audit committee chairs survey

### Table A1.15 Which mid-tier firms do you think are technically capable of providing your company's audit? (unprompted answers)

| | No. of respondents | % of respondents |
|---|---|---|
| Firm A | 37 | 74 |
| Firm B | 29 | 58 |
| Firm C | 17 | 34 |
| Firm D | 14 | 28 |
| Firm E | 13 | 26 |
| Firm F | 6 | 12 |
| Firm G | 6 | 12 |
| Firm H | 6 | 12 |
| Firm I | 5 | 10 |
| Don't know | 6 | 12 |
| Refused | 5 | 10 |
| **Total of respondents** | **50** | **100** |

Note: These results have been anonymised.
Source: Q15: Outside of the Big Four firms, which, if any, accounting firms do you think are technically capable of providing your company's audit?, Audit Committee Chairs survey.

### Table A1.16 Do you think there would be any significant differences in the quality of the audit provided by mid-tier firms compared with the Big Four?

| | No. of respondents | % of respondents |
|---|---|---|
| Yes, the Big Four are always higher quality | 22 | 44 |
| No, mid-tier firm(s) are of comparable quality | 21 | 42 |
| Other, mid-tier can be of higher quality | 2 | 4 |
| Don't know | 5 | 10 |
| **Total** | **50** | **100** |

Source: Q16: Do you think there would be any significant differences in the quality of the audit provided by mid-tier firms compared with the Big Four?, audit committee chairs survey.

### Table A1.17 Likelihood of choosing a mid-tier firm

| How likely would you be to consider a mid-tier accounting firm if: | No. of respondents | % of respondents |
|---|---|---|
| **(A) Your company's audit firm went out of business** | | |
| Very likely | 8 | 16 |
| Fairly likely | 12 | 24 |
| Not very likely | 11 | 22 |
| Not at all likely | 17 | 35 |
| Don't know | 1 | 2 |
| **Total of respondents** | **49** | **100** |
| **(B) Another Big Four firm went out of business** | | |
| Very likely | 8 | 16 |
| Fairly likely | 11 | 22 |
| Not very likely | 11 | 22 |
| Not at all likely | 18 | 37 |
| Don't know | 1 | 2 |
| **Total of respondents** | **49** | **100** |

Note: This question was only posed to the companies that do not use a mid-tier firm as the principal auditor; thus, the number of respondents is 49.
Source: Q17: How likely would you be to consider a mid-tier accounting firm if (A) your company's audit firm went out of business; (B) another Big Four firm went out of business?, audit committee chairs survey.

### Table A1.18 Factors that could make a mid-tier firm an alternative to a Big Four firm (number of respondents)

| | Very important | Fairly important | Not very important | Not at all important | Don't know | Sample mean |
|---|---|---|---|---|---|---|
| Technical auditing ability equivalent to a Big Four firm | 41 | 6 | 0 | 2 | 1 | 4.8 |
| Reputation among major shareholders equivalent to a Big Four firm | 26 | 17 | 4 | 2 | 1 | 4.3 |
| International coverage equivalent to a Big Four firm | 25 | 9 | 6 | 9 | 1 | 4.0 |
| Reputation among company advisers (such as the corporate broker) equivalent to a Big Four firm | 12 | 25 | 7 | 4 | 2 | 3.8 |

Source: Q18: For each of the following statements I read out, please tell me how important or not, you think each factor or development is making mid-tier accounting firms a realistic alternative to a Big Four firm for the provision of audit services to your company?, audit committee chairs survey.

### Table A1.19 Which of the following hypothetical audit firms would represent a serious alternative to a Big Four firm for your company's audit?

| | No. of respondents | % of respondents |
|---|---|---|
| A firm formed from a merger of several mid-tier firms to create an accounting firm of comparable size to the Big Four | 35 | 70 |
| A new entrant to the auditing market engaged purely in audit, with ex-Big Four staff | 17 | 34 |
| A well-established financial services company with a new auditing subsidiary | 5 | 10 |
| None | 8 | 16 |
| Other | 2 | 4 |
| of which | | |
| Would depend on whether I knew people in those companies | 1 | 2 |
| Don't know | 1 | 2 |
| **Total of respondents** | **50** | **100** |

Source: Q19: Which of the following hypothetical audit firms would represent a serious alternative to a Big Four firm for your company's audit?, audit committee chairs survey

### Table A1.20 Factors excluding a firm other than the current auditor from providing audit services (prompted answers)

| | No. of respondents | % of respondents |
|---|---|---|
| It already provides consulting services to my company | 25 | 50 |
| It already provides corporate finance advice to my company | 24 | 48 |
| It already audits one of my company's main competitors | 13 | 26 |
| It already provides tax advice to my company | 10 | 20 |
| None of these | 15 | 30 |

Source: Q20: Which of the following factors would effectively exclude an accounting firm other than your current auditor from providing audit services to your company?, audit committee chairs survey.

**Table A1.21 'Currently, there is enough choice of alternative auditors in the market for my company to choose from'**

| | No. of respondents | % of respondents |
|---|---|---|
| Strongly agree | 18 | 36 |
| Tend to agree | 15 | 30 |
| Neither agree nor disagree | 3 | 6 |
| Tend to disagree | 3 | 6 |
| Strongly disagree | 11 | 22 |
| **Total of respondents** | **50** | **100** |

Source: Q21: To what extent do you agree or disagree with the following statement: 'Currently, there is enough choice of alternative auditors in the market for my company to choose from', audit committee chairs survey.

# Appendix 2 Econometric analysis

The background information on the statistical analysis conducted by Oxera in the course of this project and presented in sections 3.3 and 5.2 is set out in this technical appendix. Sections 3.3 and 5.2 also present key results of Oxera's statistical investigation.

This appendix addresses in greater detail the following issues:

- the model specifications;
- the methodology and technical details related to the development of specific tests;
- the results of
  - the robustness checks with respect to the choice of the estimator;
  - the robustness checks with respect to alternative model specifications;
  - the non-stationarity tests;
  - the multicollinearity tests.

The rest of the appendix is organised as follows: Section A2.1 describes the approach adopted for model selection. Section A2.2 reports the results of tests for alternative specifications and tests of the robustness of modelling results. Section A2.4 reports the estimates of the dummy coefficients that are included in the regressions (and not reported separately in the main report).

## A2.1 Specification of the model

The overall purpose of Oxera's statistical analysis was to investigate variation in audit fees and auditor switching rates observed among larger UK companies. To this end, the Oxera panel dataset was created based on FAME data, as described in section 2.4.

More specifically, Oxera tested two sets of hypotheses:

- hypotheses on the impact of mergers, market concentration, and auditor market share on switching, as outlined in section 3.3; and

- hypotheses on the impact of industry concentration and auditor market share on audit fees, as outlined in section 5.2.

To test these, Oxera fitted a panel model to data from the Oxera panel dataset on audit fees, switching rates, turnover, market concentration, and auditor market shares, as well as multiple control variables, under different specifications. As explained in section 2.4, this panel dataset comprises historical information on UK companies listed in 2004, for which the data is available on all the key variables for the period from 1995 to 2004, as reported by FAME. The key results of these tests under the main model specifications were presented in sections 3.3 and 5.2; further details on those results are presented below.

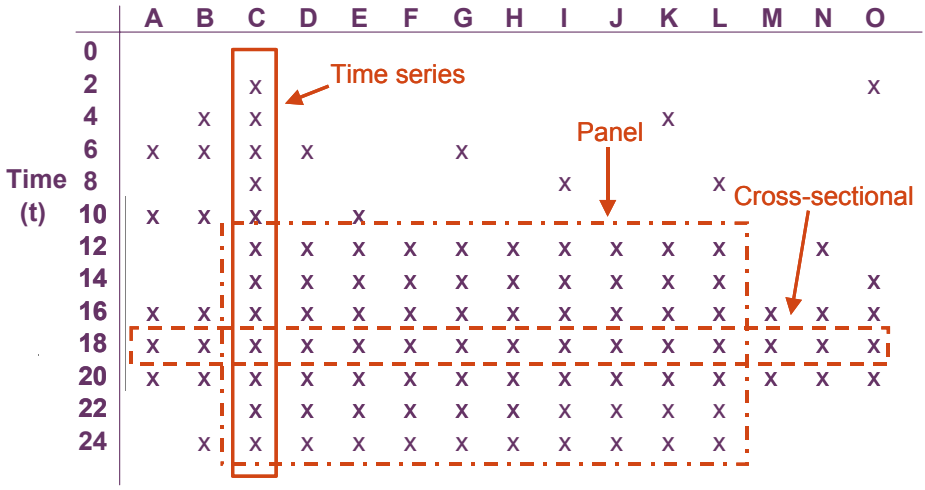
### A2.1.1 Panel dataset analysis

All modelling is dependent on the quality and quantity of information available. Disregarding one of the dimensions of the available data (time or cross-section) means that potentially useful information is ignored, with the risk that less accurate results are obtained than might otherwise be possible.

To predict audit fees paid by large UK companies over the period from 1995–2004, Oxera adopted a panel data modelling approach. Panel data is not a technique as such; rather, it refers to the availability of a particular database—cross-sectional observations (ie, data

across companies) for several periods over time. One of the advantages of the panel dataset is that it increases the number of observations, allowing for potentially more robust modelling to be undertaken. The stylised illustration of a panel dataset is presented in Figure A2.1.

**Figure A2.1 Stylised panel dataset**




Source: Oxera.

To assess the influence of factors on audit fees (section 5.2), Oxera used the conventional generalised method of moments (GMM) estimator.

For the analysis of factors influencing switching (section 3.3), the dependent variable is not continuous—it describes a number of discrete outcomes. Two types of models were estimated to assess the impact of market characteristics on switching behaviour observed for UK companies.

– The first model investigated factors affecting the decision to switch in any given year. According to this specification, the dependent variable is a binary variable indicating whether the company has changed its auditor in a given year. In this case Oxera used the panel data logit model, which has some potential advantages when dealing with discrete dependent variables. The results for this model are presented in the last two columns of Table 3.12.

– The second model investigated factors that influenced the cumulative number of switches observed over the period 1995–2004. In this specification, the dependent variable represents the total number of times a particular company switched over the ten-year period. It is therefore an ordered categorical variable ranging from zero to a maximum value. The model used in this case is the ordered logistic regression, a modification of the logit regression that accounts for the fact that a dependent variable can fall into more than two categories. The results for this model are presented in the first three columns of Table 3.12.

### A2.1.2 Development of the model specification

One of the most important issues in statistical tests of this type is the persistence in significance and magnitude of explanatory variables. In this context, the model presented below has been developed according to the standard methodology of step-wise inclusion of multiple independent variables, including the explanatory variables of interest as well as control variables. Table A2.1 below reports estimation results for different stages of this procedure for the audit fee analysis (section 5.2).

As a first step, given the assumed nature of the process of audit fee determination based on, above all, the size of the required audit (audit hours), the first control variable in the regression is **Turnover** of the audited company, to broadly control for the required size of audit. While turnover might not represent the perfect proxy for the required scale of audit, it is unlikely to introduce any bias to the model specification. Larger audit scale implies higher fees, and therefore the sign of the coefficient associated with turnover is expected to be positive. Moreover, the log specification of the turnover variable allows the non-linear nature of the relationship between company size and audit fee to be captured (ie, it captures economies of scale to audit).[98]

Second, in the course of the interviews, Oxera has learned that the determination of audit fees for any given year (current year) is often closely related to the agreed audit fee for the last year, and then amended for any new factors during the negotiation. Therefore, a lag of the dependent variable was included in the model as the control variable, as specified by the **Audit fee (Lag)**—the audit fee in the previous fiscal year compared with the current fiscal year for each observation.

As the third step, two audit market characteristics of specific interest to the study have been added:

– the **Auditor market share**—the company auditor market share of total fees in a given year in a given sector. This is a proxy to measure the degree of market power of a given audit firm;

– **HHI**—the measure of the degree of market concentration of the provision of audit services in a given sector in a given year.

Joint consideration of the HHI and the auditor market share variables enables the impact of overall market concentration to be separated from that of individual market power on the average audit fee. In principle, HHI and audit market share can be collinear. Oxera analysed this potential multicollinearity and found no significant evidence of it in the panel dataset. Additional assurance on the robustness of results with respect to potential multicollinearity is provided by the results shown in Table A2.1 below. When these variables are included in the regression sequentially (auditor market share first and then the HHI), the coefficient associated with auditor share does not change significantly.

As the next step, several key controls have been added. The list of required controls has been derived from several considerations including: the results of the Oxera interviews and follow-up consultations; analysis of the existing statistical studies concerning audit fees; the results of the Oxera survey; and desktop analysis of reported trends. The resulting list of controls includes three potentially critical drivers of audit fees.

– The **International turnover** variable has been added to control for additional costs arising from the audited company's international presence outside the UK.

– The **Mergers** variable was added to control for the impact of M&A involving the audited company. The merger procedure is often associated with higher audit fees due to the increased scale of audit. This increase in scale of the audit work is driven by two major factors:

  – the resultant company being much larger than the company before the merger;
  – merger-specific additional audit work.

– The cumulative **Switches** variable (representing the number of times the company has switched auditor until the year of observation) has been added to control for the impact

[98] In the linear specification, the economies of scale effect is also captured through the inclusion of the square of turnover as the explanatory variable.

of changes of auditor on the average audit fee. Since the change of auditor is an important and rare event, the **Switches** variable has been incorporated to capture the effect of such events on audit fees in relevant years.

As the final step, sector and market-type dummies were included to control for the sector- as well as market-specific characteristics. Sector dummies enable the sector-specific characteristics that might affect audit fees to be controlled for. One such characteristic is the sector-specific complexity of the audit process. Year dummies, as included in the model, control for other potential time-specific factors not captured by existing explanatory variables. This allows for the indirect control of, for example, changes in the underlying costs of the audit work.

In all, Oxera has tested for the effect of several possible control variables in different model specifications in order to isolate the impact of concentration and market share on audit fees (and switching behaviour). The final model specification contains the control factors that have been identified as significant, based on Oxera's analysis and the evidence from the existing literature. The results of the tests of this model specification are robust, and exhibit high R-squared, as indicated in Table 5.4. This points at the fact that the variables included do indeed explain a large part of the variation in audit fees, hence suggesting that the impact of any omitted variables would not significantly affect the results.

### A2.1.3 Final model specifications—audit fee model

As a result of this process of developing the model specification, Oxera has consistently adopted the final generic specification of the form:

$$\text{Audit\_fee}_{it} = \text{const} + \alpha \cdot \text{Audit\_fee}_{it-1} + \vec{\beta} \cdot \text{Year\_}\vec{\text{dummies}} + \delta \cdot \text{Turnover}_{it} + \phi \cdot \text{Auditor\_market\_share}_{it}$$
$$\ldots + \lambda \cdot \text{HHI}_{it} + \vec{\xi} \cdot \text{International\_turnover}_{it} + \vec{\psi} \cdot \text{Switches}_{it} + \gamma \cdot \text{Sector\_}\vec{\text{dummies}} + \ldots$$
$$\ldots + \mu \cdot \text{Market\_}\vec{\text{type}}\text{\_dummies} + \ldots + \upsilon \cdot \text{Mergers}_{it} + \varepsilon_{it}$$

Equation A2.1

Where $\rightarrow$ indicates that the variable is a vector.

The dependent variable and a number of explanatory variables include cross-sectional and time-series observations—ie, variation in audit fees is available for a particular company from 1995 to 2004 and across a set of companies for each year. Indexes *i* and *t* represent cross-section and time dimensions respectively.

The dependent variable is the **Audit fee**—the log of the audit fee expressed in £'000 and 1995 prices for a given company in a given year. The explanatory variables include:

- the log of the audit fee in the previous fiscal year (**Audit fee (Lag)**) in £'000 and 1995 prices;
- **eight year dummies**, indicating the year of each observation, the base year is 1999;
- the log of turnover of the audited company (**Turnover**) in £'000 and 1995 prices;
- the log of the share of the company's auditor (**Auditor market share**) in total audit fees in a given sector in a given year, reported as a ratio;
- the log of the sum of squared audit firms' market shares in a given sector in a given year (**HHI**);
- the log of the ratio of the company's international turnover to total turnover for 2004 (constant across years) (**International turnover**);
- the cumulative sum of the number of times the company has changed auditor from 1996 to the year of observation (**Number of switches***);*
- **12 sector dummies**, indicating which sector the company belongs to (constant across years). The base sector is 'Real estate activities', with the highest number of observations;

– **market-type dummies** indicate the type of listing market where the company's shares are traded (constant across years)—the base market is the FTSE 350;
– company **Mergers**, as proxied by the cumulative sum of the number of times the audited company's turnover has increased by more than 40% in any given year between 1996 and the year of observations.

### A2.1.4 Final model specifications—switching model

A similar strategy of step-wise inclusion of explanatory variables was adopted to model the decision to change auditor. Two types of regression analyses were undertaken.

– In the first specification the decision of a particular company to change auditor in a given year was predicted with the help of a set of explanatory variables in the previous fiscal year—ie, the decision to switch made in, for example, 1999 was explained with the help of controls and market characteristics in 1998.

– The second specification attempted to explain what drives the total number of switches undertaken by a given company over the period from 1995–2004. Ten-year averages of the relevant explanatory variables were used to explain the total number of switches.

As a result of the process of developing the model specification, the final generic specification of the first model has taken the form of:

$$\text{Switching\_event}_{it} = \text{const} + \beta_1 \cdot \text{Turnover}_{i,t-1} + \beta_2 \cdot (\text{Audit\_fee} / \text{Turnover}) * 100_{i,t-1} +$$
$$+ \beta_3 \cdot \text{Auditor\_market\_share}_{i,t-1} + \beta_4 \cdot \text{Mergers}_{it} + \text{HHI}_{it} + \gamma \cdot \text{Sector\_}\vec{\text{dummies}} +$$
$$... + \mu \cdot \text{Market\_}\vec{\text{type}}\text{\_dummies} + \vec{\beta} \cdot \text{Year\_}\vec{\text{dummies}} + \varepsilon_{it}$$

Equation A2.2

The dependent variable is the **Switching event**—the binary variable indicating whether a company switches in a particular year or not. The explanatory variables include the following (Table 5.3 explains the reasons for including these variables):

– logged turnover of the audited company (**Turnover**) in the previous fiscal year, in £'000, 1995 prices;
– logged audit fee as a % of turnover (**Audit fee as % of turnover**) in the previous fiscal year, reported as a percentage;
– the log of the share of a company's auditor (**Auditor market share**) in total audit fees in a given sector in a previous year, reported as a ratio;
– company **Mergers**, as proxied by the cumulative sum of the number of times the audited company's turnover has increased by more than 40% in any given year between 1996 and the year of observations;
– the log of the sum of squared audit firms' market shares in a given sector in a given year (**HHI**);
– **12 sector dummies**, indicating which sector the company belongs to (constant across years). The base sector is 'Real estate activities', with the highest number of observations;
– **three market-type dummies**, which indicate the segment of the market where the company is listed (or whether it is private); this is taken as constant across years—the base market is FTSE 350;
– **8 year dummies**, indicating the year of each observation—the base year is 1999.

As a result of the process of developing the model specification, the final generic specification of the second model takes the following form.

$$Switches_i = const + \beta_1 \cdot Turnover_i + \beta_2 \cdot (Audit\_fee / turnover) * 100_i +$$
$$+ \beta_3 \cdot Auditor\_market\_share_i + \beta_4 \cdot Mergers_i + HHI_i + \gamma \cdot Sector\_\vec{dummies} +$$
$$... + \mu \cdot Market\_\vec{type}\_dummies + \varepsilon_{it}$$

Equation A2.3

The dependent variable is **Switches**—ie, the number of times the company has changed auditor in the period from 1996 to 2004. The explanatory variables are essentially the same as for the other model (although some are defined somewhat differently to reflect the different nature of the two switching models).

## A2.2 Robustness checks and tests for alternative specifications

The main statistical properties of the basic model are discussed below, together with a description of the impact of market structure on audit fee. Robustness of the estimates with respect to alternative specifications is reported. Robustness checks with respect to different estimators (ie, fixed and random effects) are then outlined and the choice of the random effects estimator is discussed. Tests for the absence of non-stationarity are conducted in accordance with the established methodology. This typically applies the Fisher (panel data) unit root test to the sample. Finally, the issue of potential multicollinearity is addressed.

### A2.2.1 Robustness to alternative specifications

The quality of the econometric model, and the reliability of the conclusions drawn from it, depends to a large extent on whether the model specification is correct. This can be analysed by inspecting the stability of the estimates using alternative specifications. Oxera has followed the step-wise inclusion process of the explanatory variables and analysed significance, sign, and magnitude of the estimates. The results are reported in Table A2.1.

**Table A2.1 Step-wise inclusion of explanatory variables in modelling the impact of market characteristics on audit fees, Oxera panel data, 1995–2004**

| | I | II | III | IV | V | VI | VII |
|---|---|---|---|---|---|---|---|
| Audit fee (lag) | 0.000347 | 0.000155 | 0.000160 | 0.000158 | 0.000153 | 0.000143 | 0.000145 |
| | (23.18)*** | (14.31)*** | (14.81)*** | (14.71)*** | (14.33)*** | (13.59)*** | (13.74)*** |
| Turnover | | 0.464 | 0.449 | 0.448 | 0.452 | 0.449 | 0.427 |
| | | (64.95)*** | (62.70)*** | (62.64)*** | (64.46)*** | (58.05)*** | (49.64)*** |
| Auditor market share | | | 0.054 | 0.055 | 0.054 | 0.050 | 0.051 |
| | | | (10.84)*** | (11.05)*** | (10.88)*** | (10.21)*** | (10.34)*** |
| HHI | | | | 0.167 | 0.171 | 0.172 | 0.164 |
| | | | | (6.20)*** | (6.38)*** | (6.30)*** | (6.03)*** |
| International turnover | | | | | 0.747 | 0.515 | 0.520 |
| | | | | | (11.40)*** | (8.04)*** | (8.07)*** |
| Number of switches | | | | | –0.049 | –0.048 | –0.057 |
| | | | | | (3.62)*** | (3.58)*** | (4.26)*** |
| Mergers | | | | | | | 0.051 |
| | | | | | | | (5.75)*** |
| Year dummies | no | yes | yes | yes | yes | yes | yes |
| Sector dummies | no | no | no | no | no | yes | yes |
| Market-type dummies | no | no | no | no | no | yes | yes |
| Number of observations | 5,705 | 5,705 | 5,705 | 5,705 | 5,705 | 5,705 | 5,705 |
| $R^2$ | 0.394 | 0.721 | 0.735 | 0.734 | 0.765 | 0.806 | 0.801 |

Note: Models were estimated using the random effects estimator. Absolute values of z statistics are reported in parentheses. * significance at the 10% confidence level, ** significance at the 5% confidence level; *** significance at the 1% confidence level. The results in specification VII correspond to those of specification III in Table 5.4.
Source: Oxera panel dataset, Oxera calculations.

The following key observation is immediately available from Table A2.1. The signs, magnitude and significance of all variables remain largely unchanged throughout the whole process of the step-wise variables inclusion. Thus, the model can be considered to be significant and stable. This indicates that the model is well specified.

### A2.2.2 Robustness to the choice of estimator

There are several approaches to estimate panel data regressions including fixed effects and random effects estimators. The fixed effects estimator allows variability in audit fees to be explained beyond the group- or company-specific, time-invariant characteristics. The group-specific characteristics excluded by the fixed effects estimator might include time-invariant components, such as sector-specific effects, and hence effectively control for the sector-specific component of total audit fees. The random effects estimator leaves more variance to explain in comparison to the fixed effects, and enables the time-invariant characteristics to be controlled for, assuming that errors are randomly distributed. If the assumption[99] behind the random effects estimator is fulfilled then its estimates are unbiased and efficient.

[99] The random effects estimator produces unbiased estimates in the absence of serial correlation.

To specify the estimator—ie, to choose between the fixed effects and the random effects estimators—the Hausman specification test is typically used. Oxera has applied the Hausman test to the basic model specified without the time-invariant components (ie, sector dummies, market-type dummies, and international turnover):

$$\text{Audit\_fee}_{it} = \text{const} + \alpha \cdot \text{Audit\_fee}_{it-1} + \vec{\beta} \cdot \text{Year\_}\vec{\text{dummies}} + \delta \cdot \text{Turnover}_{it} + \phi \cdot \text{Auditor\_market\_share}_{it} \ldots + \lambda \cdot \text{HHI}_{it} + \vec{\psi} \cdot \text{Switches}_{it} + \upsilon \cdot \text{Mergers}_{it} + \varepsilon_{it}$$

Equation A2.4

Results of the Hausman specification test suggest that there is a systematic difference between coefficients obtained by fixed and random effects. Therefore, to avoid any bias due to the potential presence of correlation between the included explanatory variables and the effects, the fixed effects estimator seems preferable. On closer inspection, however, the estimation results in Table A2.2 support the conclusion that the signs, magnitudes, and significance of the vast majority of the estimated coefficients are not affected by the choice of estimator. This implies that the random effects estimator is unlikely to suffer unduly from the above potential problem, and its estimates can be expected to be unbiased. Given that the random effects estimator is efficient and allows for the time-invariant factors to be analysed explicitly, it is used for the further analysis.

## Table A2.2 Impact of market characteristics on audit fees, panel data for 1995–2004, random effects versus fixed effects

| | Fixed effects | Random effects |
|---|---|---|
| Audit fee (lag) | 0.0001053 | 0.0001587 |
| | (9.45)*** | (14.82)*** |
| Turnover | 0.373 | 0.430 |
| | (35.53)*** | (55.55)*** |
| Auditor market share | 0.045 | 0.054 |
| | (8.72)*** | (10.84)*** |
| Number of switches | –0.062 | –0.057 |
| | (4.54)*** | (4.18)*** |
| Mergers | 0.095 | 0.051 |
| | (9.36)*** | (5.80)*** |
| HHI | 0.158 | 0.161 |
| | (5.87)*** | (6.02)*** |
| Binary 1996 | 0.008 | 0.014 |
| | (0.44) | (0.74) |
| Binary 1997 | –0.008 | –0.004 |
| | (0.51) | (0.25) |
| Binary 1998 | –0.037 | –0.035 |
| | (2.38)** | (2.23)** |
| Binary 2000 | 0.036 | 0.034 |
| | (2.38)** | (2.21)** |
| Binary 2001 | 0.069 | 0.067 |
| | (4.60)*** | (4.35)*** |
| Binary 2002 | 0.083 | 0.080 |
| | (5.43)*** | (5.10)*** |
| Binary 2003 | 0.133 | 0.130 |
| | (8.55)*** | (8.21)*** |
| Binary 2004 | 0.199 | 0.194 |
| | (12.38)*** | (11.89)*** |
| Constant | –0.792 | –1.479 |
| | (3.19)*** | (6.41)*** |
| Number of observations | 5,705 | 5,705 |
| Test statistics (Chi-sq (14)) | 386.16 | 7,699.42 |
| P-value | 0.0000 | 0.0000 |

Note: Models were estimated using random effects estimator. Absolute values of z statistics are reported in parentheses. * significance at the 10% confidence level, ** significance at the 5% confidence level; *** significance at the 1% confidence level.
Source: Oxera panel dataset, Oxera calculations.

The robustness of estimates has also been tested by applying the fixed effects estimator to the same models as estimated by the random effects estimator (see Tables A2.3 and A2.4). A similar conclusion can be reached about the robustness of the results with respect to the choice of the estimator: the estimates obtained by different estimators have the same sign, magnitude and significance.[100]

[100] The only main difference occurs for the merger coefficient in the model, where audit fee as percentage of turnover is the dependent variable.

## Table A2.3 Impact of market characteristics on audit fees, panel data for 1995–2004, *random effects* estimator

| | I | II | III | IV | V | VI |
|---|---|---|---|---|---|---|
| | Linear | Log | Log | Log | Log | Log |
| Dependent variable | Audit fee | Audit fee | Audit fee | Audit fee | Audit fee as % of turnover | Change in audit fee |
| Dependent variable (lag) | | | 0.0001447 | 0.0001434 | 0.566*** | –0.195*** |
| | | | (13.74)*** | (13.55)*** | (61.28)* | (14.65)* |
| Turnover | 0.000223 | 0.433 | 0.427 | 0.434 | –0.225 | 0.300 |
| | (48.94)*** | (54.18)*** | (49.64)*** | (50.38)*** | (34.10)*** | (24.67)*** |
| Turnover squared | –5.19e–13 | | | | | |
| | (15.21)*** | | | | | |
| Auditor market share | 232.811 | 0.051 | 0.051 | | 0.042 | 0.049 |
| | (5.53)*** | (10.76)*** | (10.34)*** | | (9.99)*** | (8.56)*** |
| HHI | 0.019 | 0.144 | 0.164 | 0.157 | 0.134 | 0.048 |
| | (2.29)** | (6.07)*** | (6.03)*** | (5.78)*** | (4.34)*** | (1.62)* |
| Number of switches | –20.757 | –0.059 | –0.057 | –0.062 | –0.027 | –0.019 |
| | (1.64)* | (4.51)** | (4.26)*** | (4.63)*** | (2.13)** | (2.41)** |
| Mergers | 11.532 | 0.065 | 0.051 | 0.052 | –0.028 | 0.020 |
| | (1.65)* | (7.64)*** | (5.75)*** | (5.76)*** | (4.09)*** | (4.58)*** |
| International turnover | 135.276 | 0.552 | 0.520 | 0.521 | 0.278 | |
| | (2.91)*** | (7.87)*** | (8.07)*** | (7.90)*** | (10.98)*** | |
| Auditor=Big Four | | | | 0.169 | | |
| | | | | (7.18)*** | | |
| Turnover (lag) | | | | | | 0.113 |
| | | | | | | (9.70)*** |
| Auditor market share (lag) | | | | | | 0.021 |
| | | | | | | (3.84)*** |
| Year dummies | yes | yes | yes | yes | yes | yes |
| Sector dummies | yes | yes | yes | yes | yes | yes |
| Market-type dummies | yes | yes | yes | yes | yes | yes |
| Number of observations | 6,623 | 6,623 | 5,705 | 5,705 | 5,705 | 4,895 |
| $R^2$ | 0.737 | 0.784 | 0.801 | 0.796 | 0.893 | **0.189** |

Note: Absolute values of z statistics are reported in parentheses. * Significant difference at a 10% confidence level. ** Significant difference at a 5% confidence level. *** Significant difference at a 1% confidence level.
Source: Oxera panel dataset, Oxera calculations.

### Table A2.4 Impact of market characteristics on audit fees, panel data for 1995-2004, *fixed effects* estimator

| Comparable specification in Table A2.3 | I | II | V | VI |
|---|---|---|---|---|
| **Dependent variable** | **Linear** | **Log** | **Log** | **Log** |
| Dependent variable (lag) | | | **0.212*** | **–0.271*** |
| | | | (20.34)*** | (19.11)*** |
| Turnover | .000195 | 0.378* | –0.529* | 0.296* |
| | (32.87)*** | (39.79)*** | (47.98)*** | (22.04)*** |
| Turnover squared | –3.39e–13* | | | |
| | (8.35)*** | | | |
| Auditor market share | 181.030* | 0.046 | 0.043* | 0.049* |
| | (3.96)*** | (9.53)*** | (8.71)*** | (8.12)*** |
| HHI | 0.018* | 0.135* | 0.144* | 0.049* |
| | (2.14)** | (5.73)*** | (5.51)*** | (1.61) |
| Number of switches | –24.868* | –0.062* | –0.062* | –0.086* |
| | (1.88) | (4.67)*** | (4.64)*** | (5.41)*** |
| Mergers | 24.917* | 0.107* | 0.087* | –0.004 |
| | (3.35)*** | (11.45)*** | (8.84)*** | (0.39) |
| Turnover (lag) | | | | 0.118* |
| | | | | (9.18)*** |
| Auditor market share (lag) | | | | 0.026* |
| | | | | (4.38)*** |
| Year dummies | yes | yes | yes | yes |
| Sector dummies | no | no | no | no |
| Market-type dummies | no | no | no | no |
| Number of observations | 6623 | 6623 | 5705 | 4895 |
| R2 | 0.45 | 0.54 | 0.52 | 0.18 |

Note: Absolute values of z statistics are reported in parentheses. * Significant difference at a 10% confidence level. ** Significant difference at a 5% confidence level. *** Significant difference at a 1% confidence level.
Source: Oxera panel dataset, Oxera calculations.

It also follows from Tables A2.4 and A2.1 that:

- all critical variables are significant at the 5% or 10% level in all specifications. Moreover, many key variables, such as **Auditor market share**, are significant at the 1% level;
- Table A2.1 reports the estimates of dummy coefficients. All groups of dummies, including year, sector and market-type dummies, are jointly significant, indicating that these group-specific characteristics are important and were controlled for as required;
- the basic model (specification III in Table A2.4) explains 80% of the variation in audit fees, which is considered to be high.

### A2.2.3 Stationarity

Any analysis with a time-series component can be subject to bias introduced by the potential non-stationarity of the series concerned. The audit fees and turnover were tested for stationarity in levels and for stationarity around the deterministic trend, using the Fisher panel data unit root test with lags of order 1 and 2. Table A2.5 reports p-values obtained from Fisher panel data unit root test. The main purpose of this table is to outline the structure of the test.

**Table A2.5 Panel data unit root test**

| | Levels | | Adjusted for trend | |
|---|---|---|---|---|
| | One lag | Two lags | One lag | Two lags |
| Audit fee | 0.000 | 0.000 | 0.000 | 0.000 |
| Turnover | 0.000 | 0.000 | 0.000 | 0.000 |

Note: The null hypothesis is non-stationarity or unit root. **Audit fee** is logged audit fee, as reported in the FAME database in £'000 and 1995 prices. **Turnover** is logged turnover of the audited company, as reported in the FAME database in £'000 and 1995 prices.
Source: Oxera panel dataset, Oxera calculations.

The non-stationarity hypothesis is strongly rejected for cases both with and without the adjustment for trends, suggesting that no bias was introduced due to non-stationarity in the results.

### A2.2.4 Multicollinearity

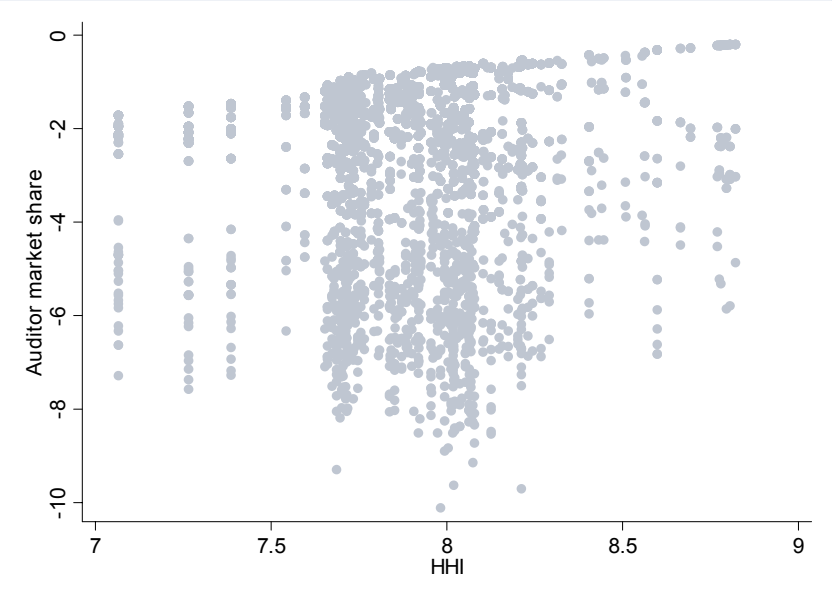
Multicollinearity is often present in economic data. Where there is a high degree of multicollinearity, it can be difficult to identify the effects of individual explanatory variables.

In the basic specification presented above, the market share of the auditor might theoretically be collinear with the turnover of the audited company—ie, the larger companies are audited by the Big Four firms, which have higher market shares. To test for this, Oxera allocated all companies into six turnover brackets and found that, within each bracket, there is sufficient variation in auditor market shares. Moreover, the unconditional correlation between turnover and auditor market share across the whole sample is only 14.9%. This allows the impact of the auditor's market share to be analysed separately from that of company turnover.

Another potential issue of multicollinearity might theoretically arise between the HHI and auditor market share. The HHI is defined as the sum of the squares of all market shares, so if the larger firms gain market share, the HHI also increases (and if the number of firms in the market falls, the HHI and market shares will both increase).

Figure A2.2 plots logged HHI against logged auditor market shares. The pattern indicates that, for different levels of sectoral concentration, there is sufficient variation in auditor market shares to allow individual effects of these two variables on audit fees to be measured independently. The low unconditional correlation between logged HHI and auditor market share across the whole sample (7.3%) provides additional assurance that the results of the econometric modelling are not subject to bias that might be introduced by potential multicollinearity.

**Figure A2.2 Logged HHI (squared %) against logged auditor market share (%)**




Source: Oxera.

It is also informative to investigate the relationship between the HHI and auditor market shares for different levels of auditor market share. This test was undertaken on the basis of 6,623 observations. For those observations where auditor market share is less than 80% (6,602 observations), the correlation between the HHI and auditor market shares is relatively low, at 22%. This indicates that, for 99.7% of all the observations (6,602/6623) for each level of auditor market share, there is sufficient variation in the HHI to differentiate between the individual effects of these two variables on audit fees. For the remaining 22 observations (where one auditor had more than 80% of the market), the correlation between HHI and market share is high, at 92%, but this represents only 0.3% of the total sample.

Additional assurance in the robustness of results with respect to potential multicollinearity is provided by the results show in Table A2.1. When these variables are included in the regression sequentially (auditor market share first and the HHI next), the coefficient associated with auditor share does not change significantly.

### A2.2.5 Panel data diagnostics

Two important issues could affect the coefficient estimates and/or their significance: potential presence of autocorrelation, and heteroscedasticity. These are discussed in turn below.

In the panel dataset framework, autocorrelation can be assessed separately for each panel. Since the dataset covers a period of ten years, autocorrelation tests would have to be carried out on the basis of ten observations. This is unlikely to be sufficient to reach a robust conclusion for this test. In addition, conventional panel data autocorrelation tests combine evidence on autocorrelation for each panel into a joint statistics. The base hypothesis is the absence of autocorrelation across all panels involved in the analysis. Therefore, it would be sufficient to reject the hypothesis of no autocorrelation (and therefore conclude that autocorrelation is present) if only one panel (or more precisely, a certain limited number of panels) suffers from serial correlation.

The above indicates that conventional autocorrelation tests appear to be of low applicability in this particular case. However, evidence outlined below indicates that the autocorrelation problem is not present in the models.

Oxera has estimated the basic model using fixed and random effects estimators. Results for these two estimators, reported in Tables A2.3 and A2.4, look similar. Therefore, serial correlation or any bias in the estimates introduced by autocorrelation are unlikely because:

– the fixed effects estimator removes all time-invariant components and therefore mitigates any problem with autocorrelation;

– the coefficient estimates obtained under the random effects estimator are of the same sign, similar size and magnitude as those obtained used fixed effects.

This suggests that there is no evidence of autocorrelation or autocorrelation bias.

In addition to the insight provided by the comparison of fixed and random effects estimators, including lagged dependent variables in the regression could also mitigate the potential impact of autocorrelation. In other words, under the assumption of autocorrelation, results obtained from models with and without the lagged dependent variable would be expected to be different. Oxera estimated the models using both specifications: including and excluding the lagged dependent variable. When these results are compared, the estimates look very similar (see Tables A2.3 and A2.4), indicating that there is no ground to conclude that autocorrelation is present in the models.

With regard to heteroscedasticity, it is noted that the basic model is specified in the log form. The fact that coefficients are estimated using logged values of dependent and explanatory variables provides firm ground to conclude that the impact of heteroscedasticity in the linear model, if any, is mitigated, and therefore that the residual obtained from the logged model is homoscedastic.

### A2.2.6 Potential endogeneity between audit fee and switches

The panel data model for switches explains the decision to switch with a set of variables including audit fees as percentage of turnover. At the same time, the model for audit fees includes switches as the explanatory variable. Therefore, the modelling approach adopted by Oxera could be subject to an endogeneity problem present between audit fees and switches. However, this endogeneity problem is limited, for several reasons.

– The switching analysis in section 3 only has audit fee *as percentage of turnover* as an explanatory variable; not audit fees (audit fees are the dependent variable in the analysis in section 5).

– This variable is also defined differently from the variable in section 5. In the cross-sectional model in section 3, the variable is taken as the average of the audit fees as percentage of turnover over the whole period. In the panel data model in section 3, the lagged value of the audit fee as percentage of turnover variable is taken. In contrast, in section 5, the current value of audit fee as percentage of turnover is taken, thus avoiding endogeneity.

– Furthermore, in Table 3.12 it can be seen that the estimated coefficient for audit fee as percentage of turnover is only significant in the panel data model. In the panel data model, the switching variable is defined differently—ie, whether the switch occurs in a particular year, rather than as the cumulative number of switches up to the given year (which is the definition used in section 5).

Another aspect to explore is the impact of mergers on switches and audit fees. Mergers appear to affect audit fees positively—ie, controlling for everything else, including size, mergers increase audit fees. At the same time, mergers also affect switches positively—ie, the decision to merge is associated with the subsequent decision to change auditor. Moreover, switches affect audit fees negatively, which implies that mergers influence audit fees directly in a positive way and indirectly via the switches variable in a negative way.

This phenomenon, which might, at first, look like the endogeneity issue, is rather the multicollinearity issue, according to which explanatory variables in the regression for audit fees (switches and mergers) move together to a certain extent. The scale of this effect is, however, relatively minor, given that the unconditional correlation between mergers and switches is only 23%. In addition, in the total amount of switches observed in the Oxera panel dataset, mergers account for only around 20% (as noted in section 3.3), and not all mergers result in a switch. Therefore, there is no reason to conclude that there is a multicollinearity problem with regard to these variables.

## A2.3 Dummy coefficients for the basic model specifications

The estimates of the dummy coefficients included in the basic models are presented in Table A2.6.

**Table A2.6 Dummy coefficients estimated for the impact of market characteristics on audit fees and on the number of switches (not re-estimated)**

| | Table 5.4 | | | | | | Table 3.12 | |
|---|---|---|---|---|---|---|---|---|
| Dataset | Panel 1995–2004 | | | | | | Panel 1995–2004 | Cross-section 2004 |
| Regression | (I) | (II) | (II) | (III) | (IV) | (V) | III | II |
| Specification | Linear | Log | Log | Log | Log | Log | Log | Linear |
| Dependent variable | Audit fee | Audit fee | Audit fee | Audit fee | Audit fee as (%) of turnover | Change in audit fee | Binary variable for switching | Cumulative number of switches from 1995 to 2004 |
| **Binary variables for years** | | | | | | | | |
| 1996 | –5.464 | | 0.014 | 0.002 | –0.006 | | –0.307 | |
| | (0.35) | | (0.74) | (0.13) | (0.30) | | (0.91) | |
| 1997 | –1.617 | 0.023 | –0.005 | –0.015 | –0.023 | –0.022 | 0.049 | |
| | (0.11) | (1.31) | (0.28) | (0.89) | (1.18) | (1.31) | (0.17) | |
| 1998 | –8.521 | –0.032 | –0.036 | –0.035 | –0.026 | –0.029 | 0.366 | |
| | (0.56) | (2.09)** | (2.28)** | (2.21)** | (1.46) | (1.51) | (1.40) | |
| 2000 | –9.237 | 0.043 | 0.035 | 0.034 | 0.017 | 0.015 | –0.165 | |
| | (0.63) | (2.88)*** | (2.26)** | (2.20)** | (0.97) | (0.94) | (0.58) | |
| 2001 | –7.961 | 0.074 | 0.068 | 0.066 | 0.058 | 0.007 | 0.248 | |
| | (0.54) | (4.94)*** | (4.46)*** | (4.33)*** | (3.33)*** | (0.43) | (0.96) | |
| 2002 | –4.487 | 0.087 | 0.082 | 0.090 | 0.076 | –0.004 | 0.372 | |
| | (0.30) | (5.70)*** | (5.30)*** | (5.78)*** | (4.31)*** | (0.24) | (1.45) | |
| 2003 | 24.548 | 0.134 | 0.133 | 0.141 | 0.110 | 0.017 | 0.131 | |
| | (1.59) | (8.63)*** | (8.47)*** | (8.93)*** | (6.17)*** | (1.09) | (0.49) | |
| 2004 | 77.515 | 0.195 | 0.197 | 0.204 | 0.142 | 0.049 | –0.471 | |
| | (4.87)*** | (12.08)*** | (12.17)*** | (12.58)*** | (7.79)*** | (3.17)*** | (1.52) | |
| **Binary variables for sectors** | | | | | | | | |
| Agriculture and Mining | 189.513 | 0.011 | 0.054 | 0.043 | –0.018 | –0.070 | –0.213 | 1.439 |
| | (2.54)** | (0.11) | (0.53) | (0.40) | (0.44) | (3.43)*** | (0.62) | (2.28)** |
| Light manufacture | 192.017 | –0.226 | –0.155 | –0.162 | –0.122 | –0.039 | 0.086 | 2.278 |
| | (2.77)*** | (2.32)** | (1.60) | (1.63) | (3.05)*** | (2.12)** | (0.23) | (2.81)*** |
| Chemicals, Wood, Publishing | 178.940 | 0.091 | 0.135 | 0.120 | 0.030 | –0.024 | –0.069 | 1.170 |
| | (3.63)*** | (1.29) | (1.94) | (1.68) | (1.06) | (1.77) | (0.28) | (2.68)*** |
| Machinery and Equipment | 147.599 | 0.093 | 0.108 | 0.101 | 0.027 | –0.010 | 0.053 | 0.323 |
| | (2.99)*** | (1.33) | (1.57) | (1.43) | (0.98) | (0.78) | (0.25) | (1.10) |

| | Table 5.4 | | | | | | Table 3.12 | |
|---|---|---|---|---|---|---|---|---|
| **Dataset** | **Panel 1995–2004** | | | | | | **Panel 1995–2004** | **Cross-section 2004** |
| **Regression** | **(I)** | **(II)** | **(II)** | **(III)** | **(IV)** | **(V)** | **III** | **II** |
| **Specification** | **Linear** | **Log** | **Log** | **Log** | **Log** | **Log** | **Log** | **Linear** |
| **Dependent variable** | **Audit fee** | **Audit fee** | **Audit fee** | **Audit fee** | **Audit fee as (%) of turnover** | **Change in audit fee** | **Binary variable for switching** | **Cumulative number of switches from 1995 to 2004** |
| Electricity, gas, water supply | –144.135 | –0.340 | –0.320 | –0.321 | –0.215 | 0.049 | –0.181 | 6.299 |
| | (1.34) | (2.17)** | (2.15)** | (2.11)** | (3.30)*** | (1.57) | (0.22) | (2.97)*** |
| Construction | –52.677 | –0.283 | –0.256 | –0.256 | –0.179 | –0.034 | –0.022 | 1.029 |
| | (0.75) | (2.87)*** | (2.61)*** | (2.55)** | (4.61)*** | (1.92) | (0.06) | (1.64)* |
| Trade | –164.109 | –0.504 | –0.473 | –0.486 | –0.253 | –0.028 | 0.220 | 1.152 |
| | (3.39)*** | (7.15)*** | (6.87)*** | (6.91)*** | (8.72)*** | (2.07)** | (0.86) | (2.66)*** |
| Transport, storage, communication | –24.885 | –0.047 | –0.031 | –0.044 | –0.042 | –0.018 | 0.487 | 0.911 |
| | (0.40) | (0.53) | (0.35) | (0.48) | (1.21) | (1.00) | (1.77)* | (2.31)** |
| Banks | –29.089 | –0.333 | –0.352 | –0.358 | –0.126 | 0.000 | 0.079 | 0.692 |
| | (0.50) | (2.47)** | (3.16)*** | (3.14)*** | (2.60)*** | (0.02) | (0.20) | (1.19) |
| Insurance companies | 28.204 | 0.397 | 0.270 | 0.310 | 0.089 | 0.036 | 0.700 | 4.434 |
| | (0.20) | (1.75) | (1.27) | (1.43) | (1.01) | (0.83) | (1.25) | (3.16)*** |
| Other financial intermediation | 47.274 | 0.414 | 0.416 | 0.444 | 0.086 | –0.009 | 0.483 | 6.092 |
| | (0.43) | (2.51)** | (2.61)** | (2.72)** | (1.25) | (0.26) | (0.84) | (3.23)*** |
| **Binary variables for market types** | | | | | | | | |
| Private | –242.312 | –0.603 | –0.654 | –0.657 | –0.319 | –0.005 | 0.241 | –0.186 |
| | (4.93)*** | (8.29)*** | (9.43)*** | (9.24)*** | (11.06)*** | (0.30) | (0.82) | (0.47) |
| FTSE Fledging | –315.265 | –0.421 | –0.496 | –0.493 | –0.137 | –0.009 | 0.457 | 0.499 |
| | (8.28)*** | (6.92)*** | (8.39)*** | (8.16)*** | (5.25)*** | (0.87) | (1.96)** | (1.89)* |
| FTSE Small | –269.547 | –0.309 | –0.368 | –0.358 | –0.129 | –0.004 | 0.449 | 0.293 |
| | (7.54)*** | (5.71)*** | (6.95)*** | (6.62)*** | (5.87)*** | (0.39) | (2.22)** | (1.21) |

**Oxera**
Park Central
40/41 Park End Street
Oxford OX1 1JD
United Kingdom

Tel: +44 (0) 1865 253 000
Fax: +44 (0) 1865 251 172

www.oxera.com