UNIVERSITY OF
STIRLING

SHAMHARIR ABIDIN
Department of Accounting & Finance

AUDIT MARKET CONCENTRATION AND AUDITOR CHOICE IN THE UK

Submitted for the degree of
Doctor of Philosophy in Accountancy

August 2006

Acknowledgements

The production of this thesis is not simply the result of an individual effort. As with most projects of this magnitude, a number of acknowledgments are more than necessary. This dissertation would not have been possible without generous financial assistance from the Malaysian government, University Utara Malaysia and University of Stirling. In addition, portions of this research benefited immeasurably from the comments of participants at a number of conferences and workshops. Notable among these participants were individuals at the 2003 Scotdoc Conference at Strathclyde University, the 2004 BAA Doctoral Colloquium at York University, the 2004 Scottish BAA Conference at Paisley University, the 2005 BAA Conference at Heriot-Watt University and the 2006 EAA Conference in Dublin.

This project also reflects the invaluable assistance of my supervisors who served as enthusiastic supporters. I am indebted to Professor Vivien Beattie and Professor Alan Goodacre, whose contributions to the project are truly too numerous to detail in this preface. Due to their diligence and willingness to open their demanding professional and personal schedules, this process has been the most rewarding educational experience for which one could hope. I also must thank all staff at School of Accounting and Finance, University of Stirling for being so motivational and so supportive. I also want to thank my thesis examiners - Professor Stuart Turley and Professor Ian Fraser, for their helpful comments and suggestions.

Very special thanks goes out to my wife, Nurwati Ahmad for her continuous love, support and encouragement, to my three little children - Amira, Izzati and Irdina for making my life fulfilled. To a number of friends and family, I am eternally grateful for making my life easier while writing this thesis.

This dissertation is dedicated to my mother Som Ismail and my late father, Abidin Hj. Mohamad.

Abstract

Auditing has an important role in the corporate governance process and is essential in ensuring confidence in the reliability of financial information. It is important to understand the reasons why, given the costs involved, companies change their auditor and choose a particular level of audit assurance. To date, however, only a limited number of studies on auditor choice issues are available, especially in the UK setting. Further, since the downfall of Andersen, the audit market environment has changed significantly, creating a new audit environment to be researched. In light of these recent developments, the objectives of this thesis are to address both concentration and auditor choice issues. It is divided into two separate but interrelated parts.

The first part of this thesis provides evidence on audit market concentration in the UK domestic listed company market from 1998 to 2003. The effect of Andersen's demise on both audit market concentration and audit fees is examined. Using four different size measures (number of audits, audit fees, clients' total assets and sales), three measures of concentration are calculated. Results show that the UK audit market has now clearly surpassed the tight oligopoly threshold and, despite auditing significantly fewer clients in 2003 than in 1998, the B5/4 managed to increase their fee dominance. In particular, the decline in B5/4 'number of clients' market share was mainly due to their lower share of the newly-listed companies audit market. On the other hand, the slight increase in B5/4 audit fee market share was due to the net impact of leavers concentrating the B5/4 share and joiners diluting it. Voluntary switches *to/from* the B5/4 had a relatively small impact on B5/4 market share for both measures.

Following Andersen's acquisition by Deloitte & Touche, market levels of audit fee and audit fee rate (audit fee scaled by total assets) have increased markedly, suggesting that more audit effort is being expended as a way to restore confidence about audit quality after the damage caused by Andersen's alleged misconduct. The acquisition has also contributed to a further increase in 'audit fee' market concentration for the 4-firm

concentration ratio (CR4) and in the overall Hirschman-Herfindahl Index measure. Although, Deloitte & Touche gained significant market share in terms of both audit fees and number of audits through its acquisition of Andersen, it is PricewaterhouseCoopers that continues to hold the largest market share. Deloitte & Touche retained 93 former Andersen clients (74%), 21 (17%) moved to another B5/4 auditor and 11 (9%) chose a non-B5/4 firm. While former Andersen clients paid higher audit fees, in aggregate, the increase was, perhaps surprisingly, less than for the market as a whole.

At the industry level, the B4 firms dominated all sectors, the highest non-B5/4 market share in any industry being just 8%. In 2003, PricewaterhouseCoopers was the leader in 18 out of 34 sectors.

The second part of the thesis is divided into two separate studies – auditor change determinants and new auditor selection determinants. These studies use a sample of non-financial auditor change companies to test logistic regression models of the determinants of auditor change and new auditor selection. The determinant variables include auditee, auditor and audit characteristics. This part also examines the sensitivity of results to alternative functional forms of the basic model specification. Two definitions of auditor quality – brand name auditor and specialism, are employed.

Internal governance issues such as audit committee independence, the duality of chairman/CEO as well as the size/quality of the incumbent auditor were found to be significant determinants of auditor change. Expected future growth in the company, rather than past growth, and audit fee reduction were positively related to audit change probability. Result also suggests that companies changed auditor to improve the perception of auditor independence.

By contrast, in the new auditor selection models, corporate governance variables did not appear to be important in determining a different quality (brand-name) auditor. Only the

chairman/CEO duality variable was weakly and negatively significant, suggesting that duality is associated with a change to a lower quality auditor. Growing companies are more likely to change to a brand name auditor, consistent with the inability of smaller firms to provide services across an international market. Contrary to agency theory predictions, the results show that a company experiencing increased leverage is less likely to choose a B5/4 auditor, suggesting that B5/4 auditors are being selective in avoiding risky clients. Higher audit fees are paid to new auditors by companies that changed from non-B5/4 to B5/4, reflecting a B5/4 fee premium. However, the higher NAS fee result is contrary to initial expectations. Typically, far fewer variables were significant in the models with audit quality proxied by industry specialism. For the specialism models based on audit fee market share, there is counter-intuitive evidence that a company with a large number of subsidiaries is less likely to move to a specialist auditor from a non-specialist. New specialist auditors were more likely to be preferred when a company experienced an increase in current accruals or a reduction in leverage. In general, the results for these models were less strong and were dependent upon the specialist definition adopted.

Finally, the thesis provides evidence that the choice of time variant model (*ex-ante*, *contemporaneous* or *ex-post*) made no significant difference to the overall results. The one exception concerns the 'growth' variable, where companies are found to change auditor *in anticipation of* future growth, rather than as a response to past growth. Further, the use of alternative proxy variables does not greatly influence the regression results. One important exception to this general observation concerns the brand name proxy. When brand name was defined as *tier12* (to include Grant Thornton and BDO) the significance level was improved in all models. This suggests that, to some degree, Grant Thornton and BDO are viewed as quality service providers closer in quality to B5/4 than to other smaller audit firms.

Table of contents

List of appendices

List of figures

List of tables

Abbreviations

AICPA	American Institute of Certified Public Accountants
AIM	Alternative Investment Market
ASR	Accounting Series Release
B4	Big Four
B5	Big Five
B5/4	Big Five or Four
B6	Big Six
B8	Big Eight
BOD	Board of Directors
CCAB	Consultative Committee of Accountancy Bodies
CEO	Chief Executive Officer
DSCODE	Datastream Code
DTI	Department of Trade and Industry
EC	European Commission
FRC	Financial Reporting Council
FSA	Financial Services Authority
GAO	Government Accountability Office
LSE	London Stock Exchange
MD	Managing Director
NAS	Non-audit Services
NED	Non-executive Directors
NYSE	New York Stock Exchange
OFT	Office of Fair Trading
OLS	Ordinary Least Squares
OTC	Over the Counter
PCAOB	Public Company Accounting Oversight Board
PwC	PricewaterhouseCoopers
SCP	Structure-Conduct-Performance
SEC	Securities and Exchange Commission
SEYB	Waterlow Stock Exchange Yearbook
SFA	Securities and Futures Authority
UK	United Kingdom
UKLA	UK Listing Authority
US	United States
USM	Unlisted Security Market

Chapter 1: Introduction

1.1 Introduction and motivation to the study

This thesis investigates two aspects of the UK listed company audit market, namely audit market concentration and the determinants of auditor choice. The first part deals with auditor concentration, and documents the structure of the UK audit market. The second part deals with auditor choice studies, in particular it investigates the determinants of auditor change and new auditor selection.

In the UK, more than 20,000 audit firms currently supply audit services to domestic listed and unlisted companies (International Financial Services, 2003). Despite the availability of large numbers of audit suppliers, the audit market is dominated by only a small number of large audit firms. The so called 'Big Four (B4)' dominance is especially true in the case of the audit market for public listed companies. There is fear that excessive concentration will lead to an increase in the price of the services provided by the auditor (Office of Fair Trading, 2002). This fear mounted with a particular recent development in the audit market. In the middle of 2002, Andersen, one of the top five audit firms in the world, was convicted of obstruction of justice for shredding documents related to the failed US energy giant, Enron. Andersen ceased its business in August 2002 and its UK business was acquired by Deloitte & Touche. Enron's collapse and Andersen's demise have sparked intense debate about audit market competition and audit quality especially amongst regulators, academics and users.

In the UK, for example, concerns about rising concentration prompted the Department of Trade and Industry (DTI) and Financial Reporting Council (FRC) to commission a study on the state of competition and choice of auditor in the UK audit market. The study, conducted by Oxera (2006), covers the period 1995 to 2004 and includes 739 listed and

private companies. Key findings of the study are that the B4 now audits 93% of listed companies and 99% of the FTSE 100.

Although the US Supreme Court reversed Andersen's conviction in 2005, inevitably the audit market environment and structure had already changed. New legislation and corporate governance codes were proposed and introduced. The main focus was on improving corporate governance, which also includes the auditor choice issue.

However, the issue is not straightforward. The modern organisation is characterised by the separation of ownership from control. In theory, a company's auditor acts as agent to the shareholders and should be independent from management. However, in practice, it is management that is often referred to as the 'audit client' and it is management that receives the letter of engagement (Abdel-Khalik, 2002). According to Abdel-Khalik (2002), the biggest fallacy in corporate governance today is the premise that shareholders elect and appoint the auditor. Shareholders (through proxy votes) have effectively handed over the control of auditor-related decisions (hiring, retention and compensation) to management. Therefore, the real motivation for auditor-client re-alignment might be known only to management. Generally, evidence suggests that auditor changes could diminish users' confidence in the audited financial statements which further could inhibit the flow of capital in the securities markets and subsequently increase capital costs (Knapp and Elikai, 1988). Despite the importance of understanding the motivations for, or determinants of, auditor change, little has been done to investigate the issue.

To date, research on auditor change and selection determinants has largely been undertaken in the US. Only recently has a growing number of studies been undertaken in continental Europe. In the UK, only three studies can be identified. The most recent study, undertaken by Hudaib and Cooke (2005), covers a relatively old dataset (1986-2001). The other two studies are Lennox (2000) and Moizer and Porter (2004). Similar

to Hudaib and Cooke (2005), Lennox (2000) also covers a relatively old dataset (1988-1994). Moizer and Porter (2004), while providing invaluable evidence about the auditor-client realignment issue, focuses mainly on how client risk could influence auditor selection. In addition their study only covers the period to 2000. Thus, much remains to be investigated, especially given recent changes in the auditing environment. Moreover, Moizer and Porter's (2004) study does not investigate the determinants of the auditor change event itself, nor does it include other previously tested variables known to be important determinants. The present study extends the UK evidence available in two ways; first by extending the dataset up to year 2003 and second by including variables previously tested in non-UK studies. The present study also introduces variables that, in theory, are expected to be important in the process of auditor choice. These variables include the characteristics of internal corporate governance, perceived auditor independence and the demand for non-audit services (NAS).

This chapter is organised as follows: section 1.2 provides a description of the terminology used and then explains the classification of auditor choice cases. The costs associated with auditor change are also discussed. Section 1.3 presents the research questions and outlines the approaches taken. Key findings are presented in section 1.4. The contributions to knowledge are discussed in section 1.5. Finally, section 1.6 outlines the thesis organisation.

1.2 Classification of auditor choice studies

There exist no standard terms that distinguish different types of auditor choice events and this is reflected in many studies that investigate these events. For instance, studies use the terms '*change*', '*switch*', '*dismissal*' and '*auditor-client realignment'* interchangeably. However, recently there has been an attempt to differentiate between 'client-initiated change' and 'auditor-initiated change' and thus, the term '*auditor resignation'* began to emerge. There are also no standard terms used to differentiate

between different classes of auditor choice, i.e. whether involving auditor change or mere existing choice. To avoid confusion throughout the thesis, it is important to introduce the specific terms used to represent specific types of auditor choice events.

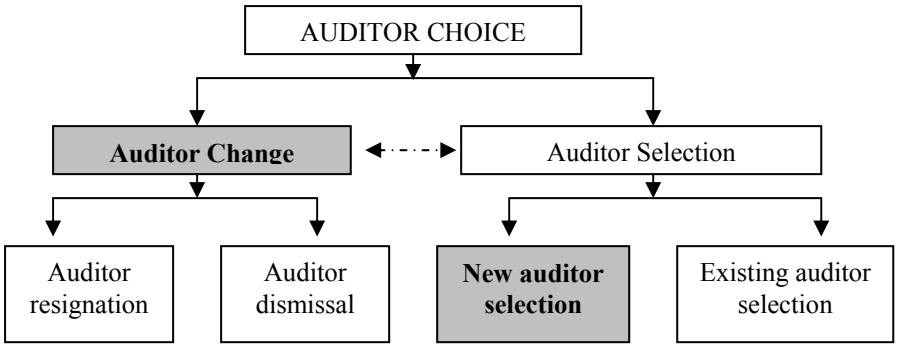
Thus, this thesis divides the complete auditor choice process into two different stages – the auditor change stage and the auditor selection stage - based on the suggestion by Francis and Wilson (1988). These two stages (change and selection) are generically referred to as the 'auditor choice' process. Specifically, the first phase (auditor change) refers to the event where there is a break in the relation between auditors and auditees (or clients). However, most of the studies that investigate the issues surrounding the auditor change event do not distinguish between changes initiated by the auditees and those initiated by the auditors. Although there is evidence that the two are not the same and might usefully be studied differently (e.g. Krishnan and Krishnan, 1997), only a few studies differentiate between the two (e.g. Dunn, Hillier and Marshall, 1999; Dunn and Stewart, 1999; Hudaib and Cooke, 2005). Indeed, for the UK it is extremely difficult to distinguish genuine resignations from dismissals (Moizer and Porter, 2004). To assist in the literature review, auditor change events are classified into two categories. The first is the event where the changes are initiated by the client and is referred to interchangeably as '*auditor change'* or '*auditor dismissal'*. On the other hand, the term '*auditor resignation'* is used to refer to the event of auditor switching initiated by the auditors. However, it is important to note that it is not usual for the auditor to initiate changes (except in severe circumstances)[1] and, in addition, it is also very rare for auditors in the UK to provide reasons for their decision to resign.[2]

In cases involving auditor change, the second stage is the selection of a replacement auditor. In this thesis, the selection of a new auditor by auditor change companies is

[1] As asserted by Whisenant and Sankaraguruswamy (2000) and DeFond *et al*. (1997).
[2] For instance, only 19 out of 766 auditor resignation cases in the UK for the 1988-1992 were filed with reasons (Dunn and Sikka, 1999).

referred to as '*new auditor selection'*. However, there are studies that investigate auditor choice without specifically referring to the selection of a new auditor after the auditor change. These studies generally attempt to explain the reasons why a company has in the past chosen a certain type of auditor. In this thesis, this type of auditor choice is labelled as '*existing auditor selection'*.[3] Figure 1.1 summarises this classification of auditor choice events, with the events considered in this thesis highlighted.

Figure 1.1: Classification of auditor choice studies



A key question that arises is which event comes first – auditor change or new auditor selection? Every domestic company listed on the stock exchange in the UK (i.e. London Stock Exchange) is required to appoint an auditor to perform an annual statutory audit. At any time, public listed companies are allowed to change their auditor or, in other words, to choose a new auditor. Technically, the process of this auditor-client realignment involves two phases: (i) the auditor change stage; and (ii) the new auditor selection stage. Moreover, as stipulated in the Companies Act, the first auditors will hold office until the end of the first Annual General Meeting and, in the case of non-reappointment, the new auditors will hold office from the end of the meeting.

[3] There is another category of auditor choice which deals with auditor choice by initial public offering (IPO) companies. However, as auditor choice during IPO is motivated heavily by the need for signalling and has been the focus of specific research, a review of the literature in this area is not included in this thesis.

Technically, it is then appropriate to assume that the change comes first and is followed by the new auditor selection process.

1.3 Research questions and approach taken

As stated earlier, this thesis comprises two parts. To provide context, the first part addresses broad research questions in relation to the structure of the UK listed company audit market. Specifically, the study is designed to provide answers to the following questions:

1. What was the level of audit market concentration following the PricewaterhouseCoopers (PwC) merger and after Andersen's demise (i.e. 1998 to 2003) and has it changed significantly?
2. Have audit fee rates changed significantly during the period?
3. What was the relative importance of joiners, leavers and switchers in explaining the overall change in audit market concentration?

To address the first question, three market concentration statistics are calculated. The first is the simple concentration ratio. Second, the Herfindahl Index is calculated as an alternative measure. Finally, a relatively new measure, known as the Gini Coefficient, is used to provide comparison. Four different size measures – number of audits, audit fees, total sales and total assets are used as the basis to calculate the concentration statistics.

To answer the second question, the rate of audit fees per unit of size is reported and the fee rate for each company size deciles of companies is analysed.

To address question three, an analysis which looks at the impact of auditor-client realignment, (voluntary or involuntarily) and market activity (e.g. IPO and company delisting) on audit market structure is undertaken.

In June 2002, Andersen lost its auditing licence in the US and its UK business was acquired by Deloitte & Touche. This acquisition reduced the number of large accounting firms from five to four and sparked intense debate about competition and audit quality in the audit market and provides one motivation for the present study. Since there is no UK study that specifically investigates the effect of Andersen's demise on the UK audit market using actual data (rather than predicted outcomes), this thesis is also designed to provide answers to the following questions:

4. How did Andersen's demise affect market concentration?
5. Following Andersen's demise, who now dominates the market at industry level?
6. Who audits former Andersen clients and did the audit fee change significantly?

To answer questions four and five, a detailed analysis of individual audit firm market share is performed at both overall market level and specific industry level. In order to address question six, Andersen successors for each of its former clients are identified and statistical analyses are done to identify any changes in audit fee and fee rates.

Findings from the first part of the thesis are important to gain insights into market competition and related issues. In part two, these findings also underpin informed choices in relation to the measurement of several variables (e.g. auditor specialism) and the interpretation of a number of results in the auditor choice studies.

The second part of the thesis attempts to provide answers to the following research questions:

7. What factors influence a company's decision to change auditor?
8. Given that auditor change has occurred, what factors influence the selection of the new auditor?

9. How sensitive are the findings to alternative model specifications and variable measurement choices?

To address question seven, a thorough literature review is undertaken to identify potential factors that trigger auditor change. In addition, this thesis also considers additional potential explanatory variables that might explain the phenomenon. A logistic regression analysis is used since the dependent variable is dichotomous (i.e. '1' for auditor switch and '0' for non switch) and hence violates the OLS linearity assumption. The determinant variables tested in this thesis are grouped into: (i) auditee characteristics, (ii) audit characteristics, and (iii) auditor characteristics.

To address research question eight, the dimensions of auditor quality must first be identified. Following a review of the literature, two general proxies of audit quality are identified – brand name reputation and specialism. This allows the quality direction of auditor changes to be identified and a set of potential determinant variables to be regressed on this quality shift to estimate the selection models.

Finally, to test the sensitivity of the results to alternative model specifications and variable measurement choices, ten (four) different models of auditor change (new auditor selection) are developed and tested. In particular, four representations of potential determinant variables are tested (where appropriate): (i) the 'level' of the determinant variables in the year preceding the auditor change, (ii) the 'average level' of the determinant variables in the two years preceding the auditor change, (iii) the 'change' in the level of the determinant variables over the year prior to auditor change, and (iv) 'major change' in the determinant variables. In addition, these variables are measured around the auditor change year and after the auditor change year. In total, ten variants of auditor change models are tested. In addition, for a number of variables, the models are tested for robustness to alternative proxies.

1.4 Key findings

First, this thesis reveals that the UK audit market has now surpassed the tight oligopoly threshold. Although the B5/4 firms audit significantly fewer clients after Andersen's demise, their fee dominance has increased. The level of audit fee and audit fee rate (audit fee scaled by total assets) increased markedly following Andersen's acquisition by Deloitte & Touche, indicating the desire by companies and audit firms to restore confidence about audit quality in financial market participants after confidence levels had been damaged by Andersen's alleged misconduct. There is also evidence of 'economies of scale' in the audit process. Despite the general audit fee rise, larger companies appear to pay relatively smaller audit fee per £ total assets compared to smaller companies. Inevitably, small audit firms appear to face significant barriers to entry in order to gain more market share in the large listed client audit market.

Second, the auditor change determinants study shows that corporate governance variables (audit committee independence, BODs independence and chairman/CEO duality), high audit fees, perceived lack of independence (proxied by the ratio of NAS to audit fee) and NAS were important determinants of auditor change. Evidence also points to the importance of expected growth and major changes in complexity. There is also evidence which shows that companies audited by the B5/4 firms, rather than by industry specialists, were less likely to change auditor. Further investigation suggests that the choice of auditor change model, variable measurements and alternative proxies made little significant difference to the results.

Third, the new auditor selection study reports that larger and growing companies are more likely to choose a quality brand name auditor over smaller auditors. However, evidence shows that a company experiencing increased leverage is less likely to choose a B5/4 auditor. While both audit fee and NAS variables were still relevant in making the new auditor selection decision, corporate governance variables were not.

Finally, the results for the specialist selection models are subject to the specialism definition. When specialism is based on audit fee market share, there is (counter-intuitive) evidence that a company with a large number of subsidiaries is less likely to choose a specialist over a non-specialist. Change in current accruals and leverage were also positively significant. When specialist was defined as the firm with the largest number of clients; size, change in number of subsidiaries, change in current accruals and major change in management ownership were positively significant. On the other hand, duality, management change, and number of subsidiaries were negatively significant.

1.5 Contributions to existing knowledge

This thesis represents a more comprehensive study of audit market concentration and auditor choice than has previously been undertaken. It updates knowledge about the UK audit market structure and offers evidence on the factors that have changed the B5/4 market share. Covering the period 1998 to 2003, this thesis investigates the state of UK audit market structure using data comprising the population of domestic listed companies. This thesis also investigates both auditor change and new auditor selection determinants, using a large sample size.

The first part of this thesis deals with regulators' concerns about the state of competition in the audit market, especially after Andersen's demise. The findings of this thesis indicate that the Andersen disappearance has increased the B5/4 market dominance. Although Deloitte, being the Andersen acquirer, gained a considerable increase in market share, its position is still far below PricewaterhouseCoopers in terms of audit fees earned. The market share gap between B4 and smaller firms has become wider, potentially reducing the possibility for the smaller firms to become significant service providers in this market segment.

It is interesting to note that, while B5/4 firms are earning more audit fees, the firms are auditing fewer clients than before. By analysing how market concentration has changed over the period 1998-2003, this thesis establishes that the increased B5/4 audit fee market share is due to the net impact of leaver companies concentrating the B5/4 share and joiner companies diluting it. The decline in B5/4 'number of clients' market share is mainly due to their lower share of the newly-listed companies audit market. This suggests that the B5/4 firms are being more selective, possibly avoiding risky clients such as newly listed or high leverage companies. Voluntary auditor change only had a marginal effect on concentration.

The second part of this thesis investigates auditor choice in the UK based on the population of non-financial companies on the LSE for the period 1998-2003, a period which has seen significant changes in the audit environment. It is the first UK study of auditor choice to use a set of potential explanatory variables that includes corporate governance characteristics, auditor independence perceptions and non-audit services. Despite their potential importance in affecting auditor choice, such variables have, to date, received scant attention in the literature.

The empirical results confirm the importance of corporate governance characteristics in the initial decision to change auditor, though not in the subsequent new auditor selection decision. For years, regulators and researchers have considered the link between auditor change and 'opinion shopping' by management, which may call into question auditor independence. However, the present thesis shows that companies are more likely to change auditor when the external perception of the auditor's independence appears to be compromised. Further, in line with prior survey-based studies, both statutory audit fees and fees for non-audit services are found to be important determinants of auditor change.

In the new auditor selection studies, the brand name models exhibits better explanatory power than the specialist models. Of the corporate governance variables, only the dual chairman/CEO variable is significant (albeit weak) and in the expected (i.e. negative) direction, suggesting a desire by the dominant personality on the board to reduce the possibility of challenges to his control. Larger or growing companies are more likely to change to a B5/4 auditor, possibly due to the inability of smaller audit firms to cater for these companies' growing needs. There is also evidence to suggest that large audit firms have a tendency to avoid risky clients - results show that a company experiencing increased leverage is *less* likely to choose a B5/4 or a specialist new auditor.

Consistent with the brand name audit fee premium argument of audit fee studies, the thesis finds that higher audit fees are paid to new auditors by companies that changed from non-B5/4 to B5/4. There is also evidence that higher NAS fees are paid to new B5/4 auditors. No significant association between fees (audit or NAS) and specialism is found in the specialist selection models.

There is counter-intuitive evidence that a company with a large number of subsidiaries is less likely to move to a specialist auditor from a non-specialist. Results also show that a company will seek a new specialist auditor to replace a non-specialist as a response to greater possibilities of income manipulation.

Finally, the thesis provides evidence that the time specification of the models and alternative variable proxies are not of great significance in assessing auditor change or new auditor selection; the regression results are very robust to the alternatives tested. This is encouraging for academic researchers, as it suggests that individual model specifications in prior research are unlikely to have biased reported results. However, the significance of additional variables tested here does suggest that many prior models may have suffered from omitted variable bias.

1.6 Thesis organisation

This thesis study is divided into two parts. The first part deals with the auditor concentration study and the second part deals with the auditor change and new auditor selection studies.

Part 1 contains three chapters. Chapter 2 provides a review of literature related to the study of auditor concentration. In this chapter, the theory of industrial organisation and a review of previous auditor concentration studies are presented. The purpose of this chapter, amongst others, is to present evidence from prior studies about the structure of the audit market, with special emphasis being given to UK studies. In addition, the chapter argues that auditor-client realignment issues are not only about 'who audits whom?' but rather involve wider issues such as audit market competition and auditor independence. Chapter 3 presents the methods for the concentration study, explaining in detail: data sources; data collection procedures; decision rules in selecting the sample; methods used to identify auditor change; and methods used for audit market analysis. Chapter 4 presents the descriptive and empirical results of the audit market concentration study.

The thesis continues with part 2, which concerns auditor choice studies. First, chapter 5 provides a comprehensive review of the literature related to auditor choice studies. The chapter also discusses corporate governance and current regulations relevant to the auditor choice process. The thesis continues with chapter 6 which develops the formal hypotheses related to auditor change and new auditor selection. Chapter 7 presents the methods employed for the auditor choice and new auditor selection studies. Sample selection procedures, variable measurements and model testing issues are discussed in detail. Chapters 8 and 9 present the results of the auditor change and new auditor selection studies, respectively. Finally, chapter 10 provides an overall summary and

conclusions on both parts of the study, and draws out implications. The chapter also discusses limitations and provides suggestions for future research.

Chapter 2: Literature review of industrial organisation and auditor concentration studies

2.1 Introduction

The main purpose of this chapter is to present the literature pertinent to industrial organisation and audit market concentration studies. The next section presents a review of literature from industrial organisation studies. Section 2.3 discusses the factors that cause changes in audit market concentration. Empirical evidence with relation to the audit market structure and competition is discussed in section 2.4. Section 2.5 discusses the current issue related to the UK audit market and outlines the research questions. Finally, section 2.6 provides chapter summary.

2.2 Industrial organisation studies

There are four types of basic market forms that exist in an economy (Mansfield, 1979). The extreme forms are perfect competition and monopoly structure. The former can be categorised as a purely competitive market in which companies have no control over prices while the latter is dominated by only one company and it has control over the price. However, these two forms of market structure are very rare, the most common are those between the two – monopolistic competition and oligopoly. According to Mansfield (1979), collusion in oligopolistic industries is promoted since the number of firms is small and firms recognise their interdependence. As a result of collusion, oligopolists will have increased profits, decrease in uncertainty as well as a better opportunity to control the entry of new firms.

Yardley *et al.* (1992) and Beattie and Fearnley (1994) review industrial organisational theory and its relation to the audit market. Central to the study of industrial organisation is the argument that increased concentration leads to increased market power, while less

concentration increases market competition and lowers prices. This is the so-called Structure-Conduct-Performance (SCP) approach to industrial organisation. According to this approach, there is a direct link from structure, to conduct, to performance. The implication is that the more concentrated an industry, the more market power[4] the company exercises and thus the larger the deviation from competitive pricing.

The one-way causality assumed by the SCP approach, however, is not shared by all economists. Increased concentration when combined with cost efficiencies does not necessarily lead to higher prices. The new industrial organisation economists have developed models in which there is substantial feedback between structure, conduct and performance. In equilibrium, both concentration and performance are endogenously determined by underlying cost and demand parameters (Beattie *et al.,* 2003). The new industrial economists asserted that performances could affect structure and profitability affects entry. Thus, more efficient firms should grow faster than less efficient firms resulting in more concentrated industry structure.

Evidence from audit market concentration studies suggests that increased market concentration does not necessarily decrease competition. For instance, while the merger between Price Waterhouse and Coopers & Lybrand increased the Big Five (B5) market share at the aggregate market level, Thavapalan *et al.* (2002) report that, for a number of industry sectors in Australia, a more equitable spread of audit clients between the B5 firms was achieved. A study by the Government Accountability Office (GAO) in the US, found no empirical evidence to support the contention that competition in the audit service market has been impaired (GAO, 2003). Earlier studies such as of Dopuch and Simunic (1980) and Danos and Eichenseher (1986) report evidence supportive of price competition.

[4] Market power refers to conditions where the providers of a service can consistently charge prices above those that would be established by a competitive market.

High levels of audit market concentration have been reported by many studies undertaken in several countries (e.g. UK: Moizer and Turley 1987; Beattie and Fearnley, 1994; Pong, 1999; Beattie *et al.,* 2003; US: Wolk *et al.,* 2001; Australia: Thavapalan *et al.,* 2002; Germany: Quick and Wolz, 1999; international market: Choi and Zeghal, 1999). According to Beattie and Fearnley (1994), the more important issue is whether collusion between the dominant firms is likely. According to them, this depends on whether the market structure can be categorised as a tight or loose oligopoly. A tight oligopoly has fewer rivals, higher concentration, stable market share and medium to high barriers to entry, whereas a loose oligopoly has more rivals, lower concentration, unstable market shares and low barriers to entry. According to Shepherd (1997), a tight oligopoly prevails where the market share of the top four firms exceeds 60%.

Mergers and acquisitions have been used as a means for audit firms to expand their business, by achieving greater economies of scale and also industry specific expertise (GAO, 2003). Gramling and Stone (2001) note that audit industry expertise may also potentially improve firm efficiency through economies of scale resulting from concentrating resources and technology investment in specific industries. However, industry expertise also creates barriers to entry for competitors, especially those of smaller firms. Gramling and Stone (2001) also note that professional standards and emerging risk-based audit technologies demand that audit firms integrate industry expertise into their audit approaches and as such, auditor specialisation has become a minimum requirement and barrier to entry in the audit service market.

Industry specialisation, however, is not the only barrier that smaller firms are facing. According to GAO (2003), high capital requirements, lack of recommendation by capital market participants and high litigation risk and insurance cost also add to the list. This is especially true in the case of the audit market for public listed companies.

2.3 Changes in market concentration

Studies of audit market concentration indicate that the increase in market concentration could occur for three main reasons, which are: (i) voluntary realignment; (ii) changes in the set of service buyers; and (iii) changes in the set of service suppliers (Beattie and Fearnley, 1994; Beattie *et al.,* 2003). Voluntary realignments happen when companies' initiate the auditor change. In the UK and many other countries, companies are free to change and to select a new auditor, with shareholders' approval. The reasons for voluntary realignment include high audit fee, dissatisfaction with auditor's ability to detect problems, changes in company's top management, need for group auditor rationalisation, need for a Big Six (B6) auditor, company mergers and takeovers (Beattie and Fearnley, 1998). Beattie and Fearnley (1995) and Beattie *et al.* (2003) state that if there is an underlying preference for the leading suppliers (currently the B4 firms), then these realignments, provided that other factors remain equal, will result in rising concentration.

Changes in the set of consumers result from new companies entering or exiting the market through initial public offerings, insolvencies and mergers (Beattie *et al.*, 2003). Further, in the case of the market for public listed companies, delisting, re-admission and temporary suspension could also affect the measured concentration level in that particular market segment.

Changes in the set of suppliers can occur as a result of an audit firm merger or demise. In the case of the market for audit services, merger is generally stated as the main reason for increased concentration. The demise of audit firms, though very rare, also tends to increase market concentration.

2.4 Empirical studies

Briston and Kedslie (1985) undertook the first study of concentration in the UK audit market. They analysed concentration on the basis of the number of audits of all domestic listed companies and observed that the top four firms audited 21% and about 38% of the market in 1968 and 1984, respectively. The study also reports that the top twenty audit firms' market share was about 76% in 1984, a substantial increase from just 39% in 1968. Moizer and Turley (1987) reported an increase in market concentration among the FT500 companies listed in 1972 and 1982 using audit fees as the size measure. Based on number of audits, Beattie and Fearnley (1994) reported the top four, six, eight and twenty audit firms increased their market share steadily during the 1987-1991 period. Pong (1999) also reported an increase in market concentration during the period from 1991 to 1995. He found, however, a slight decrease in concentration level in 1995 and 1994, using number of audits and audit fees as size measures, respectively. The top four firms market share based on number of audits was around 43% in 1991 (Beattie and Fearnley, 1994), rising to just below 60% in 1995 (Pong, 1999). Based on audit fees, the market share of the top four firms was around 79% in 1994, slightly higher than the 77% level in 1991.

In the most recent study, Beattie *et al.* (2003) analysed the effect of Andersen's demise on audit market concentration (on a *pro forma basis*) and reported that the top four firms would increase their market share from about 67% to 73% and from about 90% to 96% on the basis of number of audits and audit fees, respectively. Analysing the reported market concentration since 1968, the study noted that the UK audit market was consistently becoming more concentrated over time. The study also reports that the levels of concentration are significantly higher in premier market segments (i.e. FTSE 100 and 250) in certain industry sectors. With the reduction in the number of audit firms servicing the market (1190 firms in 1968 and 84 in 2003- as reported by Briston and

Kedslie, 1985 and Beattie *et al.,* 2003), the study asserts that consumers have limited choice and may find it increasingly difficult to identify a top tier firm that does not audit or provide other services to a major competitor.

Studies of auditor concentration outside the UK market also have identified significant increases in concentration over time. As reported by GAO (2003), in the US the top four firms audited 63% of total public companies' sales in 1988, rising to 71% by 1997 and 99% by 2002.[5]

Beattie and Fearnley (1994) report that auditor switching, audit firm mergers and the auditor distribution of newly listed companies as the three principal factors that have contributed towards the change in concentration ratio of the UK audit market from 1987 to 1991. The study also reports that the voluntary realignments were the main reason to the change of top 20 firm market shares. In addition, the study also reveals that whenever the voluntary realignments happen, the top-tier firms are more likely to be chosen as the new auditors

2.5 Issues related to the UK audit market and research questions

As discussed in section 2.2 and 2.3, audit market concentration has attracted the interest of regulators and academics for many years. There is fear that excessive concentration would lead to an increase in the price of the services provided by the auditor (OFT, 2002). In addition, from an industrial economics viewpoint, high seller concentration can both harm consumers and also benefit them through, for example, economies of scale and scope.

In section 2.3, it is mentioned that one major cause of increased concentration is when leading suppliers disappear from the market, whether through merger or demise (Beattie

[5] Audit fee data was not, until recently, publicly available in the US.

et al., 2003). Following significant mergers amongst the Big Eight (B8) firms in the 1980's and the B6 in the 1990's, it is evidenced that the audit market has become more concentrated with four firms now dominating the market. Although concerns about the so-called 'mega-mergers' on competition were raised, in general the regulatory conclusions were that the mergers would be unlikely to substantially lessen competition (Goddard, 1998; Thavapalan *et al.,* 2002). However, while the merger between Price Waterhouse and Coopers & Lybrand was given the green light by authorities in many countries around the world, there was also a warning that a further reduction to only four main audit players would harm the market.

However, in June 2002, Andersen, one of the top five audit firms in the world, was convicted of obstruction of justice for shredding documents related to the failed US energy giant, Enron. As a result, the firm lost its auditing license in the US.[6] In August 2002, the firm ceased business and was acquired by Deloitte & Touche, reducing the number of big accounting firms from five to four. This event sparked further intense debate about competition and audit quality in the audit market.

In the US, the GAO studied the effect of consolidation but found no evidence of impaired competition (GAO, 2003). Prior to Andersen's acquisition, the European Commission (EC) also examined the possible impact of the acquisition, concluding that there was no danger of the creation of single dominant position since Andersen and Deloitte & Touche were the smallest B5 firms (EC, 2002). Academics have also investigated the impact of Andersen's dissolution (e.g. Beattie *et al.,* 2003). It is predicted by Beattie *et al.* (2003) that the acquisition would increase the B4's UK listed clientele to 72.8% of all audit clients (96.3% in terms of audit fees). In terms of individual firm market share, the study projected that Deloitte & Touche would become

[6] The firm also audited Worldcom, another company involved in accounting scandal. This added another blow to Andersen and contributed to its dissolution.

the third largest audit firm in the UK, accounting for 19.2 % of the total market (based on audit fees).

However, as the EC and Beattie *et al.* (2003) studies were based on pro-forma figures and thus the actual impact of Andersen's dissolution in the UK remains undocumented. Since these studies only cover a very short period of time, the extent of change in concentration in the UK listed company audit market is not yet fully documented. It is especially true for the period following the Price Waterhouse and Coopers & Lybrand merger in 1998. The only UK study that investigates audit market concentration among listed companies during the 2000s is Beattie *et al.* (2003). Previously, studies undertaken by Briston and Kedslie (1985), Moizer and Turley (1987), Beattie and Fearnley (1994), Peel (1997)[7] and Pong (1999) jointly cover the period from 1970's to 1990's.[8] To fill the gap on this area of study, the first part of the present thesis seeks to provide answers to the following questions with respect to the UK domestic listed company audit market during the period 1998-2003:

General issues

i. What was the level of audit market concentration following the PricewaterhouseCoopers (PwC) merger and after Andersen's demise (i.e. 1998 to 2003) and has it changed significantly?

ii. Have audit fee rates changed significantly during the period?

iii. What is the relative importance of joiners, leavers and switchers in explaining the overall change in audit market concentration?

Andersen-related issues

iv. How did the Andersen demise affect market concentration?

v. Following Andersen's demise, who now dominates the market at industry level?

[7] Peel (1997) includes quoted and unquoted public limited companies (plc) and private companies.
[8] Another study, Moizer and Porter (2004) look at the frequency of individual changes during the 1990s, but not overall concentration.

vi. Who audits former Andersen clients and did the audit fee change significantly

2.6 Chapter summary

This chapter marks the beginning of part 1 of the thesis. It focuses on reviewing the organisational economic theories and evidence of the UK audit market concentration. From the literature, it is acknowledged that there are two views on the relation between market structure and its performance. Economists from SCP school of thought argue that low market concentration would increase market competition and subsequently, will benefit the consumer. New industrial economists, however, argue that there is feedback between market structure, conduct and performance. They assert that increased concentration when combined with cost efficiencies does not necessary lead to higher prices. With regards to the audit market concentration, evidence suggests that the UK and international audit market are consistently becoming more concentrated over time. Several reasons have been identified to cause increased market concentration. These are (i) voluntary realignment, (ii) changes in the set of service buyers, and (iii) changes in the set of service suppliers.

In view of the recent changes in the audit market and lack of the UK post 2000 market concentration study, this chapter set-up a number of research questions to fill this gap.

Chapter 3: Sample selection and methods for market structure study

3.1 Introduction

This chapter outlines the sample selection process and presents the methods used to investigate the UK audit market structure during the period under study. Section 3.2 discusses the period chosen for this study. Section 3.3 outlines the data sources used. Data collection procedures, including the problems that arose are presented in section 3.4. This section also discusses the procedures taken to clean the dataset. The decision rules applied in selecting the final sample are presented in section 3.5. Method to identify auditor change cases explained in section 3.6. Methods for audit market structure analysis are discussed in section 3.7 and finally, section 3.8 summarises this chapter.

3.2 Period of study

For the purpose of this study, domestic companies listed on the London Stock Exchange (LSE) during the six year period 1998 to 2003 were investigated. The sample period was selected to focus on recent developments in the auditing market which, amongst others, included the merger between Price Waterhouse and Coopers & Lybrand in July 1998 and the Enron scandal which resulted in the demise of Andersen in August 2002 and the subsequent amalgamation of Andersen with Deloitte & Touche in 2002. This amalgamation has reduced the number of major audit firms from five to four and raised concern over the level of competition in the audit market. Following that, audit firms in the US are no longer allowed to provide certain NAS and there have been calls for companies to voluntarily restrict the purchase of other NAS from their auditors.

Further, the period post 2002 (i.e. post-Enron period) has also witnessed renewed debate about corporate governance issues, especially the role of non-executive directors and

audit committees (Higgs Report, 2003; Smith Report, 2003). Despite the importance of this issue, no UK studies have been undertaken to investigate the relationship between corporate governance characteristics and either auditor changes or fees. The period chosen therefore will provide an opportunity to explore the significance of selected corporate governance characteristics on aspects of the audit market.

3.3 Data sources

3.3.1 Initial sample

Initial annual listings of all companies were obtained from the annual issue of the Waterlow Stock Exchange Yearbook (SEYB).[9] This reference book provides information about listed companies such as their industry membership, auditors, financial data for the previous two years and the names of the directors as well as their positions. One of the main advantages of using this source is the fact that the yearbooks contain comprehensive entries of all companies and securities listed on the LSE and all those traded in the Alternative Investment Market (AIM). However, it also includes listings on the Dublin Stock Exchange. According to the publisher, the yearbook is compiled using original listing documents and reports supplied by the companies themselves and other financial institutions. The method of compilation is claimed to allow information to be incorporated right up to the time of typesetting, and therefore, it represents the most up-to-date and authoritative reference source available in its field. In addition, the SEYB has also been the source of many other studies that examine the UK audit market (e.g. Beattie and Fearnley, 1994).

Only domestic companies were chosen to be included in the study. In particular, all UK domestic companies listed on the main market and AIM were included. Domestic companies are defined as the companies that are registered in the UK. Specifically, the

[9] Previously known as the MacMillan Stock Exchange Yearbook.

companies must be registered either in England, England and Wales, Scotland or Northern Ireland.

In the UK, there are two type of market on which companies can be listed. These markets are: (i) the main market, and (ii) the AIM.[10] The main market is one of the world's longest-established markets and is the LSE's principal market. To be listed on the main market, companies need to go through a two-stage admission process. First, companies need to apply to the UK Listing Authority (UKLA)[11] for the security to be approved by being admitted to the UKLA's official list (which is the UKLA's list of approved companies). Next, the companies are also required to apply to the exchange to be admitted to trading. Once both processes are complete, the securities are officially listed on the exchange.

AIM is the market for smaller companies. It was launched in 1995 with a more flexible regulatory approach than that of the main market. In order to joint AIM, companies are required to produce an admission document incorporating disclosures about business, financial performance and directors. In addition, companies must also appoint a nominated adviser who warrants that the company seeking admission is appropriate to be listed in the AIM. Once admitted, the companies are required to retain their advisers and continue to make ongoing disclosures. Ordinarily, once a company has been on the AIM for two years it will have the opportunity to seek admittance to the main market by using

[10] AIM is the market for fledging companies. It was established in 1995. The impetus for establishing AIM was the phasing out of the Unlisted Securities Market (USM), which had been established in 1980 to meet the demand of market quotations of shares for smaller companies. USM was closed at the end of 1996.

[11] UKLA is a division of the Financial Services Authority (FSA) which is the agency appointed by the Government to oversee the regulation of the investment industry. On 1 December 2001 the FSA assumed its full powers and responsibilities under the Financial Services and Markets Act 2000. As up to 2003, it is the single statutory regulator responsible for regulating deposit taking, insurance and investment business. The Securities and Futures Authority (SFA) and the other self regulating organisations which formerly authorised and regulated investment businesses, under the umbrella of the FSA, no longer separately exist (source:www.londonstockexchange-ir.com/lse/tools/glossary/#f)

a special expedited procedure. Table 3.1 summarises the differences between the main market and AIM.

Table 3.1: Differences between the LSE markets

Main market	AIM
■ Minimum 25% of shares in public hands	■ No minimum number of shares in public hands
■ 3 years trading record normally required	■ No prior trading record required
■ Prior shareholder approval needed for certain transactions	■ In most cases no prior shareholder approval required for transactions
■ Admission documents pre-vetted by the UKLA	■ Admission documents not pre-vetted by Exchange or UKLA, but by nominated adviser
■ Sponsor needed for certain transactions	■ Nominated adviser needed at all times
■ Compliance required with the rules of the UKLA	■ More flexible regulatory environment

Source: http://www.londonstockexchange.com/joiningourmarkets/market/default.asp as on 3 August 2003

The initial dataset was constructed based on the information provided in the 'Companies Classified within sub-sectors of the FTSE Actuaries Industry Classification System' section from the SEYB. This particular listing classifies companies by industry sector as at the date stated. The sectors and sub-sectors included are as defined by the FTSE Actuaries Industry Classification System. All of the companies were initially included, regardless of their country of origin. It is important to note that the listing excluded all companies that do not offer any equity to public[12] and is the main source to identify company's industrial sector during the year under study (see section 3.3.3).

3.3.2 Company's auditor

Information about auditors and their clients was obtained from the 'List of auditors and their clients' section of the SEYB. The list simply consists of a list of auditors and their listed clients. If not in the SEYB, information about a company's auditor was also extracted directly from the company's annual report which is available from Lexis-Nexis

[12] As these companies do not belong to any sectors.

Executive. Each auditor's name then was coded with its own identifier. Auditors that were known to have changed their names during the period under study were assigned the same code. However, those involved in merger or partnership were assigned their own unique codes.

3.3.3 Industry classification system

Consistent with the classification system that is used by the LSE, the FTSE Actuaries' industry classification system was used to classify the companies into several sectors. In addition to that, companies were also classified in sub-sectors. This classification system is operated by FTSE International (which is owned jointly by the LSE and the Financial Times) in conjunction with the Institute and Faculty of Actuaries.

In 1999, FTSE International introduced a single global classification system covering all their UK, European and Global index series. As a result, with effect from 1 April 1999, the new classification was applied to FTSE UK indices to replace the old classification of industry sectors and economic groups. This change was reflected in the Waterlow Stock Exchange Yearbook 2000 (the source of the 1999 dataset). The main sectors in the new industry classification system are shown in Table 3.2 and the deleted sectors are shown in Table 3.3.

Table 3.2: New industry classification introduced in 1999

No	Index Identifier	Sector Name
1	Sector 04	Mining
2	Sector 07	Oil & Gas
3	Sector 11	Chemicals
4	Sector 13	Construction & Building Materials
5	Sector 15	Forestry & Paper
6	Sector 18	Steel & Other Metals
7	Sector 21	Aerospace & Defence
8	Sector 24	Diversified Industrials
9	Sector 25	Electronic & Electrical Equipment
10	Sector 26	Engineering & Machinery
11	Sector 31	Automobiles
12	Sector 34	Household Goods & Textiles
13	Sector 41	Beverages
14	Sector 43	Food Producers & Processors
15	Sector 44	Health
16	Sector 46	Packaging
17	Sector 47	Personal Care & Household Products
18	Sector 48	Pharmaceuticals
19	Sector 49	Tobacco
20	Sector 51	Distributors
21	Sector 52	General Retailers
22	Sector 53	Leisure, Entertainment & Hotels
23	Sector 54	Media & Photography
24	Sector 56	Restaurants, Pubs & Breweries
25	Sector 58	Support Services
26	Sector 59	Transport
27	Sector 63	Food & Drug Retailers
28	Sector 67	Telecommunications Services
29	Sector 72	Electricity
30	Sector 73	Gas Distribution
31	Sector 78	Water
32	Sector 81	Banks
33	Sector 83	Insurance
34	Sector 84	Life Assurance
35	Sector 85	Investment Companies
36	Sector 86	Real Estate
37	Sector 87	Speciality & Other Finance
38	Sector 93	Information Technology Hardware
39	Sector 97	Software & Computer Services

Table 3.3: List of sectors deleted from 1 April 1999

No.	Index Identifier	Index Name
1	Sector 12	Extractive Industries
2	Sector 15	Oil, Integrated
3	Sector 16	Oil Exploration & Production
4	Sector 21	Construction
5	Sector 22	Building Materials & Merchants
6	Sector 23	Chemicals
7	Sector 24	Diversified Industrials
8	Sector 25	Electronic & Electrical Equip.
9	Sector 26	Engineering
10	Sector 27	Engineering, Vehicles
11	Sector 28	Paper, Packaging & Printing
12	Sector 32	Alcoholic Beverages
13	Sector 33	Food Producers
14	Sector 34	Household Goods & Textiles
15	Sector 36	Health Care
16	Sector 37	Pharmaceuticals
17	Sector 38	Tobacco
18	Sector 41	Distributors
19	Sector 42	Leisure & Hotels
20	Sector 43	Media
21	Sector 44	Retailers, Food
22	Sector 45	Retailers, General
23	Sector 46	Telecommunications
24	Sector 47	Breweries, Pubs & Restaurants
25	Sector 48	Support Services
26	Sector 49	Transport
27	Sector 62	Electricity
28	Sector 64	Gas Distribution
29	Sector 68	Water
30	Sector 71	Banks, Retail
31	Sector 73	Insurance
32	Sector 74	Life Assurance
33	Sector 77	Other Financial
34	Sector 79	Property
35	Sector 80	Investment Trusts

Source: The official LSE website http://www.londonstockexchange.com/ techlib/ word/ ser/FTSESA8_1st_Mar.doc as at 5/7/03

The FTSE Global classification System is managed by the FTSE Global Classification Committee,[13] and will only be changed on an evolutionary (rather than revolutionary) basis. Changes to industry sectors will only take place on 1st January each year, however, changes to the sub-sectors, their titles and definitions, can take place at any time as decided by the committee.

[13] The committee is composed of, and run by, independent market practitioners.

3.3.4 Source of financial and other relevant variables

Two main sources for financial and non-financial variables relevant to the study were identified. Datastream and FAME[14] were used as the major source for all financial variables. Meanwhile, other variables that are not available from Datastream or FAME, were hand-collected from the individual companies' annual reports which are largely available on the Lexis-Nexis Executive's ICC Full- Text Quoted Annual Reports database.[15]

For the purpose of the market structure analysis, information on audit fee, sales (or equivalent) and total assets were first downloaded from Datastream Advance. There is a possibility that companies might have changed their financial year-end, this study used the annualised figures which is available from the source. Subsequently, the financial year-end of each company was identified[16] and all year-ends falling in a calendar year were grouped together, for instance, the 2003 dataset will consists of financial statements with year-ends from 1 January 2003 up to 31 December 2003.

3.3.5 Sources of auditor-related events

3.3.5.1 Audit firm mergers

As has been noted by previous studies (e.g. Moizer and Turley, 1987; Beattie and Fearnley, 1994; Pong, 1999), increases in auditor concentration and market share could come about as a result of mergers between audit firms. In fact, this reason has been

[14] Datastream provides key data from both developed and emerging markets which include equities, market indices, company accounts, macroeconomic data, bonds, foreign exchange, interest rates, commodities and derivatives. FAME (Financial Analysis Made Easy) provides financial information on major public and private U.K. and Irish companies. The information given includes company profiles including subsidiaries and directors, accounting and financial information, ratios and trends, shareholder details and latest company news. Up to 10 years of financial history is provided for each company.

[15] As stated on the Lexis-Nexis web pages (http://web.lexis-nexis.com/executive/), the Full-text Quoted Company Annual Reports file contains the complete text of the annual reports and accounts published by 2,800 companies. In addition to the coverage of the British companies listed on the LSE, this database also includes the top 500 European companies.

[16] Companies financial year-ends were obtained from Datastream, which contains the exact date.

acknowledged as 'far the most significant' event that triggers higher concentration (Pong, 1999, p. 456). As a result of merger activities, audit firms may adopt a new name or in some cases retain the most dominant name. In order to identify any major merger activities during the period from 1998 to 2003 a publication by Boys (2003) was used. From his study, it is also possible to identify several audit firms that have changed their name during the period under study (see section 3.3.5.2 below). As for the companies that were not covered by Boys' (2003) publication, an effort was made to visit each audit firm's homepage and note any significant event.

Five major mergers between audit firms that occurred during the five year period were identified. The first was between Price Waterhouse and Coopers & Lybrand in 1998. The new firm is known as PricewaterhouseCoopers (PwC). Meanwhile, in 1999, ten Moores Rowland offices amalgamated with BDO Stoy Hayward and began to practice under the latter name. Boys (2003) also notes that part of Moores Rowland's offices went to Moores Stephen Booth White while the other part joined Scott-Moncrieff Downie Wilson. The Manchester office of Moores Rowland joined Hacker Young, while the other offices appear to have remained independent (Boys, 2003). During the following year, there was only one merger identified by Boys (2003), involving Fraser Russell and Baker Tilly on 1 July 2000. This resulted in Fraser Russell's name disappeared from the auditor list. There were no mergers reported during the year 2001. The year 2002, however, has witnessed two important mergers (take-overs): that between Arthur Andersen and Deloitte & Touche, and between HLB Kidson and Baker Tilly. As a result of these mergers, Arthur Andersen and HLB Kidson are no longer in practice. The merger between Arthur Andersen and Deloitte & Touche happened on 1 August 2002, while HLB Kidson merged with Baker Tilly on 1 April 2002, i.e. four months earlier than the merger between Arthur Andersen and Deloitte & Touche. Earlier, in January 2002, seven offices of BDO Binder Hamlyn, which had joined Arthur Andersen on October 1994 but continued to practise in the name of Binder

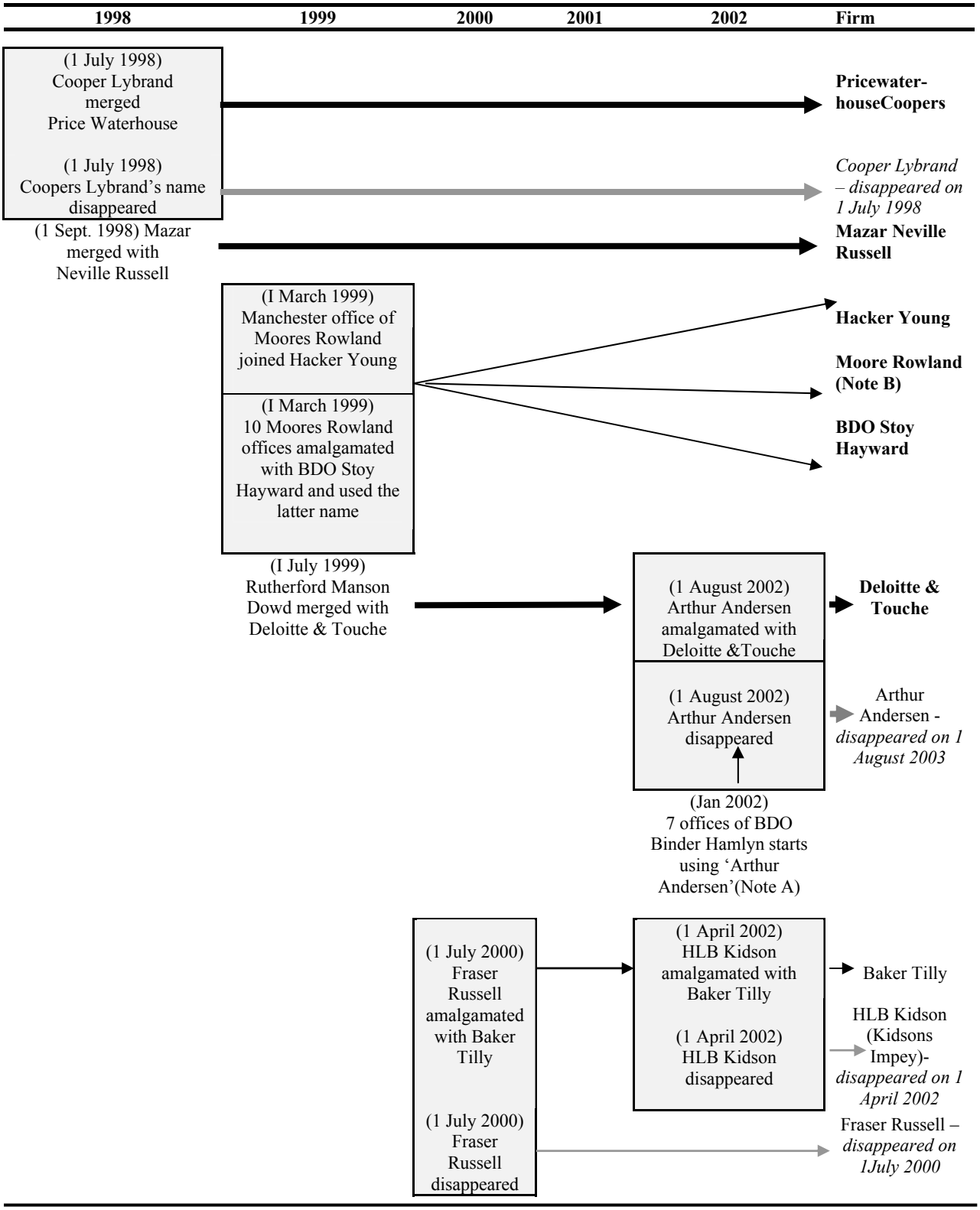
Hamlyn, began to use the Arthur Andersen name. It is interesting to note that there were no significant mergers that involved Ernst & Young and KPMG during the period 1998 to 2002.

In addition, visits to several audit firms' web pages and other relevant web sites also reveal some useful information. First, it was found that Haysmacintyre was formed through the merger of two firms chartered accountants, Hays Allan and MacIntyre and Co. In addition, Smith Williamson entered partnership with Nexia Audit Ltd in 2003. On 1 July 1999, Rutherford Manson Dowd merged their practice with Deloitte & Touche. Figure 3.1 provides summary of these key event that have taken placed during the five year period, based on Boy's (2003) study and additional information obtained from web pages.

3.3.5.2 Audit firm name changes

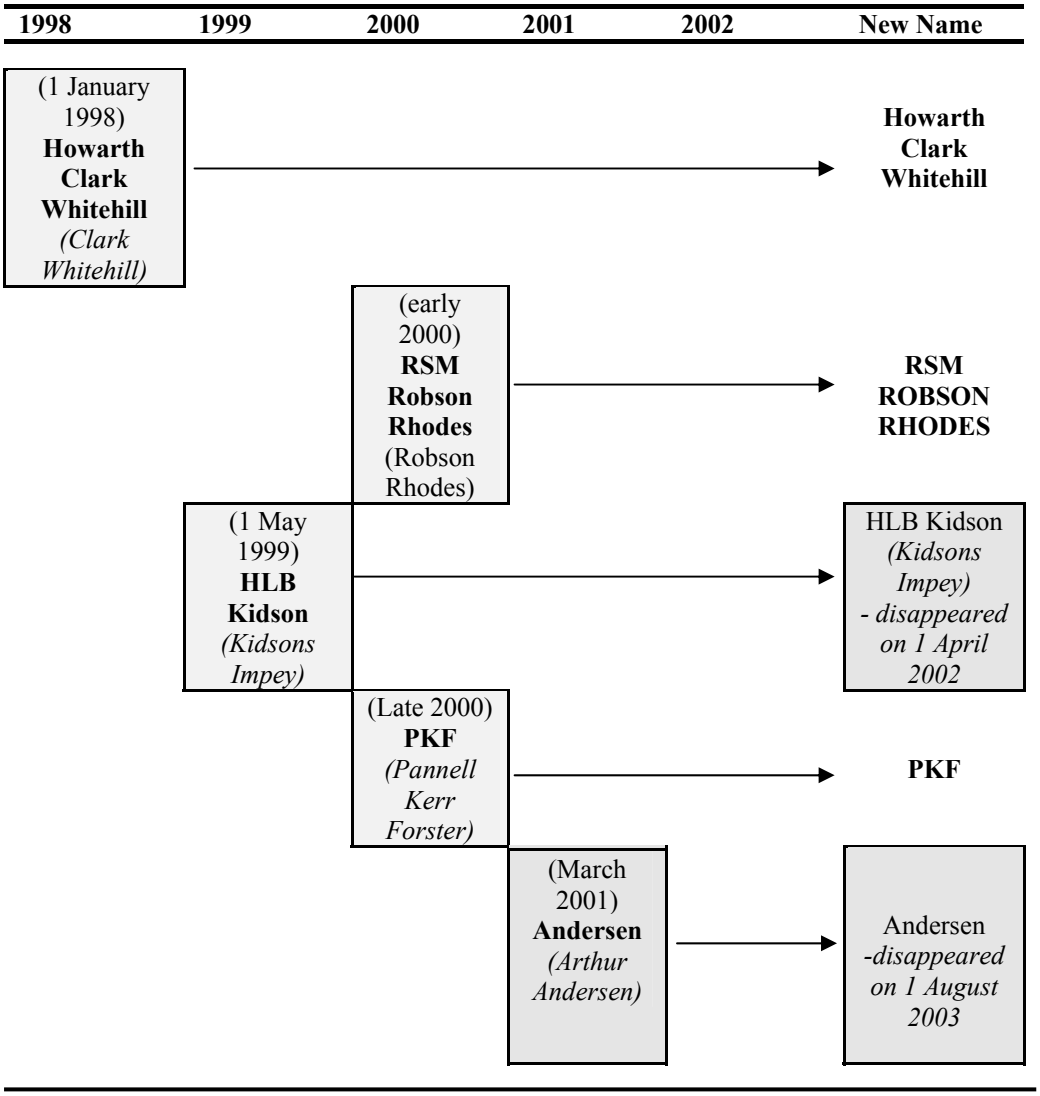
Five firms changed their name during the year period 1998 through 2002. In 1998 Clark Whitehill changed its name to Howarth Clark Whitehill. The name was changed to reflect its international network of firms (Boys, 2003). In 1999, Kidson Impey changed its name to HLB Kidson for the same reason. The new name adopted by the firm from May 1999. Two firms, Robson Rhodes and Pannell Kerr Forster changed their name in 2000 - Robson Rhodes became RSM Robson Rhodes in early 2000 while Pannell Kerr Forster adopted the name PKF in late 2000. Finally, in March 2001, Arthur Andersen dropped its forename and began to use only the word Andersen. Figure 3.2 provides a summary of these changes.

Figure 3.1: Audit firm mergers in 1998 to 2002



i. Note A- In October 1994, seven offices of BDO Binder Hamlyn joined AA but continued to use the name 'Binder Hamlyn' until January 2002.
ii. Note B – Other than the Manchester and the ten offices mentioned, the other offices remain independent.
iii. There is no significant event that relates to Ernst & Young and KPMG during the years 1998 to 2003.
iv. It is known that Hays Allan and MacIntyre and co. were merged. However, the date is not known.
v. Thick line and thin line indicate B5/4 and Non-B5/4 events, respectively. Black line indicates merger while grey line indicates disappearance.

Figure 3.2: Audit firm names changes since 1998 (old name is presented in *italics*)



3.3.6 Sources of client-related events

3.3.6.1 Name changes

The appearance and disappearance of company name from the SEYB does not necessarily indicate entry/exit from the market. There is a possibility that these companies have simply changed their names. In order to identify the companies that have changed their names between two consecutive publications of the SEYB, the summary of name changes from the 'Name Changes' sections of the SEYB were reviewed and then this information was added to the initial dataset. In addition to the

SEYB, other sources have been used. The sources were: (i) Hemscott (www.hemscott.net), (ii) Citytex (www.citytext.com), and (ii) Datastream.[17]

3.3.6.2 Companies added and deleted from LSE

Companies were added and deleted from LSE for several reasons. To identify companies and the reasons for being deleted from the listing, this study uses the information provided by Hemscott and Citytext (www.citytext.com). These two sources provide excellent coverage of companies making IPOs or being delisted from the exchange.

3.4 Data collection procedures

3.4.1 Establishing initial dataset

To establish the initial list of companies and their auditors, both the 'Companies Classified within sub-sectors of the FTSE Actuaries Industry Classification System' and 'List of auditors and their clients' lists were transformed into electronic spreadsheet (Excel) format.[18] The use of this procedure gives two main advantages. Firstly, it reduces human error significantly (e.g. typing error, omission) and secondly, it significantly speeds-up the process of establishing the initial dataset. To ensure high reliability of the data, both electronic lists were cross-checked to the original lists. Any discrepancies (e.g. PLC read as PIC) were corrected when found.

As the study is concerned with the UK audit market, and as the two sources do not differentiate the companies according to their countries of origin, several additional steps were taken to screen out foreign companies from the list. First, all of the

[17] The decision to use these sources was made as it became clear that the SEYB's list was not comprehensive.
[18] To do this, all of the lists were scanned at 300dpi and then, using optical character reader software, converted into spreadsheet form.

company names that did not end with the abbreviation 'PLC' were dropped.[19] This is justifiable since the public limited company in UK is required to state that it is a public limited company both in its memorandum and in its name. In addition, the name must also end with the term 'Public Limited Company' or 'PLC'. In the case of Welsh companies, the Welsh equivalent 'Cwmni Cyfyngedig Cyhoeddus' or 'CCC' is used. In addition, it is also the practice of the SEYB to present all public limited companies as 'PLC' throughout the yearbook as 'an effort to produce consistency within entries'.[20]

It is important to note that the information provided in the SEYB is not consistently based on a twelve month interval nor on calendar years. Except for the SEYB 2003 and 2004, the other editions present the information about sectors and auditors based on the information 'as at November 19xx'. The information from the SEYB 2003 and 2004, however, is based on the information available 'as at February 2003/2004'. To avoid confusion, for the purpose of this study it will be referred to as the 2002 or 2003 dataset.

3.4.2 Assigning company's auditor

Several companies on the FTSE list were not available on the auditor list in every period for unknown reasons. It appeared that the companies were dropped from the 'List of auditors and their clients' list and, therefore, for these companies, the auditor's information was not available to be matched with the company from the 'Companies Classified within sub-sectors of the FTSE Actuaries Industry Classification System' list in that particular year. As one way to assign the auditors for these companies, if the

[19] This procedure will, unfortunately, result in companies that are registered in Jersey and Guernsey (part of the UK) being dropped. However, the omission of these companies is unlikely to have any significant effect. Based on 2002 dataset (as available from LSEYB 2003), of 99 companies registered in Jersey and Guernsey, 38 are not equity offering companies (hence do not belonging to any sector). Eight companies are offering equity in foreign currency and 10 companies do not have any financial information available. Out of 43 remaining companies, only 7 have information on turnover readily available. Thus, out of 99 companies, only seven could have been included in the analysis.

[20] The statement read as 'In an effort to produce consistency within entries, public limited company has been presented as 'PLC' throughout the yearbook' and can be found in every yearbook as a general note.

same auditor was in office before and after the missing year, then that auditor was assumed to also be the auditor of the missing year. In the case of companies listed in 1998 having the auditors' name unavailable, the 'Companies Classified within sub-sectors of the FTSE Actuaries Industry Classification System' list in 1997 (i.e. SEYB 1998) was consulted. Whenever the 1997's auditor was the same auditor for the year 1999, it was assumed that the 1998 auditor was the same auditor as in the year 1997 and 1999. Finally, whenever the gap years were more than two consecutive years or when there was an indication that an auditor change might have taken place during the five (six) year period, then the auditor was only assigned after the annual reports of those particular companies were referred to.[21]

3.4.3 Assigning Datastream codes

It is vital that the initial dataset includes Datastream Company codes (DSCode) as this code will serve as a unique identifier and also accelerate the process of downloading financial data from the Datastream. Basically, the DSCode was obtained at two points of time. First, in early 2003 and second, towards the end of 2003. In early 2003, the DSCode was extracted from two constituency lists, GRP (UK live companies) and DEADUK (UK dead companies). The first constituency includes all UK companies and the latter includes all UK dead companies. These constituencies, however, do not include AIM, investment trust and Irish companies. Apart from that, a list of companies and their DSCodes was also made available by a member of staff in the Department of Accounting, Finance and Law. Although this list was a bit out-of-date, it proved useful in identifying companies with history of name changes.

As the task of assigning the DSCode has to be done manually, it takes a considerable amount of time and so has been done on a continuous basis rather than at only a

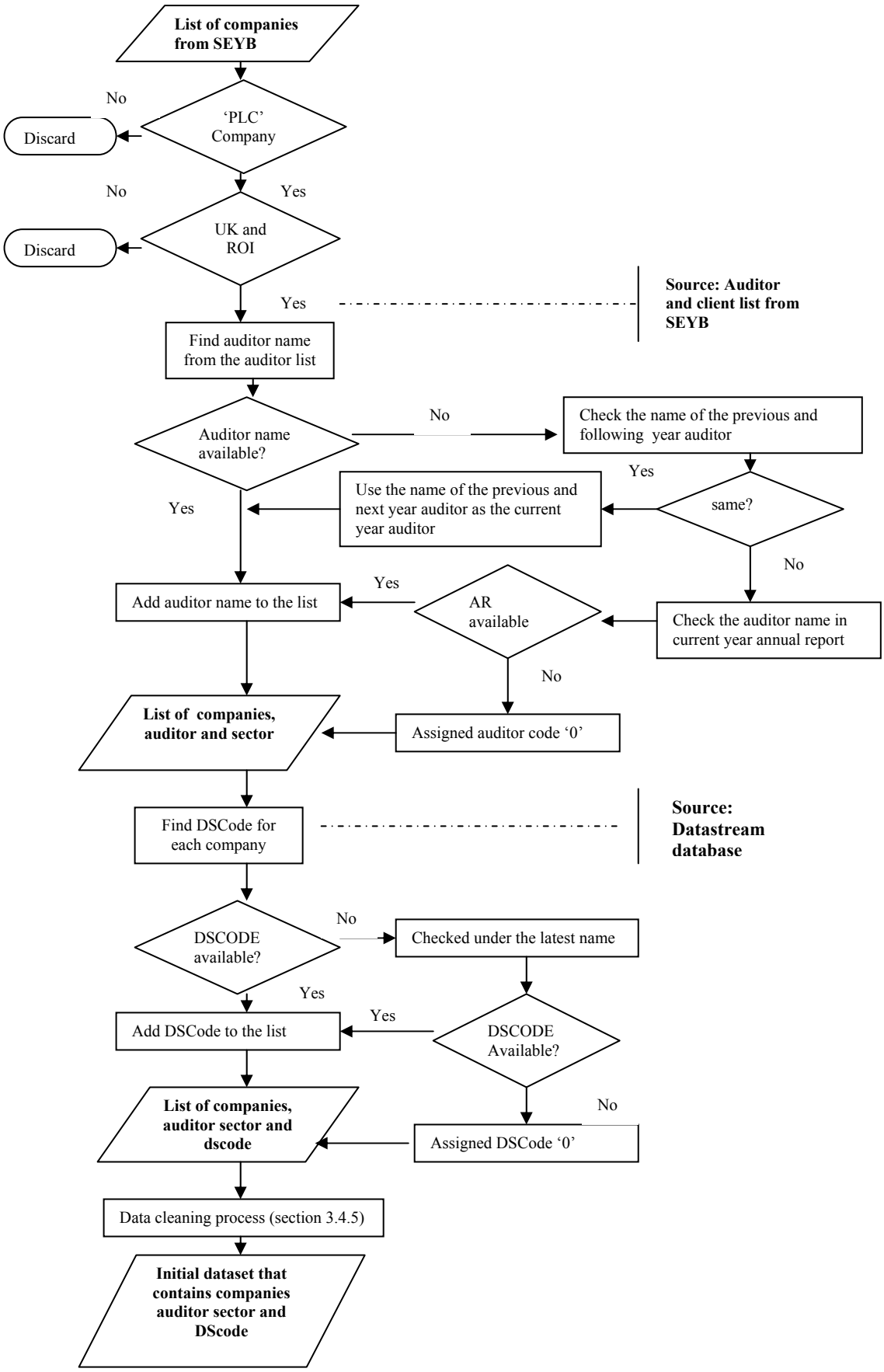
[21] Although for some companies with missing auditor, the auditor's name can be found in the main section, the test checked with 30 companies indicates that the entries were contained outdated information and therefore it is decided that the annual report should be referred instead

specific time. Datastream has its own way of naming companies, which in many cases involves abbreviation, and so the task of assigning the DSCode was not straightforward.

Based on the list downloaded from Datastream in early 2003 and the list provided by the member of staff, the majority of the companies have been assigned their specific DSCode. However, as these lists were not comprehensive and might not take into account changes that had taken place (such as name changes, merger and death) after the particular time when the information was downloaded, a further attempt was made to obtain the most recent DSCode as well as constituencies that contain investment trust and Irish companies.[22] Several constituency lists were downloaded from Datastream, these include UKAIM (AIM companies), LDSAIMUK (also AIM companies, but contains several more companies), UKINVTT (investment trust), ITDEAD (investment trust dead list), MSCAIED (all Ireland companies). All the lists then were combined into a single list and, using the Excel program (in particular, the equal function) any duplication was eliminated. By using the most recent list, the remaining companies without the DSCode were matched with the companies on the recent list. At the completion of these procedures, more than 98% of the companies had been assigned their own unique DSCode. The flowchart in Figure 3.3 summarises the process.

[22] The task was done from 11 December to 14 December 2003.

Figure 3.3: Data collection process



3.4.4 Problems arising from the data collection procedures applied

The task to develop the initial dataset that formed the sample of this study took a very long time to establish, given the large number of companies involved and the extensive need for hand collection of data. Several inevitable problems arose and were detected from time to time as the process of data collection continued. First, several companies were found to appear twice in the initial dataset. Some duplications were due to minor spelling errors which prevented the duplications being detected when the companies were sorted based on their names. Others were due to syntax variations, i.e. the way the companies were put into the 'Companies Classified within sub-sectors of the FTSE Actuaries Industry Classification System' list in the SEYB by the publisher. For instance, the same company that was listed as Knowles (James R.)(Holdings) Plc in 1998, was listed as James R. Knowles (Holdings) Plc) from 2000 onwards. As the order of the letters in the name was different, the Excel spreadsheet failed to detect this type of duplication and subsequently the entries appeared as two different companies. Similar problems were caused by companies changing name during the period under study. Many of the name changes can be traced by referring to the summary of companies' name changes in the SEYB. However, there are some that were not recorded in the list. As a result, these companies, judged by their name, were treated as different companies. In many cases these companies were then given the same DSCode and the duplication was thereby detected and corrected.

Second, some companies were unintentionally assigned the wrong codes during the process. Part of the problem arose due to human error which is not uncommon when dealing with large datasets. Although only a small number of companies were found to have this problem, it is important that the errors were detected and corrected prior to data analysis.

The third problem relates to the companies without an assigned DSCode. During the DSCode collection process, a number of companies were found not to have their own DSCode. For instance, as at 12 December 2003, 182 companies were left without a DSCode. These companies, unfortunately, need to be dropped from the initial dataset as their financial information is not available from the database. However, there was a possibility that those companies were not included in the constituency lists downloaded from the Datastream. Therefore, before being discarded from the initial dataset a satisfaction explanatoion was sought to justify deletion (see section 3.4.5 for the steps taken to rectify the problem).

3.4.5 Cleaning the dataset to resolve problems

As the initial dataset derived from the procedure explained in section 3.3.1 above was subject to errors and omissions, several additional procedures were undertaken to 'clean' the dataset.

First, to overcome the problem of duplicate entries, all of the companies were sorted based on the DSCode as the sort field. Then, using the Excel equal function, the DSCodes in adjacent rows were compared. If there were similarities, the result would appear as 'TRUE', otherwise it would be 'FALSE'. All of the entries with a 'TRUE' mark then were sorted out. Then, every company was cross-checked with the DSCode and if found to be the same company, the rows were merged. Whenever the entry could not be verified, the lists of name changes from SEYB, Datastream, Citytext and Hemscott's web page[23] were consulted. Again, if found to be the same company, the entry would be merged into a single entry. In cases where the entry could not be verified, the DSCode of that particular company was reverted to '0'.[24] Therefore,

[23] The web site provides the latest information about the company history which also includes the history of name change.

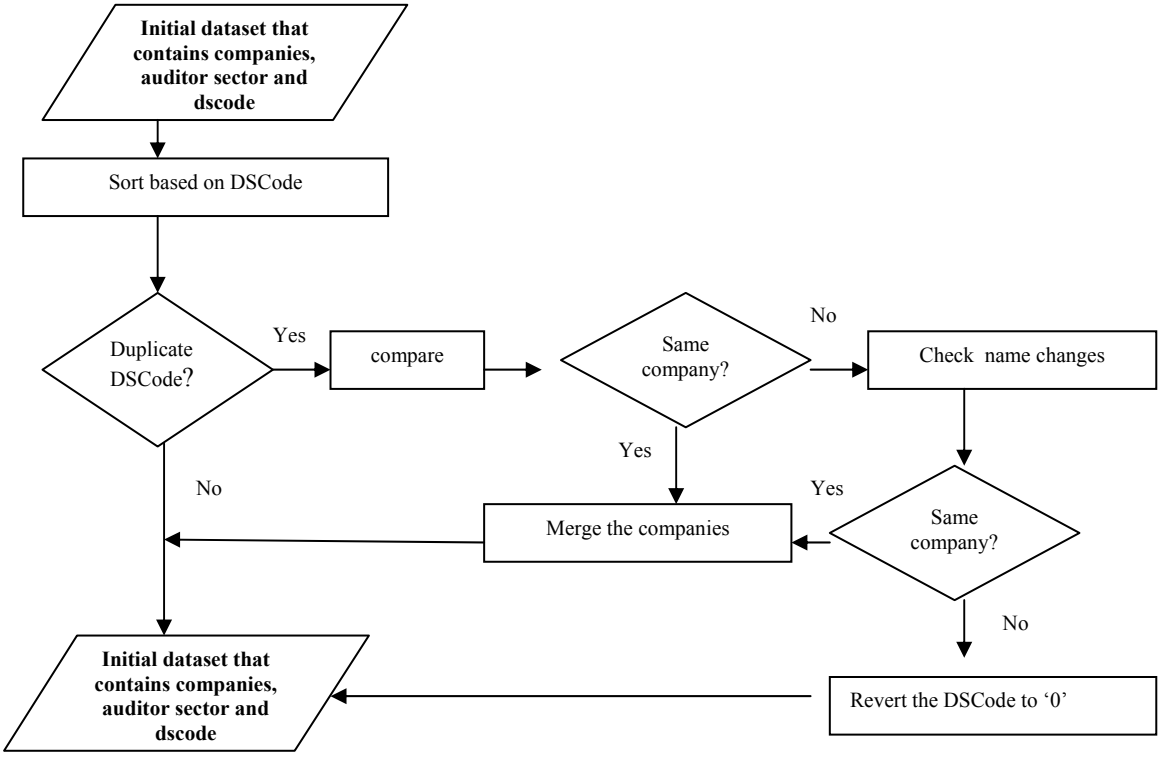
[24] As a matter of fact, 110 duplicate entries were traced. 86 were actually from the same companies, i.e. 43 companies. Twelve had the correct DSCode and the other twelve were found to be assigned the wrong DSCode.

procedures applied to overcome duplicate entry problems also served to detect the problem where companies were mistakenly assigned other companies' DSCode.

To identify the companies which might have been assigned the wrong code, all the downloaded Datastream's list (as has been explained in section 3.4.3) were combined with the initial dataset (i.e. the one from the 'Companies Classified within sub-sectors of the FTSE Actuaries Industry Classification System') that has been assigned the DSCode. The two lists were first marked with their own identifier to distinguish them from one another. The combined list was then sorted on company name and errors were detected by comparing the DSCode of the working list with those from Datastream. Any error found was corrected as soon as possible.

To identify the DSCode for the companies that were left unfilled, several additional steps were performed. First, those companies were sorted based on several sort-fields, in particular, the fields were *country, industry* and *start date*. For instance, for the 182 companies without a DSCode as at 12 December 2003, it was found that 40 companies were Irish companies and a majority of the remainder belonged to the investment trust sector or were newly listed companies. After the lists of Irish companies and dead investment trust companies were obtained from Datastream, the number of companies without the DSCode dropped to 50 companies. For these 50 companies a temporary DSCode of '0' was assigned. The following flowchart in Figure 3.4 summarises the data cleaning process.

Figure 3.4: Data cleaning process



3.5 Decision rules in sample selection

After the initial dataset had been established, information about company audit fee, sales and total assets were downloaded from the Datastream database. It was found that data for several groups of companies was not available for the whole period under study. In particular, the groups were (the total are greater than the actual as the companies might appear in more than one group):

i. Companies listed in 2002 and 2003 (51 companies altogether).

ii. Irish companies (52 companies altogether).

iii. Investment trust companies (486 companies)

iv. Companies classified by Datastream as dead in 1998 (94 companies)

For several other companies, the data was found to be unavailable in particular years only. For instance, for the newly listed companies that already appeared in the SEYB,

the financial data was not available until the following year when they first published their annual report as public listed companies.

Due to apparent lack of data for Irish and Investment trust companies, it was decided that all companies in both categories should be excluded from dataset. To summarise, the criteria for the selection of companies were set as follows:

i. Only listed companies with 'PLC' designation were included.
ii. Only companies listed that were domestic and listed on the main or AIM markets were included.
iii. For a given year, only companies with complete financial information were included.

The sample breakdown of the companies selected for this study is presented in Table 3.4.

Table 3.4: Sample selection and screening process

Screening process	1998	1999	2000	2001	2002	2003
Full listing of companies as per 'Companies Classified within sub-sectors of the FTSE Actuaries Industry Classification System' in the SEYB	2916	2789	2920	2891	2824	2692
Non-'PLC' companies and 'PLC'-non-uk	(522)	(499)	(501)	(453)	(419)	(441)
Initial dataset	2394	2290	2419	2438	2405	2251
Companies without DSCodes or do not have account data available from Datastream (e.g. newly listed, delisting and investment trust)	(787)	(792)	(940)	(899)	(908)	(865)
Final dataset for market structure analysis	**1607**	**1498**	**1479**	**1539**	**1497**	**1386**

3.6 Method to identify auditor change

In order to facilitate the task of identifying companies that switched auditors, the final dataset was divided into two. The first dataset contained all companies that had been on the list throughout the entire the six year period. The second dataset contains companies that appeared only once in the dataset (e.g. 1999 only). These companies were distinguished from other companies as it is not possible to determine any possibility of auditor changes.[25]

There were two steps to identify auditor changes. Firstly, the first year auditor (e.g. the 1998 auditors for the continuous companies) was compared with the following year auditor and any mismatches assigned the value '1' otherwise '0'. However, as the value '1' is only an indication that the company might 'potentially' have a different auditor from the previous year, a further step was undertaken to distinguish between voluntary and involuntary auditor changes. For the group with a potential auditor change (i.e. flagged '1'), a column was added to distinguish the changes that were the result of involuntary auditor changes (i.e. auditor merger) from voluntary change. The companies that changed auditors voluntarily were coded '1', otherwise were coded '0'.

3.7 Methods for audit market analysis

3.7.1 Measuring audit market share

At least three measures of market concentration have been applied to the audit market studies. The two widely used measures of market concentration are the *k*-firm concentration ratio (CR) and the Hirschman-Herfindahl index (HI). These two measures are simple and have modest data requirements. Among the studies that have used the measures are Danos and Eichenseher (1986), Moizer and Turley (1989),

[25] These companies, however, were included in the analysis of audit market structure.

Wootton *et al.* (1994), Beattie and Fearnley (1994), Yardley *et al.* (1992), Pong (1999) and Beattie *et al.* (2003).

The third measure of concentration is known as Gini Coefficient and has been used in many economic related studies to measure inequality in wealth but is relatively new to audit market studies. The only published study of which we are aware that has used this measure is Quick and Wolz (1999), in a study of the German audit market.

The proxies for audit firm size used by prior studies to calculate the three concentration measures were number of audits, audit fees, total assets and sales. The information about audit fees, total assets and sales was mainly sourced from Datastream.

3.7.1.1 Concentration ratio

The *k*-firm concentration ratio measures the proportion of total output in an industry produced by a given number of the largest firms in the industry. It is calculated as follows:

$$CR_k = \frac{\sum_{1}^{k} x_i}{\sum_{1}^{n} x_i}$$

where,

n = the total number of audit firms in the market.

k = the number of largest firms considered.

x_i = the size of the audit firm (typically measured as number of audits or audit fees).

3.7.1.2 Herfindahl index

The Hirschman-Herfindahl (HI) index is a market-wide concentration measure that is sensitive to the number of active firms and to the variance in activity levels across

firms. It has been used in the US to aid in the interpretation of concentration data (GAO, 2003) and is calculated as follows:

$$HI = \frac{\sum_{1}^{n} x_i^2}{\left(\sum_{i}^{n} x_i \right)^2}$$

where,

n = the total number of audit firms in the market.

x_i = the size of the audit firm (typically measured as number of audits or audit fees).

The upper and lower bounds of the Hirschman-Herfindahl index are 100 and 0. Whenever there is only one firm is active in the market, the index equals 100. The index approaches 0 when there are numerous firms of equal size that are active in the market. According to Pong (1999), the Hirschman-Herfindahl index is better than the concentration ratio since the latter only takes into account the market share by the *k* largest firms and thus ignores the rest of the firms in the market. Wooton *et al*. (1994) argues further that the Hirschman-Herfindahl index gives a better indication of the relative market control of the largest firms because it takes into account the relative market share of the leading suppliers in an industry.

3.7.1.3 Gini coefficient

The Gini coefficient was originally developed by an Italian statistician and is closely linked to the Lorenz curve. The value lies between 0 and 100, where 0 means perfect equality and 100 means perfect inequality (i.e. one firm has all the income with everyone else earning nothing; the higher the coefficient, the greater the inequality of income in the economy. It is calculated as follows:

$$Gini = \left(\frac{2}{n^2 \bar{x}}\right) \sum_{i=1}^{n} \left[\left(i - \frac{n+1}{2} \right) x_i \right]$$

where;

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

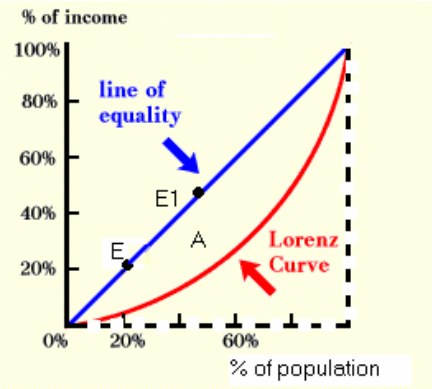
n = the total number of audit firms in the market.

x_i = the size of the audit firm (typically measured as number of audits or audit fees).

Unlike the Herfindahl Index, which places relatively greater weight on large audit firms (due to squaring), the Gini coefficient is a proportion of the maximum weighted mean difference. Importantly, the Gini Coefficient is not easily affected or disturbed by changes in the size of a population.

The Gini coefficient is closely related to Lorenz Curve, which is a graph that shows the relationship between the percentage of income recipients and the percentage of income that they did in fact actually receive. The cumulative percentage of population is plotted along the horizontal axis whilst the cumulative percentage of income is plotted along the vertical axis. The Lorenz curve is depicted in Figure 3.5.

Figure 3.5: Illustration of Lorenz curve



The 45 degree line (when x=y) shows the situation when there is perfect equality. For instance, points E and E1 on the above graph can be read as 20% of the population earns 20% of the income and 50% of the population earn 50% of the income, respectively. This line is also called 'the line of absolute equality'.

Meanwhile, a perfectly unequal distribution would be where one individual has all the income and everyone else has none. In that case, the curve would be at y=0 for all x<100, and y=100 when x=100. This line of inequality is represented by the doted-line on the graph.

The closer the Lorenz curve is to the 45-degree line, the more equal the distribution of income and the more the Lorenz curve moves away from the 45-degree line, the less equal the income distribution. The ratio between the area A and the whole area under the line of absolute equality (the triangle area) is equal to the Gini coefficient. However, it is important to note that it is impossible for the Lorenz curve to rise above the line of perfect equality or sink below the line of perfect inequality.

3.7.2 Measures of auditor market leader

It is interesting to note that the concentration ratio, Herfindahl index and Gini coefficient only provide an overall picture of the audit market. As these measures only consider auditors as a group, further analysis is needed to obtain more information about the market share of individual participating audit firms. The calculation of individual audit firms' market share will provide more insight into the audit market movements and the data obtained will also be useful in identifying the specialist auditors at industry level. The measure similar to the one used to calculate the k-firm concentration ratio can be used by considering a single firm's market share at a time.

3.8 Chapter summary

This chapter explains data sources and data collection procedures in details. It also outlines the methods used to identify auditor change and to evaluate the UK audit market concentration. Three concentration statistics, i.e. concentration ratio, Herfindahl index and Gini coefficient are identified and explained.

Chapter 4: Results of audit market study

4.1 Introduction

The last two chapters present a review of the industrial organisational literature and describe the research methods for an audit market study. The current chapter presents the results of an audit market study. The next section discusses summary statistics. Market concentration statistics of the UK audit market are discussed in section 4.3. Section 4.4 presents the analysis of individual firms market share. The following section discusses the changes in Big Five/Four (B5/4) market dominance. Industry specific concentration is discussed in section 4.6. It is followed by an analysis of auditor choice and audit fee rate by former Andersen clients in section 4.7. Finally, section 4.8 provides a chapter summary.

4.2 Summary statistics

Table 4.1 provides summary statistics on audit firm size for the six-year period. The number of companies decreased from 1607 in 1998 to 1386 in 2003. The number of audit firms was 86 in 1998 decreasing to 72 in 2003. The first UK audit market study by Briston and Kedslie (1985) reports that in 1968 there were 1109 audit firms active in the public listed market and from the latest statistics, there are nearly 20,000 accounting firms in the UK (International Financial Services, 2003). The small number of audit firms active in the public listed market suggests significant barriers to entry for smaller firms.

Company size, with respect to total assets, ranged from just £3,000 to a high of £455 thousand million. In term of sales, some companies in each year reported £0 sales and the highest sales reported was £61 thousand million in 2002. The mean values for both total assets and sales increased by considerably more than inflation over the period (see

Table 4.1: Descriptive statistics

	1998	1999	2000	2001	2002	2003	1998 - 2003 change (%)
Sample Size	1,607	1,498	1,479	1,539	1,497	1,386	
Number of Auditors	86	80	74	78	77	72	
Retails Price Index (RPI)	163.4	165.6	171.1	174.4	176.2	181.3	11.0
RPI Change (%)	-	*+1.4*	*+3.3*	*+1.9*	*+1.0*	*+2.9*	
Total Assets (£m)							
Mean	1,519	1,884	2,150	2,230	2,383	2,673	76.0
Mean Change (%)	-	*+24*	*+14*	*+4*	*+7*	*+12*	
Median	53	58	57	50	45	48	-9.9
Median Change (%)	-	*+9*	*-2*	*-12*	*-11*	*+7*	
Minimum	0.106	0.045	0.174	0.006	0.003	0.006	
Maximum	219,500	254,800	316,200	358,534	403,100	455,275	
Sales (£m)							
Mean	526	580	634	636	657	731	39.0
Mean Change (%)	-	*+10*	*+9*	*0*	*+3*	*+11*	
Median	52	53	45	40	35	41	-20.4
Median Change (%)	-	*+1*	*-14*	*-12*	*-11*	*+17*	
Minimum[1]	0	0	0	0	0	0	
Maximum	33,340	37,017	51,503	49,254	60,826	49,039	
Audit fees (£'000)							
Mean	252	268	268	270	301	339	34.5
Mean Change (%)	-	*+6*	*0*	*+1*	*+11*	*+13*	
Median	68	70	69	68	71	75	10.3
Median Change (%)	-	*+3*	*-1*	*-1*	*+4*	*+6*	
Minimum	2	3	2	2	3	1	
Maximum	14,431	14,172	16,926	13,892	15,901	17,920	
Audit fees per £'000 total assets							
Aggregate[2]	0.166	0.142	0.125	0.121	0.126	0.127	-23.5
Mean[3]	2.05	2.19	1.98	2.53	3.35	3.66	78.5
Mean Change (%)	-	*+7*	*-9*	*+28*	*+32*	*+9*	
Median	1.38	1.36	1.25	1.38	1.60	1.63	18.4
Median Change (%)	-	*-2*	*-8*	*+10*	*+16*	*+2*	
Minimum	0.011	0.006	0.007	0.008	0.009	0.008	
Maximum	191	222	46	1333	1333	829	
Audit fees per £'000 sales[4]							
Aggregate[2]	0.48	0.461	0.423	0.424	0.458	0.464	-3.3
Mean[3]	4.62	5.06	11.45	16.74	20.48	8.29	79.4
Mean Change (%)	-	*+10*	*+126*	*+46*	*+22*	*-60*	
Median	1.33	1.32	1.54	1.77	1.89	1.80	35.3
Median Change (%)	-	*0*	*+17*	*+14*	*+7*	*-5*	
Minimum	0.026	0.034	0.039	0.037	0.029	0.032	
Maximum	2,571	2,333	12,000	10,000	7,000	10,000	

[1] *Several companies did not report any sales during the year*

[2] *Aggregate = (sum of all company audit fees)/(sum of all company total assets or sales)*

[3] *To avoid gross distortion by outliers, the 1% trimmed mean (0.5% from top and bottom of the set) is reported*

[4] *Companies without sales were excluded from analysis*

RPI change in Table 4.1, row 4). As mean values can be heavily influenced by outliers, the median is also shown. Over the six year period, the median values of total assets and sales fell by 10% and 20%, respectively.

The rise in mean and fall in median reflect an increase in the numbers of both large and very small companies since 1998. A comparison of the size distributions (based on total assets) in 1998 and 2003 is provided in Figure 4.1. This shows that the proportion of companies with assets above £2.5 thousand million increased from 6% to 8%, and the proportion below £30 million from 37% to 42%.

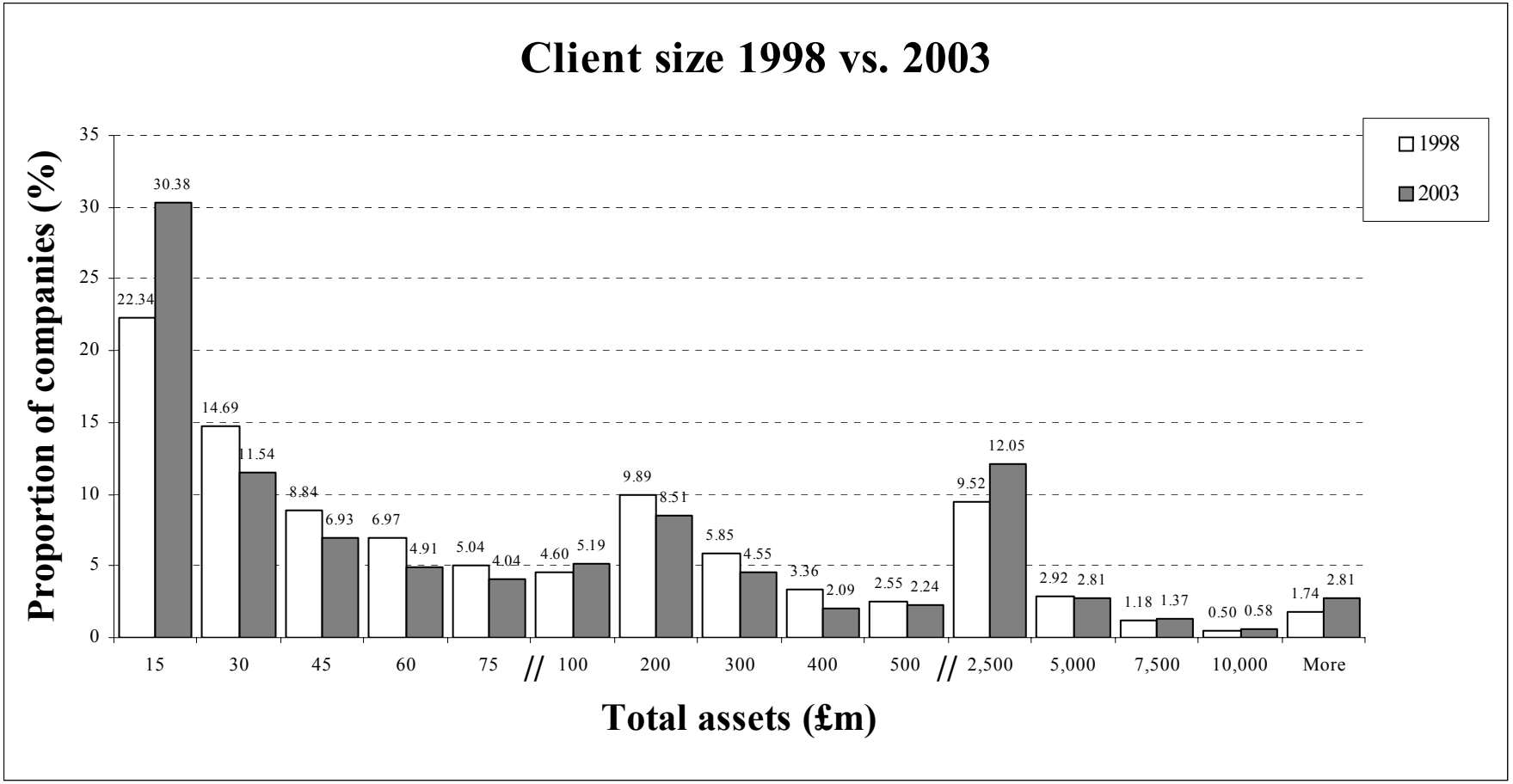
Audit fees ranged between £1,000 and £18 million. Over the six year period, mean (median) audit fees rose by 35% (10%) compared with general price inflation of 11%. This may reflect high increases in audit fees for large companies and/or the higher proportion of large companies in the population already identified.

To ascertain whether the increase in audit fees reflects an increase in client size, the rate of audit fees per unit of size is reported. The last two panels in Table 4.1 show that, in terms of aggregate audit fee charged related to total assets, the rate fell from 1998 to a low in 2001 then picked up in 2002; the trend based on sales was broadly similar. The mean value suggests that there was a sizeable increase in audit fee rate (scaled by total assets) in 2001 and 2002.[26] While the increase in median audit fee rate is much more moderate, it also declines to 2000 but then shows a significant increase in 2001 and 2002. By contrast, the median audit fee per £'000 sales started to increase earlier (in 2000) and then decreased slightly in 2003.

One plausible explanation to explain the mid-period increase is the regulatory and public response to Andersen's misconduct. Following the downfall of Andersen and subsequently the public concern about audit quality, companies have fewer choice of

[26] To avoid gross distortion caused by extreme values, the 1% trimmed mean is reported.

Figure 4.1: Sample composition based on client size



Note: (a) The total asset figures shown represent the upper bound for a particular class interval (for example the lowest class is £0-£15m)
(b) Intervals are not of equal size

auditors and the remaining audit firms have more market power. The early increase in audit fee rates in 2001 can be linked to the atmosphere of auditing industry during the period. As widely reported in the press, the Enron scandal began in 2000, with Enron filing for the largest Chapter 11 bankruptcy protection in U.S. history in 2001. On 8th Nov 2001, Andersen received a federal subpoena for Enron documents.[27]

Recent survey reports that the B4 have seen a significant fall in total fees within the FTSE 100 sub-market (Accountancy, 2004). Despite that, the study also reports an increase in audit fees since their 2002 survey. To investigate how Andersen's demise has affected the cost of audit, fee rates for each size decile of companies were analysed (see Table 4.2 and Figure 4.2).

Table 4.2: Audit fees rates and company size

Panel A: Mean audit fee per £'000 total assets

	Small			**Size decile**			*Large*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
2001	10.74	4.40	3.05	2.02	1.87	1.34	1.21	0.81	0.50	0.29
2002	17.07	4.77	3.48	2.23	2.22	1.67	1.22	0.89	0.54	0.31
2003	27.42	5.25	3.51	2.54	2.26	1.67	1.28	0.97	0.57	0.33
2003 vs. 2001 t-stat[1]	2.91**	1.98*	1.45	2.96**	1.92	2.28*	0.64	1.85	1.43	1.37

Panel A: Median audit fee per £'000 total assets

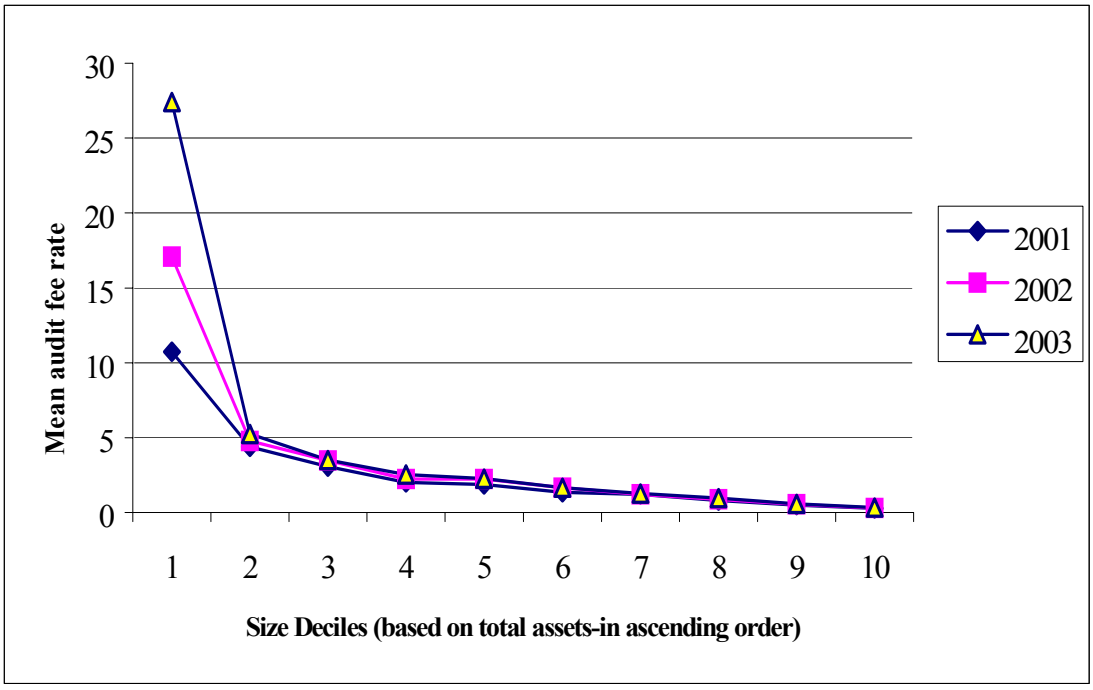
	Small			**Size decile**			*Large*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
2001	6.70	3.51	2.54	1.70	1.50	1.12	0.97	0.62	0.40	0.21
2002	8.46	4.19	2.79	1.78	1.78	1.23	1.01	0.76	0.40	0.22
2003	10.31	4.52	2.84	2.14	1.86	1.33	1.10	0.80	0.47	0.25
2003 vs. 2001 z-stat[1,2]	5.59**	2.38*	1.69	2.82**	1.57	2.25*	0.73	1.71	1.84	1.87

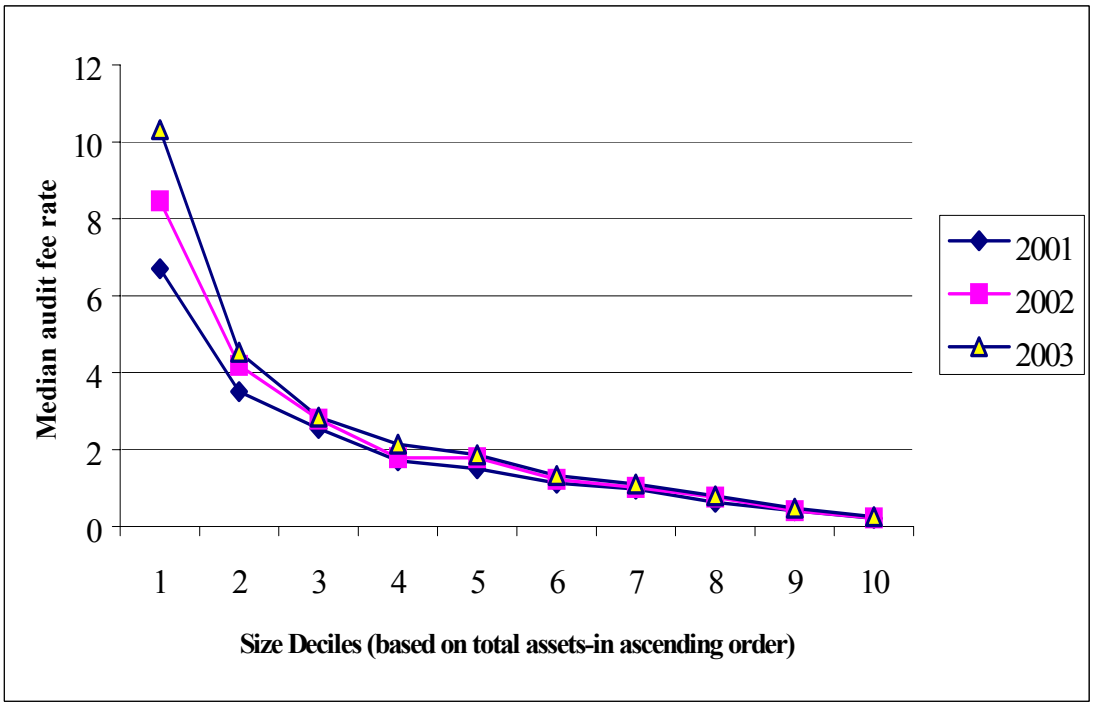
[1] **= p< 5%, ** = p< 1% (2-tailed)*
[2] *Wilcoxon Mann-Whitney test.*

The graphs in Figure 4.2 clearly show that, as expected due to fixed costs, the audit fee rate decreases as company size increases. The nature of the audit process (e.g.

[27] As reported by FindLaw (www.findlaw.com)

Figure 4.2: Effects of client size on audit fee rate





sampling process, internal control risk) could explain why the cost of audit appears to be a relative 'bargain' for larger companies. It is also evidence that the economies of scale are enjoyed by large companies. However, as stated by Francis (2004), the low cost of auditing does not necessarily mean that audit quality is low, and this lower cost may indicate that the social benefit of auditing is achieved at reasonable social cost. Despite the evidence of the low cost of audit, cross years examination reveals that the mean and median audit fees rate has consistently increased since 2001 for each decile of company size. As shown in Figure 4.2 and Table 4.2, it is the smallest companies that have experienced a significant increase (155% and 53% increase in mean and median audit fee rates, respectively) in contrast to the largest companies' increase of only 13% (4%) in term of mean (median) audit fee rate.

4.3 Audit market concentration

Table 4.3 reports the level of auditor concentration from 1998 to 2003. Generally, the k-firm concentration reflects an increase in concentration between 1998 and 2003, except when the 'B5/4' concentration is calculated based on number of audits. On the other hand, the Hirschman-Herfindahl index and Gini coefficient were lower in 2003 than in 1998. The overall patterns are similar across the four size measures.

Focusing on the concentration statistics measured by audit fee (panel B), the level of audit market concentration in the UK during the 6 year period was very high. In 1998 the top four and the B5 firms audited around 88% and 95% of the market, respectively. By 2003, the top four market share (which is also the B4) has increased to 96%, accounted about 7% increase. However, it was only a marginal increase for the then 1998's B5. Given the level of CR 'Big 5/4', CR6 and CR20 were relatively stable

Table 4.3: Auditor concentration 1998 to 2003

Panel A: Market share based on number of audits

	1998	1999	2000	2001	2002	2003	1998 vs. 2003 z- stat[2,3]
CR4	67.02	65.69	63.62	61.99	66.40	68.47	0.85
CR 'BIG 5/4'[1]	75.86	75.30	72.95	70.63	68.80	68.47	-4.51**
CR6	80.46	80.57	78.43	76.93	78.96	80.66	0.14
CR20	94.65	95.79	95.54	95.39	95.12	94.81	0.20
HI	14.36	13.81	12.78	12.13	12.63	13.32	-
Gini	86.86	86.41	85.33	85.37	85.00	84.99	-

Panel B: Market share based on audit fees

	1998	1999	2000	2001	2002	2003	1998 vs. 2003 z- stat[2,3]
CR4	87.85	87.95	86.44	87.86	93.53	95.94	7.95**
CR 'BIG 5/4'[1]	94.94	95.29	94.68	94.66	95.06	95.94	1.30
CR6	96.00	96.56	96.15	96.16	96.41	97.85	2.89**
CR20	99.20	99.31	99.30	99.36	99.44	99.57	1.29
HI	27.80	26.64	25.28	25.02	25.80	27.04	-
Gini	94.97	94.68	94.04	94.42	94.70	94.73	-

Panel C: Market share based on total assets

	1998	1999	2000	2001	2002	2003	1998 vs. 2003 z- stat[2,3]
CR4	97.17	97.26	97.04	97.44	98.96	99.56	5.01**
CR 'BIG 5/4'[1]	99.16	99.28	99.28	99.33	99.45	99.56	1.35
CR6	99.35	99.47	99.45	99.50	99.58	99.74	1.55
CR20	99.89	99.92	99.92	99.94	99.95	99.97	0.81
HI	46.95	40.12	31.92	28.06	29.26	29.20	-
Gini	97.37	96.90	95.94	95.72	95.88	95.60	-

Panel D: Market share based on sales

	1998	1999	2000	2001	2002	2003	1998 vs. 2003 z- stat[2,3]
CR4	91.93	92.12	92.46	93.10	97.16	98.57	8.31**
CR 'BIG 5/4'[1]	97.87	98.13	98.26	98.32	98.27	98.57	1.43
CR6	98.36	98.60	98.74	98.83	98.85	99.26	2.23*
CR20	99.73	99.79	99.84	99.86	99.89	99.91	1.14
HI	33.71	32.26	31.45	29.77	31.58	31.45	-
Gini	96.20	95.89	95.55	95.67	95.92	95.68	-

[1] *B5 up to 2002. Most Andersen clients (97 companies) changed auditor in 2002, however, there were 36 companies' annual reports still audited by Andersen in 2002. We treated these companies as Andersen clients until the next publication of annual report in 2003.*

[2] *Proportion test*

[3] ** = p< 5%, ** = p< 1%*

during the 6 year period, it is clear that Andersen demise did not affect the B5/4 market share. Looking back to 1991,[28] the CR4 was 77% and the B4 (B6 during the time) was 89% (Pong, 1999). Although between 1991 to 2003, there were two important mergers/acquisitions between the main audit firms, the B5/4 only managed to increase their market share by just 7%.This minimal effect suggests that a majority of former B6 or B5 clients stayed with the merged or the acquirer firm. Any auditor change was mainly within the B5/4 firms and thus enables the B4 to maintain its position. However, when assessing the market concentration using the CR4 benchmark, the evidence suggests that there was about 19% increase since 1991. The top four firms domination, which is also the B4 in 2003, has clearly surpassed the economists' tight oligopoly threshold.

Following Shepherd (1997), the UK public listed audit market has been a tight oligopoly by any size measure during 1998-2003. The lowest CR4 was 62% in 2001 (based on number of audits). The CR4 (and other k-firm concentration) was consistently above 90% when the size measure is based on either total assets or total sales. Given such high concentration levels, the possibility of successful collusion, overt or tacit, between the top firms is easier. Statistically, as reported in Table 4.4, the CR4 and CR 'Big 5/4' were significantly above the level of critical concentration value.[29]

[28] This is the first time audit market concentration in the UK has been reported using the audit fees measure. Although Moizer and Turley (1987) also used audit fees as a size measure, their sample was limited to the FTSE500 companies.

[29] The test performed is based on Parker's (1991) paper. Parker's method is different from industrial organisation economists with respect to the way of assessing the market structure. While, the economists rely on the theoretical market threshold, Parker's method is to test whether a particular concentration ratio is significantly larger than a critical concentration value which is being generated by a random allocation of market shares. Parker's method requires only non-negligible firms to be included in the computation. For the purpose of this paper, the negligible firms are those with audit fee market share less than 1%. The concentration ratio is significant when it is above the critical value.

Table 4.4: Significance tests of audit market concentration (based on audit fee)

			Critical value[2] CR4			Critical value CR 'BIG 5/4'	
	n[1]	Actual CR4	α= 0.01	α =0.05	Actual CR 'BIG 5/4'	α =0.01	α =0.05
1998	15	88.89	76.61	71.61	96.06	82.91	78.71
1999	15	88.84	76.61	71.61	96.26	82.91	78.71
2000	14	87.42	79.01	74.08	95.75	85.13	81.10
2001	14	88.76	79.01	74.08	95.63	85.13	81.10
2002	11	94.59	86.86	82.48	96.13	92.04	88.84
2003	10	96.87	89.57	85.60	96.87	89.57	85.60

[1] *Number of non-negligible firms defined as those with audit fee market share greater than or equal to 1%.*
[2] *The critical value of the concentration ratio is based on Parker (1991). Parker's method requires only non-negligible are firms to be included in the computation*

In contrast to the k-firm concentration ratio, the Hirschman-Herfindahl index and Gini Coefficient suggest a lower market concentration and thus, greater competition over the six year period as a whole. The Department of Justice and the Federal Trade Commission classified the Hirschman-Herfindahl index into three regions with a value below 10 characterising an unconcentrated market, a value between 10 to 18 characterising a moderately concentrated market and a value above 18 characterising a highly concentrated market. The guideline was applied in the GAO (2003) report.

The present study reports the Hirschman-Herfindahl index (based on the number of audits) range from 12 to 14% (signalling moderate concentration). However, when the Hirschman-Herfindahl index was measured using any of the other three size measures, concentration ranged between 25 and 47%, signalling a highly concentrated audit market and thus potential for significant market power.

Looking closely at the time trend in Table 4.3, the k-firm concentration and the Hirschman-Herfindahl index reveal a U-shape. In 1998, concentration statistics were high reflecting the PricewaterhouseCoopers merger. In the following years, concentration began to decrease until the middle period and then increased again. As Table 4.3 illustrates, the increase is apparent at CR4 and Hirschman-Herfindahl index levels, particularly in 2002, the year of Andersen's demise. Comparing the

concentration ratios in 2003 to 1998, the proportion test indicates that the four-firm concentration ratios based on audit fees, fixed assets and sales were significantly different. The CR6 (based on audit fees and sales) in 2003 was also significantly higher than in 1998. While the CR4 and CR6 based on number of audits in 2003 were insignificantly different from those in 1998, the CR 'Big 5/4' was significantly smaller in 2003 than in 1998.

The Hirschman-Herfindahl index, while falling from 1998 to 2001, began to rise slightly again in 2002 and 2003. It is only in relation to the total assets size measure that the change over the entire period appears marked. Further analysis indicates that high Hirschman-Herfindahl index based on total assets in 1998 was driven by the PricewaterhouseCoopers' market share. During the year, the firm had more than 63% market share (total assets) and was the market leader. In 2003, its market share dropped to only 38%. Although, the level of Hirschman-Herfindahl index in 2003 was lower than in 1998, there is a clear sign that the acquisition of Andersen by Deloitte & Touche has increased market concentration. This is also consistent with the audit fee statistics reported in Table 4.1. The Gini Coefficient is reported in the last row of each panel. The coefficients, across all size measures, exhibit only a minor decline (albeit high in term of unequal distribution) during the period of study.

4.4 Individual firm market share at market level

A detailed analysis of market shares by individual firm in shown in Table 4.5. Several observations can be made from this table. Based on audit fee ranking, PwC was the market leader with total market share of about 40%, a level of market share that industrial organisation theorists cite as the cut-off level to identify the existence of 'dominant firm' (Beattie *et al.*, 2003). It is interesting to note that PwC' market share was always markedly higher than that of the number two firm throughout the period.

Table 4.5: Auditor market share (rank) by individual firm

	Market share (rank) based on																							
	No. of audits												Audit fees											
	1998		1999		2000		2001		2002		2003		1998		1999		2000		2001		2002		2003	
	%		%		%		%		%		%		%		%		%		%		%		%	
PwC	26.32	(1)	24.97	(1)	22.45	(1)	21.44	(1)	20.57	(1)	20.85	(1)	43.43	(1)	42.71	(1)	40.57	(1)	39.23	(1)	37.72	(1)	40.01	(1)
KPMG	19.91	(2)	19.49	(2)	19.41	(2)	18.45	(2)	18.50	(2)	18.47	(2)	25.62	(2)	23.16	(2)	23.81	(2)	25.18	(2)	26.12	(2)	23.57	(2)
Deloitte & Touche	9.52	(4)	10.61	(3)	10.62	(4)	11.50	(3)	16.50	(3)	18.33	(3)	7.09	(5)	9.72	(4)	11.39	(3)	13.18	(3)	18.62	(3)	19.53	(3)
Ernst & Young	11.26	(3)	10.61	(3)	11.16	(3)	10.59	(4)	10.82	(4)	10.82	(4)	11.44	(3)	12.36	(3)	10.67	(4)	10.28	(4)	11.06	(4)	12.83	(4)
Andersen	8.84	(5)	9.61	(5)	9.33	(5)	8.64	(5)	2.40	(8)	-	-	7.37	(4)	7.34	(5)	8.24	(5)	6.80	(5)	1.53	(5)	-	-
Total B5/4	**75.86**		**75.30**		**72.95**		**70.63**		**68.80**		**68.47**		**94.94**		**95.29**		**94.68**		**94.66**		**95.06**		**95.94**	
BDO Stoy Hayward	4.60	(6)	5.27	(6)	5.34	(7)	6.24	(7)	6.08	(6)	5.84	(6)	1.06	(6)	1.28	(6)	1.47	(6)	1.50	(6)	1.35	(6)	1.02	(5)
Grant Thornton	4.48	(7)	4.61	(7)	5.48	(6)	6.30	(6)	6.48	(5)	6.35	(5)	0.88	(7)	0.88	(7)	1.13	(7)	1.22	(7)	1.12	(7)	0.90	(6)
Baker Tilly	1.00	(11)	1.13	(11)	1.69	(10)	1.56	(11)	3.61	(7)	4.18	(7)	0.18	(12)	0.18	(11)	0.23	(11)	0.20	(12)	0.49	(8)	0.53	(7)
Robson Rhodes	1.31	(9)	1.54	(9)	1.49	(11)	1.62	(10)	1.74	(9)	1.80	(9)	0.36	(10)	0.33	(8)	0.34	(8)	0.32	(9)	0.32	(9)	0.26	(8)
Pannell Kerr Forster	1.49	(8)	1.60	(8)	1.83	(8)	1.88	(8)	1.67	(10)	2.02	(8)	0.36	(9)	0.28	(9)	0.32	(9)	0.33	(8)	0.25	(11)	0.21	(9)
Moore Stephens	0.75	(13)	0.80	(12)	0.74	(13)	0.78	(13)	1.07	(11)	1.08	(10)	0.37	(8)	0.26	(10)	0.27	(10)	0.23	(11)	0.29	(10)	0.19	(10)
Others	10.52		9.75		10.48		10.98		10.55		10.25		1.84		1.51		1.56		1.54		1.12		0.96	
Total Non-B5/4	**24.14**		**24.70**		**27.05**		**29.37**		**31.20**		**31.53**		**5.06**		**4.71**		**5.32**		**5.34**		**4.94**		**4.06**	
Total	100		100		100		100		100		100		100		100		100		100		100		100	
Total audit fees (£'m)													405		401		397		415		450		470	
Number of companies	1,607		1,498		1,479		1,539		1,497		1,386													

Note: Ordered on 2003 audit fee market share

KPMG, the nearest rival, held only 23-26% of the market share. According to Shepherd (1997), a dominant firm usually has two effects on prices similar to those of pure monopoly - they raise the level of their prices, often (though not always) gaining excess profits; they engage in price discrimination.

Looking at the period between 2001 and 2003, it is clear that Deloitte & Touche has gained a considerable increase in term of audit fees and number of audits. The market share of PwC has declined slightly while that of KPMG and Ernst & Young has remained very stable. Throughout the period, the market share gap between the B4 and other smaller firms has become wider.

To illustrate this, the smallest B4 market share (audit fee) was 13% in 2003, which is three-fold the whole non-B4 market share (4%). BDO Stoy Hayward, the closest rival to the B4, holds just above 1% of market share, giving an indication of a very weak threat to the B4 firms' position.

4.5 Changes in B5/4 market dominance

To examine the underlying factors that prompt the changes in the concentration ratio, an analysis beginning from 1998 to 2003 was undertaken. Table 4.6 presents summarised analysis of the B5/4 concentration ratio changes during the period under study. Panel A documents the changes in the concentration based on the number of audits while Panel B presents the changes in the concentration based on audit fees. Of all leaver companies listed in 1998 and leaver companies who joined after 1998, the B5/4 audited about 75% and 52% of these companies, respectively. In term of audit fees lost from these leaver companies, the B5/4 had more than 90%. Another possible source of the increase in B5/4 concentration is through new companies entering the market (joiners). From the table, both B5/4 and non-B5/4 attracted approximately

equal numbers of joiners. However, a B5/4 audit firm was generally chosen by bigger companies (89% of joining company audit fees).

The third source of change in concentration is through voluntary auditor change. Throughout the period, slightly more companies changed *away* from, rather than *to*, the B5/4, resulting in a net marginal decrease in concentration based on number of audits. However, the companies that changed to the B5/4 brought more fees than were lost from companies that changed from the B5/4, resulting in a net marginal increase in concentration based on audit fees. Factors such as the big firm fee premium and 'big company seeking big auditor' might explain the higher fee earned.

However, the net gain from voluntary auditor change was only an additional £2.8 million. The change in continuing clients' audit fees had no marked impact on concentration based on audit fees. Throughout the period, the B5/4 lost 279 clients but gained an additional £66 millions. As a result, while ending up with having less audit clients, the B5/4 managed to increase their market share in term of audit fees.

In summary, the decline in concentration based on number of audits (Panel A) is mainly due to the impact of joiners (the B5/4 audit only 51% of this group). The slight increase in concentration based on audit fees (Panel B) is the result of the net impact of leavers concentrating the Big 5/4 share and joiners diluting it.

Table 4.6: Analysis of 'B5/4' Concentration Movement: 1998-2003

Panel A: Based on number of audits

		All UK	Non- Big 5/4 Number of audits (% of all UK)		Big 5/4 Number of audits (% of all UK)	
Number of audits in 1998		1607		388*(24.1)*		1219*(75.9)*
Leavers listed in 1998		(643)		(160)*(24.9)*		(483)*(75.1)*
Continuing companies		964		228*(23.7)*		736*(76.3)*
Companies joining LSE 1999-2003	541		262*(48.4)*		279*(51.6)*	
Leavers who joined after 1998	(119)		(57)*(47.9)*		(62)*(52.1)*	
		422		205*(48.6)*		217*(51.4)*
Auditor change to Big 5/4 1999-2003			(99)		99	
Auditor change from Big 5/4 1999-2003			103		(103)	
				4		(4)
Number of audits in 2003		1386		437*(31.5)*		949*(68.5)*

Panel B: Based on audit fees (£'000)

		All UK	Non- Big 5/4 Total audit fee (% of all UK)		Big 5/4 Total audit fee (% of all UK)	
Audit fees in 1998		405,211		20,514 *(5.1)*		384,697*(94.9)*
Leavers listed in 1998		(116,897)		(10,154) *(8.7)*		(106,743)*(91.3)*
Continuing companies' audit fees at 1998		28,8314		10,360 *(3.6)*		277,654*(96.3)*
Continuing companies' audit fee changes		134,821		7,158 *(5.3)*		127,663*(94.7)*
Companies joining LSE 1999-2003	55,030		6,319 *(11.5)*		48,711*(88.5)*	
Leavers who joined after 1998	(8,015)		(1,957) *(24.4)*		(6,058)*(75.6)*	
		47,015		4,362 *(9.3)*		42,653*(90.7)*
Auditor change to Big 5/4 1999-2003			(9,357)		9,357	
Auditor change from Big 5 /4 1999-2003			6,532		(6,532)	
				(2,825)		2,825
Audit fees in 2003		470,150		19,055 *(4.1)*		451,095 *(95.9)*

Note: (a) The number (£'000) of auditor changes to Big 5/4 is as follow 1999 = 26 (2,423); 2000 =22 (1,409); 2001=18 (1,934); 2002= 21 (1,795); 2003=12 (1,796).
(b) The number (£'000) of auditor changes from Big 5/4 is as follow 1999 = 17 (906); 2000 =9 (1,149); 2001=23 (1,128); 2002= 33 (1,603); 2003=21 (1,746).

4.6 Industry specific concentration

It has been reported recently by Beattie *et al.* (2003) that in 2002, the B5 audited the entire FTSE 100 companies and almost 98% of the FTSE 250 companies.[30] Apart from reputation, it has been argued that the auditors' technical capability in specific industry sectors is the main factor that causes large companies to choose a top tier auditor. This industry specific technical capability can be achieved by specialisation. Table 4.7, which presents auditor market share in industry sectors, indicates that, by 2003, the B4 firms were the market leader in all 34 industry sectors. PwC was the leader in 18 industries, KPMG was the leader in eight, while Deloitte & Touche and Ernst & Young were both leaders in four industries.

Previous studies use various market share cut-off points to identify industry specialists.[31] From Table 4.7, PwC's leading position among the B4 is clear. The audit firm audits the entire tobacco sector (three companies) and more than 90% market share in the oil and gas sector (31 companies) and steel and other metals sector (four companies). Overall, PwC has more than 50% market share in 11 industries. By comparison KPMG, Deloitte & Touche and Ernst & Young have more than 50% market share in only six, one and two sectors, respectively. When any B4 had more than 50% market share in a particular sector, it was also the leader in that sector.

Craswell *et al.* (1995) argue that the number of companies is required to be 30 or more a sector to identify auditor as an industry specialist. Of the 17 sectors with 30 or more members, only five had a market leader with over 50% market share. Several other interesting observations can be made from Table 4.7. First, in the sectors with more than 30 companies, PwC prevails as the market leader in 10 out of 17 sectors. Only two B4 firms had more than 50% market share in the sectors. PwC had 50% market

[30] The FTSE 250 consists of the 250 largest companies (by market capitalisation) that include the top 100 (i.e. comprising the FTSE 100). Beattie *et al*. (2003) also report that, in term of audit fees, the FTSE 100 and 250 respectively contribute about 51% and 23% of listed companies' total fees.
[31] For instance, Craswell *et al*. (1995) used the 10 and 20% market share to identify industry specialist.

share in four sectors while Ernst & Young in one sector. Second, there were 13 sectors with market capitalisation of £50 thousand million or more in 2003. However, only PwC and KPMG had more than 50% market share in those sectors. PwC was the market leader in six sectors, while KPMG, Deloitte & Touche and Ernst & Young were the leaders in four, two and one sectors, respectively.

Third, the B4 clearly dominated all sectors, with their lowest market share being 87% (in Housing Goods & Textiles). The B4 has complete dominance in four sectors: Forestry & Paper, Tobacco, Banks and Life Assurance. The highest non-B4 market share in any industry was only 8%, held by BDO Stoy Hayward in General Retailers. The top 10 audit firms' lowest market share was 93% in Housing Goods & Textiles, leaving the other 62 audit firms to share another 7% of audit fees amongst themselves.

4.7 Analysis of auditor choice and audit fee rate by former Andersen clients

There were 97 and 36 (in particular, those with fiscal year ended before August) Andersen clients in 2001 and 2002, respectively. Eight of these 133 companies were delisted in 2002 or 2003, and hence were removed from analysis. A number of 125 former Andersen clients were included in the analysis.

As shown in Table 4.8 (Panel A) Deloitte & Touche successfully gained 74% of former Andersen clients with 93 companies choosing to stay with Andersen's acquirer. Only 17% of companies moved to another B4 auditor and around 9% chose non-B4 firms. The biggest gainer amongst the non-B4 was BDO, a second tier firm with international operations.

Table 4.7: Auditor market share (based on audit Fees) By industry sector: 2003

Sector	Mkt Cap (£bn)	No. of Cos	PwC %	KPMG %	DT %	EY %	*Big 4 %*	BDO %	GT %	BT %	RR %	PKF %	MS %	*Top-10 %*	*Others %*
Resources															
Mining	57,258	*31*	19.4	30.1	36.4	11.9	***97.7***	0.0	1.3	0.1	0.0	0.4	0.2	***99.8***	***0.2***
Oil & Gas	243,152	*31*	**92.0**	0.1	1.6	5.0	***98.7***	0.5	0.1	0.1	0.4	0.0	0.0	***99.7***	***0.3***
Basic Industries															
Chemicals	19,110	*20*	42.6	**50.6**	4.4	0.8	***98.4***	0.5	0.3	0.0	0.0	0.2	0.0	***99.3***	***0.7***
Cons. & Build. Mat.	37,924	*71*	32.5	31.4	16.2	15.2	***95.2***	0.2	0.8	0.2	0.8	0.0	0.5	***97.7***	***2.3***
Forestry & Paper	1,563	*3*	4.9	**95.1**	0.0	0.0	***100.0***	0.0	0.0	0.0	0.0	0.0	0.0	***100.0***	***0.0***
Steel & Oth. Metals	3,158	*4*	**94.6**	1.4	3.6	0.0	***99.6***	0.0	0.0	0.0	0.0	0.0	0.0	***99.6***	***0.4***
General Industrials															
Aerospace & Defence	71,062	*13*	34.8	**53.0**	9.6	2.1	***99.6***	0.0	0.0	0.0	0.0	0.0	0.0	***99.6***	***0.4***
Diversified Industrials	197,192	*4*	15.3	**78.8**	0.0	0.0	***94.1***	0.0	0.0	0.0	0.0	0.0	0.0	***94.1***	***5.9***
Elect. & Elect'l Equip.	13,478	*46*	5.1	10.6	19.1	**53.6**	***88.4***	1.1	7.3	0.6	0.5	0.3	0.0	***98.2***	***1.8***
Engin. & Machinery	32,952	*64*	18.0	37.3	25.4	15.2	***95.8***	1.2	0.3	0.0	0.3	0.0	0.9	***98.5***	***1.5***
Cyclical Automobiles	41,041	*20*	**77.3**	10.6	4.7	2.5	***95.1***	1.3	3.2	0.3	0.1	0.0	0.0	***100.0***	***0.0***
Housing Gds & Textiles	4,297	*52*	**54.1**	18.4	10.3	4.4	***87.2***	0.2	2.7	1.1	1.6	0.4	0.0	***93.1***	***6.9***
Non-Cyclical															
Beverages	64,621	*9*	27.3	**60.9**	0.0	10.4	***98.7***	0.0	0.4	0.7	0.0	0.0	0.0	***99.9***	***0.1***
Food Prod. & Process.	43,481	*30*	**57.1**	17.2	21.6	2.7	***98.5***	0.2	0.2	0.1	0.0	0.5	0.0	***99.6***	***0.4***
Health	34,224	*41*	45.0	18.5	27.0	4.1	***94.6***	0.0	1.0	1.3	2.2	0.2	0.0	***99.2***	***0.8***
Person. Care & House.	15,526	*3*	0.0	14.0	**81.9**	0.0	***95.9***	0.0	0.0	0.0	0.0	0.0	0.0	***95.9***	***4.1***
Pharma. & Biotech.	187,309	*38*	**62.6**	28.8	5.7	0.5	***97.5***	0.6	1.2	0.3	0.3	0.0	0.0	***100.0***	***0.0***
Tobacco	94,614	*3*	**100.0**	0.0	0.0	0.0	***100.0***	0.0	0.0	0.0	0.0	0.0	0.0	***100.0***	***0.0***
Cyclical Services															
General Retailers	63,140	*68*	49.0	13.3	22.0	6.3	***90.6***	7.8	0.8	0.0	0.0	0.0	0.2	***99.3***	***0.7***
Leisure & Hotels	30,927	*88*	20.3	20.9	15.6	32.0	***88.8***	4.9	1.6	2.2	0.4	0.2	0.0	***98.1***	***1.9***
Media & Entertainment	62,865	*99*	35.7	6.1	41.3	11.7	***94.8***	0.7	1.1	2.2	0.0	0.4	0.0	***99.3***	***0.7***
Support Services	38,866	*149*	36.2	25.6	17.1	16.7	***95.6***	1.1	0.7	0.4	0.5	0.6	0.3	***99.1***	***0.9***
Transport	27,054	*38*	31.9	22.1	15.0	30.5	***99.5***	0.0	0.1	0.1	0.0	0.0	0.0	***99.8***	***0.2***
Non-Cyclical Services															
Food & Drug Retailers	33,453	*16*	**66.3**	17.6	0.0	12.0	***95.9***	2.7	0.0	0.6	0.0	0.0	0.0	***99.2***	***0.8***
Telecom. Services	163,225	*19*	24.2	39.3	35.2	0.8	***99.5***	0.0	0.0	0.0	0.0	0.2	0.0	***99.7***	***0.3***
Utilities															
Electricity	14,995	*6*	**55.8**	37.3	0.0	5.3	***98.5***	0.0	0.0	0.0	0.0	1.5	0.0	***100.0***	***0.0***
Utilities - Other	31,251	*10*	**86.8**	0.8	5.8	5.8	***99.2***	0.0	0.0	0.0	0.0	0.0	0.0	***99.2***	***0.8***
Financials															
Banks	377,346	*10*	42.6	24.3	33.2	0.0	***100.0***	0.0	0.0	0.0	0.0	0.0	0.0	***100.0***	***0.0***
Insurance	35,593	*21*	**63.7**	14.0	6.8	8.8	***93.3***	0.0	1.9	0.3	0.0	1.0	0.0	***96.5***	***3.5***
Life Assurance	38,290	*8*	10.3	**50.8**	2.4	36.5	***100.0***	0.0	0.0	0.0	0.0	0.0	0.0	***100.0***	***0.0***
Real Estate	26,178	*76*	23.7	24.7	37.4	2.9	***88.8***	3.4	1.4	2.0	0.0	0.0	0.2	***95.9***	***4.1***
Speciality & Oth. Fin	54,951	*125*	28.1	11.5	24.7	29.0	***93.2***	1.5	1.2	0.3	0.3	0.2	1.1	***97.8***	***2.2***
Info. Technology															
IT Hardware	6,210	*28*	13.7	6.6	18.5	**53.4**	***92.2***	1.6	0.3	2.5	1.6	0.9	0.5	***99.5***	***0.5***
Soft. & Comp. Services	71,410	*142*	31.2	20.4	25.4	11.9	***88.8***	3.3	3.0	2.2	0.8	0.3	0.4	***98.9***	***1.1***
Summary															
No. sectors:															
where ≥ 50%			11	6	1	2	***20***								
where market leader			18	8	4	4	***34***								
≥ 50% & market leader			11	6	1	2	***20***								
Total cos. in 34 sectors		*1,386*													

Table 4.8: Analysis of former Andersen clients: New auditors and audit fees

			Panel A			Panel B			Panel C		
			Aggregate audit fees (£'000)			Mean (median) aggregate audit fees (£'000)			Mean (median) audit fees per £'000 total assets		
Successor	**No. of audits**	**%**	**AA**	**New auditor**	**% Change**	**AA**	**New auditor**	**% Change**	**AA**	**New auditor**	**% Change**
DT	93	74.4	19,271	20,038	4.0	207.2	215.5	4.0	1.77	1.94	9.95
						(90.0)	(92.0)	(2.2)	(0.93)	(1.05)	(11.88)
PwC	9	7.2	2,711	2,535	-6.5	301.2	281.7	-6.5	1.72	2.47	43.23
						(100.0)	(110.0)	(10.0)	(1.08)	(1.35)	(25.12)
EY	6	4.8	3,812	4,268	12.0	635.3	711.3	12.0	1.50	2.15	42.90
						(199.5)	(267.5)	(34.1)	(0.87)	(0.86)	(-1.83)
KPMG	6	4.8	1,211	1,062	-12.3	201.8	177.0	-12.3	1.59	0.94	-40.83
						(83.0)	(68.5)	(-17.5)	(1.18)	(0.73)	(-37.87)
Subtotal B4	***114***	***91.2***	***27,005***	***27,903***	***3.3***	***236.9***	***244.8***	***3.3***	***1.74***	***1.94***	***11.61***
						(97.5)	***(105.0)***	***(7.7)***	***(0.95)***	***(0.99)***	***(4.14)***
BDO	4	3.2	86	84	-2.3	21.5	21.0	-2.3	1.83	4.42	141.21
						(25.0)	(25.0)	(0.0)	(2.00)	(2.68)	(34.02)
RR	3	2.4	199	151	-24.1	66.3	50.3	-24.1	2.47	1.91	-22.72
						(56.0)	(50.0)	(-10.7)	(2.35)	(2.35)	(0.13)
Nexia	2	1.6	44	53	20.5	22.0	26.5	20.5	0.56	0.44	-20.79
						(22.0)	(26.5)	(20.5)	(0.56)	(0.44)	(-20.79)
GT	1	0.8	25	28	12.0	25.0	28.0	12.0	3.86	4.86	25.97
						(25.0)	(28.0)	(12.0)	(3.86)	(4.86)	(25.97)
WK	1	0.8	12	6	-50.0	12.0	6.0	-50.0	10.77	6.30	-41.55
						(12.0)	(6.0)	(-50.0)	(10.77)	(6.30)	(-41.55)
Subtotal non-B4	***11***	***8.8***	***366***	***322***	***-12.0***	***33.3***	***29.3***	***-12.0***	***2.77***	***3.22***	***16.25***
						(26.0)	***(25.0)***	***(-3.8)***	***(2.31)***	***(2.35)***	***(1.74)***
All former AA clients	125	100	27,371	28,225	3.1	219.0	225.8	3.1	1.83	2.06	12.23
						(90.0)	(88.0)	(-2.2)	(1.00)	(1.02)	(1.77)

Note: AA= Andersen; DT= Deloitte & Touche; PwC= PricewaterhouseCoopers; EY= Ernst & Young; KPMG= KPMG; BDO= BDO Stoy Hayward; RR= Robson Rhodes; Nexia= Nexia Audit; GT= Grant Thornton; and WK= Wilkin Kennedy.

The newcomer that began to enter the public listed market in 2002, Wilkin Kennedy, also successfully captured one client. The percentage of companies that switched to another B4 was higher in the UK than in the US. The GOA study reported that 86% of former Andersen clients chose another B4 (including Deloitte & Touche) and thus, 14% switched to non-B4. However, looking at firm specific figures, in the US a majority of Andersen clients switched to Ernst & Young (26%), followed by KPMG (25%), Deloitte & Touche (20%) and PwC (15%). Of 1,085 former Andersen clients, the study reported that 717 companies or 66% switched to non-Deloitte & Touche B4 (compared to only 17% in the UK). In term of firm specific preference, there is a clear difference between the two markets. In the UK, as mentioned earlier, a large majority of Andersen clients switched to its 'natural successor' Deloitte & Touche (74%), followed by switches to PwC (7%), Ernst & Young (5%) and KPMG (5%). Despite that, the global preference towards another B4 by former Andersen clients is not unexpected given the international reputation and capability of the B4 firms. Moreover, the decision to choose another B4 was very important since investors had already downgraded the quality of audit performed by Andersen during the time. For example, a study by Chaney and Philipich (2002) reports that many former Andersen clients had experienced negative market reaction when Andersen admitted to shredding Enron's documents.

Turning to Panel B, it can be seen that although Deloitte & Touche was reported to audit most former Andersen clients, the mean (median) audit fees gained was much lower than Ernst & Young. Ernst & Young received £711,000 (£267,000) from each former Andersen client, while PwC and Deloitte & Touche, gained £282,000 (£110,000) and £215,000 (£92,000) from each former Andersen client, respectively. Amongst the B4, KPMG received the lowest average audit fee per client. Figures for the non-B4, however, are nowhere comparable to the B4 in term of mean or median

audit fee earned. The highest mean fee earned from former Andersen clients was £50,000 by Robson Rhodes. Other firms earned around £6,000 to £28,000 per client.

Analysing how costly was the audit of former Andersen clients, Panel C reveals that those who switched to Deloitte & Touche, PwC and Ernst & Young had to pay a higher mean audit fee rate (measured as audit fees scaled by total assets). In terms of median fee rates among the three firms, only Ernst & Young was reported to have lower fee rates. Similarly, those who changed to BDO and Grand Thornton also paid higher fee rates. The ability to charge higher fees (after considering the RPI changes) can be linked with a smaller choice of auditors (especially when specialisation and refusal to appoint competitors' auditor are considered) which creates a demand pressure. From another point of view, the higher fee rate charged by the new auditor may also reflect the quality of audit performed by Andersen.

One B4, KPMG, however, was able to offer a lower audit fee rate – 40% across 6 clients. Interestingly, three non-B4 also offered lower fees rate. While Nexia and Robson Rhodes only offered a marginal fee reduction, Wilkin Kennedy was able to reduce around 42% of the fee. There is possibility that these clients were overcharged while under Andersen. The massive reduction can also reflects low operating cost incurred by these auditors or a possible lowballing practice. Wilkin Kennedy, for instance, may have seen the Andersen demise as an opportunity to enter the listed companies market.

To test whether the mean and median audit fee and fee rates charged by Andersen were different from the new auditor, we performed the T-test and Mann-Whitney test, respectively. The results, however, are not statistically significant.

4.8 Chapter summary

This study presents an analysis of the UK audit market from 1998 to 2003. Using three different measures of market concentration, the market can be classified as highly concentrated with the B4 firms having a large portion of market share at market and industry level. The B4 serviced 76% of the market in 1998, shrinking to 68% in 2003 (based on number of audits). In term of audit fee, the firms earned 95% of the total market fee in 1998 and about 96% in 1999. While auditing significantly less clients in 2003 as compared to 1998, they earned almost the same level of audit fees. From economists' point of view, the UK audit market has clearly surpassed the tight oligopoly threshold.

While there is evidence that the absolute level of audit fees was at its highest point in 2003 and the number of audit firms serving public listed companies was at its lowest point, the percentage of audit fees per total assets was found to be higher in 2003 than in 1998. There was evidence that, the *level* of audit fees as well as the *audit fee rate* increased markedly following the Andersen acquisition by Deloitte & Touche in 2002. Given the lack of evidence indicating anti-competitive behaviour by the big firms in the market for audit services, this finding of increased audit fees can support the assertion that the Enron scandal has reduced the intense pressure on audit fees and audit fees are increasing substantially. There is a desire by companies and audit firms to instil confidence about audit quality in the financial market participants after this was damaged by Andersen's misconduct. However, despite audit fees rate rising consistently since 2003, it was the smaller companies that experienced significant increases. Relatively, the cost of audit appears to be a bargain for larger companies.

The decline in B4 market share based on number of audits is mainly due to the relatively small number of audits gained from joiners. The slight increase in concentration based on audit fees is due to the net impact of leavers concentrating the

B5/4 share and joiners diluting it. Following Andersen demise, the CR4 and CR 'Big 5/4' has increased markedly. The exception is the CR 'Big 5/4' in term of number of audits. Analysis of auditor concentration at industry specific level, shows that no single non-B4 market share is comparable to any B4 firm. In 2003, PwC's leading position was clear with markedly high market share in several large sectors. More than 74% of former Andersen clients switched to Deloitte & Touche and another 17% to another B4.

It is interesting to note that the changes in the audit market structure as a result of the Andersen demise were mainly due to reputation loss on such a scale that the firm was unable to continue (Beattie *et al.* 2003). The event has not only forced Andersen clients to switch auditors, but also triggered a crisis of confidence in the reliability and integrity of financial reports. Further, the appearance of auditor independence has received greater attention from many parties, especially regulators. During this period, consideration of reputation and perceptions of competence may be a more significant factor in making auditor choice decisions. Unlike Andersen, the creation of PwC or other 'normal merger' mainly resulted from business strategy consideration with the objective of capturing a larger market. During this time period, the threat of information transfer to competitors may induce a client to avoid an auditor who audits its competitors. In these 'normal mergers', refusal to have the same auditor with rival companies might shape the auditor choice decision.

While the two largest audit firms, PwC and KPMG, were found to charge a lower average fee rate to former Andersen clients and the other B4 firms (Ernst & Young and Deloitte & Touche) charged higher fees. However, no statistical evidence was found to indicate significant fee changes.

Overall, the UK audit market is a tight oligopoly with one firm dominating the audit for listed companies. Given high market concentration and limited choice of industry

specialist auditors, public listed companies continue to face a restricted pool of audit firms. The small percentage of market share held by the non-B4 indicates the presence of significant barriers to entry faced by smaller firms.

Chapter 5: Background and literature review of auditor choice study

5.1 Introduction

In this chapter, literature related to auditor choice is reviewed. The procedure of literature search adopted by this study is explained in Appendix 1. Section 5.2 discusses the background of auditor choice study. In particular, this section reviews: (i) corporate governance and regulation of auditor choice; (ii) theories of auditor choice and resignation, and (iii) audit quality and its measurement. A review of previous empirical studies of auditor choice is presented in section 5.3. This section begins by identifying the main types of auditor choice study and describing the costs of auditor change. Separate sub-sections then review studies of: existing auditor selection; auditor resignation; and auditor change (dismissal followed by new auditor selection). Section 5.4 offers a summary.

5.2 Background

5.2.1 Corporate governance and regulation of auditor choice in the UK and the US

This section discusses the current regulation requirements and procedures of auditor choice in the UK and the US. The regulation in the US is presented here since most of the studies in the area of auditor choices are from the US. As the regulations in both countries are different, a basic knowledge of the laws pertaining to auditor related matters will help to better understand the research problems being examined.

5.2.1.1 Overview of corporate governance

Corporate governance has been defined as '…the system by which companies are directed and controlled' by their corporate boards and officers (Cadbury Report, 1992; paragraph 2.5). Originally, the aim of corporate governance was to protect

shareholders' interests, however, it is now recognised that a corporation is also responsible to society in the form of stakeholders. Broadly, corporate governance is concerned with issues such as (i) effectiveness and efficiency of operations; (ii) reliability of financial reporting; (iii) compliance with laws and regulations, and (iii) safeguarding of assets.

Agency theory suggests that agency costs will arise whenever the interests of shareholders and managers are not convergent. The presence of appropriate corporate governance structures should help to alleviate such agency costs, which would lead to improved firm performance (Fama and Jensen, 1983). Studies have identified several governance mechanisms that strengthen shareholder vigilance in their task of making top management act in the best interests of the company. In general, those mechanisms can be classified into two broad categories - internal and external governance mechanisms. In short, internal governance mechanisms refer to the controls that rely on internal parts of the company to provide incentives to managers as well as to limit managerial discretion whereas external mechanisms refer to controls that are driven by the market. Examples of internal and external mechanisms are presented in Table 5.1. Of the two categories, internal mechanisms have attracted the greater amount of research, including the topics that relate to audit market studies (e.g. O'Sullivan, 1999 and 2000, examine the effect of board and audit committees characteristics on audit fee). Internal corporate governance mechanisms have also been the focus of regulators in the US and UK (e.g. the passing of the Sarbanes-Oxley Act (2002) in the US and the publication of the revised Combined Code (2003) in the UK). Surprisingly, despite being at the centre of regulation and academic research, only a small number of studies have incorporated internal corporate governance mechanisms in auditor choice studies.

Table 5.1: Corporate governance mechanisms

Mechanisms	Description
Ownership concentration (*internal mechanism*)	Relative amounts of stock owned by individual shareholders and institutional investors. Large block shareholders have strong incentives to monitor management closely. Owning large stakes make it worth the time, effort, and expense to monitor closely.
Board of directors (*internal mechanism*)	Individuals responsible for representing the firm's owners by monitoring top-level managers' strategic decisions.
Executive compensation (*internal mechanism*)	Use of salary, bonuses, and long-term incentives to align managers' interests with shareholders' interests. Stock ownership (long-term incentive compensation) makes managers more susceptible to market changes that are partially beyond their control. Although incentive systems do not guarantee that managers make the 'right' decisions, they do increase the likelihood that managers will do the things for which they are rewarded.
Market for corporate control (*external mechanism*)	The purchase of a firm that is underperforming relative to industry rivals in order to improve its strategic competitiveness. Firms face the risk of takeover when operated inefficiently. As a result of this 'threat', firms begin to operate more efficiently. One example is hostile takeovers. This market-based mechanism acts as an important source of discipline over managerial incompetence and waste.

Source: LSE executive education at www.lse-execed.com

5.2.1.2 Corporate governance background in the UK

Recommendations to encourage good corporate governance are not new in the UK. For instance, the recommendation to establish an audit committee was suggested more than a decade ago by the Cadbury Report (1992). Since then, several other corporate governance recommendations have been issued. The following sub-sections discuss the development of corporate governance in the UK between the period 1990 to 2003.

Corporate Governance in the UK: 1990 to 2000

In the UK during the 1990s, four major reports have been published to deal with corporate governance issues: the Cadbury Report; the Greenbury Report; the Hampel Report and the Turnbull Report. Table 5.2 describes and summarises the main contents of these reports. The Hampel Report, which incorporated the recommendations from both the Cadbury and Greenbury Committees as well as some amendments from the LSE, was first published as the Combined Code in June 1998.

Table 5.2: Development of UK corporate governance during the 1990's

Report	Description	Main suggestions
The Cadbury Report (1992)	The Cadbury Report was the first code to suggest disclosure on a 'comply or explain' basis as a means of encouraging companies to follow best practice recommendations. The report was published by the Committee on the Financial Aspects of Corporate Governance published in 1992 under the leadership of Sir Adrian Cadbury. The committee itself was established by the LSE, the Financial Reporting Council and the accountancy profession with the objective to examine the financial aspects of corporate governance in the UK. The Report, when published, included a Code of Best Practice which was based on the principles of openness, integrity, and accountability and which was divided into the headings of The Board, Auditing and Shareholders. The LSE required listed companies to include a statement of compliance with the code in reports and accounts for the reporting periods ending after 30 June, 1993.	The report defines, for the first time, the composition of the board, its responsibilities, and the responsibilities of the chairman, and the audit and remuneration committees. The report recommended that companies should utilise a greater proportion on non-executive directors and avoid having the same individual occupying the positions of company chairman and CEO. In addition, the committee also suggested that companies establish audit committees which should comprise solely non-executive directors and a majority of them should be independent. The report also required companies to report on the effectiveness of internal controls.
The Greenbury Report (1995)	The Greenbury Report attempted to develop a code of practice, with special emphasis on accountability and transparency. The report mainly dealt with the role of the remuneration committee and the information about remuneration to be disclosed in the annual report. The report was published in 1995 by a Study Group into Directors' Remuneration (known as the 'Greenbury Report').	Much of the Greenbury Report dealt with the role of the remuneration committee and the information about remuneration to be disclosed in the annual report. The most contentious recommendation was that executive service contracts should be one year or less. In summary, other recommendations are as follows: ▪ Separation of Chairman and CEO functions ▪ Establishment of auditing, remuneration and nomination subcommittees ▪ Shareholder meeting and role of institutional investors ▪ Reporting and auditing ▪ Structure and objectives of remuneration committees ▪ Disclosure and approval provisions ▪ Corporate remuneration policies ▪ Role of service contracts and appropriate compensation ▪ Review of principles established in previous reports ▪ Strengthening of internal controls ▪ Controlling for and managing corporate risk.

Continued on next page

Table 5.2 (continued): Development of UK corporate governance during the 1990's

Report	Description	Main suggestions
The Hampel Report (1998)	On 28 January 1998, the committee on corporate governance, which was established, *inter alia*, to review the implementation of the Cadbury Report and to pursue any relevant matters arising from the Greenbury Report, published its final report, known as the 'Hampel Report'. The main intention of the report was to create an overall code of corporate governance.	The report reiterated the responsibility of directors to shareholders, and placed greater emphasis on shareholder value than box ticking, one of the criticisms often levelled at corporate governance. The report was broad ranging with comment on topics such as: ▪ Board performance ▪ Remuneration ▪ Training ▪ Conduct of AGMs ▪ Role of chairman and chief executive ▪ Disclosure of information ▪ Role of audit committee ▪ Role of nomination committee ▪ Role of remuneration committee ▪ Directors' contracts. The emphasis of this report is to have independent non-executive directors providing in-house supervision of the executive directors. The auditors are left providing external supervision. In short, the report required companies to implement a system of controls focusing on the interests of shareholders.
The Combined Code (1988)	In June 1998, the LSE published a new code of corporate governance best practice which drew on the Cadbury, Greenbury and Hampel Reports. This code became known as the 'Combined Code' The Combined Code sets out Principles of Good Governance under such headings as Directors, Directors' Remuneration, Relations with Shareholders, Accountability and Audit, Internal Control and Audit Committees.	All UK listed companies are required to report on how they have applied the principles of the Combined Code or, where they have not applied the principles, to justify any instances of non-compliance in their annual reports. The requirement (applicable to all UK listed companies, in respect of accounting periods ending on or after 31 December 1998) is to disclose in their annual reports and accounts how and to what extent they have applied the principles and complied with the detailed provisions of the combined code. It is then a matter for shareholders and others to evaluate such explanations.

Continued on next page

Table 5.2 (continued): Development of UK corporate governance during the 1990's

Report	Description	Main suggestions
The Turnbull Report (1999)	Following the publication of the Combined Code the Institute of Chartered Accountants in England & Wales (ICAEW) established a Committee charged with the task of providing guidance to company directors on the implementation of those principles of the Combined Code relating to internal control and risk management. The Committee published its report, known as the 'Turnbull Report' in September 1999.	The report, inter alia, suggests: ▪ Regular review of internal audit activities ▪ Statement concerning the role of the board in maintaining/developing a risk management system ▪ Disclosure of non-compliance with review rules (publicly listed companies).

The code is appended to (but is not part of) the LSE Listing Rules. In particular, the code consists of 14 principles of corporate governance, each of which is supported by a number of provisions of which there are 45 in total. They are listed separately as the Code of Best Practice.

Implementation of the Code of Best Practice requires a two part disclosure statement in the annual financial statements. The first part should describe how a company applies the 14 principles and the second part should confirm compliance with the 45 supporting provisions or, alternatively, explain why the company does not comply. Seven of the supporting provisions are subject to external audit review for compliance.

A further committee known as the Turnbull Committee was subsequently established to provide guidance on the compliance issue. The purpose of this committee was to provide guidance for directors of listed companies incorporated in the UK on the implementation of the internal control recommendations set out in the Combined Code.

Corporate governance in the UK: 2000-present

During the early 2000's, two significant developments have taken place. In particular, in early 2003, two reports were issued by different committees to tackle the issue of corporate governance in the UK. Since the end of 2001, the already lively debate on corporate governance has become a major discussion topic, with attention being increasingly focussed on the issues of spectacular corporate failures and auditor independence.

The reports which were released in early 2003 are known as the Higgs Report and the Smith Report. Both were published on the 20th January 2003. The former focuses on non-executive directors while the latter focuses on audit committees. In particular, both reports form part of the systematic review of corporate governance being undertaken in

the US and Europe in the light of corporate failures in the US. The recommendations of these two reports, intended to take effect as revisions to the Combined Code on Corporate Governance, are aimed at taking the existing UK framework for corporate governance one step further by enhancing the role and effectiveness of the non-executive director and by switching the key audit relationship from executive directors to an independent audit committee. Table 5.3 summarises these two reports.

The Higgs Report (2003)

On 20 January 2003, Derek Higgs and his committee issued their review of the role and effectiveness of non-executive directors. The review generally acknowledged the fact that high quality boards are crucial for driving performance and ensuring accountability with the NEDs playing an important role. The report supports the UK 'comply or explain' approach (as has been suggested by the Combined Code) to corporate governance. The report found that the process for appointment of non-executive directors was far too informal, where over half of directors were appointed through personal contacts and friendships. Therefore, the committee made proposals to promote meritocracy through an open, fair and rigorous appointments process and a wider pool of candidates. In short, the key point of the Higgs Report is that it recognises that achieving an effective board is as much about encouraging and establishing appropriate behaviours and relationships within and outside the board as it is about formal structures.

Table 5.3: Development of UK Corporate Governance during the 2000's

Report	Description	Main suggestions
The Higgs Report (2003)	In January 2003, the 'Review of the Role and Effectiveness of Non-Executive Directors' ('The Higgs Report') was also published. This review, conducted by Mr. Derek Higgs, was commissioned by the UK Secretary of State for Trade and Industry and the Chancellor. The report includes a number of recommended changes to the Combined Code, including the insertion of additional material in relation to company boards and non-executive directors.	Key recommendations are as follows: ▪ At least half the board, excluding the Chairman, should be non-executive ▪ The roles of Chairman and Chief Executive should be separated and their respective responsibilities set out in writing ▪ NEDs should meet at least one a year without the Chairman or executives present ▪ Prospective non-executive directors should carry out due diligence before accepting the job ▪ A senior independent director should be identified as a point of contact for aggrieved shareholders ▪ The nominations committee should be chaired by an independent director ▪ The Board should explain the basis for non-executive appointments to shareholders ▪ The performance of the Board and individual committees should be evaluated at least once a year ▪ A non-executive should normally serve no more than two terms of three years ▪ The nominations committee should review the commitment required by non-executives annually and assess whether they are meeting the requirement ▪ A full time executive should not take on more than one non-executive appointment and should not be Chairman of another company ▪ No one person should be Chairman of more than one major company ▪ Non-executive directors may hold shares but should not have share options ▪ A non-executive who resigns should give his reasons to the Chairman in writing for circulation to the Board ▪ A non-executive, except those of small companies, should not sit on all three of the audit, remuneration and nomination committees at the same time ▪ Companies should indemnify non-executives against the cost of subsequent legal action against them by the company and provide suitable insurance cover.

Continued on next page

Table 5.3 (continued): Development of UK Corporate Governance during the 2000's

Report	Description	Main suggestions
The Smith Report (2003)	As a result of a series of high profile corporate failures in the United States in early 2002 (Enron, Worldcom etc.), the UK government asked the UK Financial Reporting Council (FRC) to further develop the guidance on audit committees provided in the Combined Code. The FRC-appointed committee reported in January 2003. The committee's report sets out guidance to assist the boards of companies required to comply with the Combined Code in making suitable arrangements for their audit committees. The report also includes proposals for amendments to the Combined Code itself and includes a specimen audit committee charter. As with the provisions of the Combined Code, non-compliance must be accompanied by an explanation as to the reasons for non-compliance.	The report recommends that: ▪ An audit committee should consist of at least three members, all of whom should be independent, non-executive directors ▪ The audit committee should monitor the integrity of the financial statements of the company, review the company's internal financial control systems, and monitor the review and effectiveness of the company's internal audit function ▪ The audit committee should make recommendations to the board in relation to the external auditor's appointment; monitor and review the external auditor's independence ▪ The audit committee should develop and implement policy on the engagement of the external auditor to supply NAS.

Chapter 5: Literature review of auditor choice study

The Smith Report (2003)

The Smith Report was published about a month after it had been submitted to the Financial Reporting Council.[32] The report (which builds on the Turnbull Report) makes recommendations for changes to the LSE Combined Code concerning the requirements for audit committees.

The report, to be applied by UK listed companies for accounting periods starting on or after the 1st July of 2003, outlines several key recommendations. First, the report stresses the structure of audit committees which should comprise at least three members and all of them should be independent non-executive directors. The chairman of the company, as stipulated in paragraph 3.2, should not be on the committee. Moreover, the report requires that at least one member should have significant, recent and relevant financial experience. For instance, at least one member of the audit committee should have experience as an auditor or finance director of a listed company (paragraph 3.16).

In addition, the role of the audit committee has been clarified by the report, and now includes monitoring the integrity of the financial statements, reviewing financial reporting judgements and reviewing the company's internal audit function and financial controls. With regard to the external audit process, the report states that the audit committee is the body that is responsible for overseeing the company's relations with the external auditor. The report recommends that the audit committee should have primary responsibility for making recommendations to the board concerning the appointment, reappointment as well as the removal of the external auditor. If the board refuses to accept the recommendation from the committee, the company is required to

[32] The report was commissioned by the Co-ordinating Group on Audit and Accounting Issues (CGAA). CGAA was established by the government to oversee and co-ordinate the response in the UK to the issues raised by the corporate failures in the United States.

include the recommendation in the directors' report and should also set out the reason for not accepting the recommendation. Moreover, in the event of auditor resignation, the report stipulates that the audit committee should investigate the issues giving rise to such resignation and, further, consider any required action (paragraph 5.18). The audit committee is also expected to monitor the external auditor's independence, objectivity and effectiveness.

In paragraph 5.19 of the report, it is required that the audit committee approve the terms of engagement as well as the remuneration to be paid to the external auditor. Further, in paragraph 5.21, the report requires that:

'The audit committee should satisfy itself that the level of fee payable in respect of the audit services provided is appropriate and that an effective audit can be conducted for such a fee'.

With regard to the provision of NAS, the report urges that the audit committee should consider (i) whether the skills and experience of the audit firm make it a suitable supplier of the NAS; (ii) whether there are safeguards in place to ensure that there is no threat to objectivity and independence in the conduct of the audit resulting from the provision of such services by the external auditor; (iii) the nature of the NAS, the related fee levels and the fee levels individually and in aggregate relative to the audit fee; and (iv) the criteria which govern the compensation of the individuals performing the audit.

Paragraph 5.29 of the report recommends that the audit committee take into account relevant ethical guidance issued by the professional bodies via the Consultative Committee of Accountancy Bodies (CCAB), regarding the provision of NAS. In particular, the audit committee is recommended not to approve the provision of NAS if it will result in (i) the external auditor auditing its own firm's work; (ii) the external auditor making management decisions for the company; (iii) a mutuality of interest

being created; or (iv) the external auditor assuming the role of advocate for the company.

5.2.1.3 Regulation of auditor appointment and removal in the UK

In the UK, the appointment of the first auditors is the responsibility of the directors.[33] After the appointment, the auditors then will hold office until the end of the first meeting of the company at which its accounts are laid before the members. At that meeting the members of the company can re-appoint the incumbent auditor, or appoint a different auditor, to hold office from the end of that meeting until the end of the next meeting at which accounts are laid.

Meanwhile, the members of a company may remove an auditor from office at any time during her or his term of office or decide not to re-appoint the auditor for a further term. They must, however, give the company 28 days' notice of their intention to put a resolution to remove the auditor, or to appoint somebody else, to a general meeting. Further, a copy of the notice of the intended resolution must be sent to the auditor, who then has the right to make a written response and require that it be sent to the company's members. [34]

5.2.1.4 Regulation of auditor resignation in the UK

The legislation relating to auditor resignations in the UK was introduced by the Companies Act 1976, which is now part of the Companies Act, 1985.[35] It was designed to strengthen the auditors' position *vis-à-vis* company directors. The legislation

[33] Dormant companies and small companies which: (i) have a turnover of not more than £1 million; and (ii) have a balance sheet total of not more than £1.4 million (for accounts covering a financial year that ended before 26 July 2000, the turnover must not be more than £350,000) do not have to have their accounts audited . Certain charitable companies also do no have their account to be audited.

[34] Although a company may remove an auditor from office at any time, the auditor may be entitled to compensation or damages for termination of appointment.

[35] The discussion of the regulation surrounding auditor resignations in this section is drawn from the studies of Dunn and Sikka (1999) and Dunn, Hillier and Marshall (1999).

requires auditors to inform shareholders and creditors of the circumstances relating to auditor resignations. In particular, it requires the auditors' resignation letter to be accompanied by the statement stating either: (a) there are circumstances connected with their resignation which shareholders and creditors need to be aware of; or (b) there are no circumstances in connection with their resignation that should be brought to the attention of the shareholders and creditors. According to Dunn and Sikka (1999, p.23) the legislation was designed to strengthen auditor independence as well as 'to put some backbone' into weaker auditors.

Up to 1976, Section 160[36] of the Companies Act 1948 provided auditors with the right to speak at all Annual General Meetings (AGMs) and express their concerns about anything related to the financial statements. Only after the introduction of the Companies Act 1976, did legislation impose a duty upon auditors to report matters relating to their resignations to shareholders and creditors.[37] In addition, the law also requires all resignation statements containing a 'statement of any circumstances' to be circulated to shareholders and debenture holders and to be filed with the Registrar of Companies.[38] If there are no circumstances to report, then a statement saying so should also be deposited (Dunn *et al*., 1999).[39] The statements are also to be held at Companies House and then become available for inspection on request. Failure to comply is treated as a criminal offence and punishable by a fine. The Companies Act, however, does not provide any guidance regarding the nature of matters that should be reported.

[36] Section 160 of the Companies Act 1948 is related to the appointment and removal of auditors.
[37] The Companies Act 1985, Section 394(1).
[38] This reporting requirement has been extended to include all auditors who leave office, regardless of whether this was due to resignation or removal by the company. If there are any circumstances to be reported, the company must send a copy of the statement to all the members of the company unless a successful application is made to the court to stop this. If the auditor does not receive notification of an application to the court within 21 days of depositing the statement with the company, the auditor must within a further 7 days send a copy of the statement to Companies House for the company's public record.
[39] This statement, however, need not be circulated to the members.

It is left to the discretion of the auditors to decide and, in addition, there is no formal mechanism for publicising the resignation (Dunn *et al*., 1999).[40]

5.2.1.5 Corporate governance and regulation of auditor choice in the US

In 2002, Sarbanes-Oxley was passed as a law in the US in response to a number of major corporate and accounting scandals involving prominent companies. These scandals resulted in a loss of public trust in accounting and reporting practices. It is widely known that one of these scandals, which involving Enron Corporation was the main cause of one of the major accounting firms, Andersen, to cease operation. The main objective of Sarbanes-Oxley is to strengthen corporate governance and at the same time to restore investor confidence. The legislation contains 11 sections, which include additional Board of Directors responsibilities as well as criminal penalties.

In general, Sarbanes-Oxley establishes:

i. new standards for corporate boards and audit;
ii. new accountability standards and criminal penalties for corporate management;
iii. new independence standards for external auditors; and
iv. a Public Company Accounting Oversight Board (PCAOB) under the Securities and Exchange Commission (SEC)[41] to oversee public accounting firms and issue accounting standards.

The SEC requires companies to file Form 8-K in the case of an auditor change. Disclosure requirements for the reporting of auditor change were first issued in Accounting Series Release (ASR) No. 165 (SEC, 1976), which required the company to report the date of auditor change, any disagreements with the auditor for a period of up to two years prior to the change, as well as any information about adverse or qualified opinions or disclaimers of opinion for the previous two years. In addition to the

[40] Apart from the filing of the statement at Companies House.
[41] The security market regulatory body in the US

disclosure by the company, the SEC also required the auditor to provide a letter verifying the company's assertions regarding the switch. Under ASR No. 165, disclosure of reasons for the change was on voluntary basis and only in 1988 was the disclosure made compulsory.

At the suggestion of the American Institute of Certified Public Accountant (AICPA), Financial Reporting Release (FRR) No.31 (SEC, 1988) required an explicit disclosure when the auditor change is due to resignation. However, the company is not required to announce the reason for resigning. FRR No. 31 also required new disclosures about whether an auditor change occurred due to auditor resignation, auditor refusal to stand for re-election or dismissal by the client. The rationale for this requirement is that such disclosure could provide some indication of whether the auditor was resigning from a troublesome or potentially troublesome audit.

5.2.2 Theories relating to auditor choice

The purpose of this section is to present the theories that are relevant to explain why companies change auditors. However, it is important to note that, as yet, there is no single theory that explains why companies switch from one auditor to another (Schwartz and Menon, 1985 and Grayson, 1999). [42] In addition, it is also recognised that these theories appear to overlap with one another (Wallace, 1984).

The next section discusses how agency theory and its relevant hypotheses could explain the demand[43] for audit services. It is followed by a discussion of the insurance hypothesis (section 5.3.2) and the information suppression hypothesis (section 5.2.2.3). While Section 5.3.1 through 5.3.3 deal with economic aspects of auditor change,

[42] For instance, Schwartz and Menon (1985) note that '…a general theory that explains why firms change auditors is yet to emerge'.
[43] This will also provide insight into why companies change their auditor.

section 5.2.2.4, discusses behavioural aspects of auditor change. Specific theories of auditor resignation follow in section 5.3.5.

5.2.2.1 Agency theory and external audit

For many years, it has been recognised that problems arise when a company's ownership is separated from control. Industrial concentration, especially in the western world, has led to the existence of companies which are large and complex, managed by the managers and not by the shareholders (i.e. owners) of the companies. The delegation of control to a small number of managers is necessary not only for more effective control but also due to the impossibility of every shareholders being involved in management. The managers make decisions which may have enormous implications for the shareholders (and employees) of the companies that they control. These managers, however, may not always act in the best interests of the shareholder in this so-called 'principal-agent relationship'. This is the basis of the agency problem, which then gives rise to agency costs.

Agency costs are a type of transaction cost. Without such costs, it is impossible for principals to ensure agents will act in the principals' interest. Agency costs include the costs of investigating and selecting appropriate agents, gaining information to set performance standards, monitoring agents, bonding payments by the agents, and residual losses.[44] The cost of these safeguards along with the effects of those abuses which could not be prevented have been described by Jensen and Meckling (1976)[45] and is known as agency theory.

[44] To the extent that the agency problems can't be perfectly resolved, managers won't always be acting in the shareholders' interests. The losses in shareholders' wealth that result from the failure to perfectly align the incentives of managers with those shareholders are called residual losses.

[45] The theoretical basis of agency theory can be traced to the work of Coase (1937, 1960), Berle and Means (1932), Manne (1965), Alchian (1950, 1969) and Alchian and Demsetz (1972), each of whom considered rather broad questions concerning the nature and the reasons for the existence of the corporate form of organization.

Agency theory provides an explanation of companies' decision to appoint an auditor. The theory has been used to explain both the voluntary demand for audit services as well as the heterogeneous (i.e. different levels of) demand for of audit quality. The demand for audit services as a monitoring device arises not only because of the potential conflict of interest between owners and managers, but also amongst different classes of security holders (Watts, 1977; and Watts and Zimmerman, 1986). Several specific hypotheses, within the general context of agency theory, have been put forward to explain the demand for audit services. These include: (i) monitoring demand hypothesis, (ii) signalling hypothesis; and, (iii) substitution hypothesis.

Monitoring demand hypothesis

The desire for audit services, particularly those of high quality, is derived from the extent of information asymmetry[46] between principal and agent. Weets (1999) outlines three specific agency relationships where an auditor can attenuate agency problems. The first relationship is where the managers act as agents of owners. Managers as agents usually have total discretion over business strategy, investment and financing decisions. They may find lots of opportunity to fulfil their own interest. They may be tempted to award themselves with excessive remuneration, either in the form of substantial salaries or fringe benefits, e.g. expensive cars and luxury offices (Dunn, 1996). This possibility of opportunistic behaviour combined with the existence of asymmetric information creates agency problems. Owners, therefore, have an incentive to set up schemes that would make the managers act as better agents, with one of the schemes being the choice of the auditor. However, managers also have an incentive to hire an auditor as a way to signal non-opportunistic behaviour in order to get more than the minimal compensation.

[46] The information asymmetry is due to the agent knowing more information about the company than the owner.

The second agency relationship that gives rise to the demand for audit services is between owners and creditors, whereby the former act as agents to the latter. The presence of creditors provides an incentive for companies to appoint an auditor and influence the choice of audit quality. As in the manager-owner relationship, asymmetric information creates the possibility for owners to maximise their own interests at the expense of the creditors. The extent of possible wealth transfers from creditors to owners depends upon the proportion of debt in a company's capital structure. The greater the proportion of debt, the greater the potential wealth transfers (Watts and Zimmerman, 1986).

The third agency relationship identified by Weets (1999) is the relationship between other employees and owners or managers. Unlike in a small organisation where the owner or manager controls operations by personal observation or direct supervision, the control of larger organisation requires high delegation of duties. Employees' actions in a large organisation are more difficult to observe.[47] The appointment of external auditors, therefore, can be used to reduce this possible 'loss-of-control' in hierarchical organisations (Abdel-Khalik, 1993). Abdel-Khalik (1993) suggests that in companies with more employees, the auditors deliver more audit work to provide assurance on the loss of control in that company.

Signalling hypothesis

Signalling through the choice of auditor is a means by which managers (or directors) may impart to the market additional information about the company and in some cases, about their own behaviour. The signalling literature makes the assumption that only the seller of goods or services knows their quality, whereas the buyer does not (Bar-Yosef and Livnat, 1984). The basic premise is that there is asymmetric information on the

[47] The greater the number of employees, normally the more administrative layers of the organisation and the more difficult it is to observe the activities of subordinates. The reduced observability then gives rise to the risk of moral hazard and opportunism (Hay and Davis, 2002).

quality of the goods sold and, hence, consumers cannot differentiate between goods with different quality. In this kind of market, producers have no chance to build a reputation and two factors will conspire to reduce the availability of high quality products (Moizer, 1992).

The first factor, as explained by Moizer (1992), is 'moral hazard' which will arise because sellers can maximise profits by supplying low cost and poor quality products, with the returns from producing good quality products accruing generally to all sellers, regardless of the quality level they produce. This can happen since the quality of a purchase cannot be predetermined and the asymmetry of information leads the market to trade both high and low quality products at the same average price. The next factor, which is 'adverse selection' arises since, at the average price, producers with higher quality goods or services are pushed out of the market by the producers of a low quality product who have the advantage of low production cost. Any sellers who, for whatever reason, wish to supply higher quality products will be driven out of the market, leaving only the seller of the cheapest, low quality products (Moizer, 1992). Consequently, the average quality of goods on sale will be reduced and the market will collapse (Akerlof, 1970). One mechanism that corrects such market failure is signalling. According to Wallace (1987), signalling is a kind of implicit guarantee and the producers engage in some supplemental activity that would be irrational were his claims not correct. In order to obtain recognition of their high quality products, the producers with better quality may signal their product to the uninformed buyers. The signal may be in the form of a costly act to indicate the superiority of their products and the higher the cost of the signal the higher is the indicated quality (Bar-Yosef and Livnat, 1984).

The signalling framework can be applied to the choice of external auditors. One signal available to the producers is through the provision of financial statements (Wallace, 1987). Asymmetric information between managers and stakeholders on future cash

flows and agency relationships leads to the undervaluation of the company, especially in the form of share valuation. As their wealth is being threatened, stockholders may induce managers to disclose the additional information about the future cash flows through the act of selecting an auditor. Managers who are more optimistic about their firm's future cash flows are likely to engage a higher quality auditor to convey their assessment as well as to signal to stakeholders that their interest is being well monitored (Titman and Trueman, 1986).

Signalling, however, does not require actual higher audit quality, merely that the market believe that the selected firm is associated with higher audit quality (Moizer, 1997). Since the quality of service products, such as audit services, is non-observable and difficult to evaluate (Craswell and Francis, 1999), a commonly used proxy for quality is reputation (Shapiro, 1983).[48]

Substitution hypothesis

According to Dopuch (1984, p. 258) there are other forms of monitoring which could substitute the demand for external audits or at least be used as a complement. The demand for higher quality auditing services, for example, may be reduced in the presence of active audit committees and formal internal audit divisions. Another example is when the creditors of firms with high debt-equity ratios may be able to place their own representatives on firm's boards.

The presence of internal governance control has been hypothesised to compensate the demand for higher quality audit. Anderson *et al.* (1993) argue that the corporate governance measures of internal audit, external audit quality, and the board of directors,

[48] According to Shapiro (1983, p.659) 'The idea of reputation only makes sense in an imperfect information world. A firm has good reputation if consumers believe its products to be of high quality. If product attributes were perfectly observable prior to purchase, then previous production of high quality items would not enter into consumers' evaluations of a firm's product quality. Instead, quality beliefs could be derived solely from inspection.'

are substitutable dependent on the company characteristics of greater assets-in-place versus growth. The study finds that companies with greater stability employ more monitoring via audit than through directorships. In addition, those companies are found to spend more on internal audit than on external audit. The findings are consistent with Matolcsy *et al.* (1999) who report that, in companies with high growth options, governance from directors is greater compared to governance from external audit. This body of literature indicates that governance mechanisms are substitutable. According to Yeoh and Jubb (2001), monitoring through high external audit quality can be replaced with internal governance devices. Audit of a lesser quality becomes acceptable (Yeoh and Jubb, 2001) to the point where the nominal marginal cost of such activities is just equal to the perceived marginal benefits from engaging in them (Jensen and Meckling, 1976, p. 338).[49]

The substitution hypothesis, however, has received little empirical support.[50] Studies seem to indicate that audit quality could very well be a non-substitutional governance mechanism, especially due to the perception by the market (Yeoh and Jubb, 2001). The signalling and insurance dimensions of audit quality may dominate.[51]

5.2.2.2 Insurance hypothesis

Wallace (1980), Chow *et al.* (1988) and Schwartz and Menon (1985) have contended that audits provide investors with a form of insurance. The need for insurance will drive companies to demand a large auditor (DeAngelo, 1981b; and Francis and Wilson, 1988) so that the auditors will function as a potential indemnifier against investment

[49] For instance, Ettredge *et al.* (2000, p. 57) note that 'One can readily observe that no single form of monitoring or bonding dominates all others. Instead, manager-owners employ a variety of devices. Each method is used until its marginal cost equals its marginal benefit.'

[50] For example, O'Keefe *et al*. (1994) and Stein *et al.* (1994) do not find significant negative association between auditor effort and reliance on internal control or external auditing. Ettredge *et al.* (2000) also do not find any systematic substitution of internal for external auditing (or *vice versa*) to occur during the period 1989-1993.

[51] For instance, Hay and Davis (2004) suggest that differing levels of audit quality are recognised by the market and subsequently rewarded.

losses for investors, creditors and regulators (Wallace, 1980). Large auditors are seen to have a comparative advantage in the provision of insurance, as they are able to spread the risk of litigation over a larger number of clients (Schwartz and Menon, 1985).

However, why would managers look to the auditors for insurance, rather than to insurance companies? Wallace (1980) discusses four possible answers to this question. First, she argues that society has infused the auditors' involvement and that a manager who does not require auditors' participation may be unable to demonstrate adequate professional care. Therefore, in the absence of the independent auditors' attestation, any negligence or fraud may be implied on the part of managers. Second, the development in the auditing profession where the audit firms have begun to hire in-house general counsels and to develop full legal staffs for defending against professional liability lawsuits has been said to provide more efficient insurance coverage. In addition, the fact that the auditors themselves act as co-defendants (rather than the third party as in the case of an insurance company) enhances the belief that the auditors are more efficient than the insurance companies. Third, as the insurance companies will make a cost-benefit choice on whether to enter the legal defence or to settle out of court, the managers and auditors are more likely to also take into consideration the effect of litigation on their reputation. Thus, this common interest (to protect their reputation) will insure the proper consideration of the effect of litigation on the reputations of the parties involved. Fourth, auditors are viewed as having 'deeper pockets' relative to the bankrupt or financially distressed companies. According to Wallace (1980), the courts have tended to assume that the auditors are the guarantors of the accuracy of the financial statements (to the consumers or investors) and they (the auditors) appear to be regarded as a '…means of socialising risk'. The auditors, therefore, will be held responsible for business failures and will be subjected to lawsuit.

To bear the cost, the auditors will in turn shift this cost to clients in form of higher audit fees and then to society in the form of higher prices and lower returns on investment.

Another dimension of the insurance hypothesis relates to the incentive of politicians to require audits. According to Wallace (1980), when the SEC[52] was established the government could have become the target of critics whenever a large corporation failed financially or fraud was discovered. In fact, the SEC required company to appoint the external auditors based on the claim that 'adequate disclosure' would preclude a future stock market crash.[53] According to Wallace (1980), the SEC's reliance on private auditors as the preferred means of assuring adequate disclosure can also linked to the insurance benefit to be gained by those politicians. The political benefits, such as those that derive from mandating audits and increasing liability exposure of auditors, as well as focusing attention on auditors' failure (rather than regulators' failure), can insure government regulators and politicians against any blame that may arise as a result of fraud or financial failure.

The role of the insurance hypothesis is above and beyond the monitoring function as suggested by agency theory. The insurance function exists when the legal system allows investors to recover losses from auditors and when auditors have sufficient capital resources to compensate investors for their losses (O'Reilly *et al.,* 2000). The probability of recovering these losses increases with the size and the reputation of the auditor. These auditors have "deep pockets" and this provides investors with insurance in the event of audit failure (Simunic and Stein, 1995).

[52] LSE in the context of the UK.
[53] Taking the most famous stock market crash in the US history (i.e. 'The Great Crash 1929'), as an example, Wallace (1980) argues that no support was provided for the claim that inadequate disclosure practices, even in part, caused the crash.

5.2.2.3 Information suppression hypothesis

One plausible explanation as to why some companies change auditors is suggested by the information suppression hypothesis. The hypothesis suggests that auditor changes are often motivated by management as a way to suppress negative or problematic financial information. For instance, Grayson (1999) hypothesises that managers sometimes have private information on the existence of bad news and fear that continuing their relationship with the incumbent auditors will result in disclosure of the bad news before management is ready to do so. Therefore, in an attempt to delay the release of some unfavourable information, there is the possibility that management will change auditors (Kluger and Shields, 1991). Changing auditors, however, is seen as the last resort. As has been mentioned by Kluger and Shields (1991, p. 256):

> 'To the extent that the auditor co-operates with the information suppression, there is little incentive for the company to contemplate an auditor change. However, if the auditor refuses to comply with management's wishes, there is greater incentive for management to replace the incumbent with a more compliant one.'

According to Grayson (1999), examples of information that motivates management to keep it from public knowledge are: (i) assets or expectations that have to be revalued; (ii) events that may result in extraordinary charges to the income statement; and (iii) lower net income or net losses. He, however, notes that some companies (e.g. those already recording discretionary write-offs, or reporting losses voluntarily) have no need to do anything which would delay the disclosure of the news and thus do not have an incentive to switch auditors to prevent the market from learning of the situation.

Schwartz and Menon (1985, p.250), argue that there is reason to believe that when company existence is threatened '…management's compensation outlook may suffer from myopia'. Therefore, it is reasonable to expect that when companies are in financial distress, management might attempt to suppress or delay the dissemination of negative information or select accounting methods that can temporarily mask the

problems. This, however, may not be agreed by the auditors and they may express their displeasure. In addition, for companies with deteriorating financial condition, the auditors could issue a qualified opinion. Qualified opinions, however, are not something that are welcomed by management. Schwartz and Menon (1985) state that management might believe that receiving a qualified opinion could depress the price of the company's securities and might also impair the ability to raise adequate financing. In addition, Firth (1980) suggests that the disclosure of uncertainties in the auditors' report can be a significant element in bankers' lending decisions. According to Schwartz and Menon (1985), disagreement over accounting methods and an impending audit qualification could strain the auditor-client relationship, and thus may trigger the client to search for a new auditor whose views are more acceptable to management.[54]

5.2.2.4 Behavioural aspects of auditor change

It is recognised that there is lack of general theory available to explain auditors' switching behaviour (Schwartz and Menon, 1985; Knapp and Elikai, 1988) and, as mentioned by Beattie and Fearnley (1998), the theory of auditor change and choice is based heavily on the economic theory (e.g. agency theory). Beattie and Fearnley (1998, p.263) argue that economic theory can only provide a partial explanation and is not sufficient to explain audit change behaviour, in at least three aspects. First, they argue that economic theory does not address the specific audit firm chosen from a general class. Second, from a statistical perspective, they argue that the imperfect explanatory power of statistical models indicates that the extant theory is unable to provide a rationale for a significant number of auditor changes. Finally, they argue that there are cases where the companies do not change auditor though they are predicted to do so. They, therefore, suggest that these deficiencies are due to a failure to incorporate behavioural factors into theoretical explanations of auditor choice process.

[54] This strategy is known as 'opinion shopping'.

For instance, Basioudis (2001) links the existence of alumni of the incumbent auditors in the boardrooms to lower audit fees. He refers to this relationship as 'the alumni effect'. Baydoun (1999) notes that certain unique futures of companies (especially in Asia), such as family ownership and 'interlocking firm relationships' may affect the selection of new auditors.[55] He regards such personal connections as '…one aspect of culture pertinent to auditor selection'.[56]

5.2.2.5 Specific theories of auditor resignation

Auditor resignation is different from ordinary auditor change, in that the realignment is induced by the auditors (also referred to as 'auditor-instigated change'). Two hypotheses have been put forward by Shu (2000) to explain why auditors resign from audit engagements.

Litigation-risk hypothesis

Shu (2000) posits that auditors drop certain clients to reduce their legal exposure. It is widely acknowledged that the incidence of litigation against auditors has increased dramatically, especially in the 1980's and 1990's (see Arthur Andersen *et al.,* 1992; Albrecht and Willingham, 1993; and Kinney, 1993 for discussions of the litigation environment in the US and Seetharaman *et al.,* 2002 on the differences between the UK and the US). Increased litigation risk has raised concerns about the threat posed to auditors and the public accounting profession (Berton, 1995; and Public Oversight Board, 1993). The US firm (Laventhol and Howarth) went bankrupt in 1990 due to insolvency as a result of litigation costs. Auditors, in the event of litigation and if proven negligent, will not only need to pay out-of-pocket damages but also will incur other indirect costs such as loss of management time as well as loss of reputation (Shu,

[55] He gives keiretsu firms in Japan as an example.
[56] According to Baydoun (1999), Barlev (1977) notes that this is not easy to prove as the managers probably would not admit the connection even in a confidential questionnaire.

2000). Loss of reputation, for example, will deny auditors the opportunity to command a price premium. As asserted by DeAngelo (1981a), auditor reputation serves as collateral to ensure high quality audits. Loss of reputation will result in loss of faith by clients who value high-quality audit and, as a result, these clients will drop the incumbent auditors or no longer be willing pay the same fee.

Due to high litigation costs and the possible effects of reputation loss, auditors have an incentive to limit the damage payments and to protect their reputation (Shu, 2000). According to Shu (2000), auditors may engage in active risk management strategies such as evaluating existing clients frequently and resigning from risky clients. For example, some independent audit professionals have suggested that because of litigation, larger audit firms are unwilling to take on risky clients (Jones and Raghunandan, 1998). In making the decision to accept or reject an audit engagement, it is therefore to be expected that auditors will consider the litigation risk. For instance, Huss and Jacobs (1991) report that B6 auditors assess the risk of engagement before acceptance of a client and Brumfield *et al.* (1983, p. 68) claim that auditors will adjust their client portfolio by resigning from engagements in which they perceive high potential for litigation and correspondingly high levels of business risk.

Clientele-adjustment hypothesis

Earlier, Johnson and Lys (1990) suggested that companies and auditors will be motivated by market competition and economic considerations to align themselves based on similar characteristics of the audit firm and needs of the company. For instance, individual audit firms obtain competitive advantages through specialisation and clients purchase audit services from the least costly supplier. They argue that the incumbent auditor's competitive advantage for an existing client can be eroded over

time by changes in the client's operations and activities. Consequently, it is natural to observe voluntary auditor realignment when the auditor's competitive advantage is lost.

Shu (2000) points out that many resignations could be due not only to the changed legal climate, but also to the change in audit technology and the expansion of NAS. She argues that recent changes in the audit industry have altered the relative benefit and cost of each audit client, motivating auditors to change their client composition. For instance, technological advances have reduced the seasonality of audit work. In the past, auditors might have taken on mismatched clients with outside busy season audit (e.g. January to April, if most of the companies close their accounts in December) in order to smooth their services production. However, the use of computerised and technology-based audit procedures has facilitated timelier interim reviews and reduced end-of-year workload, and thus has made the audit job less seasonal. The net benefit from a client engaged in an era of less advanced technology has now diminished and thereby increases the likelihood of their being dropped.

The other change discussed by Shu (2000) is the provision of NAS[57] by the auditors. There is evidence that a growing percentage of audit firms' total revenues are coming from NAS (Firth, 1997a).[58] By performing the audit work, auditors accumulate substantial client-specific knowledge and can offer the NAS at relatively lower cost. Simunic (1984) suggests that the provision of NAS by the same auditor who provides traditional audit services will result in knowledge spillovers.[59] The joint provision of both services has the perceived potential benefit of improving efficiency and reducing total (audit and non-audit) costs for a given level of audit services and has the potential to create synergies where the marginal costs of joint provision are less than the

[57] NAS include tax consultancy, systems consultancy, management advice, international business advice, human resource management and financial and investment consultancies (Firth, 1997a).
[58] For instance, the Office of Fair Trading (2004) reports that NAS fees are between 156% and 284% of the audit fee for FTSE 100 auditors.
[59] The term 'knowledge spillovers' has been used by Simunic (1984) and Beck *et al.* (1988).

marginal costs of separate provision (Firth, 1997a). The cost saving could be passed to the client by way of lower total fee or kept by the audit firm (Simunic, 1984). If passed by way of a lower fee,[60] the auditor gains a competitive advantage in the audit services market (Firth, 1997b) especially in seeking new clients or retaining the existing client.

The demand for NAS is also partly driven by clients who seek to improve their operational efficiency. As the provider of NAS is normally a B5firm,[61] the demand for NAS then allow the firms to take advantage of the demand, by effectively offering packaged services. According to Shu (2000), large audit firms typically have consulting groups whose clients are often brought to them by the auditing group. Within the auditing group, auditors are also involved in various advisory projects, such as those that relate to accounting systems, restructuring or acquisition. At the same time, it is also not unusual for the auditing group to frequently provide staff to the consulting group. The integration between the consulting and auditing groups demands the expanded skills of the professional staff. Any resources devoted to the development of such skill sets increase the fixed costs of production associated with individual clients. Thus, a client with a large and stable demand for non-audit work is seen to yield incrementally higher benefits relative to one with limited demand for non-audit work. Audit firms with expanded skill sets will find that it is more profitable to provide services to the clients who demand both the audit service and NAS that they are offering. Meanwhile, the clients that purchase NAS which are not within the expanded skill set will be forgone.

[60] The possibility is that it will be passed to the client via a lower audit fee as the price competition for audits is more severe than for NAS. In addition, as one of the major client objectives for the audit is to get a clean audit report, they may search for the cheapest provider of a clean report (Firth, 1997b, note 1).

[61] For instance, Firth (1997a), based on data for the 500 largest British industrial listed companies, reports that in 1993 the B6 held 79% of the market for NAS. The mean B6's NAS fee was approximately 80% of the audit fee with an average of £409,300 per audit client. Meanwhile, it is reported that the ratio of NAS to audit fee of the FTSE 100 companies had risen from 160% in 1999 to 280% in 2001 (ACCA, 2002).

5.2.3 Audit quality and its measurement

According to Wallace (1980), auditing is demanded by investors or managers to fulfil three aspects of demands: (i) a demand for a monitoring mechanism; (ii) a demand for information production to improve investors' decisions; and (iii) a demand for insurance to protect against losses from distorted information. The extent to which it is effective is dependent in part on the quality of particular audits. Higher quality audit would reduce the uncertainty associated with the financial report prepared by managers and signal quality of the information presented. Audit quality is one of the most important issues facing the auditing profession, especially during recent years due to the pressure of litigation (Vanstraelen, 2000) and a series of corporate failures.

5.2.3.1 Definition of audit quality

Unfortunately, despite the importance of the concept, the term 'audit quality' has not been defined explicitly by technical standards and researchers have yet to arrive at a consensual understanding of its meaning (Schroeder *et al.*, 1986). The most frequently cited definition of audit quality is provided by DeAngelo (1981b), who states audit quality as the probability that an auditor will both (i) discover a breach in the accounting system, and (ii) report the breach. Further, she adds that the probability that a given auditor will discover a breach depends on, amongst other things, the auditor's technological capabilities, the audit procedures employed on a given audit and the extent of sampling. She also states that the conditional probability of reporting a discovered breach is a measure of auditor independence from a given client (DeAngelo, 1981b, p. 186).

Based on DeAngelo's definition, there are two components of auditor quality: auditors' competence and auditors' independence (Watts and Zimmerman, 1986). The first component, auditors' competence, can be achieved through, *inter alia*, investment in

audit technology and proper training. Meanwhile, the second component of audit quality, auditors' independence, has long been regarded as vital for maintaining the integrity of the audit. The Chairman of the AICPA regards independence as '…the soul of the public accounting profession' (quoted in Lennox, 1999). Mednick (1997) adds that auditors' independence is 'the cornerstone of the accounting profession and one of its most precious assets'. However, in spite of its importance, no formal theory of auditor independence exists and thus limited analytical models have been offered to explain the issue (Beattie *et al.,* 1999).[62]

DeAngelo's definition implies that the probability of discovering breaches (i.e. material errors, misrepresentations or omissions) depends on an auditor's technical competence (or ability), while the probability that an auditor will report the discovered breach is a function of independence (Watts and Zimmerman, 1986). In addition, the probability of reporting is also a function of integrity (Johnson and Lys, 1990) and honesty (Watts and Zimmerman, 1986). According to DeAngelo (1981a), both components are unlikely to be separable.

5.2.3.2 Differential levels of audit quality

Although audit quality lacks explicit and consensual meaning, the auditing literature has suggested that audit services are quality-differentiated (Gul, 1999). This implies that there are real or perceived differences in auditor quality (Simon, 1985). Yardley *et al.* (1992) summarised and synthesised empirical results about product differentiation amongst the sellers of audit services. They argue that, prior research has considered

[62] It, however, has been recognised that there are two distinct dimensions of independence: independence in fact and independence in appearance. Independence in fact is an unbiased mental attitude of the auditor while independence in appearance is the perception of a reasonable observer that the auditor has no relationship with an auditee which would result a conflict of interest (AICPA, 1993). It is not enough for the auditor to be independence without appearing to be so.

two related features of the audit product[63] that may differ with auditor type. The first is the degree of assurance provided to external parties by the audit opinion, and the second is the use of audit firm type by management as a signal to investors. The price of audit services will vary depending on how convinced the client is about the audit firms' product superiority, with clients being willing to pay more in order to get higher quality services.

Audit assurance as an indicator of audit quality

The degree of audit assurance is a direct consequence of the quality of an audit opinion. The quality of opinion can vary, although not in form,[64] as a function of the effort and expertise expended by the auditor to gather supporting evidence and his willingness to report truthfully (DeAngelo, 1981b). However, as direct evidence of audit opinion quality is not available, users have to assess the quality based on suitable indicators. The indicators that have been used are discussed in section 5.2.3.3 below.

Ability to signal as an indicator of audit quality

The second feature of product differentiation amongst auditors is the ability to signal. The existence of information asymmetry between management and investors causes investors to be unsure of the relative quality of various investments. A high quality audit sends a signal to the market that the financial statements are more credible than those audited by lower quality auditors. Therefore, the selection of a high quality auditor may be used to signal management's expectations of future cash flows (e.g. in the case of IPO) or to signal manager's honesty (e.g. by management of a company with high discretionary accruals).

[63] The audit product is a report that contains the auditor opinion regarding the 'true and fair view' (in the UK) of financial statements presentation. This audit report is deemed of value if it is a result of a technically competent and independent audit process (Citron and Taffler, 1992).
[64] As audit opinions are governed by standards and acts.

5.2.3.3 Surrogates for audit quality

Given the fact that audit quality is not directly observable (Dopuch and Simunic, 1982; Wilson and Grimlund, 1990) and the actual audit process is invisible to those who depend on its results (Eu-Jin and Houghton, 2000), a surrogate is needed[65] to differentiate between 'high quality audit' and 'low quality audit'. According to DeFond (1992), the surrogates frequently used are: (i) auditor size; (ii) name-brand reputation; (iii) industry expertise; and (iv) independence.

Auditor firm size a measure of audit quality

A frequently been used surrogate is audit firm size. The typical measure of auditor size is audit market share. DeAngelo (1981b) contends that audit firm size can be used as a proxy for audit quality. Contrary to AICPA views at that time, she states 'that size alone alters auditors' incentives such that, larger audit firms supply a higher level of audit quality' (DeAngelo, 1981b, p. 184). She relates audit quality to auditor size based on auditor-reputation effects. As reputation damage might result in loss of clients or reduced audit fees, auditors will want to avoid bad publicity regarding their services. Her analytical model shows that larger audit firms will provide higher quality audit due to a 'collateral effect' in which large auditors have more to lose by providing low quality audits. The argument is based on the significance of start-up costs which allow auditors to earn client-specific quasi-rents.[66] When the audit firm is large, the firm would have many clients and get large amounts of quasi-rent. She argues that these quasi-rents, when subject to loss from discovery of a lower quality audit than

[65] The need for a suitable surrogate or indicator is understandable since auditors, as rational self-interested utility maximisers, may cheat on an audit by doing less work (quantitatively or qualitatively) than the level that they have contracted implicitly or are required by law to perform (Eu-Jin and Houghton, 2000). According to Simunic and Stein (1987) this is possible since users are precluded from directly observing the performance of the audit.

[66] DeAngelo (1981a) suggests that these quasi-rents arise through the practice of lowballing, that is charging the auditee below actual cost in order to secure engagement. Discontinuation of the auditor engagement will results in the auditor being denied the stream of quasi-rents (Watts and Zimmerman, 1986).

promised, serve as the collateral against auditors' opportunistic behaviour (p.184). As the large audit firms have more to loss by providing low quality audits, those firms will have a greater incentive to retain the clients by performing their job carefully and competently and, in turn, this will increase the quality of audit work. Thus, the effect of reputation on their business motivates them to protect their reputation (Watts and Zimmerman, 1986).

In short, DeAngelo's model implies that, the larger the auditor, the less incentive the auditor has to behave opportunistically. Accordingly, the larger the auditor, the higher the perceived quality of the audit. Large auditors have greater incentives to issue accurate reports because they have valuable reputations to protect and when it becomes known that an auditor has negligently issued an inaccurate report, the large auditor could suffer a greater loss of rent (than smaller auditors) through fewer clients or lower fees (Lennox, 1999).

An alternative explanation of the size-quality relationship is discussed by Dye (1993), who adds to the work of DeAngelo and focuses on the impact of the wealth that is at stake when an audit firm is subject to litigation. Large audit firms have more wealth at stake due to deeper pockets, and so are inclined to supply a higher quality audit compared to smaller firms. Therefore, larger audit firms have greater incentives to be accurate and are induced to exercise more audit effort and consequently supply higher audit quality to avoid litigation cost.

Brand name reputation as a measure of audit quality

According to Dopuch and Simunic (1982), as audit quality is not directly observable, the differential perceptions of audit quality must relate to the brand name of the auditors. The typical measure of name brand reputation is the dichotomy between B5 and non-B5auditors (Colbert and Murray, 1998), with the former widely viewed as

producing higher quality audits (Francis *et al.,* 1999). Several other studies (e.g. Simunic and Stein, 1987) also include the second-tier firms to characterise brand name reputation. According to DeFond (1992), the B5 firms have an international reputation, while the second tier firms have a national reputation.[67] Steven (1981), cited in Firth and Smith (1992), asserts that there appears to be a measure of acceptance that the B8 (now reduced to B4) accounting firms are the brand-name auditors in much of the English speaking world. It is also true that the B5 are the largest firms especially in the US and UK.[68] Evidence suggests that managers and investment bankers are willing to pay a premium in order to hire a B5 auditor (e.g. Palmrose, 1986; Craswell *et al.*, 1995; Simon, 1985; Balvers *et al.*, 1988; Menon and Williams, 1991; Tomczyk and Read, 1989). It is also recognised that higher reputation auditors reduce the uncertainty related to the offering of new issues (Douthett and Jung, 2002). These auditors can charge a higher price and tend to be bigger, more proficient and better at maintaining their independence. Their investment in reputation capital is significant and is likely to be recovered through higher audit fees.

Expertise as a measure of audit quality

Industry specialisation by auditors may provide greater assurance that financial statement breaches will be detected (DeFond, 1992). Specialist auditors are perceived to have the ability and incentive to provide high quality audit as they have a disproportionate amount of reputation at stake as well as the superior knowledge in the industry in which they specialised (Craswell and Taylor, 1991). The presence of industry specialist auditors is said to increase audit quality and thereby the earnings quality (Craswell *et al.,* 1995). A number of industry-specific factors that may affect auditor incentives or abilities to concentrate in specific industries has been discussed by

[67] Simon (1985), however, notes that some second tier firms may also have an international reputation.
[68] However, in several countries such as in Hong Kong, non-Big Five also appear to be amongst the largest.

Hogan and Jeter (1999). The difficulty of compliance with industry-specific regulation and reporting requirements (e.g. banking and financial industries) may result in greater auditor concentration within those industries. In addition, auditors are also likely to be interested in attracting large or growing clients and so, may focus their specialisation efforts on industries characterised by relatively large clients or by relatively rapid growth.

Gramling and Stone (2001) argue that industry specialists should provide higher audit quality due to: (i) better audit technology; (ii) lower costs as a result of economies-of-scale; and (iii) superior knowledge due to economies-of-knowledge. Several archival and survey-based studies provide evidence that indicate superior audit quality provided by industry specialist auditors. For instance, O'Keefe *et al.* (1994) find that audit quality (measured by an assessment of auditor compliance with GAAS) increases with auditor industry specialisation. Craswell *et al.* (1995) find that in specialised industries, specialists earn a 34% fee premium over non-specialists. Shockley and Holt (1993) find that bank loan officers appear to use industry expertise to assess audit firm credibility.

Independence as a measure of audit quality

Mautz and Sharaf (1961) note that the strongest indicator of the audit firms willingness to report a breach is the auditors' perceived independence. DeFond (1992) argues that the larger a specific client firms' fees are in relation to the total fees earned by the auditors, the less willing the auditors will be to disclose a breach in financial statements for fear of losing the client.

Literature has partitioned independence into two categories - independence in fact and independence in appearance - and emphasises that independence must not only be real

but must also be evident. As quoted in Mautz and Sharaf (1961), Kane (1952) states that :

'Independence is an essential auditing standard because the opinion of the independent accountant is furnished for the purpose of adding justified credibility to financial statements which are primarily representations by management. If the accountant were not independent of the management of his clients, his opinion would add nothing.'

Several factors have been identified that, to some extent, may adversely affect auditor independence. They include: (i) the scope of services provided by the audit firms (e.g. the provision of NAS); (ii) the audit fee (e.g. the practice of lowballing); and (iii) employment relationships (e.g. the employment of ex-auditor as a financial controller). In the presence of these factors, there is a likelihood that audit quality will be impaired (DeFond, 1992).

5.3 Empirical studies of auditor choice

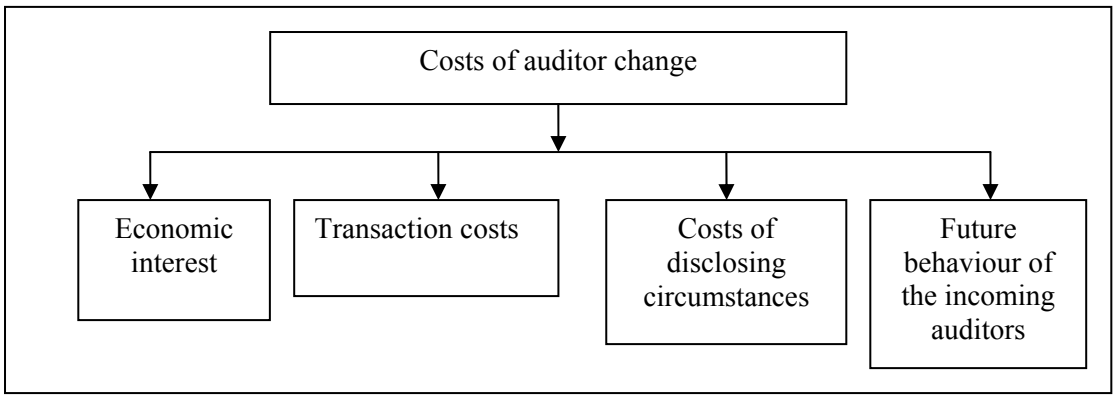
5.3.1 Classification of auditor choice studies and costs of auditor change

In Chapter 1, studies of auditor choice were divided into four areas: (i) existing auditor selection; (ii) auditor resignation; and (iii) auditor dismissal and new auditor selection. The following sections review each area in turn.

As has been reported in many studies, the incidence of auditor change (dismissal and resignation) is relatively small, possibly due to the associated costs. Figure 5.1, shows three four types of cost that can result from auditor change. DeAngelo (1981) identifies (i) the economic interest of the managers in the continuation of the present auditor, (ii) the transaction costs of changing auditors, and (iii) the costs of disclosing the circumstances surrounding auditor changes. In addition, Dye (1991) states that the uncertain future behaviour of the incoming auditor may also impose cost to the company. For instance, if a company changes its auditor in the hope of avoiding a

qualified opinion, the company is also faced with high uncertainty whether the incoming auditor will issue a better audit opinion.

Figure 5.1: Costs associated with auditor change



DeAngelo (1981a) argues that managers' economic interest in the continuation of the present auditors is a consequence of significant start-up costs involved in an initial audit engagement. The start-up costs, are incurred as the auditors attempt to gain an understanding of the client's businesses and industries. In addition, they are also the result of having to collect more evidence during the first audit engagement (due to the higher inherent risk faced by auditors). Because of this, the extent of start-up costs is a function of the size as well as the nature of the client's operation (Craswell, 1988). Correspondingly, auditors also have an economic interest in their clients (for instance, in the case where the auditors price cut the initial fee, they have an incentive to recover it back in later years). Therefore, both the auditors and clients have an incentive to maintain the established relationship.

The second type of cost associated with auditor change is transaction costs, which include the search for a new auditor. In addition, the clients may also incur indirect costs such as the time to help auditors familiarise themselves with accounting and internal control systems (DeAngelo, 1981a; Arens and Loebbecke, 1984). Moreover, where changes are accompanied with a qualified audit opinion, the managers of those companies are also faced with the problem of finding a replacement auditor who is less

likely to issue the same type of audit report. Therefore, whenever the disagreement between the client and the auditor is trivial, search costs may also be trivial and when the disagreement is serious, managers may face difficulties in finding auditors who would be willing to issue a clean report and the search costs would also be expected to be higher (Craswell, 1988).

The third type of cost is associated with the regulation which requires the disclosure of details surrounding auditor changes (see section 5.2.1 above). While DeAngelo (1981a) suggests that such legislative provisions may have resulted in a strengthening of auditor independence, she also mentions that such regulation may have the opposite effect. In particular, she argues that the legislative provision may weaken the auditor independence in the way that it enables auditors to raise future audit fees. In addition, the disclosure of auditor change and its related information may also affect the capital market (discussed in section 5.3.4.4)

5.3.2 Studies of existing auditor selection

Chow (1982) examines a sample of 165 New York Stock Exchange (NYSE) and Over the Counter (OTC) companies in 1926 in the US to analyse companies' incentives to appoint an external auditor in the absence of regulatory requirement.[69] The study postulates that a major reason for companies to appoint auditors is to help control the agency conflict amongst the managers, shareholders and bondholders. The study attempts to provide insights into the question of whether management dominates the decision to hire auditors, by examining why managers and investors demand external auditing. Four relevance hypotheses are tested. First, he hypothesises an inverse relationship between management ownership and the probability of engaging external auditors. Second, he hypothesises that the conflict of interest between shareholders and

[69] The year 1926 was chosen since, at this time, there was no requirement (externally) imposed on US companies to hire auditors.

bondholder will also trigger the demand for audit services. He, therefore, predicts that the higher the proportion of debt in a company's capital structure, the higher the probability that companies will engage an external auditor. Third, he predicts a positive relationship between the decision to hire external auditors and the number of accounting measures in a company's debt covenants. Finally, he predicts that a company's size affects the probability of external auditing directly. The results of the study indicate that leverage, size and debt covenants are significant and positively related to the decision to hire auditors. Overall, the study suggests that agency cost considerations play an important role in the external auditing decision, which may indicate that the existence of such private incentives imply a reduced need for auditing regulation. It is suggested that changes in the cost of manager-shareholder-bondholder contracting may provide an alternative to the policymakers if they wish to influence the amount of auditing being hired.

Palmrose (1984) is another US study that attempts to investigate auditor choice from an agency perspective. The study examines the affects of agency-cost variables on the type of auditors chosen. It is hypothesised that agency conflict between the parties in an agency relation will have a positive effect on the choice of auditors based on two categorical variables – B8 vs. Non-B8 and industry specialist vs. non-specialist.[70] Results indicate that only assets (proxied by the book value of total assets) are significantly associated with auditor choice. However, the results only hold in the office equipment and retail trade industries and in terms of brand name choice (B8 vs. Non-B8). The leverage variable, although found to be significant in the office equipment industry, is not associated with the dependent variable in the expected direction. The results of the model that uses auditor industry specialist as the dependent variable indicate that only the 'subsidiaries' and 'stock exchange' variables are

[70] Auditor industry specialist designation is based upon the audit firm industry market share, with the largest or two largest suppliers in each industry being designed industry specialists.

significantly related to the industry specialist variable in the office equipment and gas utilities industries, respectively.

Fargher *et al.* (2001) investigate the effect of country-specific measures of disclosure, litigation and regulatory burden on the demand for auditor reputation by using a relatively new approach - simultaneous equation. This approach is used to account for the endogeinity between choice of auditor and audit fees. According to Fargher *et al.* (2001), most previous studies have not considered the effects of macroeconomic and other environmental factors that may vary across countries. Variation in disclosure levels across countries could account for shifts in the demand for audit quality. In particular, audit clients in countries requiring relatively more disclosure are expected to choose a high-reputation auditor. This is because higher levels of disclosure would also cause a demand for higher levels of assurance concerning those disclosures. In addition, intense litigation pressures, which could increase the auditor's loss exposure, are expected to increase the complexity of the financial reporting system. Therefore, in financial reporting environments with intense regulation, disclosure would be relatively more extensive and hence would cause a demand for higher level of assurance and accordingly would increase the level of audit fees.

Based on the 1994 data from twenty countries including the US and UK, Fargher *et al.* (2001) find that macroeconomic variables (i.e. disclosure, litigation and regulation) are significantly associated with the level of audit fee with positive signs. Other variables that are found to be significant are assets, proportion of total assets in inventory and receivables. Two industries (i.e. financial and utility) are found to be negatively associated with audit fee. However, the only variable that is significant in the auditor choice model is the disclosure variable. In addition, the endogenous variables, i.e. fee and B6, are found to be insignificant in explaining the demand for auditor reputation or the level of audit fee.

Abbot and Parker (2000) note that there is lack of research on audit committee characteristics and auditor choice, despite the fact that auditor selection and retention is one of the most important committee responsibilities. They argue that independence and active audit committees incrementally demand a higher level of audit (provided by specialist auditors) due to their concerns about monetary or reputational losses which may results from lawsuits or regulatory sanction. Based on 1994 data for 500 randomly selected US public listed companies, results indicate that audit committees that are independent and active are positively related to the selection of an industry specialist auditor. The results are found to be robust across the measures of specialism used: (i) industry leadership (Palmrose, 1986); (ii) industry market share based on sales (Craswell *et al.,* 1995); and (iii) continuous measurement of the auditors' percentage of each industry group's total sales (Dopuch and Simunic, 1982). Their results are, however, sensitive to the definition of an active and independent audit committee. Only a composite measure that defines effective committees as those that meet thresholds of both activity and independence are found to be significant. When activity and independence are measured separately, the results generally yield insignificant results. Another aspect of internal corporate governance (the percentage of outsiders on the board of directors) has also been investigate by Abbot and Parker (2000) and found to be insignificant.

In a more recent study, Beasley and Petroni (2001) investigate the relationship between the percentage of outside members on the board of directors and the choice of external auditors for property-liability insurance companies. The study, which is based on the work of both Fama (1980) and Fama and Jensen (1983) contends that the board of directors' important functions is to monitor the actions of management. The effectiveness of the function is increased with the presence of outside directors, which may limit opportunities for the board to become an instrument for management by serving to limit top management's discretionary decisions. Their results indicate that

audit quality is found to be significantly related to the percentage of outside board members. They argue that the evidence is consistent with outside directors influencing the board to select specialist auditors. The study also finds that stock issues, company size, number of states in which the company does business, business concentration index, company's health and organisational structure to have significant associations with the dependent variables. The key features of the studies discussed in this section are summarised in Table 5.4.

Table 5.4: Archival studies of existing auditor selection

	Chow and Rice (1982) US	Palmrose (1984) US	Fargher *et al.* (2001) International	Beasley and Petroni (2001) US	Abbott and Parker (2000) US
Dependent variable / Independent variable	1= If company being externally audited 0= Otherwise Model 1: NYSE and OTC companies Model 2: NYSE Model 3: OTC	Model 1 1= B8 0= Non-B8 Model 2 1= Industry specialist auditor 0=Non-specialist	1=B8 0=Otherwise (Single and simultaneous equation modelling: both give the same results)	Model 1 2= Specialist 1=non-Specialist 0= non-B6 Model 2 1= Specialist B6 0=non-specialist B6 Model 3 1= Non-specialist b6 0=non-B6 Model 4 1= Specialist B6 0=non-B6 Model 5 1=B6 0=non-B6 Model 6 1=Specialist B6 0=non-specialist B6	Dummy variable: 1= Specialist 0=Non-specialist Model 1 Auditors that own at least 15% of market shares Model 3 Based on 10% industry market share. and, Continuous variable Model 3 Auditors' percentage of each industry group's total sales
Management stock ownership	Average percentage of ownership (estimated) Model 1,2 & 3: NS	1= If owner or management owns less than 10% of the common stock 0= If owner or management owns at least 10% of the common stock Model 1: NS Model 2: NS			Percentage of outstanding shares owned by insiders of the firm Model 1: NS Model 2: NS Model 3: NS

Continued on next page

Table 5.4 (continued): Archival studies of existing auditor selection

	Chow and Rice (1982) US	**Palmrose (1984) US**	**Fargher *et al.* (2001) International**	**Beasley and Petroni (2001) US**	**Abbott and Parker (2000) US**
Management compen-sation		Accounting based compensation plan Model 1: NS Model 2: NS			
Leverage	Debt to equity Model 1,2 & 3: SIG (+)	Long term debt to total equity Model 1: SIG . (-) office equip. Model 2: NS	Book value of debt to book value of assets NS		Total debt to total assets Model 1: NS Model 2: NS Model 3: NS
New issue / financing				1=if insurer issued stock or surplus notes at least 5% of surplus 0=otherwise Model 1&4 :SIG (+) Others: NS	Proceeds from new debt and equity issues / total assets Model 1: NS Model 2: NS Model 3: NS
Size	Market value of equity/ BV of debt Model 1: NS Model 2: NS Model 3: SIG (+) and 1= Listing on NYSE 0=Otherwise Model 1: SIG (+) Model 2: NS Model 3: NS	Book value of total assets Model 1: SIG (+) Office equip., retails, electricity Model 2: NS	assets NS	Total admitted assets Model 1,3,4,5&6: SIG (+) Others: NS	Total sales Model 1: NS Model 2: SIG (+) Model 3: NS

Continued on next page

Table 5.4 (continued): Archival studies of existing auditor selection

	Chow and Rice (1982) US	Palmrose (1984) US	Fargher *et al.* (2001) International	Beasley and Petroni (2001) US	Abbott and Parker (2000) US
Audit Committee					1= Audit committee is comprised entirely of outside directors and meets at least twice a year. 0= Otherwise Model 1: SIG (+) Model 2: SIG (+) Model 3: SIG (+)
Audit quality			Annual audit fee NS		
Management composition				Percentage of outsiders on BOD Model 1,2,4&6: SIG (+) Others: NS	Percentage of outsiders on BOD Model 1: NS Model 2: NS Model 3: NS
Complexity		Number of subsidiaries Model 1: NS Model 2: SIG (+)		Number of states to do business Model 3,4&5: SIG (+) Model 2: SIG (-) Model 1: NS and Insurer's business concentration index Model 1,3,4&5: SIG (+) Others: NS	Number of business segment Model 1: NS Model 2: NS Model 3: NS And Proportion of the company's foreign sales Model 1: NS Model 2: NS Model 3: NS

Continued on next page

Table 5.4 (continued): Archival studies of existing auditor selection

	Chow and Rice (1982) US	**Palmrose (1984) US**	**Fargher *et al.* (2001) International**	**Beasley and Petroni (2001) US**	**Abbott and Parker (2000) US**
Profitability				1= A- or better rating from rating agency 0= otherwise Model 3: SIG (-) Others: NS	Return on assets Model 1: NS Model 2: NS Model 3: NS
Others	Debt covenant Model 1&2: SIG (+) Model 3: NS	Exchange listing: 1= NYSE 0= otherwise Model 1: NS Model 2: SIG (+) office equipment	Financial disclosure index SIG (+) And Per capita GDP NS	Organisation structure: 1= mutual insurers 0= stock insurers NS	

Note:
NS = Not significant at $p \leq 0.05$
SIG = Significant at $p \leq 0.05$

5.3.3 Studies of auditor resignation

Only a limited number of studies have been undertaken to specifically examine the determinants and consequences of auditor resignation. In general, determinants studies investigate the impact of litigation risk on the auditor's decision to resign. The dramatic increase in litigation against auditors has caused auditors to take several actions to reduce risk. One of the ways is by adjusting their client portfolios (Krishnan and Krishnan, 1997). In particular, auditors can adjust their portfolios by resigning from engagements with high litigation risk (Brumfield *et al.*, 1983) and by becoming selective in the acceptance of new clients (Pratt and Stice, 1994). In addition, auditors may also change their portfolios when their production functions and opportunity sets have changed because of technological advances as well as the growing demand for NAS (Shu, 2000).

Previous studies have suggested that it is less likely for the auditor to initiate changes, except in severe mitigating circumstances (e.g. DeFond *et al.*, 1999; Dunn *et al.*, 1999; Dunn and Stewart, 1999; and Whisenant and Sankaraguruswamy, 2000). According to Dunn *et al.* (1999), it is costly for the auditors to resign without some compelling reason, as they will need to sacrifice the fees that could have been earned from the current appointment as well as those fees from other services. Resignations will also cause the auditors to forego the fees which would be payable in future periods (DeAngelo, 1981a). Therefore, auditors are unlikely to resign unless the costs associated with remaining in post are greater than the fees which are being foregone (Dunn and Stewart, 1999). As resignations may indicate a serious breakdown in the relationship between the auditors and clients, the market then would view the event as 'bad news' and therefore, it is expected that the share price will drop following the announcement (Dunn *et al.*, 1999).

The following four sub-sections deal with regulatory compliance, determinants, consequences and other issues.

5.3.3.1 Evidence on compliance with section 194 (1) and FRR No. 31

Despite a regulatory requirement to disclose the reasons for change in both the UK and in the US, the compliance rate is very low. For instance, Dunn and Sikka (1999) find that in the UK only 19 (or 2.5% out of 766 resignation letters) contained a statement of any matters that were relevant to the shareholders or creditors. In addition, they report that in, 108 resignations, the auditors did not disclose any reasons although prior to resignation the clients were issued qualified audit reports, which may indicate material disagreements with directors or reservations about company policies and activities. In the US, Wells and Loudder (1997) find that 64% of auditor change announcements do not report the successor auditors and a large majority of the Form 8-Ks (i.e. 70.9% of their final sample) do not disclose any reasons for the resignation. Due to the low number of disclosures, it is therefore not surprising to find that only a small number of studies distinguish between changes induced by the client and those induced by the auditors.

5.3.3.2 Determinants of auditor resignation

Krishnan and Krishnan (1997) investigate the impact of litigation risk on the auditors' decision to resign from an audit engagement. They argue that the increase in litigation risk has caused the auditing profession to take steps to reduce the incidence of audit failure, by increasing the emphasis on quality and enhancing audit planning. The auditors can offset litigation risk by, *inter-alia*, exercising increased conservatism in the issuance of modified opinions, increasing audit fees and by adjusting their client portfolio.

The main purpose of their study is to the test the hypothesis that high litigation risk engagements could increase the possibility of auditor resignation as compared to engagements with lower litigation risk. Their sample consists of 141 US companies whose auditors resigned during the period 1986 to 1994 and two comparison samples (companies that dismissed their auditors matched with the resignation sample on industry membership and financial year; companies that dismissed their auditors, matched with the resignation sample on financial year alone). In order to measure their hypothesised independent variable (litigation risk), they use the variables that are associated with the filing of a lawsuit against an audit firm. In addition, the study also constructs a litigation proxy based on Stice's (1991) litigation-prediction model. Their findings indicate that resignations occur more often then dismissals on engagements that are associated with high financial distress, high variability in stock returns, low auditor independence, high auditor tenure and receipt of a modified opinion (especially going-concern opinion). In other words, the study shows that auditors tend to resign from engagements with high litigation risk. The study also finds that the presence of auditor-client disagreements and reportable events[71] is positively associated with the auditors' decision to resign.

When using a summary measure for the likelihood of litigation from a prior study, they find that the proxy is positively associated with the probability that the auditor will resign rather than be dismissed from the engagement. Their findings suggest that an auditor's decisions to resign from audit engagements with high litigation risk are consistent with auditors adjusting their portfolios in order to lower litigation risk. They also suggest that resignations and dismissals can have different implications for market value and, therefore, should be examined separately.

[71] In the US, the SEC has made mandatory the disclosure of changes in control of registrant, acquisition or disposition of assets, bankruptcy or receivership, change in auditor and directors' resignation. The information on these reportable events became available after May 20, 1988.

In a similar study that uses a sample from the pre-FRR No.31 era, DeFond *et al.* (1997) find that auditor resignations are more likely to be associated with a decline in client firms' cash flows. Their results, therefore, support the hypothesis that resignations are driven by litigation. In addition, the study also documents that auditor-client disagreements are more likely to be associated with auditor resignations than dismissal.

The findings of both Krishnan and Krishnan (1997) and DeFond *et al.* (1997) are in line with the SEC's conjecture that auditor resignation disclosures are useful to investors, providing additional information for decision-making purposes. Further, the studies also provide justification for the accounting profession's concern about the consequences of increasing litigation costs which have forced some public accounting firms to refuse to supply audit services to clients perceived to be 'excessively risky' (Jones and Raghunandan, 1998).

The positive association between litigation risk and auditor resignations has also been documented by Shu (2000), who finds a positive and significant relation between the increase in client's litigation risk and the likelihood the client will be dropped by its auditor. Using data on auditor resignations from the pre and post-FRR No.31, she also finds that a dropped client is more likely to engage a small auditor the greater the increase in its litigation risk. This indicates that expected litigation cost may be lower for small auditors than for large auditors. Shu (2000) asserts that the small auditors' shallow pockets will discourage lawsuits, and plaintiffs will only initiate a lawsuit if they perceive the recoverable damages to be sufficiently high. In addition, due to their limited wealth, small auditors are unlikely to pay the total damage in full, especially in a large-damage lawsuit. Moreover, large auditors may be unlikely to accept high litigation risk clients as the indirect costs such as reputation loss are likely to be higher for them (DeAngelo, 1981).

Other than changes in the legal environment, Shu (2000) also argues that auditor resignation may be triggered by a change in client characteristics as well as auditor characteristics. She contends that recent changes in the auditing industry have altered the relative benefit and cost of each client, motivating auditors to change their client portfolio. For instance, changes that have involved the increasing importance of NAS have driven auditors to drop clients with low and unstable demand for NAS. Audit firms with expanded skill sets find that it is more profitable to services the clients with a large and stable demand for NAS as they yield incrementally higher benefits through the accumulation of substantial client-specific knowledge.[72]

In contrast to previous studies that focus on client-specific changes, Shu (2000) develops a summary measure that incorporates changes not only in the demand-side but also in the supply-side factors. The study finds that clientele mismatch variables (caused both by changes in auditor characteristics and by client-specific changes) contribute to auditor resignation. Shu (2000) also finds evidence that resignation is likely to be driven by changes in auditor cost structures rather than client-specific changes.

Several studies have also investigated why auditors are reluctant to resign from an audit engagement. These studies generally focus on the role of NAS the provision on audit tenure. However, despite being regarded as one of the most controversial issues facing the auditing profession, only a small number of studies have examined the relationship between the provision of NAS and auditor change.[73] NAS provision by auditors to their

[72] The situation has changed after the Enron audit failure. In this case, the auditor's independence was questioned because the auditor (Arthur Andersen) had provided significant NAS to Enron in addition to the audit. Moreover, with the passing of the Sarbanes-Oxley Act , auditors are prohibited from supplying many NAS to their audit clients. Approval from the audit committee is also required.

[73] One possible explanation is due to the regulation of NAS disclosure in the US. In June 1978, the SEC issued ASR No. 250, which required all companies to disclose in their proxy statements, *inter alia*, the total NAS provided by the auditors as a percentage of the total audit fee. However, in August 1981, the SEC announced that it was rescinding ASR NO. 250 with effect from February 1982 (DeBerg *et al.* 1991). The disclosure of NAS was made compulsory once again by the SEC through FRR No. 56 (SEC, 2000) after 5th February 2001 (Lai and Yim, 2002). FRR No. 56 data on audit and NAS fees is the first

clients may jeopardise auditor independence. Therefore, in the case of joint provision, it is expected that less auditor changes will occur. Reports show that (Financial Director, 2002) the FTSE 100 companies pay three times as much to their auditors for NAS than the average fee for statutory audit services. In particular, the FTSE 100 companies pay £221 million in audit fees, whereas they pay over £675 million for NAS. The provision of NAS then is believed to adversely affect users' perceptions of auditor independence (Pany and Reckers, 1988; DeBerg *et al.*, 1991). However, the recent business failures (e.g. Enron and Worldcom), may indicate that actual independence is also impaired.

An increase in the economic bond between auditors and clients, because of NAS provision, could occur for several reasons. For instance, if NAS is the main source of income to the auditors, the auditors may be motivated to retain the clients that purchase such services (DeBerg *et al.*, 1991). The provision of NAS is also of concern to the accountancy profession, since it can be linked to the practice of lowballing. For instance, the Australian Accounting Research Foundation (AARF, 1992) and EU Green Paper (1996) point out the possibility that auditors 'lowball' the initial fee in the hope of recouping the balance of the full cost from NAS. These economic bonds may make the auditors become overly dependent on the client, economically, and to some extent be more accommodating or compliant towards the client's wishes. However, it is also acknowledged that the company may benefit from the provision of NAS as the client-specific knowledge obtained by the auditors from NAS may be used to provide more efficient services.

As the economic bond between the two parties increases, it is expected that auditor changes will be less likely to occur resulting in longer tenure. This long term

---

disclosure of actual values of audit and NAS fees paid to auditors in the US (Whisenant *et al.*, 2003). However, with the passing of the Sarbanes-Oxley Act of 2002, which prohibits auditors from providing most NAS (Section 201), the data may not be available once again (Lai and Yin, 2002).

relationship could lead to several problems, as conjectured by the SEC Practice Section Executive Committee (AICPA, 1992);

> Auditors may grow too close to the client's management causing the auditor to identify with management's problems and lose professional skepticism.

Auditors may view the examination as a repeat of earlier engagements with the same clients. This may cause the auditor to anticipate results rather than evaluating the important changes in client circumstances. Auditors may be tempted to smooth over problem areas in order to retain the engagement. Pleasing the management may become the auditors' priority, rather than following professional standards.

Additionally, there is also the possibility of auditor-management collusion in extreme cases that is worrying to the regulators (Petty and Cunagesan, 1996). The latest accounting scandals of Enron, Worldcom, Xerox and several other companies may provide support to the assertion.

Empirical studies, however, are unable to document any significant association between the provision of NAS and audit tenure or auditor change. DeBerg *et al.* (1991) investigate the effects of NAS provisions on the auditor-client relationship. Results suggest that the decision to change auditors and NAS provision are unrelated, mitigating concerns that auditors may attempt to retain high NAS clients by compromising their independence. The study also finds that clients are more likely to purchase a lower proportion of NAS from the new auditors following a change. According to DeBerg *et al.* (1991), this could be driven either by a desire to reduce total professional fees or a reluctance to purchase NAS from the new auditors until a relationship is established.

Barkness and Simnett (1993) investigate the association between NAS provision and the issuance of qualified audit reports, finding no association. Nor is a relationship between the length of auditor tenure and NAS provision found.

5.3.3.3 Consequences of auditor resignation

Wells and Loudder (1997) study the market reaction to the announcement of auditor resignations by US companies. Motivated by Krishnan and Krishnan's (1997) recommendations that resignations and dismissals are two distinct phenomena and should be studied separately, they examine a sample of 86 companies that filed Form 8-K's in 1988 through 1991. Their sample is comprised of 65 firms traded on NASDAQ/OTC and 14 firms traded on NYSE/AMEX. To examine possible reaction, they analyse two sub-samples in addition to the full sample. The first sub-sample excludes four firms that not only made a second announcement but also contained additional information. The second sub-sample contains 70 firms after excluding a further twelve firms that did not trade on the event day (day 0) or on the event day and a day after (day 0 and day 1). By using the market model to estimate the abnormal return over a 190-day period ending ten days before the Form 8-K stamp date, the study reports that the average abnormal return in the two-day event window is -0.60 that is highly significant. A significant negative return is also reported on the first day of the event (-0.41) which is higher than the negative return of the second day (-0.16). The results suggest that the negative return of the two-day window are primarily dependent on the event day return which could indicate that the information is impounded in stock prices relatively quickly. Results using the sub-samples produce a similar pattern, although the returns are more negative than in the results of the full sample.

To investigate the role of additional information that may also be responsible for the observed reaction, the study regresses the two-day returns against the other information

that is reported by the companies in Form 8-K. In particular, the information is the stated reason for the resignation, as required by the SEC, as well as the other disclosures that are required to be filed in the Form 8-K. In addition, Wells and Loudder (1997) also include size of the company as an independent variable. The results of the regression do not indicate any significant associations and Wells and Loudder (1997) regard this as an indication that it is the disclosure of the resignation itself that ignites market reaction rather than other related information.

In another study that uses US data, DeFond *et al.* (1997) examine auditor resignations by using data from the pre-FRR No.31 era. Stock market reaction is investigated by comparing 62 companies reporting auditor resignations to a randomly chosen control sample of 61 companies. Results suggest that, during the period 1982-1987, the market reacted negatively to resignation announcements. The findings provide support for the SEC's contention that the Form 8-K filing provides additional information to investors.

The most recent study that uses US data is Shu (2000). Based on the sample size of 135 companies that filed Form 8-K, a negative but insignificant mean abnormal return through day -1 is documented. On day 0, however, the mean abnormal return drops to -1.28% (significant at $p<0.05$). Meanwhile, the three-day cumulative for day -1 to day 1 return is -3.11% and is highly significant. Shu (2000) argues that under the litigation risk hypothesis, changes in investor beliefs about the client's litigation risk will cause the stock price to drop. She predicts that the greater the increase in litigation risk, the larger the drop in stock price. Based on data for 62 sample firms[74] and using the three-day cumulative returns as the dependent variable, she documents a significant relationship between changes in litigation risk and negative stock return. This result, however, only holds provided that the resignation occurs within three months of the latest fiscal year-end.

[74]Shu (2000) drops the other 73 firms due to insufficient data for the regression.

In addition to the litigation risk hypothesis, she also tests the effect of clientele mismatch on stock price. She acknowledges two distinct possibilities with regard to auditor resignation due to clientele adjustment. If auditor resignations merely signal changes in auditor cost functions, then the client's stock price will not be affected. However, if the resignations convey incremental information about the client's future growth prospects, then the market reaction could vary across companies with different characteristics. However no significant associations with regard to the clientele mismatch variables are found.

The only study to date that investigates the market reaction to UK auditor resignations was undertaken by Dunn *et al.* (1999). Based on a sample size that is comparable to the studies in the US, they examine the market responses to the announcement of auditor resignations by 88 LSE quoted companies for the period from 1988-1993. To overcome possible thin trading problems in their sample, they use a market-adjusted model to estimate abnormal returns. The event period for their analysis ranges from 20 days before the event to 20 days after the event and their results are presented in the form of 'abnormal return' and 'buy and hold abnormal return'.[75] On the day of resignation (day 0), the study reports an abnormal return of -0.3694, which is highly significant.[76] However, on the following day (day 1) the abnormal return is positive but not significant. The buy and hold abnormal return for day 1 (i.e. the accumulation of day 0 and day 1 abnormal returns) is -0.3119 and insignificant. According to Dunn *et al.* (1999), the significant negative returns on the event day indicate that the market views the auditor resignation negatively and the resignation letter provides information to the market.

[75] In the study, 'buy and hold abnormal return' is the cumulative of abnormal returns.
[76] Although the abnormal returns are mainly negative for all days in the event period, they are insignificant.

This study also attempts to identify the factors which might explain the negative reaction. Five variables are regressed against 'buy and hold abnormal return': resigning auditor size; nature of audit report; audit risk; company's financial risk; and company's growth. No significant associations are found. When tested separately, auditor size and nature of audit report are found to be significantly associated with negative 'buy and hold abnormal return' in negative and positive directions, respectively. Auditor size is found to be negatively associated with buy and hold abnormal return at a low significance level. Dunn *et al.* (1999) suggest that the loss of a B6 auditor might cause a greater loss of credibility and thus influence the negative return. The association of the nature of audit report, however, is not in the predicted direction – a qualified audit opinion is positively associated with negative returns. This might indicate that the market views the reason for resignation as an accounting matter rather than a fundamental business problem. Some caution must be exercised when interpreting these results due to the small size of the "qualified" report sub-sample (14 out of 84 audit reports).

5.3.3.4 Other studies of auditor resignation

Following an auditor resignation, one of the immediate decisions to be made is about the appointment of a new successor. Anecdotal evidence shows that, following auditor resignation, B6 auditors are less likely to become the successor. For instance, Raghunandan and Rama (1999) report that, during the period from 1994 to 1999, only 34% chose a B6 firm as the successor. The study also reports that B6 firms are more likely to be the successors in the case of auditor dismissal (62% of the 375 companies dismissing auditors had B6 as successor). The difference between the two groups (resignation vs. dismissal) is statistically significant. Similar results have also been reported in Shu's (2002) study. She finds that, for a sample of auditor resignations, 31.5% of changes are switches from a B6 auditor to a smaller local auditor. She also

reports that 60% of companies switch from national auditors to local auditors. Both switch rates (B6 to local and national to local) are found to be significantly different from those of a sample of companies dismissing auditors. In the UK, Dunn and Stewart (1999) report that 88 out of 232 companies (or 37.9 per cent) change to smaller auditors following the predecessor's resignation.

Several explanations have been offered to explain the willingness of small firms to accept companies where auditors resigned. Feltham *et al.* (1991), Clarkson and Simunic (1994) and Jones and Raghunandan (1998) argue that larger auditors may decline to become the successor auditor of a risky client as they have more wealth to lose from an audit failure, especially when the risk of litigation is high (Jones and Raghunandan, 1998).

In addition to studying the type of successor following auditor resignation, Dunn and Stewart (1999) examine the consequences of the resignation on audit fee. It is reported that, on average, the resigning auditors' final fees were significantly higher than the successor auditors' first year fees. When analysing the results by audit market segment (i.e. quoted or unquoted market), the results show that only the changes between small auditors (non-top 20 firms) in the unquoted market reported significant drop in audit fees. There is no significant difference when the changes are from B6 to smaller firms or *vice verse*. Dunn and Stewart (1999) regard this finding as 'surprising' as it may indicate the possibility of lowballing practices amongst the smaller firms. The finding also contradicts Palmrose's (1986) finding that a significant drop in audit fee occurs when the changes are from B8 to non-B8 auditors. She suggests that the drop may indicate that the reduction in fees is due to the B8 fee premium. Dunn and Stewart (1999) also document a significant drop (albeit statistically weak) in audit fee for changes between the B6 for quoted companies.

5.3.4 Studies of auditor dismissal and new auditor selection

5.3.4.1 Analytical studies of auditor change

Teoh (1992) demonstrates that auditor switches depend, in part, on company value. She argues that a company with intermediate value, switches auditors in the hope of obtaining a favourable audit opinion; a low-value company does not switch because there is no hope of improving its position; and, a high-value company abstains because it is confident of a clean opinion from the incumbent auditors. Accordingly, she asserts that investors' reaction to auditor switches is dependent on the pre-switch audit opinion as well as other factors that relate to the costs and benefits of switching.

According to Teoh (1992), it is the information that is conveyed by the audit opinion prior to the switch that plays an important role in determining investors' reaction to an auditor switch. Using analytical model, she shows that the stock price will respond more negatively to a change after receiving a clean audit opinion than a qualified report as high-value retentions are more common after a clean opinion while low-value retentions are more common after a qualified opinion. When switches are costless, investors' reaction can be negative even when the auditors do not collude with management.

Two analytical works that dominate the discussion of initial engagement audit pricing are DeAngelo (1981a) and Dye (1991). DeAngelo (1981a) regards the initial engagement discounts, which arises as a result of a bidding, as sunk costs[77] that do not effect auditor independence in the future. She maintains, however, that there is an inherent auditor independence problem that arises from audit start-up costs which gives incumbent auditors a technological advantage over competitors. In particular, she argues that the initial engagement discounts arise from transaction costs, such as client

[77] Costs that are irrevocable and should not be used to influence current decisions.

switching costs and auditor start-up costs. These costs allow incumbents to set future fees above their avoidable costs and thereby earn quasi-rents. To realise the future quasi-rents, new auditors need to retain their clients and this situation may lessen the auditors' optimal amount of independence. However, she stresses that, as the causality runs from quasi-rents to lowballing (not vice-versa), the lowballing *per se* does not add to the independence problem created by quasi-rents.

The assertion that sunk costs do not influence decision making is, however, rejected by Simon and Francis (1988). They contend that there is evidence from psychology that sunk costs do significantly affect subsequent decision making.[78] They assert that, in the context of audit price-cutting, a considerable amount of investment is made to obtain a new client and, thus, motivates the auditor not to lose the client, even when there is a serious auditor-client disagreement. This desire could lead to additional auditor independence problems. They argue that lowballing itself creates the potential for an additional independence problem 'over and above' quasi-rents (Simon and Francis 1988, footnote 11).

Dye (1991) demonstrates that initial engagement discounts as put forward by DeAngelo (1981a) are caused by the assumption that the auditor has all the bargaining power in setting future-period audit fees. He argues that if clients have all of the bargaining power they would insist auditors change no more than the avoidable cost of the audit and thus, there will be neither future rents nor initial engagement discounts. Dye (1991) also argues that, in a regime where audit fees have to be disclosed, outsiders can infer the amount of quasi-rents from the disclosure. As the quasi-rents can impair the outsiders' perception of auditors' independence and subsequently reduce the financial statements reliability, auditors will be less likely to discount the initial engagement and

[78] Psychologists argue that there is "…a greater tendency to continue an endeavour once an investment in money, effort, or time has been made. The prior investment, which is motivating the present decision to continue, does so despite the fact that it objectively should not influence the decision." Simon and Francis (1988, p. 266 in which they cite Arkes and Blummer, 1985).

recover it in later years. However, when the audit fees are not disclosed to public, the client has an incentive to pay positive quasi-rents to influence the auditor to issue a favourable audit report. This behaviour will lead to initial engagement discounts and may impair auditor independence during the recovery period. In summary, Dye (1991) concludes that initial engagement discounting is driven by the non-observability of the information about audit fees rather than the existence of transaction costs (as asserted by DeAngelo, 1981a). If Dye's (1991) assertion is correct, the practice of initial fee discounting will be observed only in regimes where audit fee data is publicly available

5.3.4.2 Auditor change survey-based prior studies

Only a limited number of studies have been undertaken to study auditor change issues by using a survey-based approach. The earliest study that could be identified is a study by Burton and Robert (1967). Based on the responses from 83 companies with auditor change during the period from 1952 to 1965 in the US, the study reports that the most frequently cited reason for an auditor change is a change in management, which can be a major change in the top executive or in some cases the change is in financial management only. 'Need for additional services' is found to be the second most important reason. For changes between same size class auditors, this need for additional services was usually the demand for particular overseas expertise or special geographical location. Nine auditor change cases identified the need for new financing as the principal reason for auditor switch (ranked third). Moreover, disagreement or dispute over accounting principles has been found not to be an important factor (only six indicated this to be the cause). When the changes were partitioned according to the auditor class movement, it was found that, for changes from small to large auditors, the most frequently cited reason was the need for additional services offered by the large

auditors. Changes in management, however, were still the most frequently cited reason for the changes between the large accounting firms.[79]

Bedingfield and Loeb (1974) examine the Form 8-K report and its enclosed letters of registrants and find 250 cases of auditor changes between November 1971 and February 1973. The study reveals that 146 cases involve changes between the same group of auditors and the other 94 companies change to a different auditor level.[80] Out of these 94 cases, 41 companies change from non-national to national auditors while the remaining 53 companies change in the opposite direction.

To unveil the reasons that the 250 companies changed auditor, the study administered a questionnaire which resulted in 141 usable responses (57.4%). The stated reasons for auditor change, regardless of the direction of change, are shown in Table 5.5.

Table 5.5: Reasons for auditor change (Bedingfield and Loeb, 1974)

Stated reasons	Rank	%
The auditor's fee was too high	1	47
We were not satisfied with the services provided by the auditor	2	44
Merger of our corporation with another corporation	3	14
We disagreed with the auditors on certain accounting matters	4=	11
Management wished to have a national CPA firm	4=	11
Investment bankers insisted on a national auditing firm	6=	8
Other reasons	6=	8
We wanted the parent corporation and all subsidiaries to have the same auditor.	8	3
Banks or creditors insisted on national auditing firms.	9=	2
We felt we might get better service if we rotated auditors	9=	2
The former auditors trained their juniors at our expenses	9=	2

Source: Bedingfield and Loeb (1974) Table 3, p.68

The sequence of the top three reasons (high fee, dissatisfaction and merger) also prevails in cases involving changes between national firms. However, for changes to smaller firms, the third most stated reason is not merger activity, but dissatisfaction

[79] In the study 'large accounting firms' refers to the eight largest national firms during the period of study.
[80] Only 240 companies are included in this analysis which differentiates auditors into two categories, i.e. national and non-national.

over the former auditors. In particular, the study reports that this dissatisfaction was mainly due to the perception that the auditors had using the companies as a training ground for their junior staff. For changes from non-national to national auditors, the most stated reason is management's wish to have a national auditor. The second reason is the influence of investment bankers. Dissatisfaction with former auditors' audit services and high audit fee come third and fourth.

In another US study, Eichenseher and Shields (1983) distribute questionnaires to chief financial officers of all SEC corporations which had switched auditors between January 1976 and September 1977. Apart from rating the importance of the auditors' attributes, the study also asked respondents to identify the reason for changing auditors. The study finds that perceived changes in the relative levels of fees and working relationships (i.e. whether the auditors are responsive or not to the companies' needs) appear to be the top reasons associated with auditor changes. In further analysis, companies that indicate fee and working relationships as the main reason to change auditors are stratified into two different groups, a 'fees' group and a 'working relationships' group. Tests indicate that, for the 'fees' group, fees, working relationships and accessibility to the audit partner are the most important attributes. For the 'working relationships' group, the ordering is working relationships, accessibility and fees.

Another US study adopting a survey approach is Whisenant and Sankaraguruswamy (2000), who investigate the factors that lead to client-initiated changes using data originally reported to the SEC by companies. Out of 3,540 auditor changes that occur during the five-year period (1992-1996), the study used 59.2% of cases (2,095)

Although the number of auditor changes increased over the five-year period, the proportion of managers responding to the database inquiries decreased. It is suggested

that managers are less willing to provide the public with their private information about auditor change. Changes are classified into three broad categories: (i) client-initiated; (ii) auditor-initiated (or resignation, see section 5.3.3); and (iii) exogenous.[81] Client-initiated switches decreased over time but auditor-initiated and exogenous reasons increased.

For client-initiated changes, the reasons disclosed are classed as: (i) fees; (ii) structural; (iii) accounting; and (iv) unclassified. Out of 1,135 client-initiated auditor changes, 24.8% are found to be motivated by fee reasons (i.e. desire for lower audit fee or fee dispute), 38.1% are motivated by structural factors (i.e. location, service, recommendation of insider, recommendation from bankers, seek greater industry expertise and need smaller firm), 5.2% are motivated by accounting factors (i.e. accounting disagreement and qualified opinion) with the remaining 31.9% unclassified (in particular, location, partner left audit firm, prior experience with new auditor, excellent proposal, excessive audit staff turnover and personality). In summary, structural change in a company appears to be the dominant reason for change, followed by the motivation to save on audit fees and then accounting disagreements.

Under exogenous auditor change factors, merger is the highest stated reason (47.1%), followed by rotation policy (27.6%) and consolidation of related company auditors (15.6%).

Based on the overall response, the declared reasons for auditor change are presented in Table 5.6.

[81] Changes motivated by factors different from those in the client-initiated or auditor-initiated groups.

Table 5.6: Reasons for auditor change (Whisenant and Sankaraguruswamy, 2000).

Stated reasons	Rank	%
Lower audit fee	1	22.5
Need bigger firm	2	15.33
Location	3	14.01
Need better/additional services	4	11.10
New company officers	5	16.34
Recommendation of insider	6	5.82
Partner left audit firm, client followed	7	5.37
Accounting disagreement	8	5.11
Prior experience with new auditor	9=	2.38
Recommendation of banker/underwriter	9=	2.38
Fee dispute	11	2.29
Excellent proposal	12	2.20
Seek greater industry expertise	13	1.85
Need smaller firm	14	1.59
Excessive audit staff turnover	15	1.15
Personality	16	0.44
Qualified opinion, etc	17	0.09

Source: Whisenant and Sankaraguruswamy (2000), Table 2, p.16

In the UK, Beattie and Fearnley (1995) explore the importance of audit firm characteristics and the factors motivating auditor change based on questionnaire responses from a random sample of 210 (70% response rate) listed and USM companies. Out of 26 pre-identified reasons for auditor change, the level of audit fee is the most important reason for consideration of a change in auditor.[82] The next four most important reasons are: (i) dissatisfaction with audit quality; (ii) changes in top management; (iii) company growth; and (iii) need for group auditor rationalisation. The full results of their study are presented in Table 5.7. Additional tests indicate no significant association between the top five stated reasons and the presence of an audit committee. The study also reveals that, out of 139 companies that had considered changing their auditor, a majority (102 or 73%) did not do so. The top four reasons for not changing auditors are: (i) incumbent auditors offered reduced audit fee; (ii) avoidance of disruption and loss of management time; (iii) incumbent auditors offered improved quality of service; and (iv) change in audit partner.

[82] The study investigates the reason for the *consideration* of auditor change and not the reasons for *actual* change. The reasons identified from previous studies.

Beattie and Fearnley (1998) use a questionnaire instrument to examine in depth the auditor change issue in the UK. To facilitate their analysis, the study partitioned the 328 usable responses (from a total 508 companies surveyed during June 1992) into three different group.[83] The first group is a group of 106 companies which had voluntarily changed auditors during the past 5 years.[84] The second group is the group which had considered changing auditor but did not do so. The third group had not considered changing auditor at all. The study refers to these groups as 'changer', 'potential changer' and 'non-changer', respectively.

The 26 identified reasons for change are classified into three different categories: (i) purely economic; (ii) purely behavioural; and (iii) both economic and behavioural. Results indicate that, both changers and non-changers, view level of audit fee, dissatisfaction with audit quality and top management changes as the most important reasons for consideration of change.

The top five stated effects of auditor change on company are: (i) improved audit quality; (ii) reduction in audit fee; (iii) improved value for money of audit services;[85] (iv) improved quality of management advice; and (iv) provision of additional services. The first three reasons are each cited by more than half of the respondent while the remaining two were cited by 42% and 24% of the respondents, respectively. Besides from 'others', 'change of accounting policy (ies)' is the least cited effect.

Table 5.7 compares the findings of Beattie and Fearnley (1995) and Beattie and Fearnley (1998). Fee is the main reason whether the contemplated change happens or not. Dissatisfaction over the quality of audit services as the second most important factor, with changes in company's top management third.

[83] As declared by the respondents.
[84] Beattie and Fearnley (1998) exclude involuntary changes that arise from audit firm mergers.
[85] There are 60 companies that state this as the main effect and the same number of companies also state reduction in audit fee as the main effect.

Table 5.7: Reasons for auditor change (Beattie and Fearnley, 1995 & 1998)

Studies / Reasons	Beattie and Fearnley (1995) (n=139)		Beattie and Fearnley (1998)			
			Auditor changers (n=109)		Auditor non-changers (n=126)	
	Rank	%	Rank	%	Rank	%
Level of audit fee	1	66	1	49	1	74
Dissatisfaction with audit quality (i.e. auditor's ability to detect problems)	2	33	2	41	2	25
Changes in company's top management	3	25	3	35	3	24
Need for group auditor rationalisation	5	17	4	28	10	11
Need for B6 audit firm	11	13	5	26	16=	5
Merger/Takeover with/by another company	7=	14	6	25	14	8
Company growth required increased technical capacity from audit firm	4	18	7	22	7=	13
Poor working relationship with audit partner/staff.	13	11	8	17	11=	9
Need for multinational audit firm with foreign offices in same geographical areas as client's operations	15	9	9	16	15	6
Inaccessibility of audit partner	17=	7	10	16	18=	4
Need for additional services	7=	14	11	14	11=	9
Personality clashes with audit partner/staff	12	12	11	14	7=	13
Influence of merchant bankers/underwriter	17=	7	13	13	16=	5
Influence of actual or potential equity or loan providers	19	5	14	12	18=	4
Audit firm merger	9=	14	15	10	5=	15
Change in audit partner	13	11	16	9	9	13
High turnover of audit engagement staff	6	16	17	7	5=	15
Use of inexperienced audit engagement staff	9=	14	18	7	4	17
Disagreements over accounting principles	22=	4	18	6	11=	9
Need for national, rather than local, audit firm	21	4	20	6	20	3
Need for audit firm with local domestic office	23=	3	20	5	21=	2
Need for audit firm specialising in client's industry	19	5	22	5	21=	2
Influence of regulators	23=	3	23	4	24=	2
Influence of company's day-to-day bankers	25	2	23	4	21=	2
Disagreement with audit opinion	22=	4	25	3	24=	2
Need for local, rather than national, audit firm.	26	1	25	3	-	-

Source: Beattie and Fearnley (1995, Table 5, p. 235 and Beattie and Fearnley (1998), Table 4, p. 275)

Beattie and Fearnley (1998) also investigate the association between the incidence of auditor change and industry, size and the existence of an audit committee. Results suggest that there is no association between auditor change and industry but the incidence of auditor change is significantly higher among smaller companies. In addition, the study also reveals that the incidence of auditor change is significantly higher among companies without an audit committee.

To provide in-depth insight, the study also investigates the association between the declared reasons for change and (i) company size, and (ii) type of change. The changers group is split into two based on total assets and the results indicate that smaller companies cited the influence of potential equity and loan providers more frequently. Smaller companies also stated the need for national auditor as the reason to change auditor significantly more frequently than larger companies. By contrast, merger or takeover reason was stated more frequently by the larger companies than the smaller ones. There was, however, no difference between the two groups in relation to level of audit fee.

Eleven out of 26 reasons are significantly associated with type of auditor change. Five reasons that are cited most frequently by the group that change auditors from the non-B6 to B6, are: (i) influence of merchant bankers and underwriters; (ii) influence of actual or potential equity/loan providers; (iii) company growth which required increased technical capacity from auditors; (iv) need for multinational audit firm with foreign offices in same geographical areas as foreign operations; and (v) need for the B6 firms. The influence of third parties and changing needs tend to cause companies with smaller auditors to switch to the B6. Five reasons stated more frequently by companies with downgrade changes are; (i) audit firm merger; (ii) change in audit partner; (iii) need for local audit firm; (iv) level of audit fee; and (v) high turnover of

audit engagement staff. Merger or takeover is the most frequently stated reason by the companies that change from amongst the B6 firms.

5.3.4.3 Determinants of auditor choice

A summary of the archival studies that investigate the determinants of auditor choice, i.e. auditor change and new auditor selection, are summarised as in Tables 5.8 and 5.9. Table 5.8 deals with the studies that investigate the issue using the US data, while Table 5.9 deals with studies undertaken in the UK and Singapore.

Agency conflict

DeFond (1992) examines 131 auditor changes for an association between changes in auditor quality and changes in agency conflicts around the time of the auditor change. Leverage, management ownership and size of short-term accruals are used to proxy the agency conflicts. Changes in agency conflicts over a period of two years prior and two year subsequent to the changes are measured. To measure changes in auditor quality, a statistical technique known as 'principal components analysis' is used, which calculates a combination of auditor size, auditor brand-name, industry expertise and independence. DeFond (1992) argues that considering the measures of audit quality as a group may increase the power of the hypothesis testing by reducing noise in the dependent variable. The study hypothesises that companies tend to switch to higher (lower) quality audit firms in anticipation of, or as a result of: (i) the decreases (increases) in percentage of management ownership; and (ii) the increases (decreases) in leverage and the relative size of short-term accruals. The control variables included in the study are clients' growth and new equity issues. Results indicate that management ownership and leverage are significantly associated with changes in the auditor's ability to alleviate agency conflicts.

Table 5.8: Archival US studies of auditor choice

	Chow and Rice (1982)	Palmrose (1984) Table 9	Francis and Wilson (1988) Table 4&5	Williams (1988)	Eichenseher and Shields (1989) Table 3 (Auditor change sample)	Johnson and Lys (1990) Table 4	DeFond (1992) Table 4	Krishnan *et al.* (1996) Table 3 & 5	Archambeault and DeZoort (2001)
Dependent variable / Independent variables	1= Switch auditor 0= Did not switch	Model 1 1= Change between and to B8 0= Otherwise Model 2 1= Change between and to specialist 0=Otherwise	Model 1 Auditor Brand Name 1=B8, 0=Otherwise Model 2 Continuous measure of auditors' quality based on clients' size	1= Auditor change between B8 0= Non-auditor change	Auditor Brand Name 1=B8, 0=Otherwise	Relative audit firm size (successor size to predecessor size)	Combined audit quality measures	1= Switching auditor in the year following receipt of qualified opinion 0= Otherwise	1= Auditor switch under suspicious circumstances 0= Otherwise
Management stock ownership		1= If owner or management owns less than 10% of the common stock 0= If owner or management owns at least 10% of the common stock Model 1: NS Model 2: NS	Stock owned by management prior auditor change 1=<5% or >20% 0= Otherwise Model 1: NS Model 2: NS		% of shares owned by management SIG (+)		Change in management ownership SIG (-)		
Management compen-sation		Accounting based compensation plan Model 1: NS Model 2: NS	Accounting based bonus plan 1=Yes, 0=No Model 1: N.S Model 2: SIG (+)						
Ownership Disfussion			Changes in % of share owned by single largest s/holder 1=>10% 0= otherwise Model 1: SIG (-) Model 2: NS	% change in common stock NS					

Continued on next page

Table 5.8 (continued): Archival US studies of auditor choice

	Chow and Rice (1982)	Palmrose (1984) Table 9	Francis and Wilson (1988) Tables 4 & 5	Williams (1988)	Eichenseher and Shields (1989) Table 3 (Auditor change sample)	Johnson and Lys (1990) Table 4	DeFond (1992) Table 4	Krishnan *et al.* (1996) Tables 3 & 5	Archambeault and DeZoort (2001)
Leverage		Long term debt to total equity Model 1: NS Model 2: NS	Change in Long term debt/ Total assets from 3 yrs prior to change Model 1: SIG (-) Model 2: NS		Total debt/ assets SIG (+)		Change in Long term debt/ Total assets SIG (+)	Z-score NS	
New issue / financing	1= new financing present 0=otherwise NS		Total of publicly issued stock 2 yrs after changes Model 1: NS Model 2: NS			Changes in debt plus equity issued/totals assets SIG (+)	Ratio of proceeds from share issue the year subsequent to change divided by book value of assets NS	1= IPO in recent past or are going to be made in near future 0= Otherwise NS	
Size		Book value of total assets Model 1: SIG (+) Model 2: NS	Total assets prior change Model 1: NS Model 2: NS	Total assets SIG (-)	Total assets NS			Book value of total assets deflated by implicit price deflator for GNP SIG (-)	
Growth			Total assets prior change deflated by total assets (%) Model 1: SIG (+) Model 2: SIG (+)	% change in sales NS		Compounded annual rate of change in total assets over the 5 year before change SIG (+) and Compounded annual rate of change 4 year after change NS and; changes in acquisition expenditure / total assets NS	% change in total assets SIG (+)	1= Top quartile growth rate of assets (High growth companies) 0= Otherwise NS	

Continued on next page

Table 5.8 (continued): Archival US studies of auditor choice

	Chow and Rice (1982)	Palmrose (1984) Table 9	Francis and Wilson (1988) Tables 4 & 5	Williams (1988)	Eichenseher and Shields (1989) Table 3 (Auditor change sample)	Johnson and Lys (1990) Table 4	DeFond (1992) Table 4	Krishnan *et al.* (1996) Tables 3 & 5	Archambeault and DeZoort (2001)
Accrual (income manipulation opportunity)							Changes in Short term accruals to total assets NS		
Audit Committee (AC)					1= Audit Committee 0= No SIG (+)				1= AC existed 0=Otherwise NS and % of AC independent directors (AC independence) SIG (-) and % of AC with experience in accounting, auditing and finance and number of AC meetings NS and number of directors on the AC SIG (-)

Continued on next page

Table 5.8 (continued): Archival US studies of auditor choice

	Chow and Rice (1982)	Palmrose (1984) Table 9	Francis and Wilson (1988) Tabless 4 & 5	Williams (1988)	Eichenseher and Shields (1989) Table 3 (Auditor change sample)	Johnson and Lys (1990) Table 4	DeFond (1992) Table 4	Krishnan *et al.* (1996) Tables 3 & 5	Archambeault and DeZoort (2001)
Audit opinion	1= qualified opinion 0= unqualified SIG (+)			1= First year qualified audit opinion 0= otherwise NS and 1= Consistency exception noted 0= else NS				1= qualified opinion 0= unqualified SIG (+)	
Audit quality				Engagement longevity SIG (+) and Industry market share SIG (+)				1= B6 0= Otherwise SIG (-) and 1= Auditors market share in client industry 0= Otherwise NS	
Management composition	1= management changed 0= otherwise NS			1= Client replaces key management 0=Otherwise NS					
Subsidiaries (Complexity)		Number of subsidiaries Model 1: NS Model 2: NS							

Continued on next page

Table 5.8 (continued): Archival US studies of auditor choice

	Chow and Rice (1982)	Palmrose (1984) Table 9	Francis and Wilson (1988) Tables 4 & 5	Williams (1988)	Eichenseher and Shields (1989) Table 3 (Auditor change sample)	Johnson and Lys (1990) Table 4	DeFond (1992) Table 4	Krishnan *et al.* (1996) Tables 3 & 5	Archambeault and DeZoort (2001)
Profitability				Return on assets NS and EPS NS		Changes in operating cash flow/total assets SIG (+)			
Merger/Acquisition	1= Merger 0=non-merger NS							1= Company's common stock acquisition exceeded 50% before and after the fiscal year end. 0= Otherwise NS	
Others		Exchange listing: 1= NYSE 0= otherwise Model 1: NS Model 2: NS		Client Reputation: negative media publicity SIG (-)		Financial risk: changes in earning from operation/interest expense NS			

Note:
N.S = Not significant at $p \leq 0.05$
SIG. = Significant at $p \leq 0.05$

Table 5.9: Archival UK and Singapore studies of auditor choice

	Woo and Koh (2001) **Singapore** **Table 3, Panel A & B**	**Hudaib and Cooke (2005)** **UK**	**Lennox (2000)** **UK**
Dependent Variables / Independent variables	Model 1 1= Auditor change cases 2= Non-auditor change Models 2 and 3 (multinomial logit) 1= Downgrade change or par 0= Non-B6 to B6	1= Switched auditor 0=Did not switch	1= Auditor change 0= Otherwise
Management stock ownership	Changes in % of stock owned by management Model 1: NS Models 2 &3: NS		Directors' ownership shareholding SIG (+)
Ownership Disfussion	% of share owned by single largest s/holder Model 1: SIG (+) Models 2 & 3: SIG (+)	% change in common stock NS	Non-director ordinary shareholding in excess of 5% SIG (+)
Leverage /Distress	Long term debt/ Total assets Model 1: SIG (+) Models 2 & 3: NS		Leverage ratio NS and 1= If company issues final audit report in year prior entering bankruptcy 0= Otherwise SIG (+)
Size	Square-root of inflation adjusted total assets Model 1: NS Models 2 or 3: SIG (-)	Total Assets SIG (-)	
Growth	% change in sales Model 1: NS Models 2 or 3: SIG (-)	% change in sales NS	

Continued on next page

Table 5.9 (continued): Archival UK and Singapore studies of auditor choice

	Woo and Koh (2001) **Singapore** **Table 3, Panel A & B**	**Hudaib and Cooke (2005)** **UK**	**Lennox (2000)** **UK**
Accrual (income manipulation opportunity)	Short term accruals to total assets Model 1: SIG (+) Models 2 &3: NS		
Audit fee	Preceding year's audit fee to auditor change year's audit fee Model 1: NS Models 2 & 3: NS	Auditors' remunerations to total assets NS	
Audit opinion	1= Qualified 0= Otherwise Model 1: SIG (-) Models 2 & 3: NS	Binary variables based on severity of audit qualification SIG (+)	1= modified report in prior year 0= Otherwise SIG (+)
Audit quality	1= B6 0= Otherwise Model 1: SIG (-) Models 2 & 3: NA	1= B6 0= Otherwise SIG. (-)	
Management composition	1= Change in directors 0= Otherwise Model 1: SIG (+) Models 2 & 3: NS	1= Change in managing directors 0= Otherwise SIG (+)	
Complexity	Number of subsidiaries Model 1: SIG (+) Models 2 & 3: NS Number of industrial sectors Model 1: SIG (-) Models 2 & 3: NS		

Continued on next page

Table 5.9 (continued): Archival UK and Singapore studies of auditor choice

	Woo and Koh (2001) **Singapore** **Table 3, Panel A & B**	**Hudaib and Cooke (2005)** **UK**	**Lennox (2000)** **UK**
Profit	Return on assets Model 1: NS Models 2 & 3: NS		Return on capital NS
Other		Interaction of qualified opinions, distress and change of MD SIG (+)	Opinion shopping indicator variables SIG(-)

Note:
NS = Not significant at $p \leq 0.05$
SIG = Significant at $p \leq 0.05$

Another US study that finds significant association with management stock ownership is Eichenseher and Shields (1989). This variable, however, is not significant in Palmrose (1984) and Francis and Wilson (1988). According to DeFond (1992), the association between audit quality and agency conflicts is sensitive to the proxy for audit quality as well as the time period over which changes in agency conflicts are measured. Moreover, his study shows that the combined measures of audit quality yielded similar results to that obtained using the brand name proxy. Using UK data, Lennox (2000) finds a significant positive relationship between directors' shareholding and auditor change which suggests that companies with low inside ownership are less likely to switch. According to Lennox (2000), this is consistent with managers being more reluctant to signal bad news by switching auditors when inside ownership is low.

Francis and Wilson (1988) measure audit firm quality using: (i) a continuous measure of size (proxied by the clients' sales), and (ii) auditors' brand name (i.e. B8 vs. non-B8). The agency proxies using in the study are managerial ownership, bonus plans, diffusion of ownership, leverage and new equity issues. Clients' size and growth are control variables. The effects of *changes* in agency variables on auditor choice are also examined. For the auditors' brand name, Francis and Wilson (1988), use a dichotomous measure based on the B8 and non-B8 categories and a measure based on the direction of changes. A change from a non-B8 to B8 is regarded as an upgrade change, while a change from a B8 to non-B8 is regarded as a downgrade change.

Results indicate that the first model which uses the *level* of agency variables is not significant, suggesting a model specification problem. The other two models, which use the changes in the variables and both the changes and the absolute level (called composite model), however, have no specification problems. In the model that uses the change from non-B8 to B8 as the dependent variable, three independent variables (change in existence of bonus plan, change in stock ownership by largest single owner

and growth) are found significant in both the changes and composite models. In addition, leverage (both the absolute level and changes) and size are also found to be significant in the composite model. The results of the model that uses continuous measure of size, however, indicate that only growth and changes in bonus incentive are significantly associated with the dependent variable.

The positive association between ownership and auditor change has also been examined by Lennox (2000) and Woo and Koh (2001). Lennox (2000) uses non-director ordinary shareholding in excess of 5% to proxy for ownership concentration and found a significant positive association. Woo and Koh (2001), who use the percentage of shares owned by the single largest shareholder, also report a significant and positive relationship.

A number of studies have discussed the effect of management change on auditor switching. For instance, many of the survey-based studies (section 5.3.4.2) find that change in management is one of the most stated reasons for auditor change. However, in the studies using logit regression, Chow and Rice (1982) and Williams (1988) find insignificant relationship between auditor change and change in management. In contrast, Hudaib and Cooke (2005) and Woo and Koh (2001) find evidence of a positive association between management change and the propensity to change auditor. The results of Woo and Koh's (2001) study, however, is not significant in the models that examine the direction of auditor change.

Taken together, it can be said that the effect of the management change variable is found to be inconclusive, and in fact, there is a lack of theoretical explanation on the relationship. However, it is acknowledged that auditor-change determinants appears to be contingent on the presence of other factors (Haskins and Williams, 1990) such as the financial condition of the companies (Schwartz and Menon, 1985).

In an agency setting, managers and owners have the opportunity to transfer wealth from debtholders to themselves (Jensen and Meckling, 1976; Watts and Zimmerman, 1986). The greater the proportion of debt, the greater the potential wealth transfers from debtholders to owners (Watts and Zimmerman, 1986). Based on the assumption that large auditors are higher quality auditors, it is expected that the higher the amount of leverage, the larger the auditors (Weets, 1999). Several studies that investigate the association between leverage and type of auditor find leverage to be associated with the choice of larger auditors (e.g. Eichenseher and Shields, 1989; DeFond, 1992). Woo and Koh (2001) also find significant positive relation between the ratio of long-term debt and auditor change in Singapore. However no significant relationship between leverage and the direction of changes is found. Other US studies that do not find a significant association between leverage and auditor type are Palmrose (1984) and Healy and Lys (1986).

Auditee complexity can be related to the present of 'loss-of-control' (Abdel-Khalik, 1993). Woo and Koh (2001) report that the number of subsidiaries and sectors in which the companies operate, are significantly associated with auditor change. As expected, their result show that the higher the number of subsidiaries, the higher the probability of change. Palmrose (1984), however, does not find a similar relationship.

New financing and share issues

Chow and Rice (1982) include the presence of new financing in their auditor change model but find no support for the assertion that companies change auditor when they are seeking new financing. Krishnan *et al.* (1996) also report no association when they examine the possibility that a company might change auditor as a way of signalling their expectations on future cashflows when making an IPO. Woo and Koh (2001), using the ratio of the proceeds of publicly issued stocks and debt in the year after the

auditor change to the book value of assets at the beginning of the year of auditor change are also unable to find a relationship with auditor change. DeFond (1992), using a similar measurement, also finds no significant association, as do Francis and Wilson (1988) using the total of publicly issued stock two years after the auditor change. The only study to find a significant association (through debt and share issue) is Johnson and Lys (1990). The study found that changes in debt plus equity issued to total assets are significant to explain the choice of successor auditor in term of size.

Internal corporate governance

Archambeault and DeZoort (2001) examine the proposition that companies which have the effective audit committee will be less likely to have suspicious auditor switches. Companies with suspicious auditor switches are defined as those having multiple switching within a short time period or those that switch auditor after a reportable event occurred or after being issued an unclean opinion. The audit committee is responsible for recommending and appointing the external auditors and for ensuring that the auditors are free from managerial restrictions and interference, as well as being aware of disputes between management and the auditors. They posit that the audit committee will monitor and control management's self-interested behaviour and, therefore limit the incidence of suspicious auditor switches. Result shows that the mere existence of audit committee is not significant.[86] To proxy for effectiveness, Archambeault and DeZoort (2001) use the proportion of independent directors on the committee, their formal accounting and auditing experience, the number of meetings held and the size of the committee. Results suggest that only the percentage of independent directors and formal experience significantly reduce the incident of suspicious changes. Size of audit committee is found to be significant only in a sample that includes only companies with audit committee.

[86] Beasley (1996) reports a similar result.

Type of audit report

Managers' goal in an audit is to receive an unqualified audit opinion from the auditors (Espahbodi, 1991). This provides reasonable assurances that the financial statements are presented in accordance with generally accepted accounting principles and are free from material misstatement whether caused by errors or fraud. As unfavourable audit opinions may cause falls in executive remuneration and may result in management changes management has an incentive to avoid such opinions, through the strategic use of auditor dismissals (Lennox, 2002).

Prior research on the relationship between audit reports and auditor change often focuses on the effect of the auditors' reports on the decision to switch auditors. For instance, Roberts *et al.* (1990) and Chow and Rice (1982) report that unfavourable audit reports may increase the likelihood of an auditor change. Chow and Rice's (1982) finding, however, indicates that firms that change auditors after receiving a qualified opinion do not tend to move to auditors that issue relatively fewer qualified opinions. A study of Australian data by Craswell (1988) also suggests that the issuance of a qualified opinion is significantly associated with subsequent auditor switching. Citron and Taffler (1992) find a significant positive relationship between the going-concern opinion and subsequent auditor switching by UK quoted companies.

Hudaib and Cooke (2005) report similar findings. They investigate the relationship between the severity of auditors' opinion (rather than the dummy variables qualified and unqualified opinions) and the likelihood of auditor dismissal.[87] Based on a sample of 297 UK listed companies during the period 1987 to 2001, they find that the probability of a switch increases with the severity of qualification and the auditees have a tendency to switch auditors after receiving a qualified opinion. In addition, Lennox

[87] The study excludes all auditor resignation cases, determined through either the letter submitted by the outgoing auditor or the letter submitted by the company's secretary to Companies House.

(2000), who investigates the incidence of opinion-shopping in the US, also finds evidence of a positive relationship between modified reports and auditor change. The study also reveals that prior audit reports are positively related to the current audit reports

Evidence from Hong Kong (Gul *et al*., 1991) also indicates that qualified opinions are associated with the incidence of auditor change. On the other hand, DeAngelo (1981b), Schwartz and Menon (1985), Smith (1986), Haskins and Williams (1990) and Krishnan (1994) do not find a significant association between qualified opinions and auditor switching. Krishnan (1994), examines audit opinion decisions for clients with auditor switching relative to non-switching in the year prior to switch and finds that auditors treat switchers more conservatively than they treat non-switchers. This suggests that auditors are switched not because of the audit opinion issued but rather due to the auditors being too stringent in their auditing procedures. Woo and Koh (2001) find an unexpected significant negative relationship between qualified opinion and auditor change. Only 11 out of 108 companies received an audit qualification. They also suggest that companies may only change auditors if the qualification is related to a matter of fundamental importance.

These studies, however, only test the argument that a qualified opinion triggers a switch by the client. They ignore the possibility that the switch can influence the auditors' opinion as posited by several analytical studies such as by Dye, 1991; and Teoh, 1992. To test the possibility of this two-way relationship, Krishnan *et al.* (1996) test a sample of 1,878 observations drawn from the publicly traded US companies, estimating a simultaneous equation model of audit qualifications and switching. Results indicate that a qualified opinion has an effect on the propensity to switch auditors. However, the study suggests that the qualification is not exogenous to the switching process. Moreover, they find that a client receiving a qualified opinion is more likely to switch

auditors than one who receives an unqualified opinion. Their results, however, do not support the suggestion that switching may decrease incoming auditors' tendency to issue qualified opinions.

Income manipulation

Income manipulation opportunities, proxied by short term accruals are found to increase the probability of auditor change in Singapore (Woo and Koh, 2001). DeFond (1992), however, does not find a significant relation between accruals and an audit quality variable.

Audit fee

Johnson and Lys (1990) argue that companies purchase audit services from the least costly supplier and whenever the incumbent's competitive advantage is lost, the client will change to a less costly supplier. Thus, changes in the client's operations and activities can erode the incumbent auditors' competitive advantage. Factors such as rapid growth, which entails substantial changes in the client's financial and reporting characteristics, can disrupt 'the economies previously available to the incumbent, enabling the client to obtain fee reductions (or increased services for the same fee) through re-alignment (Johnson and Lys, 1990, p.283). [88]

Despite being identified as one of the reasons for changing auditor in several studies (e.g. Pong and Whittington, 1994; Gregory and Collier, 1996; Whisenant and

[88] In footnote 4, Johnson and Lys (1990) argue that auditor realignment imposes transaction costs on both the incumbent auditor and client. They argue that clients lose the opportunity cost of the resources used to familiarise new auditors with enterprise's operating and reporting systems. When the incremental benefit of hiring a new auditor outweighs the cost, clients will voluntarily change auditors (Johnson and Lys, 1990, in which they cite DeAngelo, 1981b and Magee and Tseng, 1990). Whisenant and Sankaraguruswamy (2000) add that examples of such costs are both managerial and employee time and uncertainty regarding the future actions of the successor auditor. Thus, an auditor switch is likely only when the perceived advantages of a switch exceed the related costs (Johnson and Lys, 1990; Whisenant and Sankaraguruswamy, 2001).

Sankaraguruswamy, 2001),[89] as well as the most frequently stated reason for consideration of a change in auditors (Beattie and Fearnley, 1995 and 1998),[90] few regression-based studies have included audit fee as a potential explanatory variable in explaining auditor switching. One of the few studies that tested the variable is Woo and Koh (2001) who find an insignificant relationship between audit fee and an auditor change dummy variable, as well as a direction of auditor change variable.

Financial distress

Prior studies have shown that the economic condition of companies can influence the auditor change decision. Hudaib and Cooke (2005) argue that financially distressed companies pose two problems to the auditors; the probability of losing income, both audit and non-audit, from the client; and the probability that the auditors will be involved in legal dispute with the client. Schwartz and Menon (1985) note that the incentives for failing firms to change auditors may not the same as for financially healthy companies. Auditor switches in healthy companies may be motivated by factors such as the client's need for additional services or auditors' industry expertise. In financially distressed companies, auditor switches may be caused by the presence of reporting disputes or the anticipation of a qualified opinion.

Financial distress, however, may not directly trigger the change. Instead, it can be contingent on the presence of other factors (Haskins and Williams, 1990). For instance, Hudaib and Cooke (2005) find that the combination of financial distress, qualified audit opinion and management change to be related with auditor change. Studies that

[89] Pong and Whittington (1994) and Gregory and Collier (1996) in fact, study the determinants of audit fee and include auditor change variable in order to identify the possibility of lowballing (see section 5.3.4.4). Whisenant and Sankaraguruswamy (2001) study the manager-reported reasons for switching auditor. They find that 'audit fee disputes' and 'lower audit fees' account for 24.8% of the reasons cited by the managers for changing auditors (see section 5.5.4.2 for details).

[90] Beattie and Fearnley (1995) also report that if the incumbent auditors offered a reduced audit fee, companies often reversed the decision to change.

document a positive relation between financial distress and the choice of incoming auditor include Eichenseher and Shields (1989) and DeFond (1992). By contrast, Krishnan *et al.* (1996) find an insignificant relationship and Francis and Wilson (1988) find a significant negative association. These studies, however, use different operational variables.

Schwartz and Menon (1985) hypothesise that, in a financially distressed environment, there are incentives for management to change auditors. They also argue that there is a tendency for failing firms to make management changes in an attempt to resuscitate the organisation. Whenever the corporate objectives are not achieved, investors and lenders often take a more active role in shaping the scope and direction of the company's activities. These stakeholders may identify management weaknesses as the main cause of the situation and hence may insist upon management changes in return for their continued support. New management may be dissatisfied with the quality (and cost) of the previous auditor and may demand auditor change. New management may also look for new auditors who agree with the new reporting methods that management choose to show more favourable financial results. New management may simply change to a new auditor with whom they had some previous association. Based on a sample of 132 bankrupt companies during the years 1974 to 1982, their analysis shows that failing companies have a greater tendency to switch auditors than healthier companies. Further, they suggest that 'definite need' to control for the presence of financial distress in studies on auditor switching. [91]

The interaction between financial distress, qualified opinions and change in management is examined by Hudaib and Cooke (2005). Results indicate a positive relationship between the incidence of auditor change and companies: (i) with a qualified audit opinion, in financial distress but did not change management; (ii) with a

[91] Chow and Rice (1982) also make this suggestion

qualified audit opinion, in financial distress and a change in management: and (iii) with a qualified audit opinion, not in financial distress but a change in management.. The results of the study, therefore, may provide support for the suggestions of Schwartz and Menon (1985) and Chow and Rice (1982).

Audit quality

Audit quality in term of auditors' brand name and industry specialisation, has been examined by Krishnan *et al.* (1996) and Woo and Koh (2001). Krishnan *et al.*'s (1996) study hypothesises that a client is less likely to switch from an auditor with an industry specialisation and find support for the brand name variable but not the industry specialisation variable. Auditor quality in Woo and Koh (2001) is proxied by audit firm type. They also find a significant negative relationship, indicating that a higher probability of auditor change is associated with non-B6 audit firms.

Disagreement

One advantage of undertaking studies in the US is the legal requirement for companies and auditors to disclose reasons for auditor change or resignation. The availability of such data enables research into the effect of disagreement on auditor change and choice. Dhaliwal *et al.* (1993), for instance, investigate the relation between the economic prospects of a company and disagreements which lead to auditor change. There are incentives for clients to desire reporting concessions from the auditors and at the same time there are also incentives for the auditor not to follow clients' desires. Specifically, the study argues that a client experiencing poor or deteriorating financial performance may face increased costs from contracting or covenant constraints. Thus, the management in such companies may prefer an auditor who allows clients to show better earnings. The auditors, on the other hand, are facing increased costs as a result of

increased litigation risk and reputation loss and thus, may not agree with the client's wishes. Clients may resolve the conflict by changing auditors. As the incoming auditors may possess a different cost function (due to different size and reputation), have a different risk tolerance and perhaps be less informed, they may accept the client. They may also accept the new client if they fit their portfolio. Results, based on a sample of 71 disagreement clients and 71 control clients, indicate that poor or deteriorating financial performance is correlated with disagreements which leads to auditor switching. In addition to poorer operating performance and higher leverage in years prior to the auditor change, the study also finds that the group of auditor change clients with disagreements also experience significant negative stock returns for many years prior to the change. There is, however, no study support for the hypothesis that the group will choose smaller auditors as the replacement.

McConnell (1984) examines a sample of 748 of auditor changes in the US, finding similar results. The percentage of auditor changes accompanied by reported disagreements is 'noticeable higher', with the predecessor likely to be a B8 firm. In addition, the study also reports significant differences amongst the B8 firms in terms of disagreement involvement rates, both as predecessor and successor auditors.

5.3.4.4 Consequences of auditor change/choice

In this section, three consequences are considered: opinion shopping, information content (i.e. market reaction) and lowballing.

Opinion shopping

Opinion shopping is a strategy used by managers to avoid unfavourable audit opinions, which may adversely affect the perception of audit constituencies about the independence of the audit function as well as the credibility of the auditors' opinion

(Smith, 1986). Opinion shopping may also result in financial and reputation losses to the auditors as the risk of expensive lawsuits and subsequently, loss of reputation, is particularly high (Espahbodi, 1991). Lennox (1999) contends that opinion shopping could increase uncertainty about the company's future and subsequently may discourage risk-averse investors from financing projects. In addition, the practice of opinion shopping may reduce the frequency of audit qualifications and hence is socially undesirable (Lennox, 2000).

Empirical studies, however, are unable to draw conclusions on whether companies successfully engage in opinion shopping. For instance, Krishnan (1994) and Krishnan and Stephens (1995) find that successor auditors' opinions are not generally more favourable than predecessors' final opinions. In contrast, Craswell (1988) reports that Australian companies receive qualified reports less frequently after switching.

Krishnan (1994) investigates audit opinion decisions for clients with auditor change in comparison to the non-change in the year prior to a switch. Auditors treat clients with auditor change more conservatively than non-change clients. Krishnan and Stephens (1995), in a follow-up study, examine the relationship between auditor switching and the audit opinion in the years before and after the switch. The objective of the study is to determine whether clients who switch auditors receive less conservative treatment from their successor auditors. Results suggest that there is no significant difference between switchers and non-switchers in term of conservatism treatment. Moreover, the study finds that the clients who changed auditors are treated relatively conservative by both predecessor and successor auditors, which may indicate the absence of successful opinion shopping or a lack of motivation to "shop' the opinion. The result of the study by Krishnan *et al.* (1996) also suggests that auditors are more likely to issue qualified opinions to switchers.

In the recent study of opinion-shopping in the UK, Lennox (2000) tests for the practice by predicting the opinions companies would have received had they made opposite switch decisions.[92] He argues that a comparison of opinions issued by outgoing and incoming auditors, examined in prior studies, is a flawed test for opinion shopping and so the conclusion that opinion shopping is futile might be incorrect. In particular, he asserts that previous studies ignore the possibility that switching companies would have received modified opinions more often had they not switched. He also argues that prior studies only consider the successive reports of switching companies and ignore the possibility that non-switching companies also engage in opinion shopping.

Based on a sample of 944 UK listed companies during the period from 1988 to 1994, he estimates the probabilities that the companies would receive unfavourable opinions if audit firm changes are different to those actually observed. The results were then used to predict the modified opinion probabilities for both switching and non-switching companies.

Results show that; (i) auditor change occurs more often after companies receive modified opinions; and (ii) switching auditor increases the probability of a change in opinion. This implies that companies would receive modified reports less frequently than they would under opposite switch decisions. Although the study does not find a significant improvement in the observed audit opinions for switching and non-switching companies, the results of the structural switching models show that companies would have received modified opinions more frequently if they had made

[92] In his papers (i.e. Lennox, 1999; 2000; 2003), Lennox uses statistical models of audit opinion reporting to predict the probability of (i) the company dismisses their auditor and expects to receive an unfavourable opinion with probability P1 from the incoming auditors, (ii) the company does not dismiss their auditors and expects to receive an unfavourable opinion with probability P2 from the incoming auditors, (iii) the company does not dismiss their auditor and expects to receive an unfavourable opinion with probability P3 from the existing auditors, and (iv)) the companies dismiss their auditors and expects to receive an unfavourable opinion with probability P4 from the existing auditors. According to Lennox (2003), dismissal is more likely to be motivated by opinion shopping if P1<P2 and if P4 <P3. The predicted probabilities (i.e. P1, P2, P3 and P4) are then be used to test whether companies engage in

opposite switch decisions and, therefore Lennox (2000) concludes that 'companies successfully engage in opinion shopping' (p.335).

To examine whether the conclusion of Lennox (2000) differs from the prior studies due to institutional differences between the UK and US or because of the differences in empirical methodologies, Lennox (2002) uses the same methodology to test whether SEC registrants engage in opinion shopping. He notes that opinion shopping might be more prevalent in the UK where auditor change disclosure requirements are less strict compared to the US. SEC registrants are required to disclose audit firm changes within five business days of an incumbent auditors' termination and should also disclose auditor-client disagreements and any modified opinions received in the two previous years.

Results show that SEC registrants successfully engage in opinion shopping and that new auditors are more likely than the retained incumbents to issue an opinion that differs from the previous year. In particular, opinion shopping companies are shown to take advantage of reporting differences between the new and retained auditor to avoid unfavourable audit opinions by; (i) dismissing incumbents who are likely to give a modified opinion, and (ii) retaining incumbents who are likely to give unmodified opinions. These results are consistent with those reported for the UK (Lennox, 2000).

In a monograph version of his study, Lennox (2003) reports on the role of audit committees in relation to opinion shopping behaviour. It is found that: (i) companies that have audit committees are less likely to engage in opinion shopping (however the result is sensitive to the inclusion of a size variable); (ii) nearly 15% of audit committees do not participate in audit firm dismissal decisions; (iii) audit committees are more likely to disapprove auditor change that is motivated by opinion shopping, but there is also evidence that the auditors are dismissed although the committee

disapproves; and (iv) there is a significantly higher turnover in audit committees whenever they disapprove opinion shopping. Overall, results indicate that management influences the decision to hire and fire the auditor and perhaps in some cases, to fire audit committees' members.

Information content of auditor change

An announcement is said to contain information if it alters investors' beliefs about the value of an asset (Beaver, 1968). The revaluation effect of auditor change has been an issue of interest since its announcement conveys indirectly economic information (Joher *et al.,* 1999). Unlike corporate dividend and earnings announcements, which reflect a real change in expected corporate performance, auditor change announcements may reflect investors' interpretation about the quality of audit service provided by the auditor. As audit services are regarded as a differentiated service (e.g. Dopuch and Simunic, 1980), any auditor change event may be view as a change in the level of audit quality.[93] For example, a change to larger auditors might be perceived as an improvement in audit services (positive news) and a change to smaller auditors might be perceived as negative news.

Regulators in several countries have expressed concern that a change of auditor might affect the integrity of the security market. For example, the SEC requires that a public listed company file Form 8-K and, in the UK, the disclosure of auditor change is demanded by the Company Act 1986. Many studies that have been undertaken to investigate the consequences of auditor dismissal in the US, also investigate the relevance of Form 8-K and its related documentation (e.g. the auditor exhibit letter). However, as such extensive disclosure requirements are not required in the UK, few

opinion shopping by comparing them with companies' dismissal decision.

[93] According to Grayson (1999), some researchers, however, regard the audit client as '… mere price shoppers' and this view treats the audit as a commodity and auditors as the suppliers of the commodities (not of differentiated services). This view, however, is not strongly supported.

similar studies have been undertaken. Companies Act 1985 does not provide any guidance as to the nature of matters that ought to be reported and there is no mechanism for publicising the auditor change event '…apart from the filing of the letter at Companies House' (Dunn *et al.,* 1999, p. 97).[94]

In the US, the information content of the disclosure in Form 8-K and related documentation is investigated by Fried and Schiff (1981), Smith and Nichols (1982), Nichols and Smith (1983), Eichenseher *et al.* (1989), Johnson and Lys (1990), Albrecht and Lamy (1992), Klock (1994), DeFond *et al.* (1997), Krishnan (2002) and Hackenbrack and Hogan (2002). Studies also examine the effect of the auditor change announcement on the consensus of investor expectations (Hagigi *et al.*, 1993) [95] and on earning response coefficient (Teoh and Wong, 1993).

As shown in Table 5.10, results indicate that the market generally reacts negatively to an announcement of auditor change. Only two studies (i.e. Johnson and Lys, 1990 and Klock, 1994) do not find any evidence of significant market reaction. In other studies, significant market reaction is observed especially when the announcement is accompanied with other auditor change related disclosure, such as accounting disagreement (Smith and Nichols, 1982 and Hackenbrack and Hogan, 2002) and fee-related reason (Hackenbrack and Hogan, 2002). Significant or larger reaction is also observed when a change between different size of auditors is announced (e.g. Nichols and Smith 1983, Eichenseher *et al.,* 1989 and Teoh and Wong, 1993). There is also evidence that the market attaches value additional information available surrounding auditor change, such as the level of management ownership (Eichenseher *et al.,* 1989) and the availability of auditors' letter (Krishnan, 2002).

[94] Their assertion relates to auditor resignation. It might however, also be true in all cases of auditor change since the procedures required upon auditor resignation of auditor were extended by the Companies Act 1989 to cover all changes of auditor for whatever reason (Woolf, 1997 –6th edition).
[95] Holthausen and Verrecchia (1990) define the consensus effect as the degree of agreement among agents as of the time of an information release.

Table 5.10: Summary of auditor change information content studies

Study	Period of study, sample, and country	Research objective	Results
Fried and Schiff (1981)	1972-1975 (96, 48 of which are switching firms) US	To examines the degree of market reaction to the 1978 SEC's disclosure requirement in which companies are required to enumerate and describe disagreements they may have had with their auditors on accounting and auditing issues in the 18 months prior to the auditor change.	Significant negative reaction for general event of auditor change, but unable to identify the cause as the tests that control for auditor size and disagreement are found to be insignificant. Insignificant negative return for the change to a larger auditor.
Smith and Nichols (1982)	1973-1979 51 auditor changes US	To examine the effect of the dispute over accounting and auditing principles with auditors prior to switch and those client firms which did not disclose any dispute.	The market reaction to disclosures of both a change in auditors and a disagreement is more negative than to disclosures of just an auditor change. Systematic price decline surrounding the auditor switch for client companies, which report a dispute with auditors. Indicates that investors do view disclosures about auditor-firm disagreements contained in the SEC Form 8-K filings as having information content.
Nichols and Smith (1983)	1973-1979 51 auditor changes US	To examine the role of auditor credibility and auditor change on the information between management and investors in the auditing firms in the U.S.	The stock price reaction to the announcement of a change from non B8 to a B8 auditor is larger than for a change from B8 to a non B8 auditor. However, the difference between the two groups is not significant.
Eichenseher, *et al.* (1989)	1980-1982 87 Over-the-Counter companies US	To examine capital market price movements surrounding the announcement of auditor change by U.S. companies whose securities are traded in the Over-The-Counter (OTC) market.	In general, support is found for a conditional theory of differential market reaction to auditor change, depending on the level of management ownership in the switching client firm and on the direction of auditor change (to or from B8 auditors).

Continued on next page

Table 5.10 (continued): Summary of auditor change information content studies

Study	Period of study, sample, and country	Research objective	Results
Johnson and Lys (1990)	1973 -1982 194 companies US	To examine the market reaction to voluntary auditor changes by using daily excess return around Form 8-K filing dates.	Daily excess return does not differ from zero (i.e. no significant price reaction).
Albrecht and Lamy (1992)	1980-1986 144 companies US	To examine excess returns around 8-K filing dates.	Finds significant excess returns over a six day period surrounding the filling date.
Hagigi, *et al.* (1993)	1980-1982 122 companies US	To examine the effect of the auditor change announcement on the consensus of investor expectations. The measures are; (i) systematic change in trading volume, and (ii) change in bid-ask spread (related to the reduction in information asymmetry).	Results suggest that auditor change announcements lead to a reduction in bid-ask spread which is appeared not to be driven by volume-related cost savings. Thus, there is evidence that the announcements lead to a reduction of information asymmetry among market participants. It is also evidenced that the response to auditor change announcements implied that the consensus effect dominates the informedness effect and the degree of its domination is found to be independent from the auditor change class being examined. The study concludes that whether the investors interpret an auditor change as good or bad news or whether the signal value is ambiguous, however, the announcement itself seems to have information value, and the value is largely consensus-building.
Teoh and Wong (1993)	1981-1988 160 auditor changes US	To examine whether ERC differ between B8 and non B8 firms to provide the link between auditor size and the credibility of the financial reports.	The study finds that the ERC of the B8 are statistically significant higher than for non B8 in a matched sample (based on industrial membership and in a sample with auditor change from and to B8 and non B8).
Klock (1994)	1986-1987 50 companies US	To examine daily excess returns around 8-K filing dates.	Excess returns did not differ from zero (no significant abnormal return).

Continued on next page

Table 5.10 (continued): Summary of auditor change information content studies

Study	Period of study, sample, and country	Research objective	Results
DeFond, *et al.* (1997)	1982-1987 60 (of which, 23 are non-resignation) US	First study to differentiate between resignation and dismissal. Used adjusted residual for 3 periods. pre-filing 8-K period; (ii) five business day post form 8-k filing; and (iii) combination (i) and (ii).	As for the case of non-resignation, only post-filing that is significant (pre-filing is not significant) Resignation sub-sample shows significant negative return both for the pre-filing and post filing, as well as combined period.
Krishnan (2002)	1996-1999 1,128 auditor changes (819 of which are concurrent filers) US	To investigate the information contents of auditors' exhibit letters relating to auditor change using one-factor market	Results indicate that stock market attaches value to auditors' letter. Form 8-K filing that did not include the auditors' letters experienced a negative market reaction around the date Form 8-K filing.
Hackenbrack and Hogan (2002)	1991-1997 802 auditor changes US	The study examines the effects of reasons for auditor changes on the informativeness of earning announcements reported surrounding the Form 8-K disclosure.	Results indicate that reason disclosures have a systematic effect on the relationship between abnormal returns and unexpected earnings. Finds that the average price response per unit of earnings surprise is lower following an auditor change for companies that switch for; (i) disagreement-related, and (ii) fee-related reasons. Higher average price response per unit of earnings surprise for those that switched for service-related reasons.

Lowballing

Lowballing[96] occurs when auditors charge an initial engagement fee below cost in order to obtain new engagements (Kanodia and Mukherji, 1994; Diacon *et al.*, 2002). DeAngelo (1981a) defines 'lowballing' as the setting of the initial audit fee below the sum of audit start-up costs plus the normal profit. According to Lennox (1999), it occurs when an auditor wins a new client (engagement) by offering an initial fee below cost, in the hope of offsetting the initial loss by earning rents in the subsequent periods. The practice of lowballing has been criticised on the grounds that these rents may increase the potency of the companies' switch threat (Lennox, 1999) and the possibility that it may reduce competition in the audit market, impair audit independence (AICPA, 1978; Diacon *et al.,* 2002) and reduce audit quality (Kanodia and Mukherji, 1994). It is of concern since lowballing could provide clients with a credible threat of terminating incumbent auditors should they refuse 'accounting concessions' (Kanodia and Mukherji, 1994) or collude with the client. The threat of lowballing is also highlighted in an EU Green Paper (1996), which expresses concern about the intensity of competition, especially for the audit of large and prestigious companies. According to the paper, 'There is no doubt that competition sometimes results in low-cost and perhaps even below-cost tenders' and ' The procedure of calls for tenders should not have as a consequence that auditors quote an audit fee which does not allow them to carry out their work in accordance with professional standards'. The same concern has also been stated by the Australian accountancy profession in the Auditing Practice Statement AUP 32 (AARF, 1992).

Simon and Francis (1988) examine the presence and magnitude of audit fee price cutting in the US and find a significant fee reduction in the initial engagements which

[96] Other terms that have been used to describe the issue are 'predatory pricing' and 'fee discounting' (Beattie and Fearnley, 2002).

then decreased in the following two years.[97] By the fourth year, the audit fee has been reported back to normal level.[98] In order to exclude the possibility that the results are confounded by factors other than a discount (e.g. the lower audit fee might be due to audit efficiency or negative auditor reputation effects) they re-estimate the audit fee model using only the observations of the same-tier auditor changes. The study reports significantly lower fees for firms changing auditors from 1982-1984 but not during the period from 1979 to 1981. Both B8 and non-B8 auditors were found to engage in price cutting behaviour.

Ettredge and Greenberg (1990) extend the study by Simon and Francis (1988) by using the distribution of percentage fee changes (i.e. the outgoing auditor's last fee minus the incoming auditor's first year fee bid, divided by the outgoing auditor's last fee) as a way to identify fee cutting. The study also examines the association between client financial health, lowballing and percentage fee cuts. Like the Simon and Francis (1988) study, Ettredge and Greenberg (1990 also examine the association between percentage fee cut and the proxy variables for changes in audit quality and in technological efficiency. The study, then, extends the previous study by including two variables that have not previously been examined. The variables are (i) changes in auditor industry expertise;[99] and (ii) the number of auditors bidding on the engagement. They argue that auditor industry expertise might be a potential source of efficiency, through which the auditors could complete the audit work faster and thus will result in lower fee. On the other hand, industry expertise might also be associated with positive

[97] Simon and Francis (1988) estimate the mean fee change using the indicator variable. As explained in their note 7, they calculate the fee change by estimating the shift in the intercept by using the following simplified equation:

$$1-\frac{1}{e^{z}}$$

where z is the downward shift in the intercept causes by the auditor change variable.

[98] The study uses the audit fee of the 226 firms that did not change auditor as an indicator of normal or continuing audit fee.

[99] The study uses the modified version of Palmrose's (1986) market share measure as well as a new measure based on the assessment of the managers of the switching firms.

reputation effects and, therefore, the client will be charged a premium. Further, according to Ettredge and Greenberg (1990) the number of firms invited to bid could affect the level of audit fee in two ways. First, the evaluation of each solicited bid will impose some costs on the client, whereas it is important that the bidding auditors, especially those without the brand name, are able to deliver the minimum desired level of audit quality at the bid price. Second, as the number of bidders increases, the likelihood that the lowest-cost provider will be included is higher and, therefore, the bidding is expected to be highly competitive. As a result of the bidding cost that must be borne by the client and the competition for the engagement, the expected minimum fee will be set lower by the auditors. Subsequently, this will result in larger percentage fee cuts.

The study reports that the mean and median fee cuts for initial engagements are as high as 25% and the firms that switch from B8 to non-B8 auditors receive fee cuts of about 11% more than the percentage of fee for the changes between the same class auditors (i.e. lateral switches). There is also significant association between changes in auditor efficiency and fee cuts. The finding indicates that cost advantages and disadvantages in auditing a particular client do exist and are important determinants of fee cutting. The first proxy of auditor expertise, which is based on fee, is found to be positively related to the percentage of fee cut, which suggest that an audit firm with large market share in a given industry enjoys a cost advantage in auditing clients in that particular industry. The second proxy, which is based on managers' stated-specialist, is also significant but in the reverse direction, suggesting that managers of firms that switch auditors may also be willing to pay a premium for auditor expertise. The study also reports that for each additional bidding auditor, the clients will experience an additional fee cut of about 1%.

Pearson and Trompeter (1994) examine the fees paid by 47 US insurance companies that switched auditors during the period 1982 to 1986 and report weak evident of fee

cutting by the successor auditors. However, the study finds significant fee cut when the change is between the market leaders, suggesting price competition for each other's clients. No evidence of significant fee cutting when the change is from a non-leader to a market leader. The results can be interpreted as evidence that market leaders do not have to engage in extensive fee cutting to attract new clients, as some clients are willing to forgo a fee reduction in order to hire an industry specialist auditor.

Butterworth and Houghton (1995) investigate the pricing of audit services after auditor change by Australian companies and reject the proposition that new auditors will charge significantly less than the incumbent auditors. Their findings also indicate that auditor switching is associated with an increase in the total of audit and NAS fees paid to the auditors.

Another study that examines lowballing in Australia has been undertaken by Craswell and Francis (1999). The study finds the evidence of lowballing whenever the change is from non-B8 to B8 auditors. According to them, this can be explained in terms of the nature of 'experience goods' in which consumers or buyers are uncertain about the quality of the products. In order to induce consumers to experience their products, sellers or producers sell the products at a low introductory price. As such, buyers will have the opportunity to 'experience' higher priced and quality goods.

Ferguson (2001) investigates circumstances where audit industry leaders[100] in Australia audit market are prepared to price-cut as compared to other B5 auditors. Although the study reports that the audit industry leaders do involve in price-cutting, it is, however, restricted to certain industries. Using Simon and Francis' (1998) procedure, the price leaders are found to charge 18% lower audit fee. Further analysis, which focuses on the

[100] Industry leader in the study refers to the biggest supplier of audit (based on total audit fees) within each consensus industry classification. The study reports that PricewaterhouseCoopers is the leader in Mining, Technology and Consumer industries. The other leader is KPMG, which has been identified as a leader in the other three industries: Finance, Property and Industrial.

industries with price cutting (referred as 'price-cut industry'), identifies PwC and KPMG as industry leaders in certain price-cut industries. The study also finds that the value of NAS supplied to clients in price-cut industries is significantly higher than in non price-cut industries. They also documents that within the price-cut industries, the audit industry leaders gain greater NAS revenues as compared to other B5 firms, suggesting the probability that auditors loss-lead to gain highly profitable NAS engagement. When testing the possibility of independence impairment, their result indicates that the clients in price-cut industries experience lower audit qualification rates. Further, the study reports that none of the client firms audited by industry leaders in price-cut industries received audit qualifications as compared to the clients audited by other B5 auditors. The result, however, is not significant after controlling for the amount of NAS, other client performance related factors and firm characteristics.

In the UK, lowballing was first examined by Pong and Whittington (1994). The study finds evidence of lowballing practice during the first year of audit engagement. Results also indicate that the lowballing is less pronounced when the new auditor is a member of the B8. Another UK study by Gregory and Collier (1996) examine 339 listed UK companies during the period from 1987 to 1991, in order to find evidence of price-cutting and fee recovery. Due to the small number of auditor change cases, the study groups all the auditor change cases into two categories; (i) firms that have changed auditors within the last three years, and (ii) firms that have changed auditors within the last four to five years. The purpose of having two cases of auditor change groups (based of the period of switching) is to allow the study to find any evidence of price recovery in the later year. As put forward by Simon and Francis, (1988), price recovery which is one of the critical aspects of lowballing that may contribute to the auditors' independence problem.

The results of the study show that a change of auditor has a significant and negative effect on the level of audit fee charged during the first three years of the new engagement. The fee reduction, however, does not appear significantly related to the changes that have taken place during the past four to five years. Although not statistically significant, the result indicates that, after four to five years, the discount is reduced to around nine per cent, suggesting some attempts to recover the loss of initial engagement audit fee. According to Gregory and Collier (1996), the results show the existence of 'lowballing' practices. In addition, their further analysis reveals that the companies changing from non-B6 to B6 auditors experience a greater reduction in fee than the companies that changed between the B6. According to the authors, the results can be interpreted as an incentive to persuade the smaller companies to switch auditors. In addition, there is also evidence that substantial and significant fee reductions are available to companies that switch between the B6 auditors. Although not significant, there is evidence of price recovery which is consistent with DeAngelo's (1991) lowballing model.

In another UK study, McMeeking *et al.* (2003) also document a significant fee cutting on initial audit engagements. Based on observations over the period 1985 to 1995, [101] significant fee discounting is reported to occur in 1986 and 1987. The largest fee cutting relates to switches between B6 firms. In addition, the study also documents evidence which suggests the possibility that discounts are offered to encourage clients to switch from non B6 to B6, which is consistent with the findings by Gregory and Collier (1996).

[101] According to the authors, the period was selected in order to assess the effect of regulatory and market changes that occur throughout the period. In particular, the changes are; (i) audit firm mergers (1989 and 1990), and (ii) voluntary and mandatory NAS fee disclosure (1992-1995).

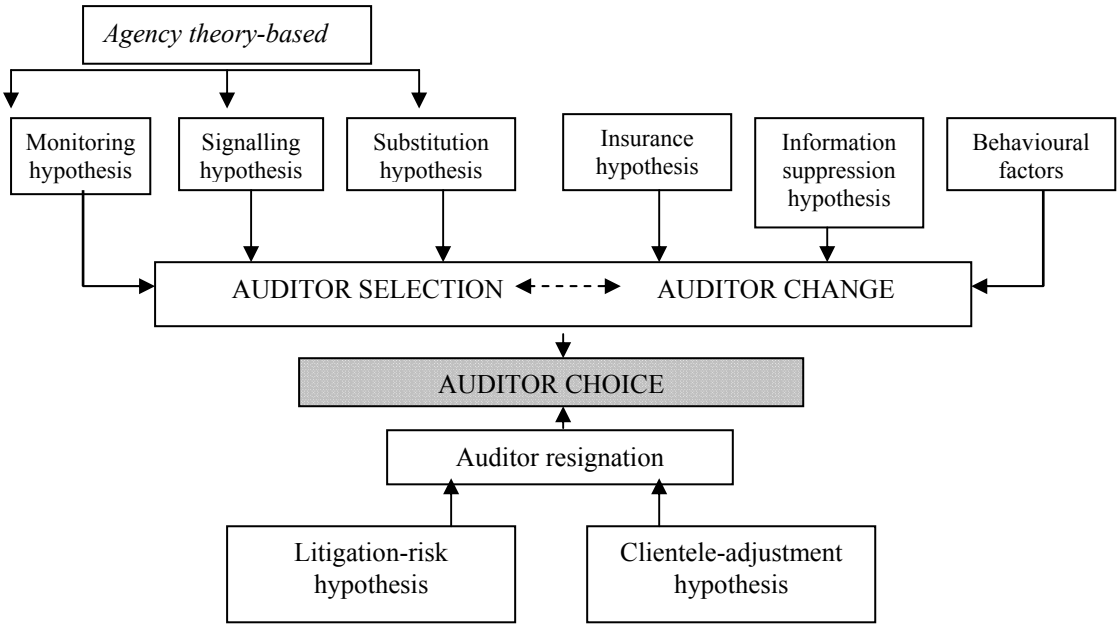
5.4 Summary

A number of theories have been put forward to explain auditor choice and several of these overlap. Most theories are rooted in agency theory: (i) the monitoring demand hypothesis, (ii) the signalling hypothesis; and, (iii) the substitution hypothesis. Other explanations of auditor change have been offered by the insurance hypothesis and information suppression hypothesis.

To date, evidence in support to these theories is limited. As a response, several studies try to explain auditor change from a behavioural, rather than economic perspective. This perspective, however, is relatively unexplored.

Figure 5.2 summaries these theories. As shown, the theories that explain the demand for audit services could also be linked to the decision to change auditors. The top part of the figure lists all the theories that explain the auditor choice decision as well as the motives to change auditors.

Figure 5.2: A summary of auditor choice theories



The theories consist of agency theory grounded hypotheses (i.e. monitoring, signalling and substitution hypotheses), the demand for insurance, information suppression and the behavioural aspects of auditor change. The lower side of the figure depicts the two hypotheses of auditor-induced change, or auditor resignation – the litigation risk hypothesis and the clientele-adjustment hypothesis.

In general, only limited auditor choice studies exist in the UK. Earlier studies are undertaken using survey method and in general, report audit fee and service quality as the main reason for change. However, a recent study by Dunn and Huss (2004) expresses concern over the reliability of auditor change mail survey studies which used follow-up mailings. Their findings suggest that the increased pressure to respond decreases the reliability of the information obtained.

Variables that have been advocated as explanatory factors of auditor choice and the findings by prior archival studies are summarised in Table 5. 11. The table also sums up the findings. Strong support ('strong') is assigned if the variable is found significant by at least three studies; otherwise, the evidence is regarded as 'limited'. 'Lack of support' is an indication that no significant relationship has been established by any studies. 'Mixed' conclusion refers to the situation where positive and negative relationships are evidenced but there exist limited studies to support a particular direction.

It is important to note that the method used here is subject to criticism. Arguably, there exist a better way to draw conclusion on prior findings such as offered by a technique called 'meta-analysis'. This technique, however, is time-consuming, lengthy and requires a certain level of scholarship.

Panel A focuses on auditor change studies while Panel B focuses on auditor selection studies. As seen on Panel A, only audit opinion and audit quality are found to receive

Table 5.11: Summary of auditor choice studies

Panel A: Auditor change studies

	Studies						
	C&R	**KKS**	**A&D**	**W&K**	**L**	**H&C**	**Conclusions**
Management ownership	X	X	X	NS	Sig (+)	X	Limited +ve
Management compensation	X	X	X	X	X	X	No evidence
Ownership diffusion	X	X	X	Sig (+)	Sig (+)	NS	Limited +ve
Leverage	X	NS	X	Sig (+)	NS	NS	Limited +ve
New financing	NS	NS	NS	X	X	X	Lack of support
Size	X	Sig (-)	X	NS	X	Sig (-)	Limited -ve
Growth	X	NS	X	NS	X	NS	Lack of support
Accrual	X	X	X	Sig (+)	X	X	Limited+ve
Audit committee	X	X	Mixed (-)	X	X	X	Limited-ve
Audit opinion	Sig (+)	Sig (+)	X	Sig (-)	Sig (+)	Sig (+)	Strong +ve
Audit quality	X	Mixed (-)	X	Sig (-)	X	Sig (-)	Strong -ve
Management change	NS	X	X	Sig (+)	X	Sig (+)	Limited +ve
Complexity	X	X	X	Sig (-)	X	X	Limited -ve
Profitability	X	X	X	NS	X	X	Lack of support
Audit fee	X	X	X	NS	X	NS	Lack of support

Panel B: Auditor selection studies

	Studies							
	P	**F&W**	**W**	**E&S**	**J&L**	**DF**	**W&K**	**Conclusions**
Management ownership	NS	NS	X	Sig (+)	X	Sig (+)	NS	Limited +ve
Management compensation	NS	Mixed (+)	X	X	X	X	X	Limited +ve
Ownership diffusion	X	NS	NS	X	X	X	Sig (+)	Limited +ve
Leverage	NS	Mixed (-)	X	Sig (+)	X	Sig (+)	NS	Mixed
New financing	X	NS	X	X	Sig (+)	NS	X	Limited +ve
Size	Mixed (+)	NS	Sig (-)	NS	X	X	Sig (-)	Mixed
Growth	X	Sig (+)	NS	X	X	NS	Sig (-)	Mixed
Accrual	X	X	X	X	X	NS	NS	Lack of support
Audit committee	X	X	X	Sig (+)	X	X	X	Limited +ve
Audit opinion	X	X	NS	X	X	X	NS	Lack of support
Audit quality	X	X	Sig (+)	X	X	X	X	Limited +ve
Management change	X	X	NS	X	X	X	NS	Lack of support
Complexity	NS	X	X	X	X	X	NS	Lack of support
Profitability	X	X	NS	X	Sig (+)	X	NS	Limited +ve
Audit fee	X	X	X	X	X	X	NS	Lack of support

Note:
1. C&R = Chow and Rice (1982); KKS = Krishnan *et al.* (1996); A&D = Archambeault and DeZoort (2001); W&K = Woo and Koh (2001); H&C = Hudaib and Cooke (2005); L = Lennox (2002); P = Palmrose (1984); F&W = Francis and Wilson (1988); W = Williams (1988); E&S = Eichenseher and Shields (1989); J&L = Johnson and Lys (1990), and DF = DeFond (1992).
2. NS = not significant; Sig (+/-) = significant positively or negatively, and X = not tested.

strong support. Audit opinion is positively associated with auditor change while company audited by high quality auditor is found to less likely changing auditor. Limited supports are found for ten variables. Management ownership, ownership diffusion, leverage and management report evidence of positive association with the probability of auditor change. On the other hand, size, audit committee and complexity are negatively associated with auditor change. Four variables (new financing, growth, profitability and audit fee) are not significant in any studies and hence offer lack of empirical support.

No variable can be regarded as having strong support in auditor selection studies. As shown in Panel B, studies find mixed evidence on the association between new auditor selection and leverage, size and growth. Six variables: management ownership; management compensation; ownership diffusion; audit committee; audit quality and profitability, reporting limited support. All of these variables are reported to associate with the new auditor selection in positive direction.

Results of studies concerning the consequences of auditor change show that the market generally views the event negatively and share price drops. Evidence suggests that companies are not successful in opinion shopping although recent research, using a different methodology, provides support to the argument that companies do engage in opinion shopping. The practice of lowballing is not widely research since data on audit fees has not been readily available in some countries. Most of the US studies, for instance, rely on survey data from a relatively small number of respondents and this may raise some questions about their validity. In addition, most studies focus on initial price cutting and do not investigate the issue of price recovery. Studies that investigate the issue of price cutting and price recovery, however, provide evidence of lowballing practices.

The results of auditor resignation studies report a positive association between litigation risk and auditor resignation. The studies indicate that auditors will resign rather than continue to audit risky clients. Following a resignation, it also appears that the big firms are reluctant to accept the client. The results of the auditor resignation event-study show that the resignation is value-relevant and the event provides information that causes the market to revise the company's estimated market value. In other words, studies suggest that resignation brings 'bad news'.

Chapter 6: Development of hypotheses for auditor choice studies

6.1 Introduction

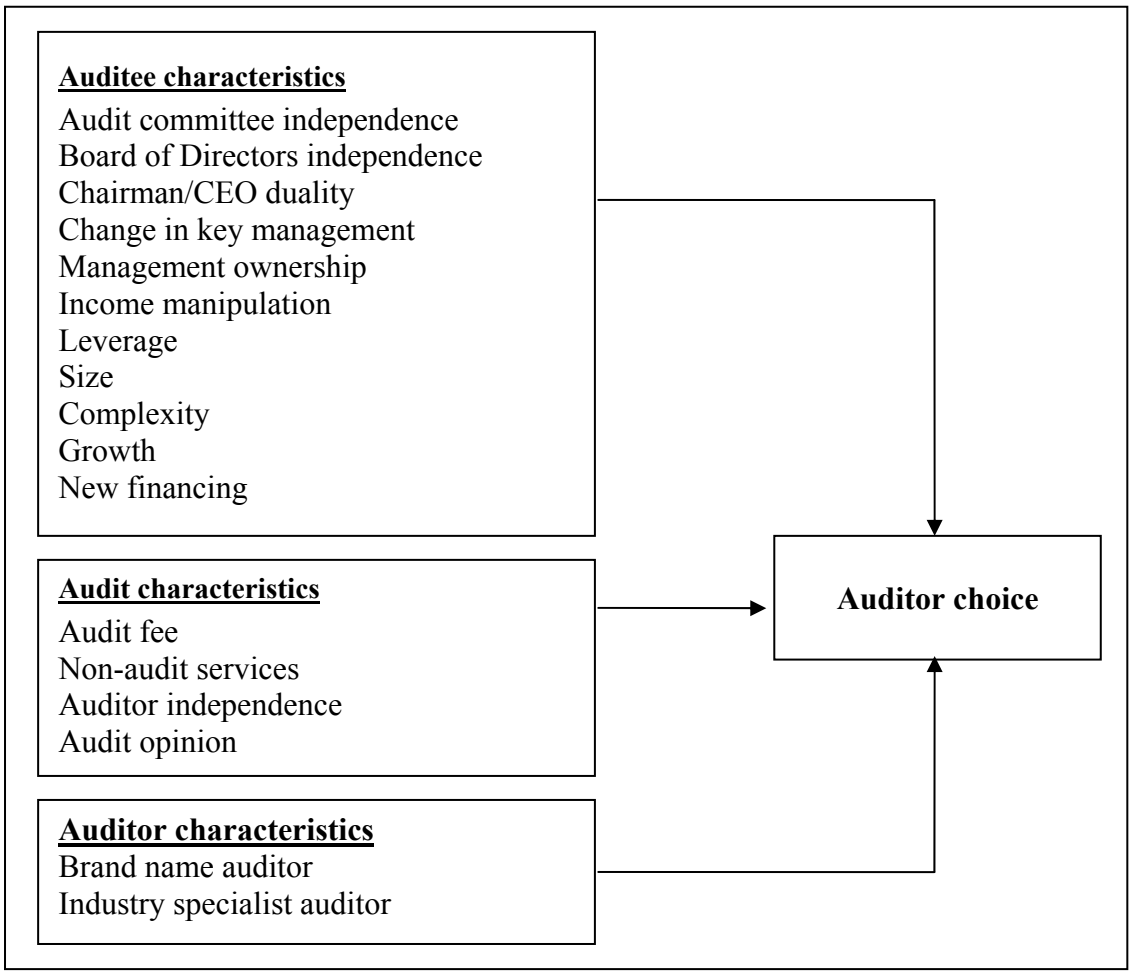
From the literature review presented in chapter 5, it can be concluded that there exists limited evidence in relation to the determinants of auditor change and new auditor selection. This is especially true in the context of the UK audit market. Due to differences in the business and audit environment, the findings of non-UK studies might not be applicable in the context of the UK audit market. Moreover, there have been major changes in the audit environment in many countries in recent years, and these may affect the underlying relationships. Research on auditor change and new auditor selection determinants can be characterised as heavily based on agency theory. Moreover, it is acknowledged that important variables are omitted from models developed to date (Haskins and Williams, 1990; Johnson and Lys, 1990; Beattie and Fearnley, 1998). In light of these deficiencies, it can be concluded that auditor choice issues require further empirical investigation.

Chapter 5 showed that the decision to change auditor is accompanied by the decision to choose a replacement auditor. Consequently, many studies that examine the determinants of auditor change also examine the factors that contribute to the decision to choose the successor auditor by using similar variables.[102] Synthesising the theoretical foundations and the pertinent literature reviewed in chapter 5, a research framework is developed to investigate the factors that influence auditor change and new auditor selection. Generally, the determinants of auditor change and new auditor selection are identified from the variables used by previous studies. For simplicity, the

[102] One issue that can be debated is the sequence of the auditor-client alignment process. Does the company change the auditor first then make a selection of the replacement, or *vice-versa*? Technically, the predecessor needs to be dismissed (or resign) before a successor can hold office. However, it can also be the case that the company already has the successor auditor in mind, and the dismissal of the predecessor is only to make way for the new auditor to hold office. As the real sequence of the process is not known, one might find that the variables that determine the decision to change auditor also explain the choice of the replacement auditor.

potential variables included in the present study are classified into three categories - auditee characteristics, audit characteristics and auditor characteristics.[103] The present study also introduces new variables into the research model. Some variables were chosen because they have been included in studies that examine other issues related to auditor switching (e.g. lowballing and opinion shopping). Others are included to capture the potential effect of NAS and the role of internal corporate governance in auditor change and new auditor selection. These are issues that have grown in significance in recent years. Figure 6.1 presents the variables included in the present study.

Figure 6.1: Potential determinants of auditor choice



[103] This classification, also used by Beattie and Fearnley (1995) and Woo and Koh (2001), is justified on the grounds that it is difficult to classify the variables based on underlying theories, since (i) the theory of auditor choice is incomplete, (ii) it is recognised that these theories are overlapping with one another (Wallace, 1984), and (iii) there are several variables known to be omitted.

The purpose of this chapter is to present the research framework of the present study and to develop hypotheses to assist the model testing. The next section presents an overview of generic model building issues. Section 6.3 discusses the broad research design issues related to an auditor choice model. Hypotheses development follows in section 6.4, with formal hypotheses being presented in section 6.5. Finally, the chapter summary is presented in section 6.6.

6.2 Generic model building issues

One aim of the present study is to produce a more comprehensive model of auditor choice (change and new auditor selection) than has heretofore existed. Gujarati (1999, p. 406) lists five attributes that a model to be empirically tested should possess if it is to be considered good or appropriate.

The first attribute is called 'parsimony', in which he asserts that a model can never completely capture reality due to the inevitable degree of abstraction or simplification in model building, it should be kept as simple as possible. This approach is based on Occam's razor[104] or the principle of parsimony.

The next attribute is 'identifiability', this means that for a given set of data, the estimated parameters must have unique values or, what amounts to the same thing, there is only one estimate per parameter.

Further, as a basic thrust of regression analysis is to explain as much of the variation in the dependent variable by explanatory variables included in the model. A model must exhibit acceptable level of 'goodness of fit' which normally is based on high adjusted R^2.

[104] Named after William of Occam. Given a choice between two explanations, choose the simplest, i.e. the explanation which requires the fewest assumptions.

It is important that in constructing a model we should have some theoretical underpinning to it. As such, Gujarati (1999) states that 'measurement without theory often can lead to very disappointing results'. A model will not be judged good if one or more coefficients have a sign that is contrary to theoretical expectation or it other word it does not has the attribute of 'theoretical consistency', even when the R^2 of the model is high. However, Ghauri *et al.* (1995) state that a 'research before theory' strategy is also possible although there should be a reason for choosing such an approach.

Finally, a good model should posses 'predictive power'. One should choose the model whose theoretical predictions are borne out by actual experience. Milton Friedman, as quoted by Gujarati (1999), notes that 'the only relevant test of the validity of a hypothesis is comparison of its prediction with experience'.

6.3 Broad research design and issues

Five specific issues relating to the specification of the auditor choice model are identified and considered in this section.

6.3.1 Measurement issue: levels and changes

Francis and Wilson (1988), discussing the use of '*level*' and '*change*' measurements of agency costs variables, state that if 'changes' in agency costs are insufficient, in themselves, to motivate a costly auditor change, then it is still possible that the existing '*level*' of agency costs could be an important factor in the choice of the new auditor, given that a decision to change has been made for other reasons (e.g. need for additional services or information suppression purposes). For example, a change in internal corporate governance may be sufficient in itself to trigger auditor change. Alternatively, should company management decide to change auditor as a result of an unfavourable audit opinion, the level of internal corporate governance may influence

the quality of new auditor selected. Given this argument, the present study will, where possible, investigate both '*level*' and '*change*' measurements.

6.3.2 Measurement issue: ex-post and ex-ante

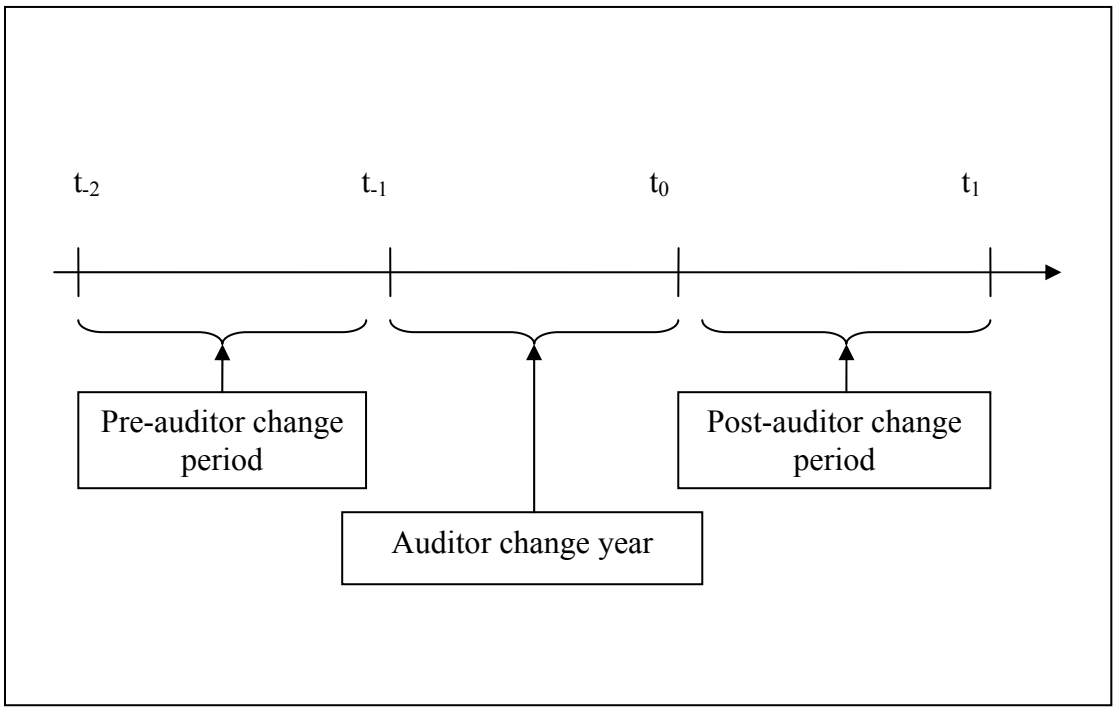
Prior studies commonly assume that the auditor choice event is ex-post to the underlying condition that triggers auditor changes. However DeFond (1992), in his study on the association between changes in company agency costs and auditor change, argues that managers may also change auditors in anticipation of some agency conflict changes. He also hypothesised that a company might change auditor in response to a future predicted event. Similarly, Johnson and Lys (1990) also consider in their univariate test that managers may change auditors in anticipation of changes in the firms' operations and activities. In particular, variables such as future share issues and financing needs have been included by several studies. To investigate whether auditor change and new auditor selection are ex-post or ex-ante events, the following approach has been taken in the present study. First, a model which focuses on the ex-post argument is developed. With the exception of the new financing, audit fee and NAS variables, other variables were measured in the year *before* the auditor change year (see section 7.3 for more details). Secondly, an ex-ante model was estimated, in which, the independent variables were measured in the year *after* auditor change. Finally, analyses were also carried out by including the independent variables over the period immediately before and after the auditor change. To facilitate discussion, this latter model is referred to as the 'contemporaneous model'.

6.3.3 Period of measurement

In annual reports, the actual date of auditor change is rarely disclosed. As outlined in Chapter 3, this thesis observed the discontinuity of auditor in office as a way to identify auditor change. Except in the case of audit firm merger or name changes, whenever the

auditor that signed the auditor report was different from the previous year, the company was classified as having changed its auditor. Unless the document that was filed with Companies House is accessed, the actual date remains unknown. However, it is certain that the company has changed its auditor somewhere between the two fiscal year ends. Figure 6.2 describes the timeline and the annotation used in the present study.

Figure 6.2: Auditor change timeline



As outlined in sub-section 6.3.2 analyses were carried out to estimate the ex-post, contemporaneous and ex-ante models. Analyses were carried out by measuring the control variables stretching from year t_{-2} to t_{-1} for the ex-post model, from t_{-1} to t_0 for the contemporaneous and from the year t_0 to t_1.for the ex-ante model.

6.3.4 Non-linear relationship

There is a possibility that the association between the independent variable and dependent variable is not linear. As the auditor change is costly, it is expected that a company will only change its auditor if it has experienced '*major*' change in the independent variable. Thus, it is expected that a *major* change in continuous

independent variables, rather than a mere change, would exhibit a stronger association with the auditor choice variables. Such non-linear associations have been pointed out by Demsetz (1983) and Fama and Jensen (1983) with regard to manager ownership. They proposed that high levels of manager ownership can lead to management 'entrenchment' because control challenges are difficult to mount by non-manager shareholders. Following this line of reasoning, Francis and Wilson (1988) tested the management ownership variable using a dichotomous variable as well as the more prevalent continuous measure.

6.3.5 Interaction between variables

Auditor changes are likely to be induced by combinations of factors. Haskins and Williams (1990) assert that no single factor or single array of organisational or environmental factors exists that represents an optimal inducement for all companies to make a certain strategic choice, such as an auditor change strategy. For instance, Hudaib and Cooke (2005) found that the probability of auditor change is most likely when a company is in financial distress, changes its managing directors and has a qualified opinion.

6.4 Hypotheses

In this section, specific hypotheses for each of the possible determinants of auditor choice are developed for the auditor change and new auditor selection models.

6.4.1 Auditee characteristics

6.4.1.1 Audit committee independence (*nedac*)

According to Abbott *et al.* (2003), independent audit committee directors possess a two-factor audit quality demand function, namely: (i) reputational capital enhancement

or preservation and, (ii) director liability concern.[105] Under the reputational capital enhancement or preservation function, it is argued that non-executive directors (NEDs) are concerned about reputation losses arising from financial misstatements. Fama and Jensen (1983) suggest that outside audit committee directors may view the directorate as a means of enhancing their reputation as experts in decision controls. However, despite the fact that their service on an audit committee may enhance their reputation capital, it may also exacerbate the reputation damage should a financial misstatement occur (Abbott *et al.,* 2003). Thus, under director liability concern, audit committees demand a higher quality auditor as a way to avoid the financial liability which may result from lawsuits. As discussed in chapter 5, the demand for external auditor services is derived as a means to monitor the agent's actions and also to provide investors with a form of insurance. Given that audit quality is defined as the joint probability of the auditor detecting and reporting a material financial misstatement (DeAngelo, 1981), Abbott *et al.* (2003) assert that it is reasonable to expect that independent audit committees prefer a higher level of audit quality.

Also, as discussed in chapter 5, the incidence of auditor change is very small and whenever auditor change is announced, the market will react to that change. However, whether the market will react negatively or positively is subject to investors' interpretation. In the UK, the reasons for auditor change are not fully disclosed, and therefore, investors' reaction is more difficult to predict. Given that non-executive directors are not involved in the company's operation on a daily basis, it is reasonable for them to treat any attempt to change auditor suspiciously. Moreover, Reinstein *et al.* (1984) (quoted by Abbott *et al.,* 2003), assert that, in cases of financial misstatement, outside directors who are not on the audit committee can potentially subrogate their director liability to audit committee members by asserting reliance on the audit

[105] That is their concern over the possibility of being sued.

committee for issues such as the adequacy of the company's financial reporting and the relationship with its external auditor.[106]

Abbott and Parker (2000), in a study of auditor selection (non-change), found that companies with audit committees composed entirely of outside directors and that met at least twice a year were more likely to use industry specialist external auditors. Similarly, Archambeault and DeZoort (2001) found that companies with suspicious auditor switches had a smaller percentage of independent directors on the audit committee than did companies without suspicious auditor switches. Carcello and Neal (2003) also report that the likelihood that the client dismisses its auditor following the receipt of a going concern report is higher if the audit committee has fewer independent directors. Thus, the evidence suggests that independent audit committees can provide a measure of protection for incumbent auditors when the auditor-management relationship is under stress.

In light of the above evidence, it is expected that a higher level of audit committee independence will be associated with reduced likelihood of auditor change. For situations in which change has occurred, it is expected that the level of audit committee independence will be positively related to the choice of a higher quality auditor.[107, 108]

[106] Sahlman (1990) notes that, even if audit committee directors are covered by insurance or indemnification, they still face the time costs of mounting a defence.

[107] Under the substitution hypothesis, it is expected that effective alternative corporate governance mechanisms are associated with the lower quality auditor choice. However, given the lack of empirical support (e.g. O'Keefe *et al.,* 1994; Stein *et al.,* 1994 and Ettredge *et al.,* 2000), this hypothesis will not be considered formally.

[108] The contingent nature of the latter argument may also lead to a secondary effect on auditor change likelihood; i.e. if a company currently has a lower quality auditor then it is more likely to change auditor than one which already has a high quality auditor. The relative importance of this secondary effect, however, is not clear.

6.4.1.2 Board independence (*nedbod*)

The distribution of power among corporate managers, shareholders and directors is set when shareholders nominate a board of directors to represent and protect their interest (O'Neill *et al.,* 1998). A major role of a company board is its control function (Pound, 1995), which includes monitoring top management actions to ensure that executives fulfil their responsibilities to the company (Fama, 1980; Fama and Jensen, 1983).

It is believed that the effectiveness of the board in monitoring the decisions of managers is often associated with its composition. Board composition refers to the distribution of members according to their primary allegiance, which may be either to the shareholders (outside) or to the managers (inside). Outside directors generally are viewed as professional referees who unbiasedly protect the shareholders' interests (Agrawal and Knoeber, 1996),[109] helping to prevent or detect any management opportunistic behaviour (Fama and Jensen, 1983). NEDs who are independent from management could limit the opportunity of the board to become 'an instrument of top management' by serving to limit top management's discretionary decisions (Beasley and Petroni, 2001). Thus, the larger the proportion of independent NEDs on the board, the more effective it will be in monitoring managerial opportunism (Leftwich *et al.,* 1981; Fama and Jensen, 1983).

Empirical studies (e.g. Beasley, 1996; Dechow *et al.*, 1996) have shown that when boards of directors are more independent, they tend to act in the best interests of shareholders. Beasley (1996) finds that the likelihood that a company experiences management fraud decreases if it has a larger percentage of NEDs on the board, while Pincus *et al.* (1989) find a direct relationship between the proportion of NEDs and the voluntary existence of audit committees.

[109] An important assumption underlying the governance literature is that an inside or executive director may not defend the same value-creation strategy as an outside or independent director.

Prior research has argued that non-executive directors have the same objective as independent auditors in identifying and rectifying reporting errors (deliberately or otherwise) made by managers (O'Sullivan, 2000). NEDs are expected to place a greater emphasis (than executive directors) on the extent and quality of the audit rather than on its cost, thereby seeking to reduce informational asymmetries between themselves and inside (executive) directors (Beasley and Petroni, 2001). The presence of NEDs is expected to increase auditor independence since the external auditor is able to discuss matters arising from the audit process with non-executive directors free from managerial influence. The development of audit committees has further enhanced the role of NEDs in this respect, and audit committee composition may now be a more useful corporate governance indicator.

Two studies considered the relationship between board characteristics and audit quality during the period when the role of the audit committee was not well developed. O'Sullivan (2000) examines the impact of board composition and ownership in the UK prior to the adoption of the Cadbury Report and finds that the proportion of non-executive directors has a significant positive impact on audit fee (his proxy for audit quality). Beasley and Petroni (2001) find that the likelihood of employing a higher quality (i.e. industry-specialist) auditor increases for firms having a greater proportion of NEDs on the board.

In light of the above arguments, it is expected that, in the event of auditor change, companies with a greater proportion of NEDs on the board would select a higher quality auditor as replacement. Board characteristics have not been included previously in studies of auditor change. However, arguments similar to those presented above for audit committee composition relate to (i) reputational capital enhancement or preservation and, (ii) director liability concern propositions raised by Abbott *et al.*

(2003). These imply that the proportion of NEDs on the board is likely to be negatively associated with the probability of auditor change.

6.4.1.3 The existence of a dominant personality (*dual*)

Besides the composition of outside directors on the board, the separation of the roles of the chairman of the board and the chief executive officer (CEO) can also affect the independence of the board. Jensen (1993) states that the functions of the chairman of the board are to run the board meetings and oversee the process of hiring, firing, evaluating and compensating the CEO. Both the Cadbury Report (1992) and the Combined Code (2003) suggest that the roles of the chairman and CEO should be separated. A separate chairman, who is more likely to monitor the interests of the shareholders, can countervail CEO power. Whenever the same person acts as both chairman and CEO (i.e. duality), the CEO will have greater stature and political influence over board members and this has the potential to undermine the independence of the board (Boyd, 1995; Jubb, 2000). As the duality implies influence by an insider on the board, then it can be expected that auditor change would be more likely in the presence of chairman and CEO duality than in its absence.

Information disclosure studies argue that a person who occupies both roles would tend to withhold unfavourable information to outsiders. For instance, Forker (1992) asserts that a dominant personality in a dual role poses a threat to monitoring quality and is detrimental to the quality of disclosure. The study found a significant negative relationship between the existence of a dominant personality and the quality of share option disclosure. Ho and Wong (2001) in studying the relationship between corporate governance and the extent of voluntary disclosure also find a negative but insignificant relationship. In cases where dual roles are performed, it can be argued that there is a need for a more independent auditor as a way to monitor the CEO. However, empirical

evidence is not clear-cut. O'Sullivan (1999), when examining the effect of duality on audit quality choice, found no significant relationship between the two.

In light of the above discussion, it is expected that the presence of a dual chairman/CEO is positively associated with the propensity to change auditor. Further, as duality decreases the level of a board's independence, it is expected that the presence of dual chairman/CEO is negatively associated with higher quality new auditor selection.

6.4.1.4 Change in key management (*mgtchg*)

There is a tendency for new management to change auditor. Schwartz and Menon (1985) assert that the '...discontinuity in management may bring about alterations or breaks in existing corporate relationship'. Survey studies by Burton and Roberts (1967), Carpenter and Strawser (1971) and Beattie and Fearnley (1995) show that changes in management lead to auditor changes because new management attempts to disassociate themselves from previous relationships and prefers to deal with familiar parties. There is a possibility that the new management may be dissatisfied with the quality of past services provided by the auditor. Agency theory views the relationship between auditor and client to be a nexus of contracts and a change in the principal-agent contract, as a result of the appointment of a new manager (agent), may precipitate a change in auditor (Williams, 1988). An incumbent auditor may be dismissed as he or she is viewed as closely associated with the former management. The new management could also request an auditor change because they would like to bring in an auditor with whom they are familiar. Additionally, there is also a possibility that the new management is dissatisfied with the audit cost. Woo and Koh (2001) found that director change is associated with a higher probability of auditor change. Chow and

Rice (1982), Schwartz and Menon (1985) and Williams (1988), however, did not find a significant association.

The signalling hypothesis argues that the choice of auditor is a means by which managers may impart to the market additional information about the company, as well as their own behaviour. This suggests that a new manager may signal to stakeholders that their interests are being well monitored by choosing a higher quality auditor as a replacement. However, there is also the possibility that the new manager may bring in a lower quality auditor, with whom he is more familiar. Given that this action might trigger stakeholders to question the auditor's quality and consequently the manager's motive, the new manager may be reluctant to choose this option. Empirically, Woo and Koh (2001) did not find an association between management change and higher quality auditor selection.

In light of the above discussion, it is expected that a change in senior management is likely to be positively associated with the propensity to change auditor and with the selection of a higher quality new auditor.

6.4.1.5 Management ownership (*dirown*)

The greater the ownership interest of managers, the more closely aligned their interests are with those of outside owners (DeFond, 1992) since managers bear a larger share of the costs of their actions, including the cost of their own consumption of perquisites (Jensen and Meckling, 1976). Event study evidence indicates that auditor change may signal unfavourable news to investors (Fried and Schiff, 1981; Eichenseher *et al.,* 1989; Albrecht, 1990). So, if managerial ownership is high, providing managers with incentives to act in accordance with investors' interests, one would expect that companies would be less likely to change auditor. However, an alternative positive relation is also possible. Agency theory suggests that companies in which there is a

greater separation of ownership from control have greater incentives to avoid signalling bad news (Watts and Zimmerman, 1983; Lennox, 2000). This implies that low managerial ownership firms are *less* likely to change auditor to avoid the bad news signal. Consequently, the relationship between audit change likelihood and managerial share ownership depends on the extent to which the shares encourage managers to behave in the interests of shareholders. As behavioural response is likely to vary between managers, it is not possible to identify the expected directional impact of managerial share ownership on audit change likelihood.

Francis and Wilson (1988) argue that, in the absence of management ownership, the inherent conflict of interests between principal and agent will lead the principal to lower the value of their initial investment and also to lower management compensation. As a means to increase their compensation, managers have an incentive to choose a higher quality auditor. An alternative argument is that the closer alignment of managers with shareholders in high managerial ownership firms requires less monitoring of managers (DeFond, 1992). Both arguments suggest that a negative relationship is expected between management share ownership and audit quality choice. They also suggest that auditor change is more likely when there is a *major change* in management share ownership.

6.4.1.6 Income manipulation opportunity (*incman*)

Healy (1985) and DeFond (1992) assert that short-term accruals (which include accounts receivable, accounts payable and inventory) are susceptible to misstatement. DeFond (1992) argues that compensation schemes attempts to reward managers based on their marginal product.[110] However, their marginal product is not perfectly observable and thus compensation is usually based upon some variable that is expected

[110] Marginal product is defined as the additional output as a result of increasing the input by one unit.

to correlate with marginal product, such as accounting income. As accounting income necessarily involves judgement and discretion, managers have an opportunity to manipulate this income (Healy, 1985). Further, even when compensation is not explicitly based upon income, DeFond (1992) asserts that it might be an implicit factor in determining annual rises and the manager's worth in the labour market. It follows that the larger the size of short term accruals the greater the demand for better monitoring. Therefore, it is expected that a *major change* in short-term accruals is associated with the probability that a company will change its auditor. Given that a change has occurred, it is expected that the level of short-term accruals is positively associated with the new auditor's quality (i.e. high accruals are more likely to lead to a higher quality auditor and vice-versa).

6.4.1.7 Leverage (*lev*)

The demand for a higher quality auditor by companies with high leverage can be explained from the agency cost point of view. Agency theory asserts that managers may transfer wealth from debtholders to shareholders unless certain restricting mechanisms, such as debt covenants, are in place (Jensen and Meckling, 1976). As the amount of debt increases, the potential amount of wealth transfer increases and creates a greater incentive for managers and owners to transfer wealth from the debtholder. A more independent auditor is therefore needed to increase the reliability of accounting information used to verify covenant compliance.

High levels of debt may also be associated with high levels of financial risk. For instance, DeFond *et al.* (1997) suggest that auditor resignations are partly motivated by increased auditor risk due to clients' weak financial condition (i.e. higher financial risk). Schwartz and Menon (1985), Mangold (1988) and Haskins and Williams (1990) found that financially troubled companies were more likely to change auditors than

non-distressed companies. The motivation for such a change could be a need for different services, an inability to pay audit fees or disagreements with the incumbent auditor over accounting policies or disclosures (Krishnan *et al*., 1996).

Thus, it is expected that a *major change* in the level of debt is associated with a higher probability of auditor change. Given that a change has occurred, it is expected that a high level of debt would lead to higher quality new auditor selection.

6.4.1.8 Client size (*size*)

Large clients are less likely to dismiss their auditors (Francis and Wilson, 1988; Haskins and Williams, 1990; Krishnan, 1994). This is because financial analysts and the financial press scrutinise large companies' auditor dismissals closely and this factor might prevent larger companies from changing auditor as frequently as smaller companies (Carcello and Neal, 2003). However, when the company has increased in size, this will lead to increased difficulty for owners to monitor managers' action as the principals and agents now become more remote. Consequently, the level of agency costs will also increase and the company may require a new (higher quality) auditor to provide better monitoring. Increased size is also related to high delegation of duties which can be associated with 'loss of control' by the owner over employees' actions. In this situation, the company may engage a higher quality auditor as a way to diminish the possible 'loss of control'. Therefore, given that the auditor change is inevitable, a larger company is expected to engage a higher quality auditor. In light of the above argument, it is expected (i) that the probability of auditor change is less likely to be associated with large companies but is more likely to be associated with companies that experience a major size change; and (ii) given the change has occurred, the level of company size is positively related to new auditor quality level.

6.4.1.9 Complexity (*subs*)

Similar to size, the complexity of a company increases with the number of agency relationships. Companies with a large number of subsidiaries often have wider geographical dispersion as well as more industrial sectors (Woo and Koh, 2001). Thus, studies (e.g. Palmrose, 1984 and Woo and Koh, 2001) which used the number of subsidiaries as a surrogate for complexity argue that the principals of companies with large number of subsidiaries face greater problems in monitoring the actions of agents. Further, when a company experiences an increase in the number of subsidiaries, the level of agency costs will also increase. A change in the number of subsidiaries may also mean a change in the company's geographical dispersion and the number of industrial sectors in which it operates (Woo and Koh, 2001). These consequences may require a new auditor. It is hypothesised that a company that experiences a change in the number of subsidiaries is more likely to change its auditor than a company that does not experience any changes. Moreover, given that an auditor change has occurred, it is expected that a higher number of subsidiaries would be positively associated with higher quality new auditor selection.

6.4.1.10 Growth (*growth*)

According to Williams (1988), rapid growth can be viewed as a change in the client contracting environment and thus would result in a change in the principal/agent contract.[111] A new contractual agreement may need to be created since there is a possibility that the expanding company would bring new management or the company may need to hire more employees, which in turn will result in control becoming more remote. Thus, companies that are constantly acquiring subsidiaries or expanding into

[111] If the same proxy is used as for client size, the level of growth will be identical with a *change* in size. In the present study two different proxies are used: total assets and sales. However, this may still be of concern depending upon the level of multicollinearity between the variables; this issue is addressed later.

new markets would demand auditors who are more effective in providing the audit service. DeAngelo (1981b) contends that, as companies grow, they are more likely to switch auditor from a non-B8 to B8 auditor. Danos and Eichenseher (1986) found support for the assertion that growing clients switch to a B8 auditor. In addition, Woo and Koh (2001) found evidence that growing companies are less likely to switch from higher quality to lower quality auditors. Williams (1988), Krishnan *et al.* (1996), Archambeault and DeZoort (2001) and Hudaib and Cooke (2005), however, did not find any empirical support for an association between changes in client size and auditor change. Based on the above discussion, it is expected that a company that experiences growth is more likely to be associated with auditor change and it is also expected that the company will choose a higher quality auditor as a replacement.

6.4.1.11 New financing (*finance*)

When a company is making a new security issue or obtaining a new loan, it is vital for it to provide accurate and reliable financial information. The presence of a high quality auditor will help the company to indicate to potential stakeholders that their money will be well looked after. Carpenter and Strawser (1971) posit that companies may change auditor to increase the marketability of new securities. For clients that depend heavily on the capital markets for financing, auditor reputation is used as a way to signal company value and to minimise monitoring costs (Woo and Koh, 2001). The demand for auditor reputation is triggered by information asymmetry between investors (or potential investors) and the company and subsequently the need to signal that information.[112] An upgrade auditor change is argued to have signalling value regarding the firm and information about the firm *vis-à-vis* accounting data (Titman and Trueman, 1986). Monitoring by a reputable auditor improves potential investors' perceptions about the credibility of client disclosures and consequently lowers the cost of new

[112] A company has private information about its future prospects that is unavailable to investors (Woo and Koh, 2001).

capital (Healy and Lys, 1986; Francis and Wilson, 1988; Johnson and Lys, 1990). Generally, high quality auditors provide high quality independent audit, and as such the capital provider favours companies that have an external auditor from that group.

The empirical evidence for the importance of new financing is mixed. Chaney *et al*. (1997) found that new financing influenced the likelihood of auditor change but Williams (1988) and Woo and Koh (2001) did not. Johnson and Lys (1990) and DeFond (1992) found some evidence that new financing was associated with higher audit quality but others found no such relationship (Chow and Rice, 1982; Francis and Wilson, 1988; Krishnan *et al.,* 1996 and Woo and Koh, 2001).

Consistent with prior studies, it is expected that the probability that a company changes its auditor is associated with the presence of new financing. It is also expected that the company will engage a high quality auditor as a successor.

6.4.2 Audit characteristics

Audit characteristics include factors related to the audit of the individual company. These include audit fee, the demand for non-audit services, perceived auditor independence and audit opinion.

6.4.2.1 Audit fee (*fee*)

A company might change its auditor due the expensiveness of the audit fee. Audit fee was identified as one of the most important reasons influencing the decision to change auditor by Whisenant and Sankaraguruswamy (2001) as well the most frequently stated reason for consideration of auditor change (Beattie and Fearnley, 1995 and 1998).

A company might become unwilling to pay the increased level of audit fee charged by the current auditor and may switch to a new auditor in the hope of getting a lower fee.

The decision to change auditor as a way to save on audit fee can also be triggered by the practice of lowballing by audit firms. Evidence consistent with lowballing (or audit fee discounting) as a way to attract new clients has been reported by many studies (e.g. Craswell and Francis, 1999; Gregory and Collier, 1996) and provides further motivation for the company to change its auditor.

As the auditor change is costly, a fee-saving motivated company will only change its auditor if it reasonably certain that it could make a saving. Therefore, one might expect that companies will switch to an auditor that is expected to charge a lower fee. Given the large firm audit quality fee premium typically evidenced (e.g. Chan *et al.,* 1993, Pong and Whittington, 1994; Ezzamel *et al.,* 1996), this might be to a smaller (lower quality) audit firm. However, given the practice of lowballing associated with the ability of big firms to strategically provide discounts on initial engagement, a company might also be able to switch to a larger firm with a high audit quality reputation. A fee-saving motivated company, however, will not need to change auditor if the current auditor agrees to lower the fee. Beattie and Fearnley (1995) report that companies often reverse the initial decision to change auditor if the incumbent auditor offers a reduced audit fee.

The empirical evidence from archival studies does not provide clear support for the contention that companies change their auditor as a way to reduce audit fees. For example, Hudaib and Cooke (2005) found a significant positive relationship between the pre-change level of audit fee to total assets (i.e. audit expensiveness) and auditor change for the period 1987-1993 but not for 1994-2002 or overall.

Gregory and Collier (1996) found that audit fees reduced post-auditor change, based on 1991 data. However, for Singapore, Woo and Koh (2001) did not find a significant relationship. Similarly, earlier survey studies such as Addams and Davis (1994) and

Burton and Roberts (1967) did not find audit fees to be important determinants of auditor change. Burton and Roberts (1967) found that only one of the 83 cases mentioned the level of audit fees as a reason for switching auditors.

On balance, it is expected that: (i) the propensity to change auditor is positively associated with audit fee and (ii) it is also expected that audit fee is associated with the new auditor selection decision, but the directional relationship unclear.

6.4.2.2 Non-audit services from auditor (*nas*)

The demand for additional services was found by Burton and Roberts (1967) to be a primary reason for auditor changes among Fortune 500 clients that were included in their survey. Bedingfield and Loeb (1974) also report that companies over time might require to purchase NAS as a result of changes that take place within the organisation. Jubb (2000) asserts that the ability of the auditor to provide NAS is known to influence auditor choice. However, as not all auditors offer NAS, or are capable of offering a specific NAS, companies may need to change auditor in order to suit their current needs. Companies might also want to change their auditor given that they might get a cheaper overall fee as a result of 'knowledge spillover' or because they no longer need the NAS.

A further issue with NAS concerns the potential for NAS provision to taint the perception of auditor independence (Pany and Reckers, 1988; DeBerg *et al.*, 1991; Parkash and Venable, 1993; Wines, 1994). The latest accounting scandal of Enron may also indicate that the actual independence is also impaired (Co-ordinating Group on Audit and Accounting Issues, 2003). Over time there has been increasing pressure on companies to improve the perception of auditor independence by engaging separate auditors and consultants (see for example: Mitchell *et al.,* 1993). In the UK, a company is required to report the NAS fee paid to its auditor (only), so stakeholders (i.e.

academics, public and regulators) have used the level of NAS fee paid to the auditor and its relation with audit fees as indicators of perceived auditor independence (e.g. Wines, 1994). Company managers wishing to reduce the apparent lack of auditor independence have several options. They could decide to choose a new auditor (and keep the old auditor as consultant), choose a new consultant (and retain the present auditor) or possibly choose new auditor and consultant. As long as managers are happy with the audit firm's service provision, they may prefer to retain the auditor in the 'value creation' consultancy role rather than the regulatory 'drain on resources' audit role (as auditors are sometimes viewed). However, as long as auditor and consultant differ, all three options will lead to a lower reported NAS fee and reduce the apparent threat to the perception of auditor independence.

The few empirical studies that have examined the relationship between the provision of NAS and auditor change, especially prior to the passing of the Sarbanes-Oxley Act, have not documented any significant association. For example, DeBerg *et al.* (1991) investigating the effects of NAS provision on the auditor-client relationship, find that the decision to change auditors and NAS provision are unrelated, mitigating concerns that auditors may attempt to retain high NAS clients by compromising their independence. They also find that clients are more likely to purchase a lower proportion of NAS from the new auditors following a change, suggesting that this could be driven either by a desire to reduce total professional fees or by a reluctance to purchase NAS from the new auditors until a relationship is established.

Thus, if companies are concerned about auditor independence perception *and* if, on average, they prefer to change auditor (rather than consultant), then auditor change will be associated with a *reduction* in auditor NAS fees. Further, those companies that are concerned by the apparent lack of independence (so take steps to reduce auditor NAS fees) are perhaps also more likely to choose a high quality new auditor.

6.4.2.3 Auditor independence (*nasaudfee*)

The pressure to respond to apparent impairment of auditor independence as a result of auditor provision of NAS is likely to be higher for companies that use the auditor heavily to provide NAS. Thus, the likelihood of auditor change is expected to be higher for companies with a high level of NAS provided by the auditor relative to the audit fee. Further, in light of the implied governance criticism, it can also be argued that such a company is likely to choose a high quality auditor, should it decide to change auditor.

6.4.2.4 Audit opinion (*opinion*)

According to Williams (1988), managers might seek a new auditor whenever they perceive that their reputation is being tarnished. The receipt of a qualified audit opinion has been stated as one of the factors that might damage managers' reputations.[113] Shareholders will lose confidence in the existing managers and might attempt to change the management team. Management, as the party responsible for preparing the financial statements, will have an incentive to change auditor if the financial statements had been qualified previously, in the hope of obtaining a clean audit opinion. On the other hand, management may seek to replace their auditors in an attempt to renew the principals' (i.e. shareholders') faith in the financial reporting system, as well as to install a better monitoring system. McLelland and Giroux (2000) assert that a qualified audit opinion is 'bad news' since it signals that the financial statements do not comply with accepted accounting standards. Qualified opinions are also perceived to have a negative effect on companies' share price (Chow and Rice, 1982). Studies also assert that audit qualifications can affect a company's ability to get new financing (e.g. Schwartz and Menon, 1985).

[113] The disclosure of an illegal act, fraud or misleading financial information and poor performance are other factors.

Several empirical studies of 'opinion shopping' have found a significant positive association between qualified opinions and subsequent auditor switching (e.g. Chow and Rice, 1982; Robert *et al.*, 1990; Craswell, 1988; Gul *et al.*, 1992). However, others were unable to find evidence that qualifications were associated with auditor displacements (e.g. Schwartz and Menon, 1985; Smith, 1986; Williams, 1988). More recent evidence from the UK suggests that companies in receipt of qualified audit opinions *are* more likely to change auditor (Lennox, 2000; Hudaib and Cooke, 2005).

Following this discussion, it is expected that: (i) the propensity to change auditor is positively associated with the receipt of a qualified opinion; and (ii) management will switch to a lower quality auditor with whom they will have more bargaining power.

6.4.3 Auditor characteristics

6.4.3.1 Brand name auditor (*big5*)

Studies have suggested that companies demand a certain level of audit quality which depends on how closely management and owners' interests are aligned (Francis and Wilson, 1988; DeFond, 1992; Woo and Koh, 2001). Haskins and Williams (1990) assert that, as auditors specialise in the level of audit quality provided to clients, a change in the demand for a particular level of audit quality will lead to a change in auditor. Survey studies also report that companies are likely to change auditor when they are dissatisfied with audit quality (Beattie and Fearnley, 1995).

Audit quality, however, is not directly observable (Dopuch and Simunic, 1982) and studies use surrogates to differentiate between high quality audit and low quality audit. Auditor brand name is one of the proxies that has been used to measure audit quality (DeAngelo 1981). DeAngelo (1981) asserts that large audit firms have more resources to provide a certain level of service and reduced incentive to lower audit quality

opportunistically to retain any single client. Krishnan *et al.* (1996), Woo and Koh (2001) and Hudaib and Cooke (2005), for instance, found that companies with B6 auditors were less likely to switch auditor. Following the above discussion, it is expected that a company having a B5/4 auditor will be less likely to change its auditor.

6.4.3.2 Industry specialist auditor (*spec*)

An alternative proxy for audit quality is auditor specialism in a client's industry. Shockley and Holt (1983) show that industry specialism was the main criteria considered by buyers when purchasing big firms' audit services. A specialist auditor has the ability to offer a higher level of assurance than does a non-specialist (Beasley and Petroni, 2001). Owhoso *et al.* (2002) report that industry specialist auditors are better able to detect errors within the industry than in other industries. Recent evidence suggests that the clients of specialist auditors are less likely to be associated with regulator enforcement actions (Carcello and Nagy, 2002) and are more accurate in future cash flow prediction (Gramling *et al.,* 2001).

The empirical evidence suggests that a company is less likely to dismiss an industry specialist auditor (Haskins and Williams, 1990; Williams, 1988) even after the receipt of a going-concern qualified audit report (Carcello and Neal, 2003).

Given the superior performance of industry specialist auditors and prior research evidence, it is expected that a company that has an industry specialist auditor is less likely to switch auditor.

6.5 Formal hypotheses

This section outlines the formal hypotheses to be tested in the auditor change and new auditor selection studies. Whenever there is a clear expectation on the relationship

between dependent and independent variables, the expected direction is stated. For simplicity, due to the fact that the same variable with different measures (i.e. level, change and major change) can have different impact on auditor choice, no particular direction is stated for some variables.

The hypotheses are as follows:

$H1_{change}$: Audit committee independence is negatively associated with auditor change.

$H1_{select}$: Audit committee independence is positively associated with higher quality new auditor selection.

$H2_{change}$: Board of directors' independence is negatively associated with auditor change.

$H2_{select}$: Board of directors' independence is positively associated with higher quality new auditor selection.

$H3_{change}$: The presence of a dual chairman/CEO is positively associated with auditor change

$H3_{select}$: The presence of dual chairman/CEO is negatively associated with higher quality new auditor selection.

$H4_{change}$: Change in management is positively associated with auditor change.

$H4_{select}$: Change in management is positively associated with higher quality new auditor selection.

$H5_{change}$: Change in management ownership is positively associated with auditor change.

$H5_{select}$: Management ownership is negatively associated with higher quality new auditor selection.

$H6_{change}$: Change in income manipulation opportunities is positively associated with auditor change.

$H6_{select}$: Income manipulation opportunity is positively associated with higher quality new auditor selection.

$H7_{change}$: Change in leverage is positively associated with auditor change.

$H7_{select}$: Leverage is positively associated with higher quality new auditor selection.

$H8_{change}$: Major change in client size is positively associated with auditor change.

$H8_{select}$: Client size is positively associated with higher quality new auditor selection.

$H9_{change}$: Change in complexity is positively associated with auditor change.

$H9_{select}$: Complexity is positively associated with higher quality new auditor selection.

$H10_{change}$: Growing company is positively associated with auditor change.

$H10_{select}$: Growing company is positively associated with higher quality new auditor selection.

$H11_{change}$: Company seeking new financing is positively associated with auditor change.

$H11_{select}$: Company seeking new financing is positively associated with higher quality new auditor selection.

$H12_{change}$: Audit fee is positively associated with auditor change.

$H12_{select}$: Audit fee is significantly associated with higher quality new auditor selection.

$H13_{change}$: NAS fee reduction is positively associated with auditor change.

$H13_{select}$: Company having NAS fee reduced is positively associated with higher quality new auditor selection

$H14_{change}$: Low auditor independence is positively associated with auditor change.

$H14_{select}$: Low auditor independence is positively associated with higher quality new auditor selection.

$H15_{change}$: Qualified audit opinion is positively associated with auditor change.

$H15_{select}$: Qualified audit opinion is negatively associated with higher quality new auditor selection.

$H16_{change}$: Company audited by brand name auditor is negatively associated with auditor change.

$H17_{change}$: Company audited by industry specialist auditor is negatively associated with auditor change.

6.6 Chapter summary

In this chapter, several model building and research design issues have been identified and the potential determinants of auditor choice were discussed. Grouped under three categories (auditee characteristics, audit characteristics and auditor characteristics), there are 17 and 15 variables to be tested in the auditor change and selection studies, respectively. Finally, formal hypotheses were developed. The next chapter addresses the research methods employed and discusses the model specification in detail.

Chapter 7: Research methods for auditor choice studies

7.1 Introduction

The main purpose of this thesis is to develop and test auditor change and new auditor selection models in the recent UK setting. Recognising that the independent variables that explain the auditor change decision are also likely to have explanatory power in a company's decision to select the new auditor, both models use essentially the same independent variables. The exceptions are the auditor characteristics variables, which become the dependent variables in new auditor selection models.

Given the limited theoretical basis and previous evidence, the present thesis adopts a broad approach by using different proxy measures of selected independent variables. Likewise, a number of proxy measures for the dependent variable were used in the new auditor selection study. As explained in chapter 6 (section 6.3.2), the decision to change auditor and to select a new auditor are potentially a function of past as well as expected future events. Given this, several independent variables are measured over different periods of time to capture 'past' and 'expected' events. Unlike previous studies that estimate only a few model variants, the use of many different measures in this thesis permits the identification of a 'best' model specification of auditor change and new auditor selection.

Two different regression analyses are undertaken. The first regression is used to estimate auditor change determinants. The second regression estimates the determinants of new auditor selection. Consistent with previous studies (e.g. DeFond, 1992), new auditor selection models were estimated to identify quality-differentiated auditor choice.

The chapter is organised as follows. The next section (section 7.2) specifies the auditor change models. Section 7.3 describes the measurement of the explanatory variables and data sources. Section 7.4 specifies the new auditor selection models. The sample selection process is then presented in section 7.5, followed by a chapter summary in section 7.6.

7.2 Specification of auditor change models

The dependent variable in the auditor change model is dichotomous, being coded '1' to represent auditor change cases and '0' to represent non-auditor change cases. Therefore, taking into account the explanatory variables discussed in chapter 6, the general form of the auditor change model is as follows:

P(audchg=1) = f(auditee characteristics, audit characteristics, auditor characteristics),

where *P(audchg=1)*, the estimated conditional probability of auditor change, is a function of auditee characteristics, audit characteristics and auditor characteristics. To estimate this model, logistic regression analysis is used since the binary nature of the dependent variable violates the assumption of Ordinary Least Squares (OLS) regression.[114]

[114] According to Menard (2002), in order to use the OLS method to estimate and make inferences about the coefficients in linear regression, a number of assumptions must first be satisfied. In terms of measurement, all independent variables need to be interval, ratio or dichotomous. The dependent variable must be continuous, unbounded and measured on an interval or ratio scale. This assumption, however, is violated when the dependent variable is in binary or dichotomous form. When a model with a binary dependent variable is estimated using OLS, several problems arise. First, the error term in the model does not follow the normal distribution, rather, it follows the binomial or probability. Second, the variance of the error is heteroscedastic, i.e. unequal variance. Third, there is no guarantee that the estimated dependent variable will lie between the limits of 0 and 1. Fourth, when OLS is used, it assumes that the rate of change of probability per unit change in the value of the explanatory variable is constant. In practice, this is unrealistic when the dependent variable is a binary variable. To overcome such issues, the use of logit model (and also probit model) is suggested.

There are three categories of auditor change model. The first is a set of *ex-post* models which estimate auditor change as a result of past events. The independent variables are measured based on the information prior to the auditor change date (i.e. at t_{-2} and t_{-1}, see section 6.3.3). The exceptions are the audit fee and non-audit services fee variables which are measured as a ratio from t_{-1} to t_0. New financing, given its nature as 'expected' event is excluded from the ex-post models. The second category is a set of *ex-ante* models which estimate auditor change as a decision in anticipation of future events. Theoretical arguments for this formulation justify the following variables to be measured as anticipated events (i.e. post auditor change): income manipulation, leverage, size, complexity, growth and new financing. Other variables were measured as in the *ex-post* model. These two types of models were also used by Johnson and Lys (1990) and DeFond (1992). The third category of models, described as '*contemporaneous*', seeks to capture the causal changes within the year of auditor change. In the contemporaneous models, income manipulation, leverage, size, complexity and growth were measured spanning the period t_{-1} to t_0; all other variables were measured as in the ex-post models.

Further, as suggested by Francis and Wilson (1988), the present study considers both '*level*' and '*change*' measurements for relevant variables: director ownership, income manipulation, leverage, size and complexity. The '*level*' variables were measured at a single point in time, as well as the average over two years. The '*change*' variables were measured as the relative change in particular variables over a one year period.

A particular level of, or small change in, a company's characteristics might not in itself be sufficient to drive a manager to change auditor. Given that it is costly to change auditor, it is quite likely that a manager might consider auditor change only if there has been a major change in company characteristics. To capture this possibility, dichotomous variables indicating the presence or absence of *major* change were also

included. Major change was defined as change amongst the top *or* bottom 10% of the entire sample. Perhaps surprisingly, such a measurement has rarely been used in the previous auditor choice models. To our knowledge, only Krishnan *et al.* (1996) have used it (for the growth variable which was set = 1 for top quartile growth).

7.3 Measurement of independent variables and data sources

This section discusses measurement of the independent variables identified in Chapter 6. The present study of auditor change and new auditor selection determinants uses a dataset generated from the one used in Part 1 of this thesis: the analysis of auditor concentration. Financial data are mainly drawn from Datastream and FAME, while information about corporate governance variables, change in management, management ownership, and number of subsidiaries were sourced from the PwC Corporate Register (PwC Corporate Register, 1998 - 2004) handbook. Information about the type of audit report was obtained from the FAME database and, if not available, was hand collected from the company annual report. The proxies for each explanatory variable are discussed in the following sub-sections.

7.3.1 Auditee characteristics

7.3.1.1 Audit committee independence (*nedac*)

Non-executive status was based on the reported information provided in the annual report. Following Archambeault and DeZoort (2001), the proportion of NEDs on the audit committee during the year preceding auditor change was used to proxy for audit committee independence.

7.3.1.2 Board of directors independence (*nedbod*)

The continuous measure of board independence is calculated as the proportion of NEDs on the BOD during the year preceding auditor change. The measure has been used in many studies concerning corporate governance such as O'Sullivan (2000) and Diacon *et al.* (2002).

7.3.1.3 Existence of dominant personalities (*dual*)

A binary variable is used to indicate companies where the same individual occupies the positions of company chairman and CEO/MD during the year preceding auditor change, consistent with prior studies (e.g. O'Sullivan, 1999).

7.3.1.4 Change in CEO/MD (*mgtchg*)

Following Woo and Koh (2001) and Hudaib and Cooke (2005) change in management composition is measured dichotomously by coding '1' if there is a change of CEO/MD during the year preceding auditor changes. Specifically, change of CEO/MD was identified by comparing the CEO/MD at t_{-2}. to t_{-1}

7.3.1.5 Directors' share ownership (*dirown*)

Directors' shareholding was measured as the percentage of ordinary shares owned by directors in the year preceding auditor change. It is the percentage of directors' shareholding at t_{-1}. Additionally, four other measurements were used. First, the percentage of directors' ownership was calculated as an average over the two year period preceding auditor change. Second, the change in directors' ownership from t_{-2} to t_{-1} was calculated. The third measure is a dichotomous variable to indicate if the change in directors' ownership over this period was significant or not, defined as changes that fall within the top 10% or the lowest 10% of all the sampled companies.

The fourth measure is described as an alternative proxy. As discussed in section 6.3.4, there is a likelihood of non-linearity in this variable in its association with the auditor choice decision due to management entrenchment. Based on Short and Keasey's (1999) finding, the variable was coded as '1' if the managerial ownership falls in the range of 12% to 40% in the year preceding auditor change and '0' otherwise.

7.3.1.6 Income manipulation (*incman*)

The relative size of short-term accruals was used as a surrogate for income manipulation opportunities. The variable is operationalised as the ratio of short-term accruals to total assets. Following Healy (1985) and DeFond (1992), short term accruals are measured as current assets plus current liabilities minus cash and short term loans. Different measures are applied in each of the ten different regression models, as explained in sub-section 7.3.4.

7.3.1.7 Leverage (*lev*)

A company's total debt to total assets (*levtdta*) is used as a leverage measure to proxy for credit stakeholder claims. The relative size of total debt was used by Eichenseher and Shields (1989), DeFond (1992) and Abbot and Parker (2000). Ten different measures are used.

As an alternative proxy to measure leverage and to follow Palmrose (1984) and Woo and Koh (2001), leverage was also measured as long-term debt to total assets. Ten different measures are used.

7.3.1.8 Client size (*size*)

Two proxies for client size are used. The main proxy is the natural log of total assets as used by many studies such as Palmrose (1984), Francis and Wilson (1988), Williams

(1988) and Eichenseher and Shields (1989). Ten different measurements were used. Alternatively, the natural log of the number of employees is used to proxy for company size, to investigate whether the size variable is sensitive to the proxy used. Ten different measures are used.

7.3.1.9 Complexity (*lnsub*)

The natural log of the number of principal subsidiaries is included in the model to capture company complexity, as used in previous studies, such as Palmrose (1984) and Woo and Koh (2001). Ten different measures are used.

7.3.1.10 Growth (*growth*)

There are two proxies for company growth. First, the growth variable is operationalised as the change in sales during the year preceding auditor change (*growth_b1*) and second, as the change in sales during the year after auditor change (*growth_a0*). The first proxy is used in the ex-post model and the second proxy is used in the contemporaneous and ex-ante models.

7.3.1.11 New financing (*finance*)

New financing activities are measured as the ratio of the net proceeds of publicly issued shares and debt in the year after auditor change, scaled by the book value of assets.

7.3.2 Audit characteristics

7.3.2.1 Audit fee (*fee*)

Audit fee is measured as the ratio of the preceding year's to the auditor-change year's audit fee (*feeb1to0*), with a ratio > 1 indicating a reduction in audit fee; the measurement is consistent with Woo and Koh (2001) and others.

7.3.2.2 Non-audit services (*nas*)

Consistent with the audit fee measure, the non-audit services (NAS) variable is operationalised as the ratio of the reported value of NAS fees paid to the auditor during the year preceding auditor change to the reported value of NAS fees during the auditor change year (*nasb1to0*). A positive value indicates a reduction in reported NAS.

7.3.2.3 Auditor independence (*nasaudfee*)

It is widely viewed that the provision of NAS by their auditor could affect audit independence (Co-ordinating Group on Audit and Accounting Issues, 2003). For the purpose of this study, auditor independence is proxied by the ratio of non-audit services fee paid to the auditor to the total audit fee during the year preceding auditor change.

7.3.2.4 Audit opinion (*opinion*)

The audit opinion for the year preceding auditor change is classified as either qualified or unqualified, taking the value of '1' and '0', respectively.

7.3.3 Auditor characteristics

7.3.3.1 Brand name auditor (*big5* or *tier12*)

As discussed in Part 1, the B4 refers to PwC, KMPG, Ernst & Young and Deloitte & Touche. For the period prior to Andersen's demise, it was also included Andersen (i.e. B5). If the company had a B5/4 auditor during the year preceding auditor change, the variable was coded as '1' and '0' otherwise.

As an alternative measure, the 'tier12' variable was coded '1' if the auditor belonged to either the B5/4 or the second tier (BDO and Grant Thornton).

7.3.3.2 Industry specialist auditor (*spec*)

There is no real consensus on how 'best' to define an industry specialist and several definitions have been used in prior research. Thus, several alternative proxies were adopted in the present study. This enabled an assessment of the sensitivity of the results to the proxy used.

The main proxy for specialist auditor is based on an auditor's market share in the client's industry and requires an industry specialist auditor to have 30% or more audit fee industry market share (*spec_30fee*). The decision to use a minimum 30% cut-off for specialisation was to ensure that only a 'reasonable' number of firms can be regarded as industry specialists with a distinctive industry market share. This is also consistent with Palmrose (1986), who designated audit firms as industry specialist if they serviced a market share 20% greater than an evenly distributed market amongst the major firms. In the present study, there are four major audit firms (or five before Andersen's demise) so in an equally distributed market each firm would hold a market share of 25%. Applying Palmrose's (1986) threshold, a minimum 30% (i.e. 25% *

1.20) is required before a firm can be regarded as an industry specialist. This variable is assigned the binary value '1' if the company is audited by an industry specialist (in the year preceding auditor change), or '0' otherwise.

As alternative measures and to follow Palmrose (1986), Mayhew and Wilkins (2002) and Balsam *et al.* (2003), companies were also regarded as having specialist auditors if they were audited by:

a. the largest auditor (based on audit fee) with at least 10% larger market share than the second largest (*spec_topfee*).
b. the auditor with the greatest number of clients in the industry (*spec_large*).

In addition to the above definitions, and to follow Balsam *et al.* (2003), auditor industry specialist was also based on the following continuous measures:

a. relative audit fee market share in the industry (*spec_msfee*).
b. relative number of audits market share in the industry (*spec_msclient*).

A summary of the industry specialist proxies is shown in Table 7.1.

Table 7.1: Proxies for industry specialist variable

Variable measurement	Descriptions	References
Dichotomous measure of industry specialist	a. Auditor with at least 30% market share in industry, based on fee (*spec_30fee*) b. Largest auditor (based on fee) with at least 10% different from the 2nd largest (*spec_topfee)*. c. Auditor with greatest number of clients in the industry (*spec_large*).	Balsam *et al.* (2003) Mayhew & Wilkins (2002) Palmrose (1986),
Continuous measure of industry specialist	a. Relative audit fee market share in industry (*spec_msfee*), computed as: Auditor's audit fee in client's industry divide by total audit fee in client's industry b. Relative number of audits market share in industry (*spec_msclient*), computed as: Auditor's number of audits in client's industry divided by total number of audits in client's industry	Balsam *et al.* (2003)

7.3.4 Summary of independent variables

A summary of the main independent variables and their alternative proxies is presented in Table 7.2.

Table 7.2: Summary of main independent variables and alternative proxies

Variables	Label	Description	Main Sources
Audit committee independence	*nedac*	A proxy for audit committee independence as measured by the percentage of non-executive directors on audit committee.	PwC Corporate Register Annual reports
Board of directors independence	*nedbod*	A proxy for BODs independence as measured by the percentage of non-executive directors on BODs.	PwC Corporate Register Annual reports
Chairman/CEO duality	*dual*	Equals '1' if the chairman is also the MD/CEO during the year preceding auditor change or '0' otherwise.	PwC Corporate Register Annual reports
Change in key management	*mgtchg*	Equals '1' if the company changed managing director or CEO during the year preceding auditor change or ' 0' otherwise.	PwC Corporate Register Annual reports
Directors' ownership	*dirown*	Percentage of shares owned by directors during the year preceding auditor change.	PwC Corporate Register Annual reports
	dirown_sk	Equals '1' the managerial ownership falls in the range of 12% to 40% in the year preceding auditor change or '0' otherwise.	
Accrual	*incman*	Short term accruals/ total assets at $year_{t-1}$	Datastream FAME
Leverage	*levtdta*	Total debt/ Total assets at $year_{t-1}$	Datastream FAME
	lev	Long term debt/Total assets at $year_{t-1}$	
Size	*sizeasset*	Natural log of total assets	Datastream FAME
	sizeempl	Natural log of number of employees	
Complexity	*lnsubs*	Natural log of number of subsidiaries	SEYB
Growth	*growth*	Change in sales.	Datastream
New financing	*finance*	The ratio of the net cash receipt and disbursements resulting from reduction and/or increase in long or short term debt, proceeds from sales of share, share repurchased/redeemed/ retired/dividend paid and other financing activities divided by the value of total assets at t_0.	Datastream
Audit fee	*feeb1o0*	Preceding year's audit fee to auditor change year's audit fee	Datastream
Non-audit service	*nasb1to0*	Preceding year's non-audit fee to auditor change year's non-audit fee	FAME Annual reports
Auditor independence	*nasaudfee*	Ratio of non-audit services fee paid to the auditor to the total audit fee during the year preceding auditor change	FAME Datastream
Audit opinion	*opinion*	Equal '1' if the company received a qualified audit opinion during the year preceding auditor change or '0' otherwise.	FAME Annual reports
Brand name auditor	*big5*	Equals '1' if the company's auditor was the Big Five/ Four during the year preceding auditor change or ' 0' otherwise.	Part 1 of thesis
	tier12	Equals '1' if the company's auditor was one of the tier 1or tier 2 firms during the year preceding auditor change or ' 0' otherwise.	
Industry specialist		As stated in Table 7.1	Part 1 of thesis

As explained in section 7.3, the variables were measured at different points in time and over different periods of time. The notation shown in Table 7.3 was added to each variable for identification purposes. In this notation: ă = average; a = after; b = before; c = change; and sc = major change.

Table 7.3: Notation used to identify the time dimension of variable measurement

Label	Description
variable x_b1	variable x at t_{-1} (*year preceding auditor change year*)
variable x_ăb12	average of variable x for the two years (t_{-1} *and* t_{-2}) preceding auditor change year, computed as follows: $(x_{t-1} + x_{t-2})/2$
variable x_cb12	change in variable x at t-1, computed as follows: $(x_{t-1} - x_{t-2})/x_{t-2}$
variable x_scb12	Dichotomous variable to proxy for major change of variable x at t_{-1}. Equals '1' if the change in variable x was amongst the top *or* the bottom 10% of the entire sample. '0' otherwise.
variable x_a0	variable x at t_0 (*auditor change year*)
variable x_ăa01	average of variable x for the two years post auditor change (t_0 *and* t_1), computed as follows: $(x_{t0} + x_{t1})/2$
variable x_cb1a0	change in variable x at t_0, computed as follows: $(x_{t0} - x_{t-1})/x_{t-1}$
variable x_scb1a0	Dichotomous variable to proxy for major change in variable x at t_0. Equal '1' if the change of variable x was amongst the top *or* bottom 10% of the entire sample and '0' otherwise.
variable x_ca01	change in variable x at t_1, computed as follows: $(x_{t1} - x_{t0})/x_{t0}$
variable x_sca01	Dichotomous variable to proxy for major change in variable x at t_1. Equal '1' if the change of variable x was amongst the top *or* bottom 10% of the entire sample. '0' otherwise.

This results in ten auditor change models as set out in the following Table 7.4.

Table 7.4: Summary of models and measures of independent variable

	Ex-post models				Contemporaneous models		Ex-ante models			
Independent variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Audit committee independence (*nedac*)	b1	ăb12	b1	b1	b1	b1	b1	b1	b1	b1
Board independence (*nedbod*)	b1	ăb12	b1	b1	b1	b1	b1	b1	b1	b1
Chairman/CEO duality (*dual*)	As defined in Table 7.2									
Change in management (*mgtchg*)	As defined in Table 7.2									
Director ownership (*dirown*)	b1	ăb12	cb12	scb12	b1	b1	b1	b1	b1	b1
Income manipulation (*incman*)	b1	ăb12	cb12	scb12	cb1a0	scb1a0	a0	ăa01	ca01	sca01
Leverage (*lev*)	b1	ăb12	cb12	scb12	cb1a0	scb1a0	a0	ăa01	ca01	sca01
Client size (*size*)	b1	ăb12	cb12	scb12	cb1a0	scb1a0	a0	ăa01	ca01	sca01
Subsidiaries (*lnsub*)	b1	ăb12	cb12	scb12	cb1a0	scb1a0	a0	ăa01	ca01	sca01
Growth (*growth*)	b1	b1	b1	b1	a0	a0	a0	a0	a0	a0
New financing (*finance*)	n/a	n/a	n/a	n/a	As defined in Table 7.2					
Audit fee (*feeb1a0*)	As defined in Table 7.2									
Non-audit services (*nasb1a0*)	As defined in Table 7.2									
Auditor independence (*nasaudfee*)	As defined in Table 7.2									
Audit opinion (*opinion*)	As defined in Table 7.2									
Brand name auditor (*big5*)	As defined in Table 7.2									
Industry specialist (*spec*)	As defined in Table 7.2									

7.4 Specification of new auditor selection models

As discussed in section 5.4.2, the auditing literature has suggested that audit services are quality-differentiated. The most common audit quality definitions are based on brand name reputation and industry specialism. As postulated by the framework proposed by Healy and Lys (1986), Francis and Wilson (1988) and Johnson and Lys (1990), high quality auditors (i.e. B5/4 or industry specialist) are better able to provide specialised services at lower cost and have the reputation to signal better quality audit. This suggests that some auditor change factors do specify the direction of auditor change (Woo and Koh, 2001). Thus, the purpose of the new auditor selection models is to identify the selection of the incoming quality-differentiated auditor. Consistent with the auditor change models, separate models were used to capture level/change measurement.

7.4.1 New auditor selection model

The model of new auditor selection is specified as follows:

P(qualchg = i) = f(auditee characteristics, audit characteristics)

where *P*(*qualchg = i*) is the estimated conditional probability of quality-differentiated auditor change in ordered direction.

Most commonly, auditors are grouped based on their brand name reputation, i.e. B4 or non-B4. The Big 5/4 is theorised as being of higher quality than the non-Big 5/4. Auditors have also been grouped based on their international operation to include both the first tier (Big 5/4) and second tier firms (BDO and Grant Thornton). To capture the quality-differentiated auditor change (*qualchg*), changes to a higher quality auditor (i.e. from non-B5/4 to B5/4 or from non-tier1/2 to tier 1/2) were coded '1'. The changes in the opposite direction, i.e. to lower quality auditor, were coded '0'. Par changes were excluded.

As discussed in section 7.3.3.2, some studies have also classified auditor quality based on industry specialisation. Auditors with industry specialisation are regarded as being of higher quality than non-specialists. The quality-differentiated change of industry specialists were coded either dichotomously or continuously. The *spec30fee, spec_topfee* and *spec_large* variables were coded '1' to reflect a change to a higher quality auditor (i.e. *from* non-specialist *to* specialist) and '0' for a change to a lower quality auditor. Thus, par changes were excluded. For the continuous variables, *spec_msfee* and *spec_msclient*, the difference between successor and predecessor's market share was computed. These measures seek to capture both the direction and the magnitude of change. The specifications of these dependent variables are summarised in Table 7.5.

Table 7.5: Summary of quality-differentiated auditor change dependent variables' (qualchg) measurements and coding

Dependent variable	Coding
Change in brand name reputation	
B5/4 classification *(*Big 5/4 refers to PwC, KMPG, EY and DT, prior to 2003 it also includes AA)	1 = Change from non-Big 5/4 to Big 5/4 0 = Change from Big 5/4 to non-Big 5/4 *or*
Alternative proxy: *Tier 1/2* *(*1st tier refers to Big 5/4; 2nd tier = BDO and GT, 3rd tier = other firms.)	1 = Change from non-tier1/2 firm to tier1/2 firm. 0 = Change from tier1/2 firm to non-tier1/2 firm
Change in industry specialist	
Specialist proxy (Based on five measures of industry specialism as defined in section 7.3.3.2)	1 = Change *from* non-specialist *to* specialist firm. 0 = Change *from* specialist *to* non-specialist firm *or* (for continuous specialist measures) The difference between predecessor auditor and successor auditor's market share (see Table 7.1)

7.5 Sample selection for regression analysis

This sub-section explains the sample selection process in general. A detailed description of how the sample was derived can be found in chapters 8 and 9.

7.5.1 Establishing the initial dataset

In Part 1 of the thesis a total of 464 companies were identified as voluntarily changing auditor during the six-year period 1998 to 2003. To estimate the auditor change regression models, a balanced number of companies that did not change their auditor were chosen as matching companies. To estimate the new auditor selection models, the sample comprised the auditor change cases only.

7.5.2 Decisions rules in sample selection

In particular, the companies were selected on the basis of the following criteria:

i. Changed auditor between 1998 and 2003. Although auditor changes include dismissals and resignations, the present study does not differentiate between the two. Moizer and Porter (2004, pp. 63-65) report that, out of 609 auditor changes, there were 294 (48%) auditor resignations, as evidenced by letters filed with the company registrar. However, the audit partners interviewed by them suggested that 'genuine mid-term resignations are very rare'. They explained that most resignations resulted from the practice of putting audits out to tender; i.e. the existing auditor 'resigns' when a new auditor is appointed. Such evidence casts serious doubt on the validity of categorising auditor changes based on resignation letters.

ii. Did not change auditor more than once during the period under study.

iii. Only non-financial companies were included. In line with a number of prior studies, financial companies were excluded because differences in the content and format of financial statements are likely to impact on accounting ratios.

iv. To meet data requirements, a company must have been in existence as a public listed company for at least two years prior and one year subsequent to the auditor change year. Companies that changed auditor in 1999 and 2003 were included if the companies were listed in 1997 or in 2004 respectively. The 1997 listing status of the companies changing auditor in 1999 was based on listing date information available in Datastream. For the 2003 auditor change companies, the 2004 listing status was based on the LSE's list of listed companies.

v. Data for all variables available.

Table 7.6 shows that applying these procedures resulted in a sample of 177 auditor change companies.

Table 7.6: Sample selection screen

Conditions applied	1999	2000	2001	2002	2003	Total
All auditor change sample	94	63	90	123	94	**464**
Financial companies	(14)	(11)	(17)	(27)	(20)	**(89)**
Companies with multiple auditor change	(8)	(7)	(7)	(10)	(9)	**(41)**
No. of companies lacking 4-year data requirements and missing data	(27)	(20)	(29)	(33)	(48)	**(157)**
Total usable auditor change sample	**45**	**25**	**37**	**53**[1]	**17**[2]	**177**

Note:

[1] *As a result of its demise in 2002, ex-Andersen clients were forced to change auditor. This 'merger' effect involved 13 companies that changed to firms other than Deloitte. In this particular dataset, 5 companies changed to PwC, 3 changed to KPMG and 2 to Ernst &Young. Three companies changed to Nexia, Robson Rhodes and Wilkin Kennedy, respectively. Meanwhile, only three companies changed away from Deloitte. Two companies changed to Baker Tilly and one company changed to Ernst &Young.*

[2] *At the time of data collection, complete 2004 information was not yet available. As a result, many companies that changed auditor in 2003 had to be excluded.*

7.5.3 Methods for selecting matching companies

In seeking to identify the company characteristics that are associated with auditor change it is necessary to make a comparison between companies that change auditor and those that do not (the control group). There are two alternatives for identifying control group companies. First, the set of all companies that have not changed auditor can be chosen. Second, a sub-sample of non-change companies which match the auditor change companies on various dimensions can be selected. An advantage of the latter option is that it can reduce any potential bias associated with the particular 'matched' dimensions. For example, it may be that companies in a particular industry are more (or less) likely to change auditor. If so, matching on the industry dimension would potentially control for this, as an equal number of auditor change and non-

change companies from each industry would be included in the sample. In the alternative 'all companies' control method it would be necessary to include 'industry' as a potential determinant of auditor change in the model estimation. However, the 'all companies' method has the advantage of potentially increased sample size for non-change companies and, therefore, also for overall sample size.

At a more technical level, there is some evidence to favour the matched company method. Stone and Rasp (1991) analysed the effect of the relative proportion of companies of interest (response group) and control group companies on tests of the overall model, and argue for the use of a balanced sample (i.e. equal numbers of response and control companies). Their simulations demonstrate that the empirical error rate for the chi^2 test of the overall logit model differs more significantly from the true error rate for disparate response/control group sample sizes. This is particularly important in small sample studies and is exacerbated if the predictor variables are skewed.

Both control group methods have been used in prior studies of auditor change. For example, Chow and Rice (1982), Williams (1988), Ritson *et al.* (1997) and Woo and Koh (2001) all adopted the matched company method while Krishnan *et al.* (1996) and, for the UK, Lennox (2000) and Hudaib and Cooke (2005) used the 'all companies' method. In the present study, the matched company control method was adopted.

A matching company was chosen from the set of listed companies in the year of auditor change subject to the following criteria. The company was required to be:

1. from the same market (i.e. main market or AIM)
2. from the same industry
3. of similar size (based on total assets); i.e. ideally within 30% of the size of the auditor change company

The matching process started by grouping the non-auditor change companies into the main market or AIM market and further, into specific industry groups (based on the 35 sectors identified in Part 1 of the thesis). A potential match for an auditor change company had to belong to the same market and sector. At this point, an auditor change company can match with more than one potential matching company. The final step was to refine the selection based on the size criterion, where the 30% lower and upper limits were used.

When a match on all three criteria was not possible, some of the selection criteria were relaxed. For instance, when a matching company from the same market (e.g. AIM with AIM) was not available, then a company from a different market (e.g. AIM with main market) was chosen. Table 7.7 summarises the percentage of matching companies that met each selection criterion.

Table 7.7: Matching statistics

Year	No. of companies	Market matched (%)	Industry matched (%)	Size matched (%)	All criteria matched (%)
1999	45	98	98	76	71
2000	25	100	100	72	72
2001	37	95	100	65	65
2002	53	100	100	66	66
2003	17	100	100	76	76
Total	**177**	**98**	**99**	**70**	**69**

7.6 Chapter summary

This chapter has outlined the research methods employed to estimate the auditor change and new auditor selection models. In particular, model specification, variable measurement and data sources were discussed. The process for selecting the sample of 177 auditor change companies and the matching company controls was outlined. The next chapter presents the results for the investigation of the determinants of auditor change.

Chapter 8: Results of auditor change study

8.1 Introduction

This chapter presents the results of the study of auditor change determinants in the UK. Specifically, this chapter seeks to provide answers to the following research question: To what extent do auditee characteristics, audit characteristics and auditor characteristics jointly determine a company's auditor change decision?

This chapter is organised as follows, section 8.2 presents a description of the sample and summary statistics. It is followed by the results of multivariate analysis in section 8.3, in which related diagnostics procedures and outcomes are also discussed. Section 8.4 summarises this chapter.

8.2 Sample description and sample statistics

The sample for the auditor change study is all the companies that changed auditor between the years 1999 to 2003 as explained in chapter 8. After the screening process, 177 auditor change companies were eligible to be included in the analysis. These companies were matched for the audit change year on stock market board, industry and size (on the basis of total assets in the year of auditor change) with a balanced number of companies that did not change auditor, resulting in a final sample of 354 companies. To confirm the acceptability of the matching process, tests for significant differences were performed on mean and median total assets. Table 8.1 summaries the results for total assets and also for sales which are included for comparison purposes.

As seen in Table 8.1, a four year period surrounding auditor change was included to identify any significant differences across time. Auditor change companies were found to be smaller than the matching companies. For the audit change year, mean (median) total assets for auditor change companies were 44% (24%) smaller than for non-auditor

change companies. While matching companies were generally chosen to be within ±30% of the auditor change companies, the closest match tended to be larger rather than smaller. Also for 52 companies size matches within the ±30% boundaries were not possible. In particular, the closest match for 28 companies were markedly (291%) higher, which accounts for the obtained difference in means. However, overall there is no significant difference statistically in terms of total assets and sales between the two groups in any of the four years. None of the p-values (two-tailed) of the t-test or the Wilcoxon Signed Rank test[115] was found to be significant, even at the 10% level. Thus, it can be said that in terms of size, the sample match is acceptable.

8.2.1 Summary statistics

Seventeen main variables were identified in chapter 7 (Table 7.2) as potential independent variables for the auditor change study. In addition, nine alternative proxies for four variables (i.e. leverage, size, brand name auditor and specialist auditor) are examined. Table 8.2 gives the descriptive statistics for variables measured as continuous metrics and Table 8.3 for dichotomous variables. In each table, summary statistics for the pooled sample, auditor change and matched companies are shown in separate columns. For all continuous measures, mean, median, minimum, maximum and standard deviation are shown. To assist discussion and to provide meaningful information, untransformed variables were used.

[115] Wilcoxon signed rank tests for the median difference in paired data to be zero. It consists of sorting the absolute values of the differences from smallest to largest, assigning ranks to the absolute values (rank 1 to the smallest, rank 2 to the next smallest, and so on) and then finding the sum of the ranks of the positive differences. If the null hypothesis is true, the sum of the ranks of the positive differences should be about the same as the sum of the ranks of the negative differences

Table 8.1: Sample description (auditor change companies vs. matching companies)

	Mean			Median			Auditor change vs. Matching			
							t-test		Wilcoxon signed ranks test	
Characteristics	**Full sample**	**Auditor change companies**	**Non-auditor change companies**	**Full sample**	**Auditor change companies**	**Non-auditor change companies**	**t-stat**	**p-value**	**z-stat**	**p-value**
asset-2 (£'000)	312,986	244,735	381,238	30,855	27,652	33,096	-1.39	0.165	-0.22	0.823
asset-1 (£'000)	336,510	260,983	412,037	35,457	27,348	37,428	-1.46	0.145	-0.07	0.948
asset0 (£'000)	341,962	280,041	403,882	34,631	30,761	38,208	-1.22	0.226	-0.04	0.964
asset1(£'000)	355,961	284,498	427,424	35,381	31,940	42,156	-1.38	0.170	-1.64	0.101
sales-2 (£'000)	303,369	248,543	358,196	33,268	31,360	37,154	-1.40	0.162	-1.03	0.302
sales-1 (£'000)	316,477	256,592	376,362	37,966	33,882	45,863	-1.47	0.144	-1.58	0.144
sales0 (£'000)	337,562	290,342	384,782	39,404	35,355	45,703	-1.05	0.296	-1.05	0.296
sales1 (£'000)	333,581	294,345	372,818	43,398	37,409	48,868	-0.92	0.360	-0.98	0.328

Notes: Two-tailed, **bold** = significant at 5% level, i*talic* =significant at 10% level.

For several 'change' variables, some observations were identified to have a value of infinity. These values were obtained in cases where the level in the 'base' period equalled '0'. To allow computation, all infinity values were winsorised to the next closest value. Ten variables, i.e. *lev_cb12* (15 cases), *lev_cb1a0* (21 cases), *lev_ca01* (14 cases), *levtdta_cb12* (12 cases), *levtdta_cb1a0* (11 cases), *levtdta_ca01* (15 cases), *lnsubs_cb12* (12 cases), *lnsubs_cb1a0* (10 cases), *lnsubs_ca01* (10 cases) and *growth_b1* (3 cases), were treated using this procedure.

Statistical tests were performed to identify significant differences across groups. The paired t-test assumes a normal distribution, while the Wilcoxon signed-ranked test does not require the normality assumption.

Table 8.2 first lists three corporate governance variables: audit committee independence (*nedac*), BOD independence (*nedbod*) and directors' ownership (*dirown*). The mean of *nedac* = 83% suggesting that NEDs comprise more than three-quarters of the audit committee; the median of 100% implies that more than half of the audit committees are fully independent (i.e. have no executive director on the committee). These results are very similar to the mean (median) of 74% (100%) reported in Australia for 2000 by Chen *et al.* (2005). This can be taken as an indication of healthy audit committee existence in term of its independence. Across the two groups, auditor change companies were found to have a significantly lower proportion of NEDs serving on their audit committees.

On the other hand, the mean (median) proportion of NEDs on BODs was 47% (50%), perhaps suggesting the lack of 'a strong presence on the board' of non-executive directors.[116] Earlier UK studies report lower proportions of NEDs on BODs: for 1992

[116] Para A.3 of the Combined Code (2003) indicates that 'to ensure that power and information are not concentrated in one or two individuals, there should be a strong presence on the board of both executive and non-executive directors'.

the mean (median) was 41% (43%) (O'Sullivan, 2000); for a sample of 146 of the largest companies in 1995, the mean and median were slightly higher at 50% O'Sullivan (1999). In contrast to the *nedac* variable, the auditor change companies reported a *higher* mean percentage for *nedbod* compared to the non-change companies. With the exception of the two year average variable (*nedbod_ab12*), the differences in mean and median are statistically significant at the 5% level.

Director shareholdings in the sample companies were relatively large with a mean (median) of 15.5% (7.2%) of total shares in the year before auditor change. This compares with a mean (median) of 5.6% (approximately 0.3%) reported for a sample of 402 of the top 1000 UK companies in 1992 (O'Sullivan, 2000). Most likely, this reflects the relatively small company size in the present sample; small companies are likely to have relatively large director/entrepreneurial interest than large multinational companies. Directors owned around 15% of UK companies. The rate of directors' ownership change was 116%, however this figure is heavily influenced by outliers. The median suggests the rate of -1%. For comparison, the mean rate of ownership change was 4% in Woo and Koh (2001) and around -0.02 in DeFond (1992).

The mean ratio of short term accruals to total assets (*incman*) was 0.76 in this study and 0.69 in Woo and Koh (2001). Change in the ratio of short term accruals was 0.09 (-0.017 in DeFond, 1992) in the year before auditor change and 0.07 (0.001 in DeFond, 1992) in the year after auditor change. Only a small ratio of proceed from new financing was obtained by companies after the auditor change year. Statistically, there is no significant difference between the auditor change sample and matching companies, in terms of director ownership (dirown), income manipulation opportunities (incman) and new financing (finance). As for leverage variables, the mean and median were higher than those in Woo and Koh (2001) but much smaller than in Hudaib and Cooke (2005). However, Hudaib and Cooke's (2005) measure was scaled by total

equity rather than total assets. The test statistics suggest that the mean difference of the contemporaneous (*levdta_cb1a0*) and post-auditor change variable (*lev_ca01*) were significant at the 5% level. The median difference of the pre-auditor change (*levtdta_cb12*) was also significant at the 5% level.

The sample of auditor change and matching companies is comprised of relatively small companies. During the auditor change year, the mean and median assets of all companies were £342 million and £35 million, respectively. For the entire UK market, mean asset ranged between £1,519 million and £2,673 million over the 1998 to 2003 period: median assets were approximately £50 million (see Table 4.1). The companies ranged in size between £50,000 and £12,577 million; compared with a maximum of £455,275 million across the market as a whole (Table 4.1). On average, the sample companies had the estimated means of approximately 3,000 employees and 12 principal subsidiaries.

Notwithstanding the imperfect size matching, there are no significant differences in total assets (*sizeass*et) between the auditor change and matching groups. However, there are some differences in median for the alternative size proxy, number of employees (*sizeemployee*). The table reports no significant differences with regard to complexity (*lnsubs*). The overall number of subsidiaries is comparable to O'Sullivan (1999 & 2000) but much smaller than the mean (median) of 28 (12) reported for Australia study by Chen *et al.,* 2005. This suggests that our sample UK companies are potentially less complex than Australian companies.

The mean growth in sales for all sample companies was 30% in the year preceding auditor change, compared with 20% for the sample of Singapore companies in Woo and Koh (2001). The UK auditor change companies report a growth rate of 20% in the year preceding auditor change while DeFond (1992) reports a higher growth rate of

26% in his US study. In the present study, auditor change companies were found to experience a lower growth rate than matching companies in the year preceding auditor change, but had a statistically significant higher mean growth rate immediately *after* changing auditor (not observed in the median).

The overall ratio of audit fee for the year preceding audit change to the fee for the auditor change year was 1.06, indicating a slight decrease. Interestingly, the mean value for the audit fee change variable (*feeb1to0*) for companies that changed auditor was 1.15 in contrast to a mean of 0.97 for matching companies; the difference is statistically significant. These figures suggest that changers experience a reduction in audit fees of 13% while matching companies pay 3% higher audit fees, on average. The equivalent mean change variable for NAS shows that while both groups reported a reduction in NAS purchased, audit changers reduced NAS by 85% (*nasb1to0* = 6.87) in contrast with the 48% reduction (*nasb1to0* = 2.09) for matchers. This reduction in NAS can be linked to the auditor independence variable (i.e. *nasaudfeeb1*) which indicates a high NAS to audit fee ratio of 1.26 for auditor change companies. This shows that, on average, change companies paid 26% more to the audit firm for NAS than for the audit fee during the year preceding change. By contrast, the mean of 0.87 for matching companies shows that they were less exposed to claims of lack of auditor independence. Finally, auditor change companies were typically audited by auditors with a lower industry market share than the matching companies; the measures based on both audit fees (*spec_msfeeb1*) and on number of clients (*spec_msclientb1*) are both significantly lower for change companies.

Table 8.3 reports the descriptive statistics for the dichotomous variables. A z-test was performed to test for differences in proportions between auditor change companies and matching companies. Results show that 25% of auditor change companies had a joint chairman/CEO (*dual*), a significantly higher percentage than the 12% for the matched

companies. Management change (*mgtchg_b1*), while higher in auditor change companies than in matching companies, was not statistically significant. Similarly, the alternative proxy for director ownership (*dirown_sk*), which is based on Short and Keasey's (1999) finding (see section 7.3.1.5) was also not significantly different.

For 19 measures, '*major change'* companies were those that exhibited changes within the top and bottom 10% of observations for the overall sample. Auditor change companies showed a significantly higher proportion of major changes for five of these measures: the ex-ante income manipulation variable (*incman_sca01*), contemporaneous leverage (*lev_scb1a0*), contemporaneous size (*sizeemployee_scb1a0*) and the ex-post, contemporaneous and ex-ante complexity measures (*subs_scb12* and *subs_scb1a0)*. Auditor change companies had a significant lower proportion of 'major change' for just the ex-ante complexity measure. This may suggest that companies change auditor in response to major changes in complexity (rather than in anticipation of such changes).

A small proportion of sample companies (3%) had been issued with a qualified audit report during the period under study. Although the difference was not significant, the proportion for auditor change companies was slightly higher than for the matching companies.

Table 8.3 also shows that a smaller proportion (67% compared with 77%) of auditor change companies were audited by B5/4 firms; extending the definition of top tier auditors (tier12) shows a similar picture. This result is consistent with the expectation that a B5/4 or tier12 audited company would be less likely to change auditor. Also, as expected, a lower percentage of auditor change companies were audited by specialist auditors during the year preceding auditor change as compared to non-auditor change companies, though the difference is only significant at the 10% level.

Table 8.2: Descriptive statistics for continuous variables (untransformed)

	Total sample (n = 354)					Auditor change companies (n = 177)			Matching companies (n = 177)			Auditor change vs. Matched companies[2]			
												Paired t-test		Wilcoxon signed ranks test	
Variables[1]	**Mean**	**Median**	**Min.**	**Max.**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**t-stat**	**p-value**	**z-stat**	**p-value**
nedac_b1 (%)	82.78	100.00	0.00	100.00	34.65	77.27	100.00	37.78	88.29	100.00	30.32	-3.21	**0.002**	-2.96	**0.003**
nedac_ăb12 (%)	80.79	100.00	0.00	100.00	32.46	77.59	100.00	33.99	83.98	100.00	30.63	-2.01	**0.046**	-1.91	*0.057*
nedbod_b1 (%)	46.87	50.00	0.00	100.00	16.68	48.57	50.00	17.52	45.17	42.86	15.67	2.13	**0.034**	2.18	**0.030**
nedbod_ăb12 (%)	46.34	45.00	0.00	90.00	14.93	47.55	47.92	15.38	45.12	43.75	14.40	1.70	*0.091*	1.80	*0.072*
dirown_b1 (%)	15.52	7.19	0.00	90.00	19.21	15.68	7.25	19.72	15.35	6.34	18.74	0.18	0.854	0.48	0.629
dirown_ăb12 (%)	16.36	9.52	0.00	85.34	18.80	16.52	9.02	19.35	16.20	9.64	18.29	0.18	0.860	-0.39	0.699
dirown_cb12 (decimal)	1.16	-0.01	-0.99	155.67	10.57	1.44	-0.01	9.29	0.88	-0.01	11.72	0.50	0.617	0.94	0.348
incman_b1 (decimal)	0.76	0.76	0.03	3.82	0.41	0.77	0.77	0.44	0.74	0.75	0.38	0.59	0.553	0.69	0.493
incman_ăb12 (decimal)	0.80	0.79	0.02	3.35	0.42	0.80	0.79	0.42	0.81	0.79	0.43	-0.32	0.748	-0.15	0.881
incman_cb12 (decimal)	0.09	-0.03	-0.96	20.11	1.23	0.20	-0.04	1.70	-0.03	-0.03	0.38	1.70	*0.090*	-0.92	0.359
incman_a0 (decimal)	0.76	0.74	0.02	2.51	0.38	0.77	0.75	0.38	0.75	0.73	0.39	0.63	0.527	0.90	0.369
incman_ăa01 (decimal)	0.75	0.74	0.02	1.87	0.36	0.76	0.75	0.34	0.75	0.74	0.38	0.23	0.822	0.51	0.610
incman_cb1a0 (decimal)	0.11	0.01	-0.96	9.38	0.80	0.16	0.00	1.07	0.05	0.02	0.36	1.33	0.185	-0.20	0.844
incman_ca01 (decimal)	0.07	0.01	-0.89	13.38	0.83	0.09	0.01	1.07	0.05	0.01	0.48	0.42	0.677	-0.75	0.455
lev_b1 (decimal)	0.10	0.05	0.00	0.68	0.13	0.10	0.06	0.12	0.11	0.05	0.14	-1.19	0.235	0.87	0.383
lev_ăb12 (decimal)	0.28	0.07	0.00	61.33	3.26	0.10	0.07	0.11	0.46	0.06	4.60	-1.03	0.303	0.86	0.387
lev_cb12 (decimal)	4.82	0.00	-1.00	84.35	18.51	5.76	0.00	20.24	3.88	0.00	16.59	0.98	0.329	0.99	0.319
lev_a0 (decimal)	0.11	0.05	0.00	0.82	0.14	0.10	0.05	0.13	0.11	0.06	0.14	-0.60	0.550	-0.40	0.690
lev_ăa01 (decimal)	0.11	0.06	0.00	1.05	0.14	0.11	0.07	0.13	0.11	0.06	0.16	-0.48	0.635	0.20	0.843
lev_cb1a0 (decimal)	11.67	0.00	-1.00	173.79	42.11	15.58	0.00	48.59	7.75	0.00	34.12	1.80	*0.073*	0.31	0.758
lev_ca01 (decimal)	54.46	0.00	-1.00	1183.98	243.47	84.42	0.00	301.05	24.50	0.00	162.67	2.29	**0.023**	-0.04	0.965

Continued on next page

Table 8.2 (continued): Descriptive statistics for continuous variables (untransformed)

	Total sample (n = 354)					Auditor change companies (n = 177)			Matching companies (n = 177)			Auditor change vs. Matched companies[2]			
												Paired t-test		Wilcoxon signed ranks test	
Variables[1]	Mean	Median	Min.	Max.	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	t-stat	p-value	z-stat	p-value
levtdta_b1 (decimal)	0.19	0.15	0.00	1.90	0.20	0.19	0.16	0.19	0.19	0.15	0.21	-0.36	0.722	0.71	0.479
levtdta_ăb12 (decimal)	0.36	0.16	0.00	61.66	3.27	0.55	0.18	4.62	0.18	0.15	0.18	1.06	0.292	1.52	0.129
levtdta_cb12 (decimal)	0.91	0.00	-1.00	17.53	3.54	0.55	-0.03	2.78	1.28	0.00	4.14	-1.92	*0.057*	2.40	**0.017**
levtdta_a0 (decimal)	0.19	0.15	0.00	0.95	0.18	0.20	0.15	0.20	0.18	0.15	0.16	0.68	0.497	0.26	0.798
levtdta_ăa01 (decimal)	0.19	0.16	0.00	1.05	0.18	0.20	0.16	0.21	0.18	0.16	0.16	1.04	0.301	0.36	0.719
levtdta_cb1a0 (decimal)	5.20	0.00	-1.00	174.50	27.60	0.85	0.00	4.07	9.543	0.00	38.38	-3.03	**0.003**	-1.39	0.164
levtdta_ca01 (decimal)	2.56	0.00	-1.00	66.93	10.95	3.38	0.00	14.03	1.74	0.00	6.53	1.49	0.139	0.73	0.465
sizeasset_b1 (£mil.)	336.51	35.46	0.36	13,518.00	1242.11	260.98	27.35	831.42	412.04	37.43	1546.51	-1.46	0.145	-0.07	0.948
sizeasset_ăb12 (£mil.)	324.75	33.14	0.33	13,263.00	1209.89	252.86	27.35	814.27	396.64	34.91	1504.18	-1.44	0.152	-0.30	0.765
sizeasset_cb12	4.08	0.07	-0.77	1,272.91	67.66	0.34	0.02	0.92	7.83	0.09	95.67	-1.04	0.299	-0.58	0.564
sizeasset_a0 (£mil.)	341.96	34.63	0.05	12,577.00	1267.65	280.04	30.76	992.20	403.88	38.21	1493.60	-1.22	0.226	-0.04	0.964
sizeasset_ăa01 (£mil.)	348.96	35.63	0.70	13,026.42	1282.53	282.27	31.70	974.17	415.65	41.22	1530.09	-1.30	0.194	-0.80	0.422
sizeasset_cb1a0	0.11	-0.01	-0.87	6.12	0.67	0.12	-0.03	0.76	0.10	0.00	0.57	0.40	0.693	-0.54	0.588
sizeasset_ca01	0.77	0.02	-0.69	195.57	10.43	1.31	0.01	14.72	0.23	0.02	0.99	0.97	0.331	-0.66	0.507
sizeemployee_b1 ('000)	3.26	0.44	0.00	130.63	11.44	3.38	0.32	12.68	3.14	0.48	10.09	0.26	0.795	-1.57	0.116
sizeemployee_ăb12 ('000)	3.15	0.42	0.00	110.05	10.46	3.13	0.32	10.50	3.17	0.45	10.45	-0.05	0.964	-1.06	0.288
sizeemployee_cb12 (decimal)	1.06	0.05	-0.99	322.00	17.12	0.08	0.02	0.38	2.03	0.08	24.20	-1.08	0.283	-2.92	**0.004**
sizeemployee_a0 ('000)	3.20	0.44	0.00	121.68	10.95	3.23	0.34	11.79	3.17	0.50	10.08	0.08	0.940	-2.00	**0.045**
sizeemployee_ăa01 ('000)	3.18	0.44	0.00	111.15	10.57	3.16	0.35	10.92	3.21	0.54	10.25	-0.06	0.948	-1.95	*0.051*
sizeemployee_cb1a0 (decimal)	1.07	0.01	-1.00	213.60	13.40	2.07	0.00	18.92	0.08	0.03	0.43	1.40	0.165	-1.48	0.140
sizeemployee_ca01 (decimal)	0.10	0.00	-0.69	5.00	0.55	0.12	-0.01	0.66	0.07	0.00	0.41	1.01	0.314	-0.62	0.534

Continued on next page

Table 8.2 (continued): Descriptive statistics for continuous variables (untransformed)

Variables[1]	Total sample (n = 354)					Auditor change companies (n = 177)			Matching companies (n = 177)			Auditor change vs. Matching[2]			
												t-test		Wilcoxon signed ranks test	
	Mean	Median	Min.	Max.	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	t-stat	p-value	z-stat	p-value
lnsubs_b1 (decimal)	11.82	7.00	0.00	124.00	16.00	11.85	6.00	16.22	11.80	7.00	15.83	0.04	0.972	-0.26	0.791
lnsubs_ăb12 (decimal)	11.33	6.00	0.00	108.00	14.99	11.25	6.00	14.86	11.40	6.50	15.17	-0.13	0.893	-0.24	0.813
lnsubs_cb12 (decimal)	1.22	0.00	-1.00	10.67	3.24	1.24	0.00	3.24	1.20	0.00	3.24	0.10	0.918	-0.56	0.574
lnsubs_a0 (decimal)	12.42	7.00	0.00	139.00	17.67	11.84	7.00	15.26	12.99	7.00	19.81	-0.76	0.447	-0.08	0.932
lnsubs_ăa01 (decimal)	16.32	10.00	0.00	127.50	18.60	15.94	9.00	17.99	16.71	10.50	19.23	-0.52	0.604	-0.48	0.628
lnsubs_cb1a0 (decimal)	1.57	0.00	-1.00	21.00	5.31	1.55	0.00	5.34	1.59	0.00	5.30	-0.07	0.942	-0.49	0.624
lnsubs_ca01 (decimal)	2.50	0.50	-1.00	23.50	5.49	2.42	0.50	5.30	2.59	0.43	5.68	-0.30	0.764	-0.37	0.712
growth_b1 (decimal)	0.30	0.08	-1.00	11.79	1.32	0.20	0.06	1.01	0.40	0.11	1.57	-1.41	0.159	-1.751	*0.080*
growth_a0 (decimal)	0.16	0.03	-1.00	7.94	0.79	0.26	0.02	1.05	0.07	0.04	0.38	2.32	**0.022**	-0.645	0.519
finance_a0 (decimal)	0.02	0.00	-20.48	10.65	1.26	-0.01	0.00	1.77	0.04	-0.01	0.27	-0.37	0.710	0.390	0.697
feeb1to0 (decimal)	1.06	1.00	0.22	7.20	0.50	1.15	1.00	0.66	0.97	0.97	0.23	3.55	**0.001**	3.273	**0.001**
nasb1to0 (decimal)	4.48	1.00	0.00	80.00	14.53	6.87	1.00	18.93	2.09	1.00	7.32	3.15	**0.002**	-1.887	*0.059*
nasaudfeeb1 (decimal)	1.02	0.70	0.00	10.94	1.27	1.26	0.85	1.51	0.87	0.61	0.95	2.86	**0.005**	2.686	**0.007**
spec_msfeeb1 (decimal)	17.39	12.82	0.00	92.36	16.88	15.53	11.23	15.79	19.25	14.56	17.75	-2.31	**0.022**	-2.382	**0.017**
spec_msclientb1 (decimal)	14.90	13.90	0.06	62.50	10.58	13.86	13.04	11.10	15.94	15.91	9.95	-1.98	**0.050**	-2.307	**0.021**

Notes:
[1] Data for *sizeasse*t, *sizeemployee* and *lnsubs* are reported as the raw total assets, number of employees and number of subsidiaries (i.e. before transforming to natural log)
[2] Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

Table 8.3: Descriptive statistics for dichotomous variables

Variables	Total sample (n=354) %	Auditor change companies (n=177) %	Matching companies (n=177) %	Auditor change vs. Matching[2] z - test z	P > |z|
dual_b1	18.64	24.86	12.43	3.00	**0.003**
mgtchg_b1	27.40	29.94	24.86	1.07	0.284
dirown_sk	28.81	27.12	30.51	-0.70	0.481
dirown_scb12	20.06	22.60	17.51	1.20	0.232
incman_scb12	20.06	21.47	18.64	0.66	0.507
incman_scb1a0	20.06	21.47	18.64	0.66	0.507
incman_sca01	20.06	25.42	14.69	2.52	**0.012**
lev_scb12	19.77	19.77	19.77	0.00	1.000
lev_scb1a0	20.06	24.86	15.26	2.26	**0.024**
lev_sca01	20.34	23.73	16.94	1.58	0.113
levtdta_scb12	20.06	20.90	19.21	0.40	0.690
levtdta_scb1a0	20.06	20.33	19.77	0.13	0.894
levtdta_sca01	20.06	22.59	17.51	1.19	0.232
sizeasset_scb12	20.06	20.90	19.20	0.40	0.690
sizeasset_scb1a0	20.06	23.16	16.95	1.46	0.144
sizeasset_sca01	20.06	20.90	19.21	0.40	0.690
sizeemployee_scb12	20.06	22.03	18.08	0.93	0.353
sizeemployee_scb1a0	20.06	25.42	14.69	2.52	**0.012**
sizeemployee_sca01	20.06	20.90	19.21	0.40	0.690
subs_scb12	19.77	25.99	13.55	2.93	**0.003**
subs_scb1a0	21.75	26.55	16.94	2.19	**0.028**
subs_sca01	19.49	14.69	24.29	-2.28	**0.022**
opinion	3.39	4.52	2.26	1.18	0.240
big5	71.75	66.67	76.84	-2.13	**0.034**
tier12	83.62	78.53	88.70	-2.59	**0.010**
spec_30fee	20.90	16.95	24.86	-1.83	*0.067*
spec_largeb1	28.81	28.24	29.37	-0.24	0.814
spec_topfeeb1	16.95	15.25	18.64	-0.85	0.395

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

8.3 Multivariate results

The models for the auditor change study were developed to include potential determinant variables as identified in Chapter 6. For convenience, the basic model proposed in chapter 7 is repeated here in detailed form.

P(audchg=1) = f(nedac, nedbod, dual, mgtchg, dirown, incman, levtdta, sizeasset, lnsubs, growth, finance, feeb1to0, nas1to0, nasaudfee, opinion, big5, spec_30fee)

where the dependent variable:

P(audchg=1) = The estimated conditional probability of auditor change

and the independent variables are:

nedac	=	A proxy for audit committee independence as measured by the percentage of non-executive directors on audit committee
nedbod	=	A proxy for BODs independence as measured by the percentage of non-executive directors on BODs
dual	=	Equals '1' if the chairman is also the MD/CEO during the year preceding auditor change or '0' otherwise
mgtchg	=	Equals '1' if the company had change managing director or CEO during the year preceding auditor change or ' 0' otherwise
dirown	=	Percentage of shares owned by directors during the year preceding auditor change
incman	=	Short term accruals/ total assets at t_{-1}
levtdta	=	Total debt/ total assets at t_{-1}
sizeasset	=	Natural log of total assets
lnsubs	=	Natural log of number of subsidiaries
growth	=	Percentage change in sales
finance	=	The ratio of the net cash receipts and disbursements resulting from reduction and/or increase in long or short term debt, proceeds from sales of shares, shares repurchased/ redeemed/ retired/ dividend paid and other financing activities divided by the value of asset at t_0
feeb1to0	=	Preceding year's audit fee to auditor change year's audit fee
nas1to0	=	Preceding year's non-audit fee to auditor change year's non-audit fee
nasaudfee	=	A proxy auditor independence as measured by the ratio of non-audit services fee paid to the auditor to the total audit fee during the year preceding auditor change
opinion	=	A qualified opinion indicator variable, coded '1' if the company was issued with qualified audit opinion during the year preceding auditor change or '0' otherwise
big5	=	Equals '1' if the company's auditor was the B5/4 during the year preceding auditor change or ' 0' otherwise
spec_30fee	=	Equals '1' if the company's auditor was an industry specialist (auditor with at least 30% audit fee market share in industry) during the year preceding auditor change or '0' otherwise

In the basic model, the variables are measured as levels prior to auditor change, i.e. a 'levels' ex-post model specification. Several variants to this were tested to examine the sensitivity of results to alternative measurement forms (i.e. levels, average levels, change, major change); causality (i.e. ex-post, ex-ante, contemporaneous); and proxies. Due to the binary nature of the dependent variable, logistic was used instead of OLS regression.[117]

According to Menard (2002), the presence of outliers in the dataset and collinearity (or multicollinearity) amongst independence variables may mislead the results obtained through the logistic regression. He also states that in order for the logistic model to be successful, the model should not contain specification errors (caused by omitting relevant variables or including irrelevant variables). In addition, the presence of nonlinearity (between independent variables and the logit function) would also cause problems in the model. Menard (2002) outlines a suggested protocol for logistic regression diagnostics which should include:

(i) a test for detecting univariate outliers or influential observations (i.e. multivariate outlier),
(ii) testing for collinearity, and
(iii) testing for non-linearity (the use of the Box-Tidwell procedure is suggested).

The test to detect outliers is typically a pre-estimation procedure, while both the tests for collinearity and non-linearity are post-estimation procedures. In addition, a test to detect multivariate outliers was also undertaken.

[117] For instance, the use of ordinary least square regression will violate linearity assumption of the OLS regression.

8.3.1 Test for detecting outliers

An outlier is a data point distinct or deviant from the rest of the data (Pedhazur, 1997). The presence of outliers can affect results significantly and thus must be considered for treatment. There are several ways to identify outliers. In this study, outliers were identified using Grubb's extreme studentised deviate test.[118] Grubb's test is an iterative procedure to identify statistically significant outliers. It is based on the standard normal z-statistic:

$$Z = \frac{|\,mean - value\,|}{SD}$$

where the mean and SD denote the sample arithmetic mean and standard deviation, respectively. Both the mean and the standard deviation were calculated using all of the values, including the outlier value in question (*value*). Then the computed Z value was compared to a critical Z value.[119] The null hypothesis was rejected if computed Z value > critical Z value and the value in question was identified as an outlier (Barnett and Lewis, 1994).

Once an outlier was identified, the value was winsorised to the next highest value. As Grubb's test can only detect one outlier at a time, the procedure needs to be repeated until no further outlier is detected. As seen on Table 8.4, it is '*change*' variables that were most vulnerable to outliers. These variables, calculated relative change were sensitive to the base-year figure. In some cases, the presence of already winsorised 'infinity changes' (when the base-year figure was zero) also exacerbated the problem, especially when the next lower value was itself an outlier.

[118] GraphPad software was used to perform the test.
[119] The critical Z value is based on tabulated critical Z, in which the value increases with sample size. For 354 sample size, the tabulated critical Z value is 3.77. Grubb (1969) and others have tabulated critical values for Z based on the number of values (N) from a population. However, the Z value 3.77 reported here was obtained directly from GraphPad software. Discussion on how to manually calculate the Z value can be found at http://www.itl.nist.gov/div898/handbook/eda/section3/eda35h.htm.

Table 8.4: New descriptive statistics after eliminating outliers

	Outliers		New descriptive statistics (n=354)				
Variables	**No.**	**(%)**	**Mean**	**Median**	**Min.**	**Max.**	**Std. Dev**
dirown_b1 (%)	1	0.28%	15.50	7.19	0.00	84.48	19.15
***dirown_cb12** (decimal)*	**13**	**3.67%**	**0.09**	**-0.01**	**-0.99**	**3.17**	**0.82**
incman_b1 (decimal)	2	0.56%	0.75	0.76	0.03	1.91	0.37
incman_ăb12 (decimal)	2	0.56%	0.80	0.79	0.02	2.12	0.40
incman_cb12 (decimal)	9	2.54%	0.00	-0.03	-0.96	1.41	0.40
incman_a0 (decimal)	1	0.28%	0.76	0.74	0.02	1.83	0.37
incman_cb1a0 (decimal)	6	1.69%	0.04	0.01	-0.96	1.04	0.29
incman_ca01 (decimal)	5	1.41%	0.02	0.01	-0.89	1.03	0.29
levtdta_b1 (decimal)	2	0.56%	0.19	0.15	0.00	0.82	0.17
***levtdta_ăb12** (decimal)*	**3**	**0.85%**	**0.19**	**0.16**	**0.00**	**0.76**	**0.17**
levtdta_cb12 (decimal)	18	5.08%	0.56	0.00	-1.00	8.31	2.08
levtdta_a0 (decimal)	2	0.56%	0.19	0.15	0.00	0.84	0.18
levtdta_ăa01 (decimal)	3	0.85%	0.19	0.16	0.00	0.83	0.18
***levtdta_cb1a0** (decimal)*	**20**	**5.65%**	**0.45**	**0.00**	**-1.00**	**6.64**	**1.75**
***levtdta_ca01** (decimal)*	**22**	**6.21%**	**0.76**	**0.00**	**-1.00**	**10.69**	**2.75**
***sizeasset_cb12** (decimal)*	**4**	**1.13%**	**0.39**	**0.07**	**-0.77**	**6.25**	**1.09**
sizeasset_cb1a0 (decimal)	6	1.69%	0.08	-0.01	-0.75	2.17	0.46
***sizeasset_ca01** (decimal)*	**9**	**2.54%**	**0.18**	**0.02**	**-0.65**	**4.07**	**0.76**
***sizeemployee_cb12** (decimal)*	**8**	**2.26%**	**0.13**	**0.05**	**-0.67**	**1.68**	**0.38**
***sizeemployee_cb1a0** (decimal)*	**8**	**2.26%**	**0.06**	**0.01**	**-0.67**	**1.93**	**0.37**
sizeemployee_ca01 (decimal)	10	2.82%	0.06	0.00	-0.48	1.49	0.32
growth_b1 (decimal)	9	2.54%	0.18	0.08	-1.00	1.95	0.48
growth_a0 (decimal)	9	2.55%	0.11	0.03	-1.00	1.83	0.46
***finance_a0** (decimal)*	**15**	**4.23%**	**0.03**	**0.00**	**-0.68**	**0.81**	**0.21**
feeb1to0 (decimal)	5	1.41%	1.03	1.00	0.22	2.14	0.34
***nasb1to0** (decimal)*	**16**	**4.52%**	**1.95**	**1.00**	**0.00**	**12.10**	**2.85**

Note: *sizeasset* and *sizeemployee* variables reported here are natural log (ln) transformed.
Variables (and statistics) in **bold** are those which were significantly distorted by outliers.

Table 8.4 presents the summary of all variables and the percentage of outliers that were winsorised. New descriptive statistics for the total sample of 354 companies are also presented. Comparison with Table 8.2 suggests that several variables were significantly distorted by outliers. These are identified in bold in Table 8.4.

8.3.2 Logistic analysis results

Tables 8.5 to 8.7 document the regression results for all the auditor change models. The model chi-square (chi^2) test provides the significance test for a logistic model. It is the probability of obtaining this chi^2 statistic if there is in fact no effect of the

independent variables, taken together, on the dependent variable. It measures the improvement in fit that the explanatory variables make in comparison to the model with only one term (null model). In particular, the model chi^2 is a likelihood ratio test which reflects the differences between the error not knowing the independents and the error when the independents are included in the model. In general, a well-fitting model is significant at the 5% level or better. As can be seen in all tables, all models report significant chi^2 statistics, suggesting a good fit. This indicates the rejection of hypothesis that knowing the independents makes no difference in predicting the dependent in logistic.

Further, according to Tabachnick and Fidell (1996, p.606) one method of assessing the success of a logistic model is by evaluating its ability to predict correctly the outcome category for cases for which the outcome is known. The classification table as it is known, is a 2 times 2 table which tallies correct and incorrect estimates. It cross-classifies the actual binary response with a prediction. In a perfect model, the overall percent correct will be 100%. The table, however, should not be used as a goodness-of-fit measure because it ignores actual predicted probabilities and instead, uses dichotomised predictions based on a cut-off. The result can vary markedly by sample for the same logistic model and hence, the classification table is not recommended to compare the results across samples.

For all the auditor change models in the present study, the *percentage correctly predicted* was more than 66% of the outcomes. This holdout accuracy rate is consistent with prior studies and can be deemed adequate. For instance, Williams (1988) reports an accuracy rate of 66.1% and Woo and Koh (2001) 67.6%. In addition, Tables 8.5 to 8.7 also report the Hosmer-Lemeshow's Goodness of Fit Test statistic. This is a goodness-of-fit test of the null hypothesis that the model adequately fits the data. The test divides subjects into deciles based on predicted probabilities, and then computes a

chi-square from observed and expected frequencies. Then a probability (p) value is computed from the chi-square distribution with 8 degrees of freedom to test the fit of the logistic model. If the Hosmer-Lemeshow Goodness-of-Fit test statistic is .05 or less, we reject the null hypothesis that there is no difference between the observed and model-predicted values of the dependent variable. This indicates that the model predicts values significantly different from what they ought to be (the observed values). For all 10 models, the Hosmer-Lemeshow test statistic is greater than 0.05, implying that the model estimates fit the data at an acceptable level.

Finally, the Cox-Snell R^2, Nagelkerke R^2 and Pseudo R^2 are attempts to provide a logistic analogy to the R^2 in OLS regression. The Nagelkerke measure adapts the Cox-Snell measure so that it varies from 0 to 1, as does R^2 in OLS. Pseudo R^2 is a default output in Stata and is based on McFadden's R^2. While none of these is clearly superior, the Nagelkerke measure is perhaps most often reported. Here it ranges between 0.22 and 0.28 suggesting reasonable explanatory models. For comparison, Hudaib and Cooke (2005) report Nagelkerke R^2 of 0.16 to 0.19.

8.3.2.1 Auditee characteristics

Across all of the auditor change models, three of the eleven auditee characteristics variables were consistently significant determinants: audit committee independence (*nedac*), BODs independence (*nedbod*) and the existence of chairman/ceo duality (*dual*). Audit committee independence was significant in all except Model 2. Growth was significant in contemporaneous and ex-ante models and complexity (*lnsubs*) was significant in just one (ex-post) model. The remaining variables were insignificant (at the 5% level) in all models: management change (*mgtchg*), directors' share ownership (*dirown*), income manipulation (*incman*), leverage (*levtdta*), size (*sizeasset*) and new financing (*finance*).

The significant negative coefficient for the *nedac* variable suggests that the presence of NEDs on the audit committee reduces the propensity to change auditor. The result lends support to the contention that NEDs on the audit committee are concerned about protecting their reputation and, given that they do not have access to day-to-day business information, they tend to treat management attempts to change auditor suspiciously. The finding is consistent with Archambeault and DeZoort (2001), who found a significant negative association between the proportion of NEDs on the audit committee and suspicious auditor change.

The proportion of NEDs on BODs (*nedbod*) was highly significant but with *positive* sign, inconsistent with prediction. This suggest that the greater the BOD independence, the more likely it is that the company will change auditor. This is certainly counter-intuitive. Prior studies of auditor selection have adopted this variable only in periods before the acceptance of the audit committee as a good governance instrument. Later studies have adopted *nedac* as a better proxy. There is evidence of a strong positive correlation between the two (Menon and Williams, 1994), so collinearity is a possible explanation of the anomalous results for *nedbod*.

As expected, a company that is run by a chairman who is also the managing director (*dual*) is more likely to change auditor than a company that separates the two functions. This is consistent with the contention that a chairman who operates in such dual roles may have greater stature and power over the board of directors and the audit committee, and thus may influence the auditor choice process.

Growth (g*rowth)* was found to be significant in all the contemporaneous and the ex-ante models. In these models, the variable proxies for expected future growth, suggesting that companies tend to change their auditor *in anticipation of* future growth. By contrast, growth in sales for the year preceding auditor change was not significant

Table 8.5: Models of ex-post auditor change determinants

		Model 1			Model 2			Model 3			Model 4		
Variables	**Ex. sign**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics													
nedac_b1	-	-0.01	-2.54	**0.011**	-	-	-	-0.01	-2.25	**0.024**	-0.01	-2.13	**0.033**
nedac_ăb12	-	-	-	-	0.00	-1.04	0.299	-	-	-	-	-	-
nedbod_b1	-	0.02	2.75	**0.006**	-	-	-	0.02	2.90	**0.004**	0.02	2.72	**0.007**
nedbod_ăb12	-	-	-	-	0.02	2.11	**0.035**	-	-	-	-	-	-
dual_b1	+	0.98	3.03	**0.002**	1.03	3.15	**0.002**	0.96	2.96	**0.003**	0.98	2.94	**0.003**
mgtchg_b1	+	0.10	0.36	0.721	0.10	0.36	0.719	0.11	0.42	0.674	-0.11	-0.40	0.688
dirown_b1	?	-0.01	-0.79	0.429	-	-	-	-	-	-	-	-	-
dirown_ăb12	?	-	-	-	0.00	-0.44	0.658	-	-	-	-	-	-
dirown_cb12	+	-	-	-	-	-	-	0.26	1.72	*0.085*	-	-	-
dirown_scb12	+	-	-	-	-	-	-	-	-	-	0.21	0.65	0.518
incman_b1	?	-0.14	-0.42	0.673	-	-	-	-	-	-	-	-	-
incman_ăb12	?	-	-	-	-0.18	-0.58	0.561	-	-	-	-	-	-
incman_cb12	+	-	-	-	-	-	-	0.09	0.31	0.759	-	-	-
incman_scb12	+	-	-	-	-	-	-	-	-	-	-0.07	-0.24	0.808
levtdta_b1	?	-0.09	-0.11	0.910	-	-	-	-	-	-	-	-	-
levtdta_ăb12	?	-	-	-	-0.53	-0.65	0.514	-	-	-	-	-	-
levtdta_cb12	+	-	-	-	-	-	-	0.02	0.33	0.740	-	-	-
levtdta_scb12	+	-	-	-	-	-	-	-	-	-	0.13	0.39	0.694
sizeasset_b1	-	-0.02	-0.26	0.793	-	-	-	-	-	-	-	-	-
sizeasset_ăb12	-	-	-	-	-0.05	-0.54	0.587	-	-	-	-	-	-
sizeasset_cb12	+	-	-	-	-	-	-	0.10	0.79	0.427	-	-	-
sizeasset_scb12	+	-	-	-	-	-	-	-	-	-	-0.12	-0.37	0.714
lnsubs_b1	?	0.13	0.82	0.410	-	-	-	-	-	-	-	-	-
lnsubs_ăb12	?	-	-	-	0.16	0.99	0.323	-	-	-	-	-	-
lnsubs_cb12	+	-	-	-	-	-	-	0.02	0.44	0.658	-	-	-
lnsubs_scb12	+	-	-	-	-	-	-	-	-	-	1.01	3.07	**0.002**
growth_b1	+	-0.21	-0.81	0.420	-0.25	-0.93	0.352	-0.35	-1.20	0.232	-0.17	-0.62	0.533
Audit characteristics													
feeb1to0	+	1.27	3.18	**0.001**	1.34	3.33	**0.001**	1.32	3.25	**0.001**	1.50	3.53	**0.000**
nasb1to0	+	0.13	2.72	**0.007**	0.13	2.75	**0.006**	0.13	2.72	**0.007**	0.14	2.80	**0.005**
nasaudfeeb1	+	0.33	2.73	**0.006**	0.33	2.70	**0.007**	0.31	2.58	**0.010**	0.37	2.95	**0.003**
opinion	+	0.40	0.57	0.568	0.45	0.64	0.520	0.57	0.83	0.405	0.70	0.99	0.320
Auditor characteristics													
big5	-	-0.58	-1.97	**0.049**	-0.48	-1.60	0.110	-0.54	-1.90	*0.058*	-0.53	-1.81	*0.071*
spec_30fee	-	-0.38	-1.21	0.226	-0.38	-1.18	0.237	-0.32	-1.02	0.306	-0.21	-0.66	0.507
constant	?	-1.50	-1.44	0.149	-1.71	-1.61	0.108	-2.03	-3.01	**0.003**	-2.41	-3.47	**0.001**
Hosmer-Lemeshow				0.953			0.867			0.633			0.283
Prob > chi^2				0.000			0.000			0.000			0.000
Nagelkerke R^2				0.232			0.219			0.238			0.266
Coxsnell R^2				0.174			0.164			0.178			0.20
Pseudo R^2				0.138			0.129			0.142			0.161
Correctly classified				67.5			68.3			69.2			70.6

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

Table 8.6: Models of contemporaneous auditor change determinants

		Model 5			Model 6		
Variables	**Ex. sign**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics							
nedac_b1	-	-0.01	-2.59	**0.010**	-0.01	-2.62	**0.009**
nedbod_b1	-	0.02	2.65	**0.008**	0.02	2.98	**0.003**
dual_b1	+	0.98	2.98	**0.003**	1.05	3.17	**0.002**
mgtchg_b1	+	0.07	0.25	0.800	0.04	0.14	0.887
dirown_b1	?	-0.01	-1.42	0.155	-0.01	-1.48	0.139
incman_cb1a0	+	-0.15	-0.34	0.734	-	-	-
incman_scb1a0	+	-	-	-	0.47	1.5	0.135
levtdta_cb1a0	+	0.09	1.26	0.206	-	-	-
levtdta_scb1a0	+	-	-	-	-0.31	-1.01	0.314
sizeasset_cb1a0	+	0.07	0.21	0.835	-	-	-
sizeasset_scb1a0	+	-	-	-	0.43	1.3	0.192
lnsubs_cb1a0	+	-0.02	-0.84	0.398	-	-	-
lnsubs_scb1a0	+	-	-	-	0.54	1.8	*0.071*
growth_a0	+	0.92	2.75	**0.006**	0.87	2.82	**0.005**
finance_a0	+	0.02	0.03	0.979	0.06	0.1	0.922
Audit characteristics							
feeb1to0	+	1.93	4.24	**0.000**	1.77	3.9	**0.000**
nasb1to0	+	0.13	2.57	**0.010**	0.13	2.6	**0.009**
nasaudfeeb1	+	0.32	2.60	**0.009**	0.33	2.64	**0.008**
opinion	+	0.50	0.71	0.475	0.76	1.07	0.283
Auditor characteristics							
big5	-	-0.68	-2.26	**0.024**	-0.67	-2.24	**0.025**
spec_30fee	-	-0.26	-0.81	0.417	-0.19	-0.59	0.558
constant	?	-2.26	-3.15	**0.002**	-2.48	-3.36	**0.001**
Hosmer-Lemeshow				0.607			0.836
Prob > chi^2				0.000			0.000
Nagelkerke R^2				0.268			0.285
Coxsnell R^2				0.201			0.213
Pseudo R^2				0.162			0.173
Correctly classified				67.5			70.6

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

Table 8.7: Models of ex-ante auditor change determinants

		Model 7			Model 8			Model 9			Model 10		
Variables	**Ex. sign**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics													
nedac_b1	-	-0.01	-2.59	**0.009**	-0.01	-2.72	**0.006**	-0.01	-2.60	**0.009**	-0.01	-2.56	**0.010**
nedbod_b1	-	0.02	2.58	**0.010**	0.02	2.64	**0.008**	0.02	2.67	**0.008**	0.02	2.64	**0.008**
dual_b1	+	1.02	3.11	**0.002**	1.01	3.05	**0.002**	1.00	3.05	**0.002**	1.05	3.2	**0.001**
mgtchg_b1	+	0.09	0.32	0.746	0.08	0.28	0.783	0.04	0.15	0.883	0.13	0.47	0.639
dirown_b1	?	-0.01	-1.47	0.140	-0.01	-1.48	0.140	-0.01	-1.25	0.213	-0.01	-1.28	0.199
incman_a0	?	-0.38	-1.18	0.237	-	-	-	-	-	-	-	-	-
incman_ăa01	?	-	-	-	-0.66	-1.95	*0.051*	-	-	-	-	-	-
incman_ca01	+	-	-	-	-	-	-	-0.44	-0.99	0.321	-	-	-
incman_sca01	+	-	-	-	-	-	-	-	-	-	0.52	1.68	*0.094*
levtdta_a0	?	0.56	0.74	0.459	-	-	-	-	-	-	-	-	-
levtdta_ăa01	?	-	-	-	0.52	0.69	0.491	-	-	-	-	-	-
levtdta_ca01	+	-	-	-	-	-	-	0.03	0.68	0.499	-	-	-
levtdta_sca01	+	-	-	-	-	-	-	-	-	-	0.17	0.54	0.590
sizeasset_a0	?	-0.09	-0.96	0.336	-	-	-	-	-	-	-	-	-
sizeasset_ăa01	?	-	-	-	-0.10	-1.02	0.308	-	-	-	-	-	-
sizeasset_ca01	+	-	-	-	-	-	-	-0.14	-0.77	0.439	-	-	-
sizeasset_sca01	+	-	-	-	-	-	-	-	-	-	-0.05	-0.15	0.880
lnsubs_a0	?	0.19	1.15	0.249	-	-	-	-	-	-	-	-	-
lnsubs_ăa01	?	-	-	-	0.24	1.27	0.203	-	-	-	-	-	-
lnsubs_ca01	+	-	-	-	-	-	-	-0.03	-1.24	0.216	-	-	-
lnsubs_sca01	+	-	-	-	-	-	-	-	-	-	-0.60	-1.92	*0.055*
growth_a0	+	1.02	3.27	**0.001**	1.01	3.21	**0.001**	0.95	3.10	**0.002**	0.87	2.86	**0.004**
finance_a0	+	0.03	0.05	0.964	0.07	0.12	0.903	-0.05	-0.08	0.933	0.00	-0.01	0.995
Audit characteristics													
feeb1to0	+	1.88	4.19	**0.000**	1.81	4.05	**0.000**	1.92	4.21	**0.000**	1.81	4.06	**0.000**
nasb1to0	+	0.13	2.47	**0.013**	0.13	2.49	**0.013**	0.13	2.61	**0.009**	0.13	2.51	**0.012**
nasaudfeeb1	+	0.32	2.58	**0.010**	0.33	2.65	**0.008**	0.34	2.77	**0.006**	0.31	2.51	**0.012**
opinion	+	0.39	0.55	0.58	0.39	0.56	0.573	0.62	0.88	0.379	0.63	0.90	0.367
Auditor characteristics													
big5	-	-0.73	-2.38	**0.017**	-0.75	-2.43	**0.015**	-0.70	-2.30	**0.022**	-0.68	-2.26	**0.024**
spec_30fee	-	-0.29	-0.88	0.379	-0.29	-0.87	0.382	-0.22	-0.68	0.499	-0.18	-0.55	0.583
constant	?	-1.38	-1.31	0.19	-1.08	-1.00	0.315	-2.18	-3.08	**0.002**	-2.17	-3.06	**0.002**
Hosmer-Lemeshow				0.628			0.942			0.688			0.782
Prob > chi^2				0.000			0.000			0.000			0.000
Nagelkerke R^2				0.272			0.279			0.272			0.282
Coxsnell R^2				0.204			0.209			0.204			0.211
Pseudo R^2				0.165			0.170			0.164			0.172
Correctly classified				68.6			69.2			69.2			68.1

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

(i.e. in ex-post models 1 to 4). Thus, the hypothesis that companies will change auditor in response to past growth was not supported. A similar insignificant result was also reported for past growth in the Singapore study (Woo and Koh, 2001).

The only other significant variable relating to auditee characteristics is the dummy variable indicating a major change in the number of subsidiaries (*lnsubs*) from b_{-2} to b_{-1} (Model 4). This suggests that a company experiencing a major change in complexity is more likely to change auditor in the following year. Woo and Koh (2001) also report complexity as an important variable, but their result is based on the levels measure (number of subsidiaries) comparable with the one used in Model 1 (i.e. *lnsubs_b1*). Here, neither the number of subsidiaries nor the change in number of subsidiaries influenced auditor change. Rather, the evidence suggests that companies in the UK will change auditor only in response to a major change in business complexity, *ceteris paribus.*

No other auditee characteristics were significant. Thus, while the income manipulation opportunity variable (*incman*) was an important determinant in Singapore (Woo and Koh, 2001), it does not appear to be so in the UK. Leverage was also insignificant here, as in the other UK studies (Lennox, 2000; Hudaib and Cooke, 2005). By contrast leverage was weakly significant in Singapore (Woo and Koh, 2001).

Lennox (2000) reports a positive significant relationship between directors' shareholding and the propensity to change auditor, in his UK sample. However, in the present study, director share ownership was not significant. Management change (*mgtchg*) and size are other variables that were insignificant in this thesis but significant elsewhere. Hudaib and Cooke (2005) and Woo and Koh (2001) report positively significant management change variables in their studies; Chow and Rice (1982) however, did not find any significant association. Auditee size (*sizeasse*t) was also

significant in Hudaib and Cooke (2005) but not here or in Chow and Rice (1982). Given the matching on size in the latter two, the lack of significance of the 'level' variable is hardly surprising.

These differences between the present and prior studies may result from environmental differences (different time periods and, in addition, different regulatory conditions for the US and Singapore studies). However, it is also possible that model misspecification due to the omission of important auditor change determinants in prior studies may be a factor. The present study is distinguished by its comprehensiveness (as is the study by Woo and Koh, 2001).

8.3.2.2 Audit characteristics

Three of the four audit characteristics variables were found to be significantly associated with auditor change in all models. *Feeb1to0* was positively significant at the 1% level confirming the hypothesis that companies change auditor as a way to reduce audit fee, *ceteris paribus*. This result, however was supported by Hudaib and Cooke (2005) during the 1997-1993 period, but not during 1994-2001. In their study, they used a 'levels' rather than 'change' variable, measuring audit fee as a ratio to total assets during the year preceding auditor change. Although they used the same measurement as in this thesis, Woo and Koh (2001) found only weak support for the fee saving hypothesis ($p \leq 10\%$, one-tailed test).

The positive and highly significant auditor independence variable (*nasaudfee*), suggests that companies with a higher ratio of NAS to audit fee tend to change their auditors in the following year. This indicates that the propensity to change auditor increases whenever perceived auditor independence is potentially compromised, and the auditee is liable to criticism and pressure from public and regulators over auditor independence.

Interestingly, the ratio of NAS before and after auditor change (*nasb1to0*) was also significant with positive association, indicating a significant relationship between auditor change propensity and *reduction* in reported NAS. The result lends support to the contention that a company may change auditor over the independence perception issue. By changing auditor, a company can now report lower NAS in its financial statements, reducing the NAS to audit fee ratio. Taken together with the auditor independence (*nasaudfee*) result, there is quite strong support for the contention that a company might change auditor as a way to improve the public and regulators' perception of auditor independence.

The receipt of a qualified audit opinion (*opinion*) does not appear to be a determinant of auditor change; the variable is insignificant across all ten models. Thus, there is little support here for the hypothesis that management will displace the auditor over accounting disagreements. Audit opinion was a significant factor in auditor change in both Lennox (2000) and Hudaib and Cooke (2005). In Hudaib and Cooke (2005), audit opinion was significant when interacted with management change and financial distress variables, but certain types of qualification were also important separately. Woo and Koh (2001) surprisingly reported a significant but *negative* association. It is likely that the small number of companies receiving a qualified opinion in the present study explains the insignificant result.

8.3.2.3 Auditor characteristics

The brand name auditor variable (*big5*), was found to be a significant determinant of auditor change in seven out of the ten auditor change models; the exceptions were models 2, 3 and 4. As expected, a company is less likely to change auditor if its current auditor is one of the Big 5/4. The variable was close to 5% significance in models 3 and 4 and in the correct direction. The result is consistent with prior UK studies.

Another auditor characteristic variable, i.e. audit specialist, was not significant in any of the models though in the correct direction. Thus, the hypothesis that a company audited by a specialist is less likely to change auditor cannot be supported.

8.3.3 Post-estimation diagnostics

8.3.3.1 Multicollinearity

As stated earlier, one of the assumptions of logistic regression is that independent variables are not a linear combination of each other. The degree of linear combination is known as collinearity (or multicollinearity) and in order to assess the presence of collinearity, a standard Pearson bivariate correlation test was performed. Pearson's correlation reflects the degree of linear relationship between two variables. It ranges from +1 to -1. A correlation of +1 means that there is a perfect positive linear relationship between variables. All of the variables included in the regression models were included in analysis. According to Anderson *et al.* (1996), as a rule of thumb, intercorrelation among the independents above 0.70 signals a possible problem. High multicollinearity potentially leads to large variances and covariances, large confidence intervals, and insignificant significance coefficients; it can also contribute to directional inconsistencies.

From the analysis, it was found that the highest correlation was between '*lnsubs_ab12'* and '*sizeasset_ab12'*. However, the correlation was only at 0.66 and accordingly should not cause any serious problems. To confirm this, the logistic model that contains both variables (model 2) was re-estimated by excluding one of the variables at a time. The results from the two modified models indicate that there is no substantial change in the p-value of the model and the determinant variables. All significant variables in the original model remain significant and there is also no change of sign.

To further ensure that multicollinearity was not present, the present study also examines the Variable Inflation Factor (VIF) for the independent variables in each regression. Based on the cut-off VIF≥10.0 as an indication of a multicollinearity problem (Neter *et al.,* 1985), no variable was found to possibly cause the problem.[120] Full results of Pearson correlation and VIF can be found in Appendix 2.

8.3.3.2 Model specification tests

In order to test that there were no specification errors (in terms of omitted relevant or important variables), a STATA command called *linktest* was run after every regression model. The result of this test would also indicate if the logit function (logit link) is the right function to use. The idea behind the linktest is that, if the model is properly specified, one should not be able to find any additional predictors that are significant except by chance. The *linktest* uses the predicted value (*variable_hat*) and predicted value squared (*variable_hatsq*) as the predictors to rebuild the model. Variable *variable_hat* should be a significant predictor since it is the predicted value from the model. This will be the case unless the model is completely misspecified. On the other hand, if the model is properly specified, variable *variable_hatsq* shouldn't have much predictive power other than by chance. Therefore, if *variable_hatsq* is significant, then the *linktest* is significant and it means either some relevant variables have been omitted or the link function is not correctly specified.

After performing the *linktest* for each logistic regression model, none of the models was found to have significant *variable_hatsq* and thus it can be concluded that there is no specification error with regards to omitted variables or to the use of the logit function.

The other test that relates to specification error is the one suggested by Menard (2002), which tests the assumption of a linear relationship between the logit of the independents

[120] The highest VIF was around 2.0, far below the cut-off level.

and the dependent variables. Menard (2002) suggests the use of the Box-Tidwell procedure and the test is available within STATA by using a command called *boxtid*. The results of the Box-Tidwell test will tell if any variable violates the linearity assumption.

Based on the test performed on each of the models, it was found that a number of variables in all models do not meet the linearity assumption and may cause problems with the interpretation of the results. In particular, as the linearity assumption is violated, the logistic regression will underestimate the degree of relationship of the independents to the dependent and will lack power (Type II errors, thinking there is no relationship when there actually is). Following the recommendation by Greene (2003), a robust variance estimator can be used since it is robust, amongst others, to the linearity assumption. The results of all models regressed using the robust option are presented in Appendix 3. As shown in the appendix (Table A3.1 to A3.3), the results of the robust estimation do not differ markedly from those of the original regressions. Thus, it can be concluded that the violation of the linearity assumption has little practical effect on the analysis.

8.3.3.3 Influential observations

Multivariate outliers are another source of potential problem that may have significant impact on the regression models. The presence of several influential data points can badly skew the regression estimation. In OLS regression, there are several types of residuals and influence measures that have been used to understand how each observation behaves in the model. Similar techniques have been developed in logistic regression.[121]

[121] Though vital, most auditor choice studies do not report the implementation of this diagnostic.

There are three statistics: Pearson residual; Deviance Residual; and Pregibon Leverage - that are considered to be the basic building blocks for regression diagnostics (Chen *et al.,* 2006*).* In order to facilitate the analysis, the graphical method has been used in the present study to pinpoint the observations of interest. The *three statistics* were graphed against case number for each model. Any observation (identified by matching case id) that was far away from the rest of the observations would be selected for removal. Three procedures were undertaken using these statistics. *First*, all observation with Pearson and Deviance residuals that were far from others were picked up if they also exhibited high leverage.[122] Then, the observations were dropped and the new logistic regression was estimated to see if there were any changes in significance level and coefficient sign. *Second*, only observations with extreme residuals (in terms of both Pearson & Deviance) were excluded from the model regardless of leverage value and a reduced sample model was estimated. *Third*, only observations with high leverage (i.e. far from others) were excluded and the logistic model with reduced sample was estimated to check for any changes in significance level and coefficient sign.

The results identified several observations with large residuals. However, the re-estimation results indicate that there was no major change in significance level and no change of coefficient sign for the significant variables. Therefore, it can be concluded that the models are robust to any influential observations.

8.3.3.4 Alternative proxies

As outlined in section 7.3, alternative proxies were used to test whether the reported results are sensitive to the measures used. Column 1 in Table 8.8 lists all of the

[122] Belsley *et al.* (1980) give the normal criterion for determining if the leverage for an observation is large when it is greater than 2 times (number of independent variables)/sample size. However, Wetherill *et al.* (1986, p.143) argue that this rule will, in general, detect too many points as high leverage points. As such, the present study identifies high leverage observations whenever they are distinctly high from other observations. In particular, observations with greater than 2 or lower than -2 Pearson or Deviance residuals, and leverage greater than 0.15 were selected for removal.

alternative proxies that were tested. For the purpose of testing, each alternative proxy was added individually to the original models and other variables were not replaced. For instance, when the alternative proxy was used to measure size (i.e. number of employees instead of total assets) in model 1, all other variables were as originally stated. The summary results were as in Table 8.8.

For each of the proxies being used, Table 8.8 shows the new coefficient and p-value together with the results of the old proxy (shaded). For example, the director share ownership proxy (*dirown*) was replaced by the dichotomous variable *dirown_sk*. This proxy is set equal to '1' if directors own between 12% to 40% of the company's shares (Short and Keasey, 1999). It seeks to recognise that high levels of ownership may lead to 'managerial entrenchment', whereby they may revert to acting in their own best interests rather than the interests of external shareholders. However, even with the new proxy, the variable continues to be an insignificant determinant of auditor change.

The new proxy for leverage, long term debt to total assets, was found to be significant in both contemporaneous models (at the 10% and 5% level for models 5 and 6, respectively). This result suggests that a company is likely to change auditor at the time it experiences a *change* (model 5) or *major change* (model 6) in long-term debt. This is consistent with increased involvement of a lending principal (or new principal) resulting from the increased leverage. When brand name auditor was defined as tier12 firms (to include two non-B5/4 international firms, Grant Thornton and BDO), the significance level was found to improve in all models. This interesting result implies that auditees perceive tier 2 firms to be more similar to the B5/4 group than to the non-tier12 group. A further result of interest is that none of the four alternative proxies for specialist auditor was significantly associated with auditor change probability. Although, the coefficient was in the expected direction, the p-value was not adequate to support the hypothesis.

Table 8.8: Results of auditor change regression using alternative proxy variables

Variables	Labels		ex-post models				Contemporaneous models		ex-post models			
			1	2	3	4	5	6	7	8	9	10
Director ownership	*dirown*	**Coef.**	-0.01	0.00	0.26	0.21	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
		P>|z|	0.429	0.658	*0.085*	0.518	0.155	0.139	0.140	0.140	0.213	0.199
	dirown_sk	**Coef.**	-0.78	-0.26	-0.101	-0.24	-0.09	0.12	-0.08	-0.05	-0.16	-0.06
		P>|z|	0.776	0.354	0.713	0.401	0.735	0.673	0.769	0.850	0.565	0.823
Leverage	*levtdta*	**Coef.**	-0.09	-0.53	0.02	0.13	0.09	-0.31	0.56	0.52	0.03	0.17
		P>|z|	0.910	0.514	0.740	0.694	0.206	0.314	0.459	0.491	0.499	0.590
	lev	**Coef.**	-0.59	-0.84	0.04	0.09	0.02	0.80	-0.05	0.50	0.02	0.50
		P>|z|	0.586	0.467	*0.093*	0.786	*0.055*	**0.010**	0.962	0.637	0.110	0.112
Size	*sizeasset*	**Coef.**	-0.02	-0.05	0.10	-0.12	0.07	0.43	-0.09	-0.10	-0.14	-0.05
		P>|z|	0.793	0.587	0.427	0.714	0.835	0.192	0.336	0.308	0.439	0.880
	sizeemployee	**Coef.**	-0.14	-0.13	-6.86	-0.13	0.93	0.42	0.20	-0.14	0.20	-0.03
		P>|z|	0.102	0.140	0.107	0.704	0.819	0.205	0.631	0.120	0.631	0.931
Brand name auditor	*big5*	**Coef.**	-0.58	-0.48	-0.54	-0.53	-0.68	-0.67	-0.73	-0.75	-0.70	-0.68
		P>|z|	**0.049**	0.110	*0.058*	*0.071*	**0.024**	**0.025**	**0.017**	**0.015**	**0.022**	**0.024**
	tier12	**Coef.**	-0.89	-0.92	-0.83	-0.91	-1.01	-0.98	-1.02	-1.04	-0.98	-1.02
		P>|z|	**0.012**	**0.011**	**0.016**	**0.011**	**0.005**	**0.006**	**0.005**	**0.004**	**0.006**	**0.005**
Industry specialist	*spec_30fee*	**Coef.**	-0.38	-0.38	-0.32	-0.21	-0.26	-0.19	-0.29	-0.29	-0.18	-0.18
		P>|z|	0.226	0.237	0.306	0.507	0.417	0.558	0.379	0.499	0.583	0.583
	spec_large	**Coef.**	0.03	0.01	0.03	0.06	0.14	0.15	0.09	0.07	0.17	0.16
		P>|z|	0.907	0.959	0.922	0.833	0.638	0.611	0.768	0.817	0.569	0.577
	spec_topfee	**Coef.**	-0.08	-0.11	-0.01	0.06	0.03	0.12	0.04	0.04	0.10	0.09
		P>|z|	0.805	0.743	0.979	0.848	0.936	0.731	0.915	0.916	0.754	0.788
	spec_msfee	**Coef.**	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.10	0.00	-0.01
		P>|z|	0.283	0.289	0.353	0.494	0.521	0.564	0.537	0.499	0.625	0.724
	spec_msclient	**Coef.**	-0.01	-0.01	-0.01	-0.01	-0.00	0.00	0.00	-0.01	0.00	0.00
		P>|z|	0.200	0.531	0.571	0.583	0.824	0.803	0.805	0.564	0.926	0.610

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.
Shaded area represents the results of original proxies

Substituting the alternative proxies in the models, in general, did not change the significance level of other variables. The exception is the brand name (*big5*) variable, which in model 1 it became significant at only 10% (originally 5%) when *dirown_sk, lev* and *sizeemployee* were used. A similar change also observed in models 2 and 9 when *spec_topfee* and *spec_msfee* were used, respectively. In contrast, the *big5* variable increased in significance (i.e. from 10% to 5%) in models 2, 3 and 4 when *spec_large* was used as the proxy for industry specialist; in models 3 and 4 when *spec_topfeee* was used and in model 3 when *spec_msclient* was used. Overall, while the choice of proxy variables did have some influence on the regression results, it did not lead to any changes affecting the main conclusions.

8.4 Chapter summary

This chapter examines the determinants of auditor change in the UK audit market using a matched-pairs dataset of 354 companies taken from the period 1999 to 2003 to estimate ex-post, contemporaneous and ex-ante auditor change models using logistic regression. The determinants of auditor change included in the model were developed from the extant literature of auditor choice (auditor change and selection) and corporate governance.

Major findings of this chapter relate to the corporate governance and auditor independence issues. Results show that the level of audit committee and board of director independence is associated with companies' decision to change auditor. It also reports that a company which is run by a chairman who is also the CEO will be more likely to change auditor in the coming year. Audit fee is shown to be a major determinant, lending support to the findings of previous survey studies. The auditor independence issue also seems to be important with the proxy for auditor independence found to be highly significant in all models. This result is further supported by the documented association between auditor change and the reduction in NAS fee. It is

interesting to note that, while companies audited by a brand name auditor are less likely to change auditor, there is no evidence to associate this with an industry specialist auditor. The result may indicate either that specialist auditor is not an important determinant, or that the proxies for specialism do not capture the underlying specialisation variable. The chapter also documents that the choice of model (ex-ante, contemporaneous or ex-post) does not markedly affect the results, the exception is growth variable. Different measurement (levels or changes) and the choice of alternative proxy variables do not greatly influence the regression results.

Chapter 9: Results of new auditor selection study

9.1 Introduction

Having investigated determinants of the first stage of the auditor choice process (auditor change) in chapter 8, this chapter documents the test results of the second stage of the process, i.e. 'new auditor selection'. In particular, it seeks to provide evidence on whether the demand for quality-differentiated audits is associated with auditee and audit characteristics. The specific research question of interest is: given that auditor change has occurred, what factors influence the selection of the new auditor?

Consequently, the chapter focuses on auditor changes that involved a change in auditor quality. Consistent with chapter 8, two proxies of audit quality are adopted: brand name auditor or specialist auditor. The B5/4 classification (*big5*) was used to represent the brand name proxy and four different measures of auditor industry specialist were used: (i) a dichotomous variable representing an auditor with at least 30% market share in the client's industry (*spec_30fee*); (ii) a dichotomous variable representing an auditor with the largest number of clients in the client's industry (*spec_large*); (iii) a continuous variable based on the auditor's 'audit fee' market share (*spec_msfee*); and (iv) a continuous variable based on the auditor's 'number of clients' market share (*spec_msclient*).

With the exception of client growth, there was little difference between the three time-related categories of model in chapter 8. In light of this, and to facilitate comparison with prior studies, only four ex post models were tested in this chapter: (i) level; (ii) average level; (iii) change; and, (iv) major change models.

The remainder of the chapter is organised as follows. The next section presents the model specification and explains the sample selection process. Section 9.3 discusses

descriptive statistics. Section 9.4 presents the multivariate analyses and results. Finally, section 9.5 summarises this chapter.

9.2 Model specification and sample selection

The new auditor selection models are based on the hypotheses developed in chapter 6 and the specification discussed in section 7.4. The potential factors of importance in selecting the quality of the incoming auditor are identical to those in the auditor change model (excepting the audit quality variables). However, the likely impact of the factors in favouring a particular new auditor quality differs, as outlined in chapter 6. The basic model of determinants for the dichotomous dependent variable is as follows.

P(audchg=1) = f(nedac, nedbod, dual, mgtchg, dirown, incman, levtdta, sizeasset, lnsubs, growth, finance, feeb1to0, nas1to0, nasaudfee, opinion)

where the dependent variable:

P(qualchg=1) = The estimated conditional probability of quality-differentiated auditor change in ordered direction, coded '0' for quality downgrade and '1' for quality upgrade. Two dichotomously measured dependent variables were used: change in brand name reputation and change in industry specialist. Two dichotomous measures of industry specialism were used: (i) auditor with at least 30% audit fee market share (*spec_30fee*); and, (ii) auditor with the greatest number of clients in the industry (*spec_large*).

and independent variables are as defined in chapter 8.

In addition, two further models were estimated using OLS with continuous dependent audit quality variables: (i) change in audit fee market share in particular industry between incumbent and replacement auditors (*spec_msfee*); and (ii) change in number of clients' market share in particular industry between incumbent and replacement auditors (*spec_msclient*).

There are 177 auditor change companies, which can be classified into three categories of change: (i) downgrade change; (ii) par change, and; (iii) upgrade change. All companies

were coded according to the direction of auditor change. Downgrade change refers to the change from high quality to lower quality auditor and upgrade change refers to the change from lower quality auditor to higher quality auditor. The par change refers to change within the same class of audit quality (e.g. B5/4 to B5/4 or non-B5/4 to non-B5/4).

As the focus of interest in the new auditor selection models is change in auditor quality, only non-par change cases can be included for the dichotomous dependent variable models. Further, when assessing the factors that determine the selection of a new industry specialist auditor, it was necessary to minimise the possible confounding effect of B5/4 brand name selection in the model. Consequently, for this analysis only companies involving B5/4 to B5/4 auditor change (i.e. par B5/4 change) were included. Brand name level was held constant to enable investigation of changes in industry-specialist auditor.

Altogether there were three dichotomous and two continuous measures of quality-differentiated change. Table 9.1 provides a tabulation for the dichotomous measures of quality-differentiated change. Row 1 shows that, when audit quality was based on brand name (B5/4 group membership), 98 companies (55%) had incumbent and new auditors from the same quality group; 75 companies changed *within* B5/4 and 23 changed *within* non-B5/4. Another 43 companies with B5/4 auditors chose non-B5/4 replacements (quality downgrade) and 36 with non-B5/4 auditors chose B5/4 replacements (quality upgrade). Thus, a total of 79 observations (43 downgrade and 36 upgrade) are eligible to be included in the estimation of the brand name new auditor selection model.

When auditor quality is based on auditor industry-specialism with a 30% audit fee market share specialist definition, a total of 52 companies were identified to downgrade (29) or

upgrade (23) their auditor. These 52 observations, however, include non-par B5/4 changes (i.e. brand name quality change).

Table 9.1: No. of companies (*percentage*) for each type of change

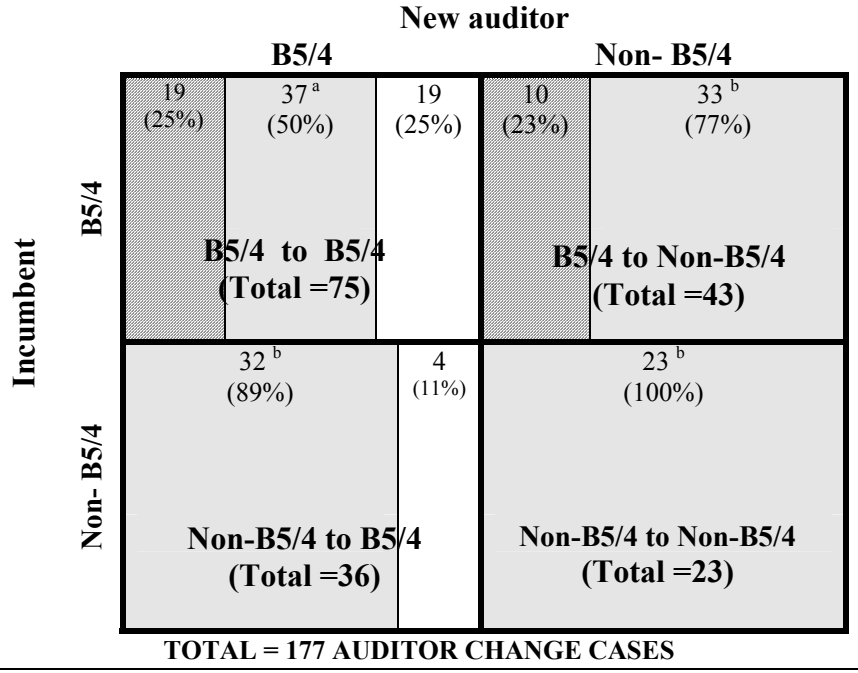
Quality definition	Direction of change (n=177)		
	Downgrade	**Par**	**Upgrade**
big5	43 *(24%)*	98 *(56%)*	36 *(20%)*
spec_30fee	29 *(16%)*	125 *(71%)*	23 *(13%)*
spec_large	49 *(28%)*	108 *(61%)*	20 *(11%)*

Note:
big5 = B5/4 auditors
spec_30fee = specialist designation based on 30% audit fee market share in client's industry
spec_large = specialist designation when the auditor is the largest in industry based on number of clients

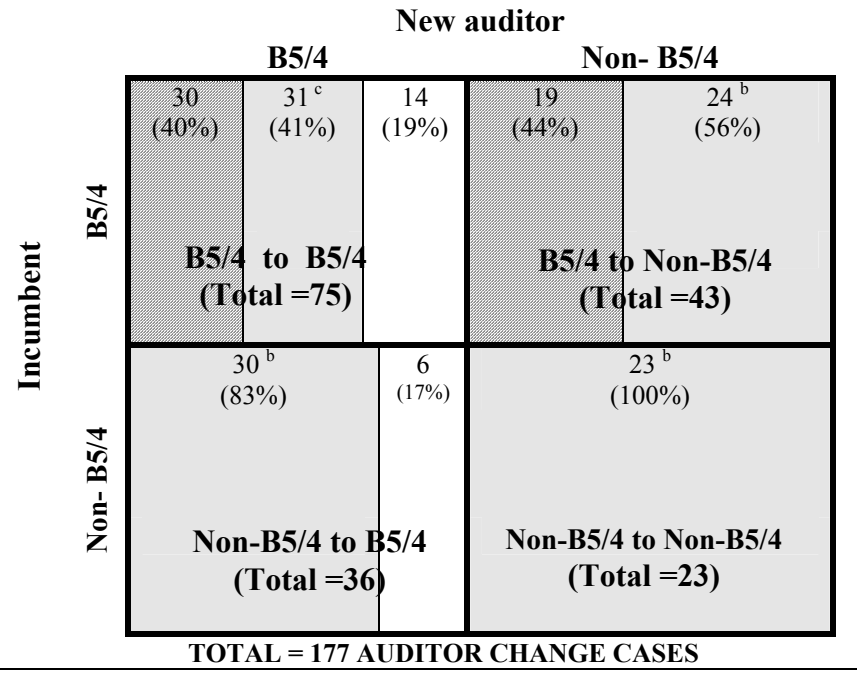
Given the desire to focus on industry-specialist quality shifts, independent of brand name quality changes, all non-par B5/4 changes need to be discarded. Figure 9.1 provides further classification of changes, with panel A focussing on the *spec_30fee* measure and panel B focussing on the *spec_large* measure. The off-diagonal large boxes in Figure 9.1 represent changes of auditor *between* different brand name quality levels. The top right-hand box shows the 43 'downgrades' from B5/4 to non-B5/4 and the bottom left shows the 36 non-B5/4 to B5/4 upgrades. The large boxes on the diagonal represent changes within the same level of brand name quality. There are 23 intra-non B5/4 changes, all between non-industry-specialist auditors. Of the total of 75 intra-B5/4 changes (top left-hand corner), 37 cases was identified as specialist par changes, with 36 changes between non-industry-specialist and one change between specialist. After excluding these specialist par changes, there are 38 changes between levels of industry-specialism, 19 upgrades and 19 downgrades. These changes form the new auditor selection model sample for the first industry-specialism dichotomous based proxy.

Figure 9.1: Classification of incoming specialist auditor according to type of change

Panel A: Number of companies (percentage) for each type of change when specialist is defined as the auditor with 30% audit fee market share (spec_30fee)



Panel B: Number of companies (percentage) for each type of change when specialist is defined as the auditor with the largest audit client (spec_large)



Specialist par changes (par specialist change)
Specialist to non-specialist (downgrade specialist change)
Non-specialist to specialist (upgrade specialist change)

Note:
[a] *36 cases within non-specialist*
1 cases within specialist
[b] *all within non-specialist*
[c] *31 cases within non-specialist*

For the alternative industry-specialist dichotomous proxy, with auditor quality defined as the auditor with the largest number of audit clients (*spec_large*), a total of 44 cases were eligible to be included in the final sample. As shown in the top left hand box of panel B, these 44 include 30 specialist downgrades and 14 specialist upgrades.

For the two models based on continuous measures of industry-specialism changes, it is again important to remove the potential impact of brand name changes by excluding inter-brand name auditor changes. Thus, the sample of 75 companies (top left-hand box) was used for the two 'continuous' models.

9.3 Descriptive statistics

Table 9.2 presents descriptive statistics for the reduced sample of 79 companies that appointed a new auditor from a different level of brand name quality as well as of the remaining 98 par change companies. Panel A (continuous variables) shows that quality-differentiated change companies were quite different from par change companies. In particular, they were significantly smaller with mean (median) of £41m (£18m) compared with £438m (£55m) and less complex (no. of subsidiaries). The companies had higher management share ownership (*dirown*), larger current accruals (*incman*) and experienced lower growth. Panel B (dichotomous variables) identifies two variables as significantly different. 'Major change' in current accruals (*incman_scb12*) was significant at 5% and 'major change' in leverage (*levtdta_scb12*) was significant at 10%.

Table 9.2: Descriptive statistics for quality differentiated change and par change cases

Panel A: Continuous variables

	Quality-differentiated change cases (n=79)					Par change cases (n=98)					Quality diff. vs. par			
											t-test		Mann Whitney-U	
Variables	**Mean**	**Median**	**Min.**	**Max.**	**Std. Dev.**	**Mean**	**Median**	**Min.**	**Max.**	**Std. Dev.**	**t-stat**	**p-value**	**z-stat**	**p-value**
nedac_b1 (%)	75.01	100.00	0.00	100.00	38.48	79.08	100.00	0.00	100.00	37.31	-0.71	0.478	-0.80	0.423
neda_ab12 (%)	74.96	100.00	0.00	100.00	33.43	79.71	100.00	0.00	100.00	34.45	-0.92	0.357	-1.36	0.173
nedbod_b1 (%)	48.58	50.00	0.00	85.71	19.31	48.55	50.00	0.00	83.33	16.04	0.01	0.991	0.04	0.969
nedbod_ab12 (%)	46.66	46.43	0.00	85.71	16.29	48.28	50.00	16.67	81.67	14.65	-0.70	0.487	-0.68	0.494
dirown_b1 (%)	19.41	14.93	0.12	72.69	19.02	12.68	4.10	0.00	90.00	19.87	2.28	**0.024**	3.66	**0.000**
dirown_ab12 (%)	20.39	15.79	0.22	72.82	18.59	13.40	5.52	0.00	82.51	19.48	2.42	**0.017**	3.99	**0.000**
dirown_cb12 (decimal)	0.84	-0.04	-0.99	58.00	6.61	1.92	0.00	-0.98	102.25	11.00	-0.77	0.444	-1.80	*0.071*
incman_b1 (decimal)	0.84	0.86	0.06	2.56	0.43	0.71	0.72	0.03	3.82	0.44	1.88	*0.062*	2.48	**0.013**
incman_ab12 (decimal)	0.85	0.82	0.04	2.12	0.41	0.75	0.77	0.02	2.79	0.41	1.66	*0.100*	1.94	*0.052*
incman_cb12(decimal)	0.47	-0.02	-0.80	20.11	2.49	-0.02	-0.05	-0.64	1.99	0.36	1.91	*0.058*	0.79	0.433
levtdta_b1 (decimal)	0.19	0.13	0.00	1.03	0.21	0.19	0.16	0.00	0.67	0.16	-0.65	0.517	-1.04	0.300
levtdta_ab12 (decimal)	0.96	0.15	0.00	61.66	6.92	0.21	0.20	0.00	0.68	0.16	1.08	0.283	-1.46	0.144
levtdta_cb12 (decimal)	0.34	0.00	-1.00	14.51	2.12	0.71	-0.04	-1.00	14.51	3.21	-088	0.378	0.02	0.984
sizeasset_b1 (£mil.)	41.11	17.74	0.75	301.26	56.34	438.23	55.16	0.36	7,504.50	1,086.55	-3.24	**0.001**	-3.82	**0.000**
sizeasset_ab12 (£mil.)	37.28	17.46	1.19	202.81	47.22	426.65	47.95	0.33	7,200.25	1,064.36	-3.25	**0.001**	-3.93	**0.000**
sizeasset_cb12 (decimal)	0.38	0.02	-0.76	5.01	1.07	0.30	0.04	-0.61	3.45	0.78	0.64	0.522	-0.19	0.846
lnsubs_b1(unit)	8.72	5.00	0.00	70.00	10.54	14.37	8.00	0.00	120.00	19.33	-2.33	**0.021**	-1.92	*0.055*
lnsubs_ab12(unit)	8.25	5.50	0.00	50.00	8.84	13.66	8.00	0.00	101.50	18.01	-2.44	**0.016**	-1.90	*0.058*
lnsubs_cb12 (decimal)	1.42	0.00	-1.00	10.67	3.45	1.09	0.00	-1.00	10.67	3.07	0.68	0.497	-1.26	0.209
growth_b1(decimal)	0.06	0.03	-1.00	2.21	0.45	0.31	0.10	-0.74	11.79	1.29	-1.65	*0.100*	-1.74	*0.081*
feeb1to0 (decimal)	1.20	1.05	0.22	7.20	0.84	1.11	1.00	0.35	3.50	0.48	0.90	0.368	0.46	0.641
nasb1to0 (decimal)	8.20	0.89	0.00	80.00	22.57	5.80	1.17	0.00	80.00	15.43	0.83	0.403	-1.73	*0.084*
nasaudfeeb1 (decimal)	1.24	0.95	0.00	6.32	1.20	1.28	0.70	0.00	10.94	1.72	-0.21	0.836	0.96	0.337

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level

Continued on next page

Table 9.2 (continued): Descriptive statistics for quality differentiated change and par change cases

Panel B: Dichotomous variables

	Quality-differentiated change (n=79)	Par change (n=98)	Quality diff. vs. par z-test	
Variables	**%**	**%**	**z**	**p>|z|**
dual_b1	28	22	0.83	0.409
mgtchg_b1	30	29	0.11	0.909
dirown_scb12	22	23	-0.31	0.758
incman_scb12	29	15	2.22	**0.026**
levtdta_scb12	27	16	1.67	*0.095*
sizeasset_scb12	22	20	0.18	0.857
lnsubs_scb12	30	22	1.20	0.231
opinion	6	3	1.04	0.298

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level

Table 9.3 compares upgrade and downgrade groups and panel A shows that the means and medians for five variables were statistically different: size (*sizeasset*), complexity (*lnsub*), growth (*growth*), audit fee (*feeb1to0*) and NAS (*nasb1to0*). Panel B shows no differences for the dichotomous variables.

The higher mean assets value for upgrade change companies indicates that, as expected, they were larger than downgrade companies. For audit fees (*feeb1to0*), the arithmetic mean is higher for downgrade companies, implying that audit fees paid to the new non-brand name auditor were lower than before the auditor change. On the other hand, for upgrade companies the audit fee was approximately 4% higher post-auditor change.

Upgrade companies also showed significantly higher means and medians for two ex-post variables: level of complexity and growth. For complexity, the result suggests that companies that choose to replace non-B5/4 with B5/4 generally have complex business operations. The demand for better quality auditors can be seen as a testimonial to the capability of B5/4 to cater for complex business environments. With the ability to cover a wider geographical area and equipped with better resources, the choice of B5/4

Table 9.3: Descriptive statistics for the quality B5/4 selection model

Panel A: Continuous variables

	Upgrade non-B5/4 to B5/4 (n=36)			Downgrade B5/4 to non-B5/4 (n=43)			Upgrade vs. downgrade			
							t-test		Mann Whitney-U	
Variables	**Mean**	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**t-stat**	**p-value**	**z-stat**	**p-value**
nedac_b1 (%)	75.96	100.00	34.75	74.22	100.00	41.74	0.20	0.844	0.32	0.752
neda_ab12 (%)	74.81	91.67	30.70	75.10	100.00	35.92	-0.04	0.970	-0.42	0.678
nedbod_b1 (%)	50.48	50.00	17.93	46.99	50.00	20.47	0.80	0.428	0.61	0.541
nedbod_ab12 (%)	47.52	48.86	14.34	45.93	45.00	17.90	0.43	0.670	0.74	0.457
dirown_b1 (%)	20.94	16.34	19.29	18.13	11.88	18.93	0.65	0.517	0.82	0.411
dirown_ab12 (%)	21.76	17.33	18.44	19.24	13.86	18.85	0.60	0.552	0.94	0.345
dirown_cb12 (decimal)	0.26	-0.09	1.49	1.32	-0.03	8.87	0.71	0.479	-0.12	0.906
incman_b1 (decimal)	0.86	0.90	0.34	0.82	0.76	0.49	0.44	0.664	0.83	0.408
incman_ab12 (decimal)	0.87	0.91	0.35	0.84	0.81	0.46	0.39	0.696	0.60	0.540
incman_cb12(decimal)	0.60	-0.02	3.38	0.36	-0.01	1.40	0.43	0.671	-0.24	0.813
levtdta_b1 (decimal)	0.18	0.09	0.23	0.20	0.16	0.20	-0.46	0.647	-0.82	0.413
levtdta_ab12 (decimal)	0.17	0.13	0.18	1.62	0.17	9.37	-0.92	0.359	-0.36	0.716
levtdta_cb12 (decimal)	0.29	-0.06	2.54	0.38	0.00	1.72	-0.19	0.851	1.24	0.215
sizeasset_b1 (£mil.)	63.52	41.78	71.88	22.34	11.38	28.23	3.46	**0.001**	3.73	**0.000**
sizeasset_ab12 (£mil.)	53.08	36.28	56.39	24.04	13.37	33.13	2.84	**0.006**	3.45	**0.001**
sizeasset_cb12 (decimal)	0.59	0.13	1.21	0.21	-0.02	0.91	1.57	0.117	2.22	**0.027**
lnsubs_b1(unit)	11.89	7.00	13.97	6.07	5.00	5.27	2.53	**0.014**	1.65	*0.098*
lnsubs_ab12(unit)	10.74	5.75	11.43	6.17	5.50	5.14	2.35	**0.021**	1.39	0.163
lnsubs_cb12 (decimal)	1.90	0.15	3.75	1.03	0.00	3.17	1.12	0.269	1.33	0.183
growth_b1(decimal)	0.22	0.14	0.51	-0.08	-0.10	0.35	3.12	**0.003**	3.47	**0.001**
feeb1to0 (decimal)	0.96	0.97	0.38	1.40	1.19	1.04	-2.41	**0.018**	-2.77	**0.006**
nasb1to0 (decimal)	1.13	0.73	1.28	4.12	1.00	29.42	-2.64	**0.010**	-2.25	**0.024**
nasaudfeeb1 (decimal)	1.07	0.87	0.83	1.37	0.96	1.43	-1.15	0.253	-0.19	0.852

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level

Continued on next page

Table 9.3: (continued): Descriptive statistics for the quality B5/4 selection model

Panel B: Dichotomous variables

	Upgrade non-B5/4 to B5/4 (n=36)	Downgrade B5/4 to non-B5/4 (n=43)	Upgrade vs. downgrade Chi^2 test	
Variables	**%**	**%**	**Chi^2**	**p>|z|**
dual_b1	22	33	1.04	0.307
mgtchg_b1	28	33	0.21	0.645
dirown_scb12	25	19	0.48	0.491
incman_scb12	25	32	0.54	0.460
levtdta_scb12	19	32	1.73	0.189
sizeasset_scb12	17	26	0.92	0.337
lnsubs_scb12	31	30	0.00	0.975
opinion	8	5	0.45	0.503

Notes: **bold** = significant at 5% level, *italic* =significant at 10% level

by companies with complex operations is not unexpected. B5/4 firms are also the choice of growing companies. The statistics suggest that the upgrade companies were growing whereas sales for downgrade change companies declined. While growing companies' demand for higher quality audit services might be the main reason for the B5/4 selection, downgrade companies might be driven by a desire to save on audit costs.

The mean values for NAS (*nasb1to0*) suggest that both groups had reduced the purchase of NAS from their auditor with the downgrade group declining by much more than the upgrade group. However, the means are being distorted by some large changes as the median provides a somewhat different picture. While the downgrade median company observed no change in NAS, the upgrade median company was seen to take 37% more NAS from the new B5/4 auditor than the incumbent non-B5/4.

As the sampling period includes the period surrounding the Enron collapse, the large reduction in NAS by some companies might be caused by the public pressure concerning auditor independence issues that was heavily debated by authorities during the time period. There is also the possibility that downgrade companies changed auditor due to public/regulator concerns over auditor independence (as shown by the slightly higher *nasaudfeeb1* ratio), but continued to buy the NAS from its former B5/4

auditor. However, given that NAS purchased from other than the company's own auditor is not required to be disclosed, this view is difficult to substantiate. Alternatively, the large reduction in NAS by the downgrade group might also indicate that the initial demand for a B5/4 auditor group was driven by the capability of this B5/4 group in providing NAS; when no longer required, the company then switched back to a smaller auditor.

Tables 9.4 and 9.5 provide summary statistics for the samples of B5/4 to B5/4 par change companies which changed the level of auditor specialist. Table 9.4 is for the sample when the specialist variable was defined based on 30% audit fee market share (*spec_30fee*) and Table 9.5 relates to the sample for the largest number of clients measure. Table 9.4 shows the upgrade and downgrade groups were statistically different in terms of change in income manipulation opportunities (*incman_cb12*), the upgrade change group exhibiting a higher mean and median. The other variable with a significant difference is the level of complexity (*lnsubs*); the downgrade change group has a higher mean and median. Table 9.5 shows that companies switching from a specialist have lower NAS after change.

Comparing the mean and median of all cases between Tables 9.3, 9.4 and 9.5 reveals some interesting observations. First, director ownership was markedly higher amongst brand name change companies (Table 9.3) than amongst specialist change companies (Tables 9.4 and 9.5). In terms of audit committee and BOD composition, specialist change groups were theoretically more independent.

Table 9.4: Descriptive statistics for the 'spec_30fee' specialist selection model

Panel A: Continuous variables

	all cases (n = 38)					Upgrade non-spec_30fee to spec_30fee (n =19)			Downgrade spec_30fee to non-spec_30fee (n =19)			Upgrade vs. downgrade			
												t-test		Mann Whitney-U	
Variables	**Mean**	**Median**	**Min.**	**Max**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**t-stat**	**p-value**	**z-stat**	**p-value**
nedac_b1 (%)	80.92	100.00	0.00	100.00	36.81	88.16	100.00	25.05	73.68	100.00	45.24	1.22	0.230	-0.38	0.705
neda_ab12 (%)	79.80	100.00	0.00	100.00	32.02	84.43	100.00	22.39	75.18	100.00	39.51	0.89	0.380	-0.15	0.881
nedbod_b1 (%)	49.71	50.00	6.67	83.33	15.22	45.76	44.44	13.18	53.66	57.14	16.41	-1.64	0.110	-1.77	*0.077*
nedbod_ab12 (%)	49.24	50.00	20.00	81.67	14.95	45.83	47.92	14.24	52.64	53.57	15.23	-1.42	0.163	-1.32	0.188
dirown_b1 (%)	8.86	4.01	0.01	63.91	15.08	9.81	4.13	14.99	7.91	2.27	15.53	0.38	0.703	1.15	0.249
dirown_ab12 (%)	8.80	4.04	0.01	63.26	14.96	9.20	4.37	14.86	8.40	3.14	15.47	0.16	0.871	0.54	0.589
dirown_cb12 (decimal)	0.43	0.00	-0.98	3.17	1.23	0.55	0.00	1.32	0.31	0.00	1.16	0.61	0.548	-0.18	0.861
incman_b1 (decimal)	0.74	0.71	0.08	1.58	0.28	0.78	0.83	0.34	0.69	0.68	0.22	0.97	0.338	0.95	0.343
incman_ab12 (decimal)	0.77	0.79	0.09	1.66	0.34	0.73	0.78	0.33	0.81	0.80	0.35	-0.72	0.474	-0.48	0.630
incman_cb12(decimal)	0.06	-0.02	-0.60	1.41	0.42	0.24	0.03	0.45	-0.12	-0.09	0.31	2.78	**0.009**	2.38	**0.017**
levtdta_b1 (decimal)	0.22	0.18	0.00	0.67	0.16	0.24	0.22	0.19	0.20	0.17	0.13	0.77	0.446	0.39	0.694
levtdta_ab12 (decimal)	0.23	0.22	0.00	0.58	0.15	0.25	0.24	0.18	0.22	0.22	0.13	0.67	0.504	0.39	0.694
levtdta_cb12 (decimal)	0.42	-0.07	-1.00	9.50	2.25	0.81	0.00	3.05	0.03	-0.09	0.86	1.07	0.291	0.31	0.759
sizeasset_b1 (£mil.)	429.55	104.73	3.01	3,979.70	782.64	223.47	101.14	339.59	635.64	151.57	1,026.69	-1.66	0.106	-1.15	0.249
sizeasset_ab12 (£mil.)	419.45	110.82	2.31	3,441.15	775.75	213.52	109.78	304.91	625.38	111.87	1,026.90	-1.68	0.102	-0.86	0.389
sizeasset_cb12 (decimal)	0.21	0.06	-0.54	2.26	0.57	0.09	-0.01	0.35	0.32	0.13	0.73	-1.27	0.212	-1.04	0.300
lnsubs_b1(unit)	18.82	14.00	0.00	91.00	20.04	11.95	10.00	12.97	25.68	17.00	23.62	-2.22	**0.033**	-2.53	**0.011**
lnsubs_ab12(unit)	17.82	13.25	0.00	82.50	19.56	11.11	9.00	13.60	24.53	16.50	22.50	-2.22	**0.033**	-2.94	**0.003**
lnsubs_cb12 (decimal)	1.13	0.00	-0.60	10.67	3.01	1.50	0.00	3.50	0.76	0.00	2.48	0.74	0.462	-0.41	0.678
growth_b1(decimal)	0.25	0.11	-0.53	1.95	0.51	0.21	0.10	0.48	0.29	0.12	0.54	-0.48	0.634	-0.47	0.640
feeb1to0 (decimal)	1.09	1.00	0.53	2.00	0.34	1.11	1.00	0.32	1.07	1.00	0.36	0.40	0.689	-0.23	0.815
nasb1to0 (decimal)	2.82	1.64	0.00	12.10	3.70	2.71	1.71	3.48	2.93	1.54	4.01	-0.18	0.858	0.32	0.748
nasaudfeeb1 (decimal)	0.98	0.65	0.00	2.85	0.92	0.95	0.71	0.81	1.01	0.50	1.04	-0.19	0.848	0.13	0.895

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level

Continued on next page

Table 9.4 (continued): Descriptive statistics for the 'spec_30fee' specialist selection model

Panel B: Dichotomous variables

	all cases (n=38)	**Upgrade non-spec_30fee to spec_30fee (n =19)**	**Downgrade spec_30fee to non-spec_30fee (n=19)**	**Upgrade vs. downgrade Chi² test**	
Variables	**%**	**%**	**%**	**Chi²**	**p-value**
dual_b1	21	26	16	0.63	0.426
mgtchg_b1	24	26	21	0.15	0.703
dirown_scb12	32	26	37	0.49	0.485
incman_scb12	29	32	26	0.13	0.721
levtdta_scb12	13	11	16	0.23	0.631
sizeasset_scb12	16	16	16	0.00	1.000
lnsubs_scb12	16	28	5	3.44	*0.063*
opinion	3	1	5	1.03	0.310

Notes: **bold** = significant at 5% level, *italic* =significant at 10% level

All groups show a reduction in terms of audit fees and NAS. However, it is the non-par brand name change group that exhibits the largest reduction in audit fees whereas it exhibits the smallest reduction in NAS. Interestingly, this group also earns more NAS to audit fee, suggesting a higher threat to perceived independence.

With regard to the dichotomous variables shown in panel B of Tables 9.4 and 9.5, none of the variables was significant at 5%. At the 10% level, only complexity (*lnsubs_scb12*) in Table 9.4 was significant. The result shows that 28% of specialist upgrade companies had experienced a significant change in the number of subsidiaries, suggesting more complex business operations, compared with only 5% of companies in the specialist downgrade group.

Table 9.5: Descriptive statistics for the 'spec_large' specialist selection model

Panel A: Continuous variables

	all cases (n=44)					Upgrade non-spec_large to spec_large (n=14)			Downgrade spec_large to non-spec_large (n=30)			Upgrade vs. downgrade			
												t-test		Mann Whitney-U	
Variables	**Mean**	**Median**	**Min.**	**Max.**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**t-stat**	**p-value**	**z-stat**	**p-value**
nedac_b1 (%)	85.42	100.00	0.00	100.00	32.70	90.48	100.00	27.51	83.06	100.00	35.05	0.70	0.490	-0.70	0.485
neda_ab12 (%)	85.21	100.00	0.00	100.00	29.93	86.90	100.00	30.79	84.42	100.00	30.03	0.25	0.801	-0.53	0.596
nedbod_b1 (%)	50.85	50.00	16.67	83.33	14.99	50.32	50.00	15.53	51.09	50.00	14.99	-0.16	0.875	-0.17	0.869
nedbod_ab12 (%)	50.93	52.92	20.00	81.67	14.04	50.94	55.00	13.85	50.92	50.00	14.37	0.00	0.998	0.30	0.762
dirown_b1 (%)	7.96	3.41	0.01	59.50	12.51	6.51	3.73	7.84	8.64	2.76	14.24	-0.52	0.604	0.24	0.811
dirown_ab12 (%)	8.64	4.89	0.01	59.50	12.25	7.59	6.02	7.46	9.13	3.76	14.03	-0.38	0.702	0.45	0.650
dirown_cb12 (decimal)	0.19	-0.01	-0.98	3.17	1.09	0.22	-0.03	1.17	0.18	-0.01	1.08	0.11	0.912	-0.08	0.940
incman_b1 (decimal)	0.70	0.68	0.04	1.58	0.31	0.69	0.68	0.35	0.70	0.69	0.30	-0.06	0.955	-0.38	0.705
incman_ab12 (decimal)	0.74	0.72	0.10	1.66	0.34	0.68	0.72	0.36	0.77	0.74	0.33	-0.86	0.392	-0.76	0.450
incman_cb12(decimal)	0.01	0.00	-0.96	1.41	0.42	0.17	0.02	0.52	-0.07	-0.01	0.34	1.82	*0.075*	1.11	0.268
levtdta_b1 (decimal)	0.17	0.15	0.00	0.53	0.13	0.22	0.20	0.18	0.15	0.15	0.11	1.56	0.125	-0.89	0.371
levtdta_ab12 (decimal)	0.19	0.16	0.00	0.64	0.15	0.21	0.16	0.18	0.19	0.18	0.14	0.44	0.661	0.01	0.997
levtdta_cb12 (decimal)	1.33	-0.05	-1.00	14.51	4.15	1.45	0.01	3.42	1.27	-0.07	4.51	0.14	0.891	-0.91	0.364
sizeasset_b1 (£mil.)	402.78	100.18	3.01	3,979.70	791.13	306.62	115.84	638.74	447.65	93.40	859.42	-0.55	0.588	0.38	0.705
sizeasset_ab12 (£mil.)	411.95	99.47	2.31	3,441.15	820.00	336.14	144.02	755.86	447.33	89.07	858.38	-0.41	0.680	0.43	0.668
sizeasset_cb12 (decimal)	0.18	0.01	-0.54	2.90	0.67	0.32	0.04	0.86	0.12	0.00	0.57	0.94	0.353	0.43	0.668
lnsubs_b1(unit)	15.68	10.50	0.00	91.00	18.27	10.71	8.50	8.70	18.00	11.50	21.06	-1.24	0.222	-1.00	0.319
lnsubs_ab12(unit)	14.99	10.00	0.00	82.50	17.55	10.00	8.75	8.90	17.32	10.00	20.09	-1.29	0.201	-1.85	0.236
lnsubs_cb12 (decimal)	1.15	0.00	-1.00	10.67	3.19	3.01	0.00	5.03	0.27	0.00	1.15	2.86	**0.007**	1.16	0.245
growth_b1(decimal)	0.13	0.03	-0.73	1.95	0.48	0.33	0.11	0.64	0.05	-0.01	0.35	1.88	*0.067*	1.13	0.257
feeb1to0 (decimal)	1.08	0.97	0.35	2.14	0.40	0.98	0.92	0.36	1.12	1.00	0.42	-1.13	0.264	-1.34	0.182
nasb1to0 (decimal)	3.14	1.37	0.00	12.10	4.02	1.33	1.03	1.22	3.99	1.55	4.58	-2.12	**0.040**	-1.82	*0.069*
nasaudfeeb1 (decimal)	0.96	0.59	0.00	4.79	0.98	0.82	0.58	0.74	1.03	0.83	1.08	-0.67	0.506	-0.38	0.705

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level

Continued on next page

Table 9.5 (continued): Descriptive statistics for the 'spec_large' specialist selection model

Panel B: Dichotomous variables

	all cases (n=44)	Upgrade non-spec_large to spec_large (n=14)	Downgrade spec_large to non-spec_large (n=30)	Upgrade vs. downgrade Chi^2 test	
Variables	**%**	**%**	**%**	**Chi^2**	**p-value**
dual_b1	20	21	20	0.01	0.912
mgtchg_b1	27	29	27	0.02	0.895
dirown_scb12	27	43	20	2.51	0.113
incman_scb12	27	29	27	0.18	0.895
levtdta_scb12	14	21	10	1.06	0.303
sizeasset_scb12	23	29	20	0.40	0.527
lnsubs_scb12	26	31	23	0.26	0.608
opinion	2	0	3	0.48	0.490

Notes: **bold** = significant at 5% level, *italic* =significant at 10% level

Table 9.6 gives statistics for the continuous measures of auditor specialist variables (considering only par B5/4 change cases). Descriptive statistics for both variables, *spec_msfee* (specialist based on audit fee market share in client's industry) and *spec_msclient* (specialist based on number of client market share in client's industry) are given for both the outgoing (labelled b1) and incoming auditor (labelled a0). The incoming and outgoing market share difference is represented by the market share change variables (labelled as *spec_msfee* or *spec_msclient*). Overall, the mean and median suggest that the companies that change within the B5/4 auditors seem to choose incoming auditors with a lower market share in the industry. This preference may be due to a reluctance to share auditor with their rivals, while favouring a B5/4 auditor. The decline in market share is statistically significant when the measure is based on the number of clients market share.

Table 9.6: Descriptive statistics for 'spec_msfee' and 'spec_msclient' specialist variables

Panel A: Descriptive statistics for 'spec_msfee' (n=75)

	mean	median	Std. Dev.
spec_msfeeb1	23.22	20.77	14.64
spec_msfeea0	21.96	15.26	17.75
spec_msfee	**-1.26**	**-4.04**	**27.05**
Test of significant different from zero	t stat =-0.40 p value= 0.688	z stat =-0.92 p value = 0.361	

Panel B: Descriptive statistics for 'spec_msclient' (n=75)

	mean	median	Std. Dev.
spec_msclientb1	19.07	18.32	8.60
spec_msclienta0	14.38	12.12	7.96
spec_msclient	**-4.69**	**-5.26**	**13.38**
Test of significant different from zero	t stat = 3.04 p value = **0.00**	z stat =-2.79 p value = **0.005**	

9.4 Results

9.4.1 Brand name auditor change

Table 9.7 documents the logistic regression results of the brand name new auditor selection models using the sample of 79 auditor change cases. While all models' chi^2 are significant at 1% level, based on the R^2 measures, model 1 and model 2 (level and average level models) have slightly greater explanatory power than model 3 and 4 (changes and major changes models). Across the four models, model 2 exhibits the highest accuracy rate, correctly predicting 80% of the quality change direction; model 3 has the lowest accuracy rate of 70%.

Two variables were found to be significant at 5% significance across all four models. Upgrading to a B5 auditor results in a higher audit fee (as indicated by the significant negative coefficient). This is consistent with the argument that B5/4 firms charge their clients an audit fee premium for their service, as found in prior audit fee studies (Brinn *et al.,* 1994; Chan *et al.,* 1993 and Ezzamel *et al*., 1996). It does not provide any evidence of lowballing practice.

Table 9.7: New auditor selection models using B5/4 definition as dependent variable (1= upgrade change, 0= downgrade change)

		Model 1 (n= 79)			Model 2 (n=79)			Model 3 (n=79)			Model 4 (n=79)		
Variables	**Ex. sign**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics													
nedac_b1	+	-0.01	-0.97	0.335	-	-	-	0.00	0.37	0.708	0.00	-0.11	0.916
nedac_ăb12	+	-	-	-	-0.03	-1.85	*0.065*	-	-	-	-	-	-
nedbod_b1	+	0.01	0.40	0.686	-	-	-	0.00	0.09	0.927	0.02	0.93	0.353
nedbod_ăb12	+	-	-	-	0.01	0.39	0.698	-	-	-	-	-	-
dual_b1	-	-0.89	-1.14	0.256	-1.06	-1.17	0.240	-1.36	-1.79	*0.073*	-1.27	-1.69	*0.091*
mgtchg_b1	+	-0.11	-0.14	0.887	-0.14	-0.17	0.868	-0.21	-0.30	0.768	-0.61	-0.77	0.444
dirown_b1	-	0.01	0.76	0.447	-	-	-	-	-	-	-	-	-
dirown_ăb12	-	-	-	-	0.01	0.86	0.389	-	-	-	-	-	-
dirown_cb12	?	-	-	-	-	-	-	-0.07	-0.20	0.838	-	-	-
dirown_scb12	?	-	-	-	-	-	-	-	-	-	-0.50	-0.70	0.487
incman_b1	+	0.70	0.92	0.358	-	-	-	-	-	-	-	-	-
incman_ăb12	+	-	-	-	-0.48	-0.59	0.557	-	-	-	-	-	-
incman_cb12	?	-	-	-	-	-	-	1.35	1.78	*0.075*	-	-	-
incman_scb12	?	-	-	-	-	-	-	-	-	-	-0.40	-0.51	0.607
levtdta_b1	+	0.59	0.25	0.799	-	-	-	-	-	-	-	-	-
levtdta_ăb12	+	-	-	-	-3.06	-1.07	0.285	-	-	-	-	-	-
levtdta_cb12	?	-	-	-	-	-	-	-0.23	-1.67	*0.095*	-	-	-
levtdta_scb12	?	-	-	-	-	-	-	-	-	-	-1.66	-2.07	**0.038**
sizeasset_b1	+	0.87	2.21	**0.027**	-	-	-	-	-	-	-	-	-
sizeasset_ăb12	+	-	-	-	1.59	2.73	**0.006**	-	-	-	-	-	-
sizeasset_cb12	?	-	-	-	-	-	-	-0.17	-0.47	0.641	-	-	-
sizeasset_scb12	?	-	-	-	-	-	-	-	-	-	-0.55	-0.60	0.547
lnsubs_b1	+	-0.02	-0.05	0.964	-	-	-	-	-	-	-	-	-
lnsubs_ăb12	+	-	-	-	-0.48	-0.83	0.406	-	-	-	-	-	-
lnsubs_cb12	?	-	-	-	-	-	-	0.06	0.62	0.533	-	-	-
lnsubs_scb12	?	-	-	-	-	-	-	-	-	-	0.59	0.76	0.450
growth_b1	+	0.92	0.93	0.351	0.30	0.28	0.776	1.74	1.91	***0.057***	1.60	1.68	*0.093*
Audit characteristics													
feeb1to0	?	-1.70	-2.07	**0.039**	-2.04	-2.13	**0.033**	-1.97	-2.46	**0.014**	-1.82	-2.40	**0.016**
nasb1to0	+	-0.34	-2.18	**0.029**	-0.40	-2.33	**0.020**	-0.29	-2.12	**0.034**	-0.31	-2.19	**0.028**
nasaudfeeb1	+	-0.26	-0.73	0.466	-0.14	-0.38	0.705	-0.41	-1.31	0.190	-0.27	-0.86	0.390
opinion	-	1.07	0.70	0.483	1.94	1.16	0.247	1.24	0.95	0.341	1.44	0.94	0.349
constant	?	-6.32	-1.66	*0.096*	-9.42	-2.03	**0.042**	3.03	1.87	0.061	2.74	1.66	*0.097*
Hosmer-Lemeshow				0.698			0.877			0.849			0.177
Prob > chi^2				0.000			0.000			0.002			0.007
Nagelkerke R^2				0.521			0.551			0.463			0.439
Coxsnell R^2				0.390			0.411			0.347			0.327
Pseudo R^2				0.358			0.387			0.309			0.290
Correctly classified				77.22			80.26			74.68			72.37

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

A significant negative coefficient is also found for the NAS variable. This direction is contrary to expectations and prima facie inconsistent with the finding from the auditor change models. The selection model finding suggests that companies which upgrade to a B5/4 auditor reported *higher* NAS in the year of auditor change. An explanation for this result could be that the B5/4 auditor had been acting in a consultancy role prior to appointment as auditor and the company, having been impressed by the audit firm, invited them to act also as auditor. It is possible that this rise in reported NAS might be temporary; for example, if the auditor ceases to provide consultancy service fairly soon after appointment as auditor. While we do not at present have the data to test this conjecture, it would be a worthwhile extension to the project. The proxy for auditor independence (*nasaudfeeb1*) does not appear to influence companies' decision to change auditor quality; it is insignificant across all models.

In the two 'levels' models (1 and 2), size, as proxied by total assets, was in the expected the direction: the positive coefficient indicates that larger companies are more likely to choose a better quality replacement auditor. This result is consistent with the findings of Palmrose (1984), Healy and Lys (1986) and Woo and Koh (2001).

Major change in leverage was significant in model 4 and leverage change was significant at the 10% level (two-tailed) in model 3. The negative coefficients suggest that a B5/4 auditor would be less likely to be the successor for increased leverage companies. The change to a non-B5/4 auditor is not consistent with the agency perspective. This implies that companies with increased leverage are likely to be subject to increased monitoring by debt-providers, so a B5/4 auditor would be expected. However, the result is consistent with the alternative view that B5/4 auditors might want to avoid risky clients due to potential litigation risk (Jones and Raghunandan, 1998).

None of the corporate governance variables was significant at the 5% level. Audit committee independence, as proxied by the average ratio of NEDs on audit committee (*nedac_ab12*), was found to be weakly significant (at the 10% significant level). The negative coefficient is counter-intuitive, suggesting that a company with a more independent audit committee would be *less* likely to select a brand name auditor as a replacement for the non-B5/4 auditor. However, it is worth noting that only the average level measure was found to be significant. Chairman/CEO duality (*duality*) was significant (at the 10% significance level) in models 3 and 4, in the expected direction. The negative coefficient suggests that a company with a dominant person on board will less likely to choose a B5/4 auditor as a replacement auditor.

The growth variable was positive and significant in models 3 and 4 at the 5% and 10%, respectively. As expected, a growing company is likely to change to an auditor that can provide a quality audit service. Additionally, as a growing company might open new branches or set-up new subsidiaries, it also looking for an audit firm with a wider network, nationally or internationally. Thus, the selection of a B5/4 firm to replace a non-B5/4 firm by the growing company is consistent with the smaller firm's inability to cater for the company's need. Previous studies that report a significant '*growth*' variable include Francis and Wilson (1988), Johnson and Lys (1989), DeFond (1992), Healy and Lys (1986) and Woo and Koh (2001).

A change in the level of current accruals, the proxy for income manipulation opportunities (*incman_cb12*) was significant at the 10% level (model 3). As expected, a company that may be prone to income manipulation opportunities is more likely to replace a smaller auditor with one of higher quality. B5/4 can be chosen on its technical capability (e.g. better audit methodology) as well on its financial strength (as suggested by the insurance hypothesis). DeFond (1992) used a similar measure but

found an insignificant relationship. However, Woo and Koh (2001) found the *level* of current accruals to be significant at the 10% level (one-tailed).

9.4.2 Brand name only auditor change

While the above analysis of brand name new auditor selection is consistent with prior research, it ignores the potential confounding effect of quality changes related to industry specialism. It is also interesting to re-consider the brand name analysis having removed any potential industry specialist 'contamination'. Consequently, a further test was conducted by considering only par industry specialist auditor changes. By doing so, all of the companies included are known to choose a new auditor within the same specialist or non-specialist auditor group, and thus any results should be due to the effect of B5/4 brand name choice. Two definitions of auditor specialist were used to identify companies with par specialist changes. Again, only companies with downgrade or upgrade brand name changes were considered for analysis. By applying the par specialist restriction, when specialist defined as *spec_large,* a sample of 65 cases was eligible for analysis: 33 B5/4 to non-B5/4 (Figure 9.1, panel A, top right hand box) and 32 non-B5/4 to B5/4 (bottom left hand box). Similarly, when specialist was defined as *spec_large*, there were 54 cases: 24 B5/4 to non-B5/4 (Figure 9.1, panel B, top right hand box) and 30 non-B5/4 to B5/4 (bottom left hand box). The results from the refined B5/4 incoming auditor models are shown in Table 9.8.

Panels A through D document the logistic results for models 1 through 4 (from Table 9.7), respectively. The chi^2 for all eight models indicates a good fit, however, for one model (the average level model, model 2) the Hosmer-Lemeshow goodness of fit measure is less than 0.05. Compared with the previous B5/4 models in Table 9.7, the refined models show improved prediction statistics in term of 'strength of association' as shown by the R-squared statistics as well as the prediction accuracy rate based on the classification table statistics.

Table 9.8: New auditor selection models using B5/4 definition as dependent variable (1= upgrade change, 0= downgrade change) holding specialist effect constant

Panel A: Model 1

		par spec_30fee (n=65)			par spec_large (n=54)		
	ex. sign	Coef.	z	P>|z|	Coef.	z	P>|z|
Auditee characteristics							
nedac_b1	+	-0.02	-1.32	0.186	-0.01	-0.43	0.669
nedbod_b1	+	0.02	0.93	0.355	0.02	0.82	0.414
dual_b1	-	-0.47	-0.42	0.672	-1.47	-1.32	0.187
mgtchg_b1	+	-0.34	-0.33	0.742	0.13	0.13	0.898
dirown_b1	-	0.01	0.41	0.680	0.02	1.03	0.302
incman_b1	+	-0.08	-0.08	0.934	-0.01	-0.01	0.991
levtdta_b1	+	-2.03	-0.67	0.503	-1.09	-0.36	0.717
sizeasset_b1	+	1.22	2.11	**0.035**	0.78	1.36	0.173
lnsubs_b1	+	0.27	0.43	0.666	0.73	1.12	0.261
growth_b1	+	2.09	1.30	0.195	2.21	1.28	0.201
Audit characteristics							
feeb1to0	?	-1.64	-1.66	*0.097*	-1.74	-1.61	0.107
nasb1to0	+	-0.40	-1.92	*0.055*	-0.38	-1.72	*0.086*
nasaudfeeb1	+	0.20	0.50	0.620	-0.11	-0.26	0.798
opinion	-	2.47	1.17	0.244	1.15	0.62	0.539
constant	?	-9.57	-1.79	*0.073*	-6.90	-1.27	0.203
Hosmer-Lemeshow				0.546			0.819
Prob > chi^2				0.000			0.007
Nagelkerke R^2				0.617			0.574
Coxsnell R^2				0.463			0.420
Pseudo R^2				0.448			0.408
Correctly classified				84.62			83.33

Panel B: Model 2

		par spec_30fee (n=65))			par spec_large (n=54)		
	ex. sign	Coef.	z	P>|z|	Coef.	z	P>|z|
Auditee characteristics							
nedac_ăb12	+	-0.07	-2.08	**0.037**	-0.03	-1.28	0.202
nedbod_ăb12	+	0.06	1.61	0.108	0.03	0.78	0.434
dual_b1	-	-0.51	-0.34	0.735	-1.41	-1.01	0.312
mgtchg_b1	+	-1.24	-0.93	0.350	0.17	0.13	0.898
dirown_ăb12	-	0.01	0.44	0.662	0.02	0.80	0.427
incman_ăb12	+	-2.14	-1.62	0.106	-1.50	-1.23	0.218
levtdta_ăb12	+	-6.40	-1.53	0.126	-5.16	-1.20	0.231
sizeasset_ăb12	+	2.66	2.63	**0.009**	2.05	2.07	**0.038**
lnsubs_ăb12	+	-0.26	-0.32	0.747	-0.03	-0.04	0.969
growth_b1	+	0.35	0.18	0.855	1.01	0.57	0.570
Audit characteristics							
feeb1to0	?	-3.53	-2.08	**0.037**	-2.34	-1.76	*0.079*
nasb1to0	+	-0.67	-2.27	**0.023**	-0.54	-1.88	*0.060*
nasaudfeeb1	+	0.30	0.65	0.518	0.00	0.00	0.999
opinion	-	4.67	1.83	*0.068*	1.73	0.79	0.432
constant	?	-15.78	-2.31	**0.021**	-13.65	-1.90	*0.057*
Hosmer-Lemeshow				0.041			0.001
Prob > chi^2				0.000			0.003
Nagelkerke R^2				0.707			0.634
Coxsnell R^2				0.530			0.475
Pseudo R^2				0.546			0.465
Correctly classified				90.32			90.20

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

Continued on next page

Table 9.8 (continued): New auditor selection models using B5/4 definition as dependent variable (1= upgrade change, 0= downgrade change) holding specialist effect constant

Panel C: Model 3

		par spec_30fee (n=65)			par spec_large (n=54)		
	ex. sign	Coef.	z	P>|z|	Coef.	z	P>|z|
Auditee characteristics							
nedac_b1	+	0.00	-0.02	0.981	0.01	0.99	0.320
nedbod_b1	+	0.01	0.45	0.650	0.00	0.16	0.876
dual_b1	-	-1.33	-1.38	0.168	-1.79	-1.64	0.101
mgtchg_b1	+	-0.33	-0.35	0.725	0.30	0.31	0.755
dirown_cb12	-	0.18	0.40	0.689	0.50	0.75	0.451
incman_cb12	?	0.69	0.81	0.415	1.76	1.61	0.107
levtdta_cb12	?	-0.18	-1.16	0.246	-0.37	-1.90	*0.058*
sizeasset_cb12	?	-0.19	-0.45	0.651	-0.36	-0.84	0.400
lnsubs_cb12	?	-0.03	-0.28	0.779	0.12	0.98	0.326
growth_b1	+	2.54	1.92	*0.055*	1.95	1.44	0.149
Audit characteristics							
feeb1to0	?	-2.11	-2.34	**0.019**	-2.33	-2.23	**0.026**
nasb1to0	+	-0.29	-1.96	**0.050**	-0.29	-1.83	*0.067*
nasaudfeeb1	+	-0.19	-0.53	0.593	-0.59	-1.37	0.171
opinion	-	1.71	1.16	0.247	0.53	0.37	0.708
constant	?	2.92	1.58	0.114	3.33	1.63	0.102
Hosmer-Lemeshow				0.780			0.658
Prob > chi^2				0.006			0.024
Nagelkerke R^2				0.499			0.515
Coxsnell R^2				0.338			0.384
Pseudo R^2				0.345			0.353
Correctly classified				70.97			79.63

Panel D: Model 4

		par spec_30fee (n=65)			par spec_large (n=54)		
	ex. sign	Coef.	z	P>|z|	Coef.	z	P>|z|
Auditee characteristics							
nedac_b1	+	0.00	-0.38	0.706	0.01	0.83	0.408
nedbod_b1	+	0.03	1.15	0.248	0.03	1.01	0.312
dual_b1	-	-0.96	-1.04	0.297	-1.51	-1.58	0.113
mgtchg_b1	+	-0.89	-0.83	0.406	-0.42	-0.43	0.667
dirown_scb12	-	1.16	1.11	0.266	0.70	0.62	0.535
incman_scb12	?	-0.64	-0.71	0.475	-1.04	-1.02	0.307
levtdta_scb12	?	-1.59	-1.62	0.106	-2.27	-1.90	*0.057*
sizeasset_scb12	?	-0.56	-0.54	0.586	-0.48	-0.43	0.671
lnsubs_scb12	?	0.39	0.42	0.672	0.93	0.96	0.338
growth_b1	+	3.31	2.20	**0.028**	3.17	1.84	*0.066*
Audit characteristics							
feeb1to0	?	-1.82	-2.11	**0.035**	-2.05	-2.12	**0.034**
nasb1to0	+	-0.27	-1.65	*0.099*	-0.25	-1.39	0.163
nasaudfeeb1	+	0.05	0.15	0.880	-0.19	-0.46	0.646
opinion	-	1.84	1.15	0.249	0.84	0.54	0.589
constant	?	1.63	0.87	0.385	1.77	0.90	0.366
Hosmer-Lemeshow				0.997			0.945
Prob > chi^2				0.006			0.045
Nagelkerke R^2				0.522			0.502
Coxsnell R^2				0.391			0.376
Pseudo R^2				0.359			0.341
Correctly classified				79.03			74.51

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

After excluding between-group (i.e. non-par) specialist auditor changes based on 30% market share cut-off (*spec_30fee*), many variables found to be significant in the previous models remain so, though usually with slightly lower p-values, probably as a result of the smaller sample size. In fact 13 of the 18 significant variables in Table 9.7 continue as significant in Table 9.8 but five do not; one variable (*opinion*) becomes significant for the first time. The opinion variable (significant at the 10% level in Model 2) has a positive coefficient, perhaps reflecting management's desire to improve the company's financial reporting quality or to restore their tarnished image by appointing a B5/4 auditor. The results from excluding between-group specialist auditor changes based on the alternative definition of industry specialist are broadly similar. However, significance levels are further reduced leaving just 10 significant variables across the four models compared with 18 in Table 9.7.

In summary, the results were broadly similar to those in the previous section. This suggests that the factors which influence the decision to change the level of brand name auditor are not greatly affected by the element of industry-specialist 'contamination'.

9.4.3 Industry specialist auditor

Table 9.9 reports the logistic regression results when industry specialist auditors were used to proxy the incoming auditor quality. Note that the '*opinion*' variable was dropped from all models since only one company in the reduced sample was found to receive a qualified opinion.

For the models where industry specialist auditor is defined as those with at least 30% audit fee market, the model chi^2 indicates a relatively poor level of fit. The statistic suggests that there were many variables included in the model without significant effect. However, the Hosmer-Lemeshow measure is acceptable, all of the models show

Table 9.9: New auditor selection models using specialist as dependent variable (1= upgrade change, 0= downgrade change)

Panel A: Model 1

		spec_30fee (n=38)			spec_large (n=44)		
	ex-sign	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics							
nedac_b1	+	0.01	0.58	0.562	-0.01	-0.31	0.754
nedbod_b1	+	-0.06	-1.38	0.167	-0.01	-0.24	0.814
dual_b1	-	0.95	0.65	0.517	2.11	1.27	0.204
mgtchg_b1	+	0.31	0.29	0.775	-0.70	-0.59	0.554
dirown_b1	-	0.02	0.50	0.618	-0.01	-0.22	0.825
incman_b1	+	0.90	0.48	0.632	-3.62	-1.47	0.141
levtdta_b1	+	-4.07	-1.19	0.234	-4.74	-1.14	0.256
sizeasset_b1	+	0.55	1.08	0.279	1.68	2.08	**0.037**
lnsubs_b1	+	-1.73	-2.24	**0.025**	-2.67	-2.19	**0.028**
growth_b1	+	-1.68	-1.29	0.198	3.01	1.94	*0.053*
Audit characteristics							
feeb1to0	?	1.22	0.83	0.408	1.18	0.70	0.483
nasb1to0	+	-0.09	-0.56	0.577	-0.71	-1.29	0.195
nasaudfeeb1	+	-0.40	-0.73	0.465	-0.40	-0.60	0.545
constant	?	-0.06	-0.01	0.989	-9.21	-1.57	0.116
Hosmer-Lemeshow				0.929			0.242
Prob > chi^2				0.220			0.044
Nagelkerke R^2				0.471			0.567
Correctly classified				73.68			81.4

Panel B: Model 2

		spec_30fee (n=38)			spec_large (n=44)		
	ex-sign	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics							
nedac_ăb12	+	0.02	0.95	0.345	0.00	0.15	0.884
nedbod_ăb12	+	-0.05	-1.32	0.188	0.02	0.40	0.688
dual_b1	-	0.49	0.37	0.710	0.51	0.39	0.700
mgtchg_b1	+	0.41	0.39	0.699	-0.84	-0.69	0.491
dirown_ăb12	-	0.02	0.56	0.573	0.00	-0.02	0.984
incman_ăb12	+	-0.10	-0.06	0.951	-2.41	-1.13	0.257
levtdta_ăb12	+	-2.28	-0.64	0.522	-3.64	-0.83	0.405
sizeasset_ăb12	+	0.56	1.14	0.256	1.65	2.10	**0.036**
lnsubs_ăb1	+	-2.14	-2.49	**0.013**	-3.02	-2.19	**0.029**
growth_b1	+	-1.27	-0.93	0.351	2.24	1.57	0.116
Audit characteristics							
feeb1to0	?	1.84	1.25	0.210	0.17	0.11	0.909
nasb1to0	+	-0.10	-0.62	0.536	-0.53	-1.72	*0.085*
nasaudfeeb1	+	-0.37	-0.69	0.493	-0.04	-0.06	0.949
constant	?	-1.12	-0.25	0.801	-10.64	-1.61	0.107
Hosmer-Lemeshow				0.790			0.662
Prob > chi^2				0.169			0.028
Nagelkerke R^2				0.497			0.597
Correctly classified				73.68			84.09

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level

Continued on next page

Table 9.9 (Continued): New auditor selection models using specialist as dependent variable (1= upgrade change, 0= downgrade change)

Panel C: Model 3

	ex-sign	spec_30fee (n=38) Coef.	z	P>|z|	spec_large (n=44) Coef.	z	P>|z|
Auditee characteristics							
nedac_b1	+	0.00	-0.22	0.826	0.01	0.51	0.609
nedbod_b1	+	-0.04	-1.25	0.212	0.01	0.18	0.856
dual_b1	-	-3.33	-1.50	0.133	-6.17	-2.05	**0.041**
mgtchg_b1	+	-1.04	-0.81	0.417	-4.21	-1.68	*0.093*
dirown_cb12	-	0.35	0.73	0.468	0.56	1.06	0.290
incman_cb12	?	4.63	2.22	**0.026**	9.11	2.28	**0.023**
levtdta_cb12	?	-1.68	-1.87	*0.062*	-2.78	-1.60	0.109
sizeasset_cb12	?	-0.09	-0.04	0.966	7.51	1.78	*0.074*
lnsubs_cb12	?	0.53	1.22	0.223	1.03	2.36	**0.018**
growth_b1	+	-0.84	-0.28	0.776	-6.94	-1.58	0.113
Audit characteristics							
feeb1to0	?	-0.44	-0.32	0.752	-0.87	-0.56	0.575
nasb1to0	+	0.02	0.17	0.869	-0.30	-0.77	0.440
nasaudfeeb1	+	0.09	0.17	0.867	-0.44	-0.52	0.600
constant	?	3.51	1.24	0.216	0.08	0.02	0.981
Hosmer-Lemeshow				0.745			0.983
Prob > chi^2				0.105			0.017
Nagelkerke R^2				0.539			0.624
Correctly classified				81.58			81.82

Panel D: Model 4

	ex-sign	spec_30fee (n=38) Coef.	z	P>|z|	spec_large (n=44) Coef.	z	P>|z|
Auditee characteristics							
nedac_b1	+	0.02	1.04	0.299	0.02	1.04	0.299
nedbod_b1	+	-0.03	-1.11	0.265	0.00	-0.14	0.888
dual_b1	-	1.36	1.00	0.318	0.91	0.76	0.446
mgtchg_b1	+	0.99	0.83	0.404	0.44	0.42	0.677
dirown_scb12	-	-1.34	-1.06	0.288	2.12	1.81	*0.070*
incman_scb12	?	-0.17	-0.19	0.852	-0.32	-0.31	0.754
levtdta_scb12	?	1.61	1.03	0.302	1.78	1.08	0.281
sizeasset_scb12	?	-0.93	-0.79	0.432	-1.48	-0.85	0.393
lnsubs_scb12	?	2.05	1.29	0.195	-0.16	-0.14	0.885
growth_b1	+	-0.63	-0.69	0.492	1.90	1.59	0.112
Audit characteristics							
feeb1to0	?	0.87	0.67	0.504	-0.40	-0.33	0.742
nasb1to0	+	0.03	0.25	0.802	-0.28	-1.05	0.295
nasaudfeeb1	+	0.00	0.00	0.996	-0.29	-0.54	0.589
constant	?	-0.94	-0.42	0.675	-1.95	-0.92	0.359
Hosmer-Lemeshow				0.881			0.539
Prob > chi^2				0.709			0.419
Nagelkerke R^2				0.304			0.367
Correctly classified				71.05			79.55

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level

moderate R-squared statistics and they correctly classify around 74% to 82% of the dependent variables.

In models 1 and 2, the only significant variable was the number of subsidiaries but this was not in the expected direction. The negative coefficient suggests that a company with a large number of subsidiaries (or high degree of complexity) is less likely to choose a specialist over a non-specialist auditor. In model 3, the change in current accruals variable (*incman_cb12*) was significant at the 5% level and in the expected direction. The result suggests that a company open to a greater possibility of income manipulation by management will seek a new specialist auditor to replace a non-specialist. A fall in leverage is also weakly (10% level significant level) associated with a move to a specialist auditor. No variables were significant in model 4.

When specialist was defined as the firm with the largest number of clients in a particular industry, models 1, 2 and 3 report significant model chi^2, indicating good model fit. In models 1 and 2, size is positive and significant, suggesting that a large company audited by a non-specialist is likely to choose a specialist auditor as replacement. As with the first specialist proxy, number of subsidiaries was also significant and negative. In model 3, change in current accruals (*incman*), change in size (*sizeasset*) and change in number of subsidiaries (*lnsubs*) were positive and significant suggesting that specialist auditor may be needed to cope with increased audit complexity. *Duality* is also now significant, the negative coefficient suggesting that a company with a shared chairman/CEO role would be less likely to choose a specialist upgrade auditor. Management change (*mgtchg*) is now negative and marginally significant (10% level), indicating that a company which had changed management would be less likely to change to a specialist. None of the variables in model 4 was significant.

9.4.4 Continuous auditor quality proxies and cross-study comparison

Analysis of new auditor selection was also tested using models with continuous measures of auditor market share as dependent variables. These were measured as the difference in the market share of the outgoing and the incoming auditor. Two proxies were used, with industry market share based on audit fees and on the number of clients. The results, however, were not very useful. All of the four models using each of specialist definitions showed poor model fit (i.e. insignificant F-statistics). Similarly, the adjusted R^2 were only in the order of -0.13 to 0.044, suggesting that the regression model does not adequately explain the selection of the new auditor. In view of this, the results (in Appendix 4) will not be discussed further.

A comparison between the present results for specialist auditor selection and prior studies can be found in Table 9.10. The three prior studies reported one-tailed statistics, while this thesis reports the more conservative two-tailed statistics.

Table 9.10: Results comparison of specialist selection studies

Variables	Palmrose (1984)	Francis & Wilson (1988)	DeFond (1992)	Present study
Audit committee independence	-	-	-	NS
Board of directors independence	-	-	-	NS
Chairman/CEO duality	-	-	-	5% Sig (-)
Change in key management	-	NS	-	10% Sig (-)
Management ownership	NS	NS	5% Sig (-)	10% Sig (+)
Short term accruals	-	-	NS	5% Sig (+)
Leverage	NS	NS	NS	10% Sig (-)
Size	NS	NS	-	5% Sig (+)
Complexity	NS	-	-	5% Sig (-)
Growth	-	1% Sig (+)	1% &10% Sig (+)	10% Sig (+)
Audit fee	-	-	-	NS
Non-audit services	-	-	-	10% Sig (-)
Auditor independence	-	-	-	NS
Statistic reported	one-tailed	one-tailed	one-tailed	two-tailed

- = not tested
NS = not significant
1% Sig (+/-) significant at 1% level
5% Sig (+/-) significant at 5% level
10% Sig (+/-) significant at 10% level

Of the significant variables in the present study, only growth and management ownership (*mgtown*) have been found significant previously. Change in key management, income manipulation, leverage, size and complexity were significant in the present study but not in others. The weak support for leverage and management change variables in the present study, combined with the insignificant relationship reported by previous studies, suggests that these variables have little bearing on whether a company selects a specialist auditor. Short term accruals, size and complexity received strong support in this thesis but not in prior studies. Of the new variables included in specialist selection models, non-audit services exhibit significant but weak association.

9.5 Chapter summary

This chapter presents the results of new auditor selection studies. In particular, brand name and specialist models were tested. Based on logistic regression, it was documented that audit fee and NAS were important determinants of B5/4 selection. Other variables (e.g. leverage, size and growth) although important, did not show consistency in all models tested. Holding the specialist effect constant for the B5/4 selection models resulted in reduced significance especially for the NAS variable, although these results were partially affected by the definition of specialist adopted.

Generally, in the specialist selection models, many of the logistic estimation models suffered from a lack of model fit. The exception was when the specialist was defined as the auditor with the largest number of clients. Further, only a small number of variables were found significant in the models, perhaps due to the relatively small sample size. Overall, this chapter indicates that the selection of a new brand name auditor can be more fully explained than the selection of an industry specialist auditor.

Chapter 10: Overall summary and conclusions

10.1 Introduction

This thesis examines UK listed company audit market concentration and the determinants of auditor choice (change and new auditor selection) in light of recent changes in the auditing environment. It is divided into two main parts. The first part of the thesis provides evidence on the structure of the market for public listed company audit during the period 1998 to 2003. It updates concentration statistics for the UK audit market and also examines how the cost of audit work changed during the period, especially pre and post Andersen's demise. In addition, the relative importance of joiners, leavers and switchers on audit market concentration is also examined.

In the second part, the thesis provides a review of the literature, formulates testable hypotheses, discusses research methods and details empirical findings concerning the determinants of auditor change and new auditor selection.

This final chapter is organised as follows; section 10.2 presents a general overview of the study, a summary of results and conclusions. Implications are discussed in section 10.3. Section 10.4 describes the limitations of the study and, finally, section 10.5 offers suggestions for future research.

10.2 Overview, summary of results and conclusions

The study of audit market concentration begins in chapter 2 where the literature of industrial organisation and concentration studies is examined briefly. From the literature, it is acknowledged that there exist two views on the relation between market structure and performance. The first is the Structure-Conduct-Performance view which asserts that higher concentration decreases market competition and disadvantages consumers. The second view, voiced by the new industrial economists, argues that increased

concentration when combined with cost efficiencies does not necessarily lead to higher prices. In fact, they argue that there is substantial feedback between structure, conduct and performance.

Prior studies reveal that the audit market is highly concentrated and it is the B5/4 firms that dominate the market. The reasons for increased concentration include voluntary realignment, changes in the set of service buyers, and changes in the set of service suppliers.

Chapter 3 explains in detail the methods used to assess market concentration. The three market concentration measures were calculated using four different size proxies, namely audit fees, number of clients, total sales and total assets. The ratios of audit fees to total sales and audit fees to assets were used to measure audit 'expensiveness'. The concentration study of this thesis replicates and extends prior studies in several ways. First, recent audit market concentration statistics are computed using three measures: concentration ratios, the Herfindahl index and the Gini coefficient. Unlike the first two statistics, the Gini coefficient is relatively new to the audit market concentration literature. Second, following the Enron debacle that sparked fresh discussion and regulation of auditing, it provides evidence relating to the new audit environment. Third the thesis also examines whether audit fee rates (audit expensiveness) changed during the period. The chapter identifies six research questions related to audit concentration and outlines the data collection process. After excluding investment trust companies, the sample consists of 1607, 1498, 1479, 1539, 1497 and 1386 UK domestic listed companies for the years 1998 to 2003, respectively.

Chapter 4 presents the data analysis and results of the audit market concentration study. To answer the research questions identified in chapter 3, this study looked first at the

overall audit market and then at former Andersen clients in particular. The research questions and related findings are as follows:

1. *What was the level of audit market concentration post PricewaterhouseCoopers merger and Andersen's demise (i.e. 1998 to 2003) and has it changed significantly?*

   The UK audit market has now clearly surpassed the tight oligopoly threshold. Although the B5/4's market share based on number of clients decreased from 76% in 1998 to 68% in 2003, their market share based on audit fee increased slightly from 95% in 1998 to 96% in 2003. Thus, despite auditing significantly fewer clients in 2003, the B5/4 managed to increase their fee dominance.

2. *Have audit fee rates changed significantly during the period?*

   There is evidence that the level of audit fee and audit fee rate (audit fee scaled by total assets) increased markedly following Andersen's acquisition by Deloitte & Touche in the UK. *Ceteris paribus*, this suggests that more audit effort is being expended. This finding can be attributed to the desire by companies and audit firms to restore confidence about audit quality after the damage caused by Andersen's alleged misconduct.

3. *What was the relative importance of joiners, leavers and switchers in explaining the overall change in audit market concentration?*

   Results show that the decline in B5/4 'number of clients' market share was mainly due to their lower share of the newly-listed companies audit market. During the period 1998-2003, B5/4 audited 52% of companies joining the London Stock Exchange compared with 75% of companies leaving the market through delisting, mergers or demise. On the other hand, the slight increase in B5/4 audit fee market share was due

to the net impact of leavers concentrating the B5/4 share and joiners diluting it. Voluntary switches to/from the B5/4 had a relatively small impact on B5/4 market share for both measures.

4. How did Andersen's demise affect market concentration?

Deloitte & Touche's acquisition of the Andersen UK business contributed to a further increase in 'audit fee' market concentration. The increase is particularly apparent in the 4-firm concentration ratio (CR4) and in the overall Hirschman-Herfindahl Index measure.

5. Following Andersen's demise, who now dominates the market at industry level?

Deloitte & Touche gained significant market share in terms of both audit fees and number of audits through its acquisition of Andersen in the UK. However, PwC continues to hold the largest market share. At the industry level, the B5/4 also dominates the market with PwC holding the largest market share in 18 industries. The highest non-B5/4 market share in any industry was just 8%.

6. Who audits former Andersen clients and did their audit fee change significantly?

Deloitte & Touche retained 93 (74%) former Andersen clients, 21 (17%) moved to another B5/4 auditor and 11 (9%) chose non-B5/4 firms. While former Andersen clients paid higher audit fees, in aggregate, the increase was less than for the market as a whole.

The second part of the thesis considers two issues: i) what motivates a company to change auditor; and ii) what factors affect the new auditor selection decision. It begins by providing a literature review of auditor choice in chapter 5. The review notes that the incidence of auditor change events is relatively small, possibly due to the high costs

associated with auditor change. However, it is argued that auditor-client realignment is an important issue facing the profession and regulators and one that arguably has considerable economic impact.

A number of prior studies have investigated auditor change and new auditor selection from the perspectives of agency theory, the insurance hypothesis and information suppression hypothesis. Behavioural aspects of auditor choice decisions have also been investigated. Generally, studies that are based on the survey method report audit fee and service quality as the main reasons for change. Archival studies have found only two determinant variables that demonstrate a strong association with auditor change: audit opinion and audit quality. Other variables exhibit weak or limited association with little inter-study consistency. Auditor selection studies also, in general, report weak or limited association between independent variables and new auditor selection. Despite having one of the largest stock exchanges in the world, there have been few auditor choice studies in the UK.

Chapter 5 also identifies some mechanisms proposed by regulators to enhance auditor independence, particularly after Andersen's collapse. The presence of sound corporate governance is a key proposal. Despite its importance, this chapter reveals that only a limited number of studies on the auditor choice decision (particularly in the UK) have considered the role of corporate governance characteristics such as the independence of the audit committee and board of directors.

Chapter 6 develops testable hypotheses. To enhance our understanding and to permit empirical testing, auditor choice is viewed as a two-stage event – auditor change and new auditor selection. This then leads to the separate examination of the change and new auditor selection decisions.

Explanation of the various models, methods used for testing and justification for, and measurement details of, the variables appears in chapter 7. The variables include characteristics relating to the auditee client, the audit and the audit firm and, as appropriate, logistic and OLS regression techniques were employed.

The samples for the studies in the second part of the thesis were derived from the dataset used in the auditor concentration study in part one. Over the six year period, 464 companies that voluntarily changed auditors were identified. After excluding companies from the financial sector and those with missing data, 177 companies were eligible to be included in the study of auditor change determinants. For each of these auditor change companies, a matched company was identified based on year, industry and size factors, leading to a total sample of 354 companies.

The results of the auditor choice studies are presented in chapters 8 and 9. The main aim of the auditor change study was to identify factors that influence a company's decision to change. Analysis was also undertaken to investigate whether the results were sensitive to the specifications of the research model and choice of proxy variables. The main focus in the investigation of new auditor selection concerns the factors that lead a company to select an auditor of different quality. Two proxies for audit quality were adopted – brand name auditor and specialist auditor. The brand name models generally had greater explanatory power than the specialist selection models, perhaps due to the smaller samples sizes available to estimate the latter models.

The research questions and related findings are as follows:

7. What factors influence a company's decision to change auditor?

Three corporate governance variables were significantly associated with the propensity to change auditor: audit committee independence, board of directors

(BOD) independence and chairman/CEO duality. The significant result for audit committee independence lends support to the contention that non-executive directors (NEDs) on the audit committee view management attempts to change auditor suspiciously. As they do not have access to day-to-day business information and are driven by the need to protect their reputation, this result is as hypothesised. However, the result for BOD independence was counter-intuitive. In particular, the positive coefficient suggests that the more independent the BOD, the more likely the company is to change auditor. One possible explanation of this anomalous result is collinearity with the audit committee variable. The presence of a dominant personality on the board (proxied by chairman/CEO duality) also increases the likelihood of auditor change. This is consistent with the argument that a chairman with dual roles may have greater stature and power over the BOD and audit committee, and thus may influence the auditor change process.

Reduction in audit fee is another factor that influences companies to change auditor. On average, auditor change companies are found to pay 13% lower audit fees to the new auditor. This is consistent with lowballing practice, whereby the new auditors charge initial engagement fees below cost in order to obtain new business. The practice has been criticised on the grounds that it may reduce competition in the audit market and impair audit independence.

Concern over perceived lack of independence (proxied by the ratio of non-audit services (NAS) to audit fee) is also associated with the likelihood that a company changes auditor. Results show that the propensity to change auditor increases whenever perceived auditor independence is potentially compromised. This is supported by the finding that reported NAS falls subsequent to auditor change, consistent with a company changing its auditor to report lower NAS in its financial statements and thereby improve the perception of auditor independence. Taking

together, these results lend support to the signalling hypothesis, whereby the managers signal the stakeholders that their interest is being well monitored. It is also a mean to signal managers' own behaviour.

Results also support the hypothesis that companies audited by the B5/4 are less likely to change auditor, consistent with the argument that the B5/4 firms provide high quality audit.

However, there was no evidence of an association between industry-specialist auditors and the likelihood of auditor change. This suggests that the recent claims of the importance of auditor expertise in a client's specific industry may have been overstated. Industry specialism seems to be of second order importance relative to auditor brand name in the decision to change auditor.

8. *Given that auditor change has occurred, what factors influence the selection of the new auditor?*

Two proxies for audit quality were used in the new auditor selection studies investigating the reasons why companies decide to select a new auditor of different quality to the incumbent auditor: auditor brand name and auditor specialism in the client's industry. Better explanatory power was obtained for the brand name models than the specialist models.

The models using auditor brand name showed that corporate governance variables, which were important in the auditor change models, were not significant determinants of the new auditor selection. Only the dual chairman/CEO variable was significant (albeit weak) and in the expected direction. The negative coefficient suggests that a company with one person filling both roles is less likely to choose a higher quality replacement auditor. This could be interpreted as a desire for control by the dominant

personality on the board; the selection of a lower quality replacement auditor serves to reduce the possibility of challenges to his control. While the result lends support to information suppression hypothesis, this interpretation, however, runs counter to the predictions of agency theory.

Larger or growing companies are more likely to change to a B5/4 auditor. This is consistent with the inability of smaller audit firms to cater for these companies' growing needs, when they may require an audit firm with a wider national or international network. Consistent with the proposition of monitoring hypothesis, growing companies may experience increasing 'loss-of-control' and thus, need a higher quality auditor for better monitoring. The results also show that a company experiencing increased leverage is less likely to choose a B5/4 new auditor. This is contrary to the prediction of agency theory which suggests that the lending principal is likely to seek greater audit assurance in such circumstances. However, as put forward by the litigation risk hypothesis, it could be taken to suggest that large audit firms have a tendency to avoid risky clients.

Higher audit fees were paid to the new auditor by companies that changed from non-B5/4 to B5/4, consistent with prior evidence that B5/4 firms charge their clients an audit fee premium. Given the decline of 13% in audit fees across the total sample, this indicates a very large decline for changes in other categories.[123] Similarly, the results provide evidence that higher NAS fees were also paid to new B5/4 auditors. However, this is contrary to expectation and inconsistent with the finding from the auditor change models. One explanation could be that the B5/4 auditor had been acting in a consultancy role prior to appointment as auditor and the company, having been impressed by the audit firm, invited them to act also as auditor. It is also possible that this rise in reported NAS might be temporary.

[123] The decline was 10.1% for par changes and 28.8% for downgrade changes. The fee premium for upgrade changes was particularly high in the years 2001 and 2002.

Typically, far fewer variables were significant in the models with audit quality proxied by industry specialism. For the models based on audit fee market share, there is counter-intuitive evidence that a company with a large number of subsidiaries is less likely to move to a specialist auditor from a non-specialist.

Consistent with monitoring hypothesis argument, new specialist auditors were more likely to be preferred when a company experienced an increase in current accruals, suggesting a company will seek a new specialist auditor to replace a non-specialist as a response to greater possibilities of income manipulation.

Companies with increased leverage were less likely to move to a specialist auditor, suggesting that specialist auditors may not want to engage with risky clients that could expose them to high litigation risk. Again, this result is consistent with the litigation risk hypothesis, in which auditors are expected to drop certain client to reduce their legal exposure.

When specialist was defined as the firm with the largest number of clients, size, number of subsidiaries, change in current accruals, duality and management change were significant in some models. As expected, larger companies are more likely to choose a better quality replacement auditor.

9. *How sensitive are the findings to alternative model specifications and variable measurement choices?*

In the auditor change study, the choice of time variant models (ex-ante, contemporaneous or ex-post) made no significant difference to the overall result. The one exception concerns the 'growth' variable, where companies are found to change auditor *in anticipation of* future growth, rather than as a response to past growth. Further, the use of alternative proxy variables does not greatly influence the

regression results. One important exception to this general observation concerns the brand name proxy. When brand name was defined as *tier12* (to include Grant Thornton and BDO) the significance level was improved in all models. This suggests that, to some degree, Grant Thornton and BDO are viewed as quality service providers perhaps closer in quality to B5/4 than to other smaller audit firms.

In both auditor change and new auditor selection models, there was support for the proposition that *change* or *major change* in auditee characteristics influences the propensity to change or to select a new auditor, *ceteris paribus*. Change and major change in the number of subsidiaries and change in short term accruals were highly significant in some of the auditor change and new auditor selection models. This suggests that, for some companies, the decision to change auditor will be taken only when there is a *change* or *major change* in the underlying circumstances.

10.3 Implications of the study

The FRC (2006) in discussing the importance of audit to the UK economy states:

'Confidence in the reliability of financial information is essential to the healthy functioning of markets to the benefit of business, investors, creditors, employees and other stakeholders. Independent audit provides a cost effective way of increasing confidence in the financial information of corporate and other public interest entities. A well-functioning market for audit services is, therefore, essential to ensuring confidence in corporate reporting and governance, ultimately helping to protect and enhance the UK's economic strength in competitive international markets.'

However, the current high audit market concentration reflects a tight oligopoly over the market for listed company auditing. Company wishes to hire a B5/4 may be severely limited by the low number of 'reputable' audit firms. This is especially true if the company wants to hire specialist auditor who does not audit a competitor. Thus, with the current structure of the audit market, a 'well-functioning market' is certainly at risk, especially if another B4 firm were to leave the market. However, as shown in this thesis, stronger brand name results were obtained when tier 2 audit firms (i.e. Grant Thornton and BDO Stoy Hayward) were included in the high quality auditor group. The finding

indicates that companies audited by tier 2 are less likely to change auditor than non-tier 2 audited companies. This finding suggests that these two firms may already be perceived as providing good quality audits. It offers some hope that these firms may be able to close the widening gap with the B4 and become an acceptable auditor choice at least for some companies in the listed company market.

Further, merger amongst the non-B5/4 firms could reduce the current gap between the B5/4 and non-B5/4 firms. Although this will allow the non-B5/4 to gain more of a foothold in the market, the measures alone may not significantly increase the non-B5/4 market. This is due to the fact that a large gap between B5/4 and non-B5/4 market share already exist. Another potential option would be to promote joint audits between B4 and non-B4 firms, especially in industries where high concentration is currently observed.

As pointed by Oxera (2006), key barriers to non-B4 audit firms entering the market include lack of credible reputation, resources, expertise and effective capability to secure timely and reliable audit opinion. Without doubt, to facilitate further market penetration, these barriers must first be reduced. Therefore, a level playing field must be created. Government, for example, may introduce tax break or other incentives to encourage the non-B5/4 firms to grow. Further, regulators may be able to help by raising awareness of the capabilities of non-B4 firms. As the financial statement users do not have access to audit working papers, it is difficult for them to directly assess the quality of an auditor. Thus, in case of the UK market, the individual audit firm findings of the newly formed Audit Inspection Unit could be made available for public inspection. This can provide a basis for the public to judge the quality of audit provided by individual firms.

Evidence from prior studies suggests that investors consider auditor change to be an important event. However, prior research has also shown that disclosure relating to the initiation of, and reasons for, auditor change in the UK is far from informative. This lack

of information may prejudice stakeholders against a company that decides to change auditor, especially when the change is to a non-B4 firm. The situation could be improved by seeking a better mechanism to disclose reasons for changing auditor, such as currently exists in the US, for example. This would probably require regulatory enforcement as voluntary disclosure seems unlikely. Transparent and timely disclosure will help the market to respond appropriately to any auditor change announcement. This would benefit companies that change auditor for positive reasons (for example, when the auditor's independence appears compromised) and has the potential to help widen the choice of auditors for companies.

To academia, this study provides comprehensive evidence on whether the choice of different models, measurements and proxies could influence the results from the estimation of auditor choice models. Academia may also consider using standard terms to describe auditor choice types, perhaps adopting the terms employed in this thesis. The use of standard terms could facilitate the development of research in this area. The lack of significance on the specialist auditor variables (especially in the auditor change study) may indicate that industry specialism is less important in determining new auditor selection in the UK. However, it may also suggest that quantitative measures of specialism do not capture the underlying specialisation quality concept. It is, therefore, a challenge to academia to further explore this aspect of the audit quality dimension.

10.4 Limitations of the study

Several factors may limit the usefulness of the results obtained in this study. First, this thesis treats auditor resignation and dismissal as auditor change in general – no distinction is made. As discussed earlier, it is very difficult to differentiate genuine resignation from dismissal in the UK. However, it was acknowledged in section 5.5 that there are some differences in terms of the motive and determinants between these two types of auditor change. While genuine auditor resignations are likely to constitute a

small number of cases (as reported by previous studies), there is a possibility that the results obtained from a more refined sample would yield stronger (or perhaps different) results.

Second, due to the availability of a limited number of auditor change cases, it is necessary to limit the number of independent variables. While we have sought to be comprehensive and the model specification tests did not indicate significant omissions, it is possible that important variables may have been omitted. For example, while this thesis includes independent audit committee/BOD, duality and managerial share ownership as proxies for aspects of good corporate governance, directors' experience and qualifications may also capture further elements of corporate governance. Omission of important potential factors can result in models that are underspecified and, consequently, results may be difficult to interpret.

Third, some of the variables are likely to be subject to measurement error. For instance, this thesis uses proxies for audit quality relating to auditor industry specialism based on quantitative, rather than qualitative, measures. This measure of specialism is assumed rather than established. Likewise, this thesis measures the independence of audit committees and BODs based on the proportion of non-executive directors. Where the information is available, the use of a more refined measure (e.g. differentiating 'grey' directors: non-executive directors with personal or business relationships with the company such as bankers, major suppliers and consultants) may enhance the results.

Fourth, the implicit assumption of the current analysis is that causality runs from identified variables to the auditor change decision. It is possible that some independent variables and auditor change are simultaneously determined. For instance, while the receipt of a qualified audit opinion could affect the company's decision to change auditor, the reverse is also possible. A potential consequence of this endogeneity is biased or

inconsistent estimation of the relationship between dependent and independent variables in the single-equation model. The use of more sophisticated estimation methods may help to overcome this potential issue.

Fifth, logistic regression uses maximum likelihood estimation which relies on large-sample asymptotic normality to derive parameter estimates. Reliability of estimates declines when there are few cases for each observed combination of independent variables. Given the limited number of non-standard audit opinions observed, this may have an impact on the present study.

Thus, the results and implications of this study should be considered with these limitations in mind.

10.5 Suggestions for future research

This thesis provides a basis for future research on audit market concentration, auditor change and new auditor selection and may be extended in several ways. First, given the low number of auditor change events, replication of the study to include a longer time period would be useful to assess the generalisability of the results. Further, replication of the study in other audit settings would also be worthwhile, since different settings reflect different legislation and different business cultures.

Because no comprehensive theory of auditor change exists, one avenue for future research would be to attempt to develop a comprehensive theory of auditor change, to include voluntary and non-voluntary auditor change. While the inclusion of refined corporate governance variables may be worthwhile, the inclusion of social-psychological aspects of the auditor-client relationship may provide further valuable insights.

The statement of hypotheses (i.e. the nature of the relationship between the auditor change decision and the independent variable) is somewhat vague in many prior studies. Thus, further theoretical development is required to permit more precise hypotheses to be formulated. The empirical testing in this thesis of alternative model specifications and variable measurements can contribute to the iterative process of theory development and empirical testing.

The propositions in this thesis implied that the presence of non-executives is always a deterrent to changing auditors. However, there is possibility that the decision taken by NED (both on audit committee or BOD) may be influenced by the quality of the existing auditors. For example, the appointment of non-executives to boards, when juxtaposed with auditors whose independence is *low*, is likely to *promote* auditor change - rather than *inhibit* it. In this regard it would be useful to consider the interaction of corporate governance variables with the auditor independence variable.

Although this thesis examines the effect of audit quality on auditor change, it does not examine how this can provoke a market response. Clearly, there are two classes of auditor: B5/4 and non-B5/4. Given the marked B5/4 dominance in public listed company audits, the study of individual B5/4 firms would provide further insight. A good first step would be to review and identify individual B5/4 firm characteristics. Likewise, a study that focuses on the non-public listed company segment would also be worthwhile.

Interesting findings of this thesis are the tendency of the B5/4 firms to be less involved in the audit market segment relating to newly-listed (joiner) companies and that B5/4 firms are also less likely to become auditor of companies with high leverage. Different types of client, as characterised by difference sets of client attributes, seem to have different preferences among the auditors. While this may suggest that B5/4 auditors are seeking to avoid risky clients, it also suggests the possibility that different auditors may strategically

choose different operating structures to specialise in different types of clients. Thus, to shed some light on this issue, future research could usefully look for systematic differences in the risk profiles of B5/4, tier 2 and smaller firms.

References

Abbott, L. and Parker, S. (2000). Auditor selection and audit committee characteristics, *Auditing: A Journal of Practice and Theory*, Vol. 19 (2), pp. 47-66.

Abbott, L., Parker, S., Peters, G. and Raghunandan, K. (2003). The association between audit committee characteristics and audit fees. *Auditing: A Journal of Practice and Theory,* Vol. 20(2), pp. 17-31.

Abdel-Khalik, A. (1993). Why do private companies demand auditing? A case for organizational loss of control, *Journal of Accounting, Auditing and Finance*, Vol. 8(1), pp. 31-52.

Abdel-Khalik, A. (2002). Reforming corporate governance post Enron: Shareholders' board of trustees and the auditor, *Journal of Accounting and Public Policy*, Vol. 21(2), pp. 97-103.

ACCA (2002). Non-audit fees paid to auditors: A study of recent company disclosure, retrieved on September 1st, 2004 from http://www.acca.co.uk.

Accountancy (2004). *Big Four hit by 14% fall in FTSE 100 audit client fee*s, September, pp. 31-33.

Addams, H. and Davis, B. (1994). Privately held companies report reasons for selecting and switching auditors, *CPA Journal*, Vol. 64 (8), pp. 38-41.

Agrawal, A. and Knoeber, C. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders, *Journal of Financial and Quantitative Analysis,* Vol. 31(3), pp. 377-397.

AICPA (1978). *Commission on auditors' responsibilities: Report, conclusions, and recommendations (Cohen Commission),* New York: American Institute of Certified Public Accountants.

AICPA (1992). *Professional Standards,* New York: American Institute of Certified Public Accountants.

AICPA (1993). *The Expectation Gap Standards,* New York: American Institute of Certified Public Accountants.

Akerlof, G. (1970). The market for 'lemons': Quality uncertainty and the market mechanism, *Quarterly Journal of Economics*, Vol. 84(3), pp. 488-500.

Albrecht, W. (1990). *The determinants of the market reaction to an announcement of a change in auditor*, PhD thesis, Virginia Polytechnic Institute & State University.

Albrecht, W. and Lamy, R. (1992). The determinants of the market reaction to an announcement of a change in auditor, AAA Conference paper.

Albrecht, W. and Willingham, J. (1993). *An evaluation of SAS No. 53, the auditor's responsibility to detect and report errors and irregularities. The Expectation Gap Standards: Progress, implementation issues, research opportunities,* New York: American Institute of Certified Public Accountants.

Alchian, A. (1950). Uncertainty, evolution and economic theory, *Journal of Political Economy*, Vol. 58(3), pp. 211-222.

Alchian, A. (1969). *Corporate management and property rights* in Manne, H. (ed). Economic Policy and the Regulation of Corporate Securities, Washington: American Enterprise Institute, pp. 337-360.

Alchian, A. and Demsetz, H. (1972). Production, information costs and economic organization, *American Economic Review*, Vol. 62 (5), pp. 777-793.

Anderson, D., Stokes, D. and Zimmer, I. (1993). Corporate takeovers and auditor switching, *Auditing: A Journal of Practice and Theory*, Vol. 12(1), pp. 65-73.

Anderson, D., Sweeney, D. and Williams, T. (1996). *Statistics for Business and Economics*, 6th edition, West Publishing Co.

Archambeault, D. and DeZoort, F. (2001). Auditor opinion shopping and the audit committee: An analysis of suspicious auditor switches, *International Journal of Auditing*, Vol. 5(1), pp. 33-52.

Arens, A. and Loebbecke, J. (1984), *Auditing an integrated approach*, 3rd edition, Prentice-Hall.

Arkes, H. and Blumer, C. (1985). The psychology of sunk costs. *Organizational Behavior and Human Decision Processes*, Vol. 35(1), pp. 124-140.

Arthur Andersen & Co., Coopers & Lybrand, Deloitte & Touche, Ernst & Young, KPMG Peat Marwick and Price Waterhouse. (1992). The liability crisis in the United States: Impact on the accounting profession, *Journal of Accountancy*, November, pp. 19-23.

Australian Accounting Research Foundation (1992). *Statement of Auditing Practice, AUP 32: Audit Independence.*

Baker, M. (2000). Writing a literature review, *The Marketing Review*, Vol. 1(2), pp. 219-247.

Balsam, S., Krishnan, J. and Yang, J. (2003). Auditor industry specialization and earnings quality, *Auditing: A Journal of Practice and Theory*, Vol. 22(3), pp.71-97.

Balvers R., McDonald, B. and Miller, R. (1988). Underpricing of new issues and the choice of auditor as a signal of investment banker reputation, *The Accounting Review*, Vol. 63(4), pp. 605-622.

Barlev, B. (1977). The initial selection of independent public accountants: An empirical investigation, *The International Journal of Accounting*, Vol. 12 (2), pp. 37-51.

Barnett, V. and Lewis, T. (1994). *Outliers in Statistical Data*, 3rd edition, New York: Wiley.

Bar-Yosef, S. and Livnat, J. (1984). Auditor selection: An incentive-signalling approach, *Accounting and Business Research*, Vol. 14(56), pp.301-309.

Basioudis, I. (2001). The client acceptance decision and auditor's engagement risk: The role of accounting firm alumni, BAA Conference paper.

Baydoun, N. (1999). Research Note: The impact of personal connection on auditor concentration, *International Journal of Accounting*, Vol. 34(2), pp. 283-289.

Beasley, M. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud, *The Accounting Review*, Vol. 71(4), pp. 307-340.

Beasley, M. and Petroni, K. (2001). Board independence and audit-firm type, *Auditing: A Journal of Practice and Theory*, Vol. 20(1), pp.97-114.

Beattie, V. and Fearnley, S. (1994). The changing structure of the market for audit services in the U.K. - A Descriptive Study, *British Accounting Review*, Vol. 26(4), pp. 301-322.

Beattie, V. and Fearnley, S. (1995). The importance of audit firm characteristics and the drivers of auditor change in UK listed companies, *Accounting and Business Research*, Vol. 25(100), pp. 227–239.

Beattie, V. and Fearnley, S. (1998). Audit market competition: auditor changes and the impact of tendering, *British Accounting Review*, Vol. 30(3), pp. 261-289.

Beattie, V. and Fearnley, S. (2002). *Auditor independence and non-audit services: A literature review*, London: Institute of Chartered Accountants in England and Wales.

Beattie, V., Brandt, R. and Fearnley, S. (1999). Perceptions of auditor independence: UK evidence, *Journal of International Accounting*, *Auditing and Taxation*, Vol. 8(1), pp 67-107.

Beattie, V., Goodacre, A. and Fearnley, S. (2003). And then there were four: A study of UK audit market concentration - causes, consequences and the scope for market adjustment, *Journal of Financial Regulation and Compliance*, Vol. 11(3), pp. 250-265.

Beaver, W. (1968). The information content of annual earnings announcements, *Journal of Accounting Research*, Vol. 9 (supplement), pp. 67-92.

Beck, P., Frecka, T. and Solomon, 1. (1998). A model of the market for MAS and audit services: Knowledge spillovers and auditor-auditee bonding, *Journal of Accounting Literature*, Vol. 7, pp. 50- 64.

Bedingfield, J. and Loeb, S. (1974). Auditor changes – An examination, *Journal of Accountancy*, March, pp. 66-69.

Belsley, D., Kuh, E. and Welsch, R. (1980). *Regression diagnostics*, New York: John Wiley & Sons Inc.

Berle, A. and Means, C. (1932). *The modern corporation and private property*, New York: Macmillan.

Berton, L. (1995). Big accounting firms weed out risky clients, *The Wall Street Journal*, 26 June, pp. B1-B6.

Boyd, B. (1995). CEO duality and firm performance: A contingency model, *Strategic Management Journal*, Vol. 16(4), pp. 301-312.

Boys, P., (2003). *What's in a name: Firms' simplified family trees on the web*. Retrieved August 4th, 2003, from http://www.icaew.co.uk.

Brinn, T., Peel, M. and Roberts, R. (1994). Audit fee determinants of independent and subsidiary unquoted companies in the UK: An explanatory study, *British Accounting Review,* Vol 26 (2), pp. 101-21.

Briston, R. and Kedslie, M. (1985). Must smaller firms continue to lose out, *Accountancy,* March, pp. 163-164.

Brumfield, C., Elliott, R. and Jacobson, P. (1983). Business risk and the audit process, *Journal of Accountancy*, Vol. 155 (4), pp. 60-68.

Burton, J. and Roberts, W. (1967). A study of auditor changes, *Journal of Accountancy*, April, pp. 31–36.

Butterworth, S. and Houghton. K. (1995). Auditor switching: The pricing of audit services, *Journal of Business Finance and Accounting*, Vol. 22 (3), pp. 323-344.

Cadbury Report (1992). *Cadbury Committee, Report of the Committee on The Financial Aspects of Corporate Governance*, London: Gee.

Carcello, J. and Nagy, A. (2002). Auditor industry specialization and fraudulent financial reporting, Proceedings of the 2002 Deloitte & Touche/University of Kansas Symposium on Auditing Problems.

Carcello, J. and Neal. T. (2003). Audit committee characteristics and auditor dismissals following 'new' going-concern reports, *The Accounting Review,* Vol. 78(1), pp. 95-117.

Carcello, J., Hermanson, D., Neal, T. and Riley, R. (2002). Board characteristics and audit fees, *Contemporary Accounting Research*, Vol. 19(3), pp. 365-384.

Carpenter, C. and Strawser, R. (1971). Displacement of auditor when clients go public, *Journal of Accountancy*, Vol. 131, pp. 55-58.

Carter, M. and Soo. B. (1999). The relevance of Form 8-K reports, *Journal of Accounting Research,* Vol. 37(1), pp. 119-132.

Chan, P., Ezzamel, M. and Gwilliam, D. (1993). Determinants of audit fees for quoted UK companies. *Journal of Business Finance and Accounting,* Vol. 20 (6), pp. 765–786.

Chaney, P. and Philipich, K. (2002). Shredded reputation: The cost of audit failure, *Journal of Accounting Research,* Vol. 40 (4), pp. 1221-1245.

Chaney, P., Jeter, D. and Shaw, P. (1997). Client-auditor realignment and restrictions on auditor solicitation, *The Accounting Review*, Vol. 72(3), pp. 433-453.

Chen, X., Ender, P., Mitchell, M. and Wells, C. (2006). Stata web books: Regression with Stata available at http://www.ats.ucla.edu/stat/stata/webbooks/reg/.

Chen, Y., Moroney, R. and Houghton, K. (2005). Audit committee composition and the use of an industry specialist audit firm, *Accounting and Finance*, Vol. 45(2), pp. 217-239.

Choi, M. and Zeghal, D. (1999). The effect of accounting firm mergers on international markets for accounting services, *Journal of International Accounting, Auditing and Taxation,* Vol. 8(1), pp. 1-22.

Chow, C. (1982). The demand for external auditing: Size, debt and ownership influences, *The Accounting Review*, Vol. 57(2), pp. 272-291.

Chow, C. and Rice, S. (1982). Qualified audit opinions and auditor switching, *The Accounting Review*, Vol. 57(2), pp.326-335.

Chow, C., Kramer, L. and Wallace, W.A. (1988). The environment of auditing in Rashad Abdel-khalik, A. and Solomon, I. (Eds), *Research opportunities in auditing: The Second Debate*, American Accounting Association – Auditing Section, pp. 155-183.

Citron, D. and Manalis, G. (2001). The international firms as new entrants to the statutory audit market: an empirical analysis of auditor selection in Greece: 1993- 1997, *European Accounting Review*, Vol. 10(3), pp. 439-459.

Citron, D. and Taffler, R. (1992). The audit report under going concern uncertainties: an empirical analysis, *Accounting and Business Research*, Vol. 22(88), pp.337-345.

Clarkson P. and Simunic, D. (1994). The association between audit quality, retained ownership and firm-specific risk in US versus Canadian IPO markets, *Journal of Accounting and Economics*, Vol. 17(1), pp. 207-228.

Coase, R. (1937). The nature of the firm, *Economica*, Vol. 4(16), pp. 386–405.

Coase, R. (1960). The problem of social cost, *Journal of Law and Economics*, Vol. 3, pp. 1-44.

Colbert, G. and Murray, D. (1998). The association between auditor quality and auditor size: An analysis of small CPA firms, *Journal of Accounting, Auditing and Finance*, Vol. 13(2), pp. 135-150.

Combined Code (1998 and 2003). Financial Reporting Council, Principles of Good Governance and Code of Best Practice.

Cooper, H M. (1989). *Integrating research: A guide for literature reviews*, 2nd ed., Newbury Park, CA: Sage Publications

Co-ordinating Group on Audit and Accounting Issues (2003). *Final report to the Secretary of State for Trade and Industry and the Chancellor of the Exchequer*, retrieved on 17 January 2004 at: http://www.dti.gov.uk.

Copeland, T. and Galai, D. (1983). Information effects on the bid-ask spread, *Journal of Finance*, Vol. 38(5), pp. 1457-1469.

Craswell, A. (1988). The association between qualified opinions and auditor switches', *Accounting and Business Research*, Vol. 19(73), pp.23-31.

Craswell, A. and Francis, J. (1999). Pricing initial audit engagements: A test of competing theories, *The Accounting Review*, Vol. 74(2), pp. 201-216.

Craswell, A. and Taylor, S. (1991). The market structure of auditing in Australia: The role of industry specialization, *Research in Accounting Regulation*, Vol. 5, pp. 55-77.

Craswell, A., Francis, J. and Taylor, S. (1995). Auditor brand name reputations and industry specializations, *Journal of Accounting and Economics,* Vol. 20(3), pp. 297-322.

Danos, P. and Eichenseher, J. (1986). Long-term trends toward seller concentration in the U.S. audit market, *The Accounting Review,* Vol. 61(4), pp. 633–650.

DeAngelo, L. (1981a). Auditor independence, 'low balling' and disclosure regulation, *Journal of Accounting and Economics*, Vol. 3(2), pp. 113-127.

DeAngelo, L. (1981b). Auditor size and audit quality, *Journal of Accounting and Economics*, Vol. 3(3), pp. 183 - 199.

DeBerg, C., Kaplan, S. and Pany, K. (1991). An examination of some relationships between non-audit services and auditor change, *Accounting Horizons*, Vol. 5(1), pp. 7-28.

Dechow, P., Sloan, R. and Sweeney A. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research*, Vol. 13(1), pp. 1-36.

DeFond, M. (1992). The association between changes in client firm agency costs and auditor switching, *Auditing: A Journal of Practice and Theory*, Vol. 11(1), pp.16-31.

DeFond, M., Ettredge, M. and Smith, D. (1997). An investigation of auditor resignations, *Research in Accounting Regulation*, Vol. 11, pp. 25-45.

Demsetz, H. (1983). The structure of ownership and the theory of the firm, *The Journal of Law and Economics*, Vol. 26(2), pp. 375-393.

Dhaliwal, D., Schatzberg, J. and Trombley, M. (1993). An Analysis of the Economic Factors Related to Auditor-Client Disagreements Preceding Auditor Changes, *Auditing: A Journal Of Practice and Theory*, Vol. 12(2), pp.22-38.

Diacon, S., Fenn, P. and O'Sullivan, N. (2002). Highballing and lowballing in audit pricing: The impact of audit error. Working paper, Centre for Risk & Insurance Studies, University Of Nottingham.

Dopuch, N. (1984). The demand for quality-differentiated audit services in an agency-cost setting: An empirical investigation: Discussion, *Auditing Research Symposium*, University Urbana, pp. 253-263.

Dopuch, N. and Simunic, D. (1980). The nature of competition in the auditing profession: A descriptive and normative view in J. W. Buckley, & J. G. Weston (Eds.), *Regulation and the accounting profession,* Belmont, CA: Lifetime Learning Publication.

Dopuch, N. and Simunic. D. (1982). *Competition in auditing: An assessment*, Symposium on Auditing Research, Champaign, IL: University of Illinois Department of Accountancy.

Douthett, E. and Jung, K. (2002). Country-specific risk and the cost and benefit of audit quality: Evidence from Israeli Initial public offerings in the United States, *International Journal of Auditing*, Vol. 6(3), pp. 249-263.

Dunn, A. and Huss, F. (2004). Mail survey reliability through follow-up mailings: The case of auditor changes, *Managerial Auditing Journal*, Vol. 19(8), pp. 1048-1054.

Dunn, J. (1996). *Auditing Theory and Practice*, Prentice Hall.

Dunn, J. and Sikka, P. (1999). *Auditors: Keeping the public in the dark*, Basildon: Association for Accountancy and Business Affairs.

Dunn, J. and Stewart, M. (1999). Resignation or abdication: The credibility of auditor resignation statements, *Accounting Forum*, Vol. 23 (4), pp. 445-446.

Dunn, J., Hillier, D. and Marshall, A. (1999). The market reaction to auditor resignations, *Accounting and Business Research*, Vol. 29(2), pp. 95-108.

Dye, R. (1991). Informationally motivated auditor replacement, *Journal of Accounting and Economics*, Vol. 14(4), pp. 347- 374.

Dye, R. (1993). Auditing standards, legal liability, and auditor wealth, *Journal of Political Economy*, Vol. 101(5), pp. 887-914.

Eichenseher, J. and Shields, D. (1983). The correlates of CPA: Firm change of publicly-held corporations, *Auditing: A Journal of Practice and Theory*, Vol. 2(2), pp. 23-37.

Eichenseher, J. and Shields, D. (1989). Corporate capital structure and auditor 'fit', *Advances in Accounting*, Supplement 1, pp. 39-56.

Eichenseher, J., Hagigi, M. and Shields, D. (1989). Market reaction to auditor changes by OTC companies, *Auditing: A Journal of Practice and Theory,* Vol. 9(1), pp. 29-40.

Espahbodi, R. (1991). Second opinion, opinion shopping and independence, *The CPA Journal*, retrieved on 30 November 2004 from http://www.nysscpa.org/cpajournal.

Ettredge, M. and Greenberg, R. (1990). Determinants of fee cutting on initial audit engagements, *Journal of Accounting Research*, Vol. 28(1), pp. 198-210.

Ettredge, M., Reed, M. and Stone, M. (2000). An Examination of substitution among monitoring devices: The case of internal and external audit expenditures, *Review of Quantitative Finance and Accounting*, Vol. 15(1), pp.57-79.

EU Green Paper (1996). *The role, the position and the liability of the statutory auditor within the European Union*. Brussels: European Commission.

Eu-Jin, T. and Houghton, K.(2000). Audit litigation and the pricing of audit services. Working paper, University of Melbourne.

European Commission (2002). Case No: COMP/M.2810 – Deloitte & Touche / Andersen (UK), Regulation (ECC) No. 4064/89 Merger Procedure.

Ezzamel, M., Gwilliam, D. and Holland, K. (1996). On the relationship between the pricing of audit and non-audit services: Some empirical evidence from publicly quoted UK companies, *Accounting and Business Research, Vol.* 27 (1), pp. 3-16.

Fama, E. (1980). Agency problems and the theory of the firm, *Journal of Political Economy,* Vol. 88(20), pp. 288-307.

Fama, E. and Jensen, M. (1983). Separation of ownership and control, *Journal of Law and Economics*, Vol. 26(2), pp. 301-325.

Fargher, N., Taylor, M. and Simon, D. (2001). The demand for auditor reputation across international markets for audit services, *The International Journal of Accounting*, Vol. 36(4), pp.407-421.

Feltham, G., Hughes, J. and Simunic, D. (1991). Empirical assessment of the impact of audit quality on the valuation of new issues, *Journal of Accounting and Economics*, Vol. 14 (4), pp. 375-399.

Ferguson, A. (2001). Evidence of audit leader strategic price-cutting and fee recovery in non-audit services: Implication for independence. Working paper, School of Accountancy, University of Technology Sydney.

Financial Director (2002). *HSBC tops audit fee survey*, retrieved on 23 July 2002 from http://www.financialdirector.co.uk.

Financial Reporting Council (2006). *Discussion paper: Choice in the UK audit market*, retrieved on 30 June 2006 from http://www.frc.org.uk.

Firth, M. (1980). Perceptions of auditor independence and official ethical guidelines, *The Accounting Review*, Vol. 55(1), pp. 451-466.

Firth, M. (1997a). The provision of non-audit services by accounting firms to their audit Clients, *Contemporary Accounting Research*. Vol. 14(2), pp. 1-21.

Firth, M. (1997b). The provision of non-audit services and the pricing of audit fees, *Journal of Business Finance and Accounting*, Vol. 24(3 & 4), pp. 511-525.

Firth, M. and Smith, A. (1992). Selection of auditor firms by companies in the new issue market, *Applied Economics*, Vol. 24 (2), pp. 247-255.

Forker, J. (1992). Corporate governance and disclosure quality, *Accounting and Business Research*, Vol. 22(86), pp. 111-124.

Francis, J. (2004). What do we know about audit quality? *British Accounting Review*, Vol. 36(4), pp. 345-68.

Francis, J. and Wilson, E. (1988). Auditor changes: A joint test of theories relating to agency costs and auditor differentiation, *The Accounting Review*, Vol. 63(4), pp. 663-682.

Francis, J., Maydew, E. and Sparks, H. (1999). Earnings management opportunities, auditor quality, and external monitoring. Working paper, SSRN.

Fried, D. and Schiff, A. (1981). CPA switches and associated market reactions, *The Accounting Review,* Vol. 56(2), pp. 326-341.

General Accounting Office (2003). Public accounting firms: mandated study on consolidation and Competition, retrieved on July 3rd, 2003 from http://www.gao.gov.

Ghauri, P., Gronhaug, K. and Kristianslund, I. (1995). *Research Methods in Business Studies*: *A Practical Guide*, Prentice Hall.

Glosten, L. and Milgrom, P. (1985). Bid, ask, and transaction prices in a specialist market with heterogeneously informed traders, *Journal of Financial Economics*, Vol. 14(1), pp. 71–100.

Goddard, G. (1998). ACCC assessment of the Coopers & Lybrand and Price Waterhouse merger: Analysis of competition in the provision of professional services by Big Six accounting firms, *Australian Business Law Review*, Vol. 26, pp. 402-17.

Gramling, A. and Stone, D. (2001). Audit firm industry expertise: A review and synthesis of the archival literature, *Journal of Accounting Literature*, Vol. 20, pp. 1-29.

Gramling, A., Johnson, V. and Khurana, I. (2001). The association between audit firm industry experience and financial reporting quality. Working paper, Georgia State University.

Grayson, M. (1999). An empirical test of auditor switching as a means to delay the revelation of bad news. Working paper, School of Business, Jackson State University.

Greenbury Report (1995). *Directors' remuneration: Report of a Study Group chaired by Sir Richard Greenbury*, Gee; London.

Greene, W. (2003). *Econometric Analysis*, 5th edition. Prentice Hall.

Gregory, A. and Collier, P. (1996). Audit fees and auditor change; an investigation of the persistence of fee reduction by type of change, *Journal of Business Finance and Accounting*, Vol. 23(1), pp. 13-28.

Grubb, F. (1969). Procedures for Detecting Outlying Observations in Samples, *Technometrics*, Vol. 11(1)1, pp. 1-21.

Gujarati, D. (1999). *Basic Econometrics*, 3rd edition. New York: McGraw-Hill.

Gul, F. (1999). Audit prices, product differentiation and economic equilibrium, *Auditing: A Journal of Practice and Theory*, Vol. 18(1), pp. 90–100.

Gul, F., Lee, D. and Lynn, M. (1991). Audit qualification and switches: The Hong Kong evidence. Working paper, The Chinese University of Hong Kong.

Gul, F., Lee, D. and Lynn, M. (1992). A note on audit qualifications and switches: Some further evidence from a small sample study, *Journal of International Accounting Auditing and Taxation*, Vol. 1(1), pp. 111-120.

Hackenbrack, K. and Hogan, C. (2002). Market response to earnings surprises conditional on reasons for an auditor change, *Contemporary Accounting Research*, Vol. 19(2), pp. 195-223.

Hagigi, M., Kluger, B. and Shields, D. (1993). Auditor change announcements and dispersion of investor expectations, *Journal of Business Finance and Accounting*, Vol. 20(6), pp. 787-802.

Hampel Report (1998). *Committee on corporate governance: Final report*, Gee; London.

Haskins, M. and Williams, D. (1990). A contingent model of intra-Big Eight auditor changes, *Auditing: A Journal of Practice and Theory*, Vol. 9(3), pp.55-74.

Hay, D. and Davis, D. (2004). The voluntary choice of an audit of any level of quality, *Auditing: A Journal of Practice and Theory*, Vol. 23(2), pp. 37-54.

Healy, P. (1985). The effect of bonus schemes on accounting decisions, *Journal of Accounting and Economics*, Vol. 7(1-3), pp. 85-107.

Healy, P. and Lys, T. (1986). Auditor changes following Big Eight mergers with Non-Big Eight audit firms, *Journal of Accounting and Public Policy*, Vol. 5(4), pp.251-265.

Higgs Report (2003). *Review of the Role and Effectiveness of Non-executive Directors by D. Higgs*, London: Department of Trade and Industry.

Ho, S. and Wong, K. (2001). A study of the relationship between corporate governance structures and the extent of voluntary disclosure, *Journal of International Accounting, Auditing and Taxation*, Vol. 10(2), pp.139-156.

Hogan, C. and Jeter, D. (1999). Industry specialization by auditors, *Auditing: A Journal of Practice and Theory*, Vol. 18 (1), pp. 1-17.

Holthausen, R. and Verrecchia, R. (1990). The effect of informedness and concensus on prices and volume behaviour, *The Accounting Review*, Vol. 65(1), pp. 191-208.

Hudaib M. and Cooke, T. (2005). The impact of managing director changes and financial distress on audit qualification and auditor switching, *Journal of Business Finance and Accounting*, Vol. 32 (9-10), pp.1703-1739.

Huss, H. and Jacobs, F. (1991). Risk containment: Exploring auditor decisions in the engagement process, *Auditing: A Journal of Practice and Theory*, Vol. 10(2), pp. 16-32.

International Financial Service (2003). *Accounting services: City business Series*, retrieved on September 1st, 2004, from http://www.ifsl.org.uk.

Jankowicz, A. (2000). *Business research projects*, 3rd edition, Thomson Learning.

Jensen, M. (1993). The modern industrial revolution, exit and the failure of internal, control systems, *Journal of Finance*, Vol. 48(3), pp. 831-880.

Jensen, M. and Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics*, Vol. 3(4), pp. 305-360.

Joher, H, Mohamad. S, Ali, M. and Annuar M. (1999). The auditor switch decision of Malaysian listed firms: An analysis of its determinants and wealth effects, paper presented at Malaysian Economic and Management Into The Next Millennium, Melaka, 15-17 Oct 1999.

Johnson, W. and Lys, T. (1990). The market for audit services: Evidence from voluntary auditor changes, *Journal of Accounting and Economics*, Vol. 12(1-3), pp.281-308.

Jones, F. and Raghunandan, K. (1998). Client risk and recent changes in the market for audit services, *Journal of Accounting and Public Policy*, Vol. 17(2), pp. 169-181.

Jubb, C. (2000). Choosing an auditor: corporate governance, interpersonal associations and investor confidence. PhD thesis, Department of Accounting, University of Melbourne.

Kane, R. L. (1952). *CPA Handbook*, The American Institute of Accountants.

Kanodia, C. and Mukherji, A. (1994). Audit pricing, lowballing and auditor turnover: A dynamic analysis, *The Accounting Review*, Vol. 69(4), pp. 593-615.

Kinney, W. (1993). Auditors' liability: opportunities for research, *Journal of Economics and Management Strategy*, Vol. 2 (3), pp. 349-360.

Klock, M. (1994). The stock market reaction to a change in certifying auditor, *Journal of Accounting, Auditing and Finance,* Vol. 9(2), pp. 339-47.

Kluger, B. and Shields, D. (1991). Managerial moral hazard and auditor changes, *Critical Perspectives on Accounting,* Vol. 2(3), pp. 255-272.

Knapp, M. and Elikai, F. (1988). Auditor changes: A note on the policy implications of recent analytical and empirical research, *Journal of Accounting, Auditing and Finance*, Vol. 3(1), pp.78-86.

Krishnan, J. (1994). Auditor switching and conservatism, *The Accounting Review*, Vol. 69(1), pp. 200-215.

Krishnan, J. (2002). The timing and information content of auditors' exhibit letters relating to auditor changes, *Auditing: A Journal of Practice and Theory*, Vol. 21(1), pp. 29-46.

Krishnan, J. and Krishnan, J. (1997). Litigation risk and auditor resignations, *The Accounting Review*, Vol. 72(4), pp. 539-560.

Krishnan, J. and Stephens, R. (1995). Evidence on opinion shopping from audit opinion conservatism, *Journal of Accounting and Public Policy*, Vol. 14(3), pp. 179-201.

Krishnan, J., Krishnan, J. and Stephens, R. (1996). The simultaneous relation between auditor switching and audit opinion: An empirical analysis, *Accounting and Business Research*, Vol. 26(3), pp. 224-236.

Lai, K. and Yim, A. (2002). Non-audit services and Big Five auditor independence: Evidence from audit pricing and audit opinion of initial engagement. Working paper, SSRN.

Leftwich, R., Watts R. and Zimmerman, J. (1981). Voluntary corporate disclosure: The case of interim reporting, *Journal of Accounting Research*, Vol. 19 (Supplement), pp. 50-77.

Lennox, C. (1999). The relationship between auditor accuracy and auditor size: An evaluation of reputation and deep pockets arguments, *Journal of Business, Finance and Accounting*, Vol. 26(7 & 8), pp. 779-806.

Lennox, C. (2000). Do Companies successfully engage in opinion-shopping? The UK experience, *Journal of Accounting and Economics*, Vol. 29(3), pp. 321-337.

Lennox, C. (2003). *Opinion shopping and the role of audit committees when audit firms are dismissed: The US experience*. Monograph for the Institute of Chartered Accountants of Scotland, ICAS.

Magee, R. and Tseng, M. (1990). Audit pricing and independence, *The Accounting Review*, Vol. 65 (2), pp. 315-336.

Mangold, N. (1988). *Changing Auditors and the affect on earning, auditors' opinions, and the stock prices*, Michigan: UMI Research Press.

Manne, H. (1965). Mergers and market for corporate control, *Journal of Political Economy*, Vol 73(2), pp. 110-120.

Mansfield, E. (1979). *Microeconomics: Theory and applications,* 3rd edition, New York: WW Norton & Co.

Matolcsy, Z., Stokes, D. and Wright. A. (1999). The value-relevance of board composition within corporate governance. Working paper, University of Technology, Sydney.

Mautz, R. and Sharaf, H. (1961). *The philosophy of auditing*, American Accounting Association, Sarasota.

Mayhew, B. and Wilkins, M. (2002). Audit firm industry specialization as a differentiation strategy: Evidence from fees charged to firms going public. Working paper, SSRN.

McConnell, D. (1984). Auditor changes and related disagreements, *Auditing: A Journal of Practice and Theory*, Vol. 3(2), pp. 44-56.

McLelland, A. and Giroux, G. (2000). An empirical analysis of auditor report timing by large municipalities, *Journal of Accounting and Public Policy*, Vol. 19(3), pp. 263-281.

McMeeking, K., Pope, P. and Peasnell, K. (2003). The determinants of the UK Big Six premium. Working paper, Department of Accountancy and Finance, University of Exeter.

Mednick, R. (1997). *Chair's corner.* The CPA Letter, June, p. 10.

Menard, S. (2002). *Applied logistic regression analysis*, 2nd edition, Thousand Oaks, CA: Sage Publications.

Menon, K. and Williams, D. (1991). Auditor credibility and initial public offerings, *The Accounting Review*, Vol. 66(2), pp. 313-332.

Menon, K. and Williams, D. (1994). The insurance hypothesis and market prices, *The Accounting Review*, Vol. 69(2), pp. 327-342.

Mitchell, A., Sikka, P., Puxty, A. and Willmott, H. (1993). *A better future for auditing,* London: University of East London.

Moizer, P. (1992). State of the art in audit market research, *European Accounting Review*, Vol. 1(2), pp. 333-348.

Moizer, P. (1997). Auditor reputation: The international empirical evidence, *International Journal of Auditing*, Vol. 1(1), pp. 61-74.

Moizer, P. and Porter, B. (2004). *Auditor resignations and dismissals in the UK*, London: Centre for Business Performance, Institute of Chartered Accountants in England and Wales.

Moizer, P. and Turley, S. (1987). Surrogates for audit fees in concentration studies: A research note, *Auditing: A Journal of Practice and Theory*, Vol. 7(1), pp. 118-123.

Moizer, P. and Turley, S. (1989). Changes in the UK market for audit services: 1972-1982, *Journal of Business Finance and Accounting*, Vol. 16(1), pp. 41-53.

Neter, J., Wasserman, W. and Kutner, M. (1985). *Applied Statistical Models*, 2nd edition, Homewood, IL: Irwin.

Nichols, D. and Smith, D. (1983). Auditor credibility and auditor changes, *Journal of Accounting Research*, Vol. 21(2), pp.534-544.

O'Keefe, T., King, R. and Gaver, K. (1994). Audit fees, industry specialization, and compliance with GAAS reporting standards, *Auditing: A Journal of Practice and Theory*, Vol. 13(2), pp. 41-55.

O'Neill, H., Pouder, R. and Buchholtz, A. (1998). Patterns in the diffusion of strategies across organizations: Insights from the innovation diffusion literature, *Academy of Management*, Vol. 23 (1), pp. 98-114.

O'Reilly, D., Leitch, R. and Tuttle, B. (2000). An empricial test of the insurance hypothesis in auditing. Working paper, AAA Auditing Mid-Year Meeting.

O'Sullivan, N. and Diacon, S.R. (2002). Board composition and performance in UK insurance companies. Working paper, Centre for Risk and Insurance Studies, University of Nottingham.

Office of Fair Trading (2002). Competition in audit and accountancy services: A statement by the OFT, retrieved July 3rd, 2003, from http://www.oft.gov.uk.

Office of Fair Trading (2004). An assessment of the implications for competition of a cap on auditors' liability, retrieved on 23 September 2004 from http://www.oft.gov.uk.

O'Sullivan, N. (1999). Board characteristics and audit pricing post-Cadbury: A research note, *European Accounting Review*, Vol. 8(2), pp. 253 – 263.

O'Sullivan, N. (2000). The impact of board composition and ownership on audit quality: Evidence from large UK companies, *British Accounting Review*, Vol. 32(4), pp.397-414.

Owhoso, V., Messier Jr, W. and Lynch Jr, J. (2002). Error detection by industry-specialised teams during sequential audit review, *Journal of Accounting Research*, Vol. 40(3), pp. 883-900.

Oxera (2006). *Competition and choice in the UK audit market: Prepared for Departmentof Trade and Industry and Financial Reporting Council*, Oxera Consulting Ltd, retrieved on 23 June 2006 from http://www.oxera.com.

Palmrose, Z. (1984). The demand for quality-differentiated audit services in an agency-cost setting: An empirical investigation, *Auditing Research Symposium*, University Urbana, pp. 229-252.

Palmroze, Z. (1986). Audit Fees and Auditor Size: Further Evidence, *Journal of Accounting Research*, Vol. 24(1), pp. 97-110.

Pany, K. and Reckers, P. (1988). Auditor performance of MAS: A study of its effects on decisions and perceptions, *Accounting Horizons*, Vol. 2(2), pp. 31-38.

Parkash, M. and Venable, C. (1993). Audit incentives for auditor independence: the case for non-audit services, *The Accounting Review*, Vol. 68 (1), pp. 113-133.

Parker, S. (1991). Significantly concentrated markets: Theory and evidence for the U.K., *International Journal of Industrial Organization*, Vol. 9(4), pp.585-590.

Pearson, T. and Trompeter, G. (1994). Competition in the market for audit services: The effect of supplier concentration on audit fees, *Contemporary Accounting Research*, Vol. 11(1), pp. 115-135.

Pedhazur, E. (1997). *Multiple regression in behavioural research,* 3rd edition, Orlando, FL: Harcourt Brace.

Peel, M. (1997). UK Auditor concentration: A descriptive note, *Accounting and Business Research*, Vol. 27(4), pp. 311-22.

Petty, R. and Cunagesan, S. (1996). Auditor rotation: Framimg the debate. *Australian Accountant*, May, pp.40-41.

Pincus, K., Rusbarsky, M. and Wong, J. (1989). Voluntary formation of corporate audit committees among NASDAQ firms. *Journal of Accounting and Public Policy*, Vol. 8(4), pp. 239-265.

Pong, C. (1999). Auditor concentration: A replication and extension for the UK audit market 1991-1995, *Journal of Business Finance and Accounting*, Vol. 26(3-4), pp. 451-475.

Pong, C. and Whittington, G. (1994). The determinants of audit fees: Some empirical models, *Journal of Business Finance and Accounting*, Vol 21 (8), pp. 1071-1095.

Pound, J. (1995). The promise of the governed corporation, *Harvard Business Review*, March-April, pp. 89-98.

Pratt, J. and Stice, J. (1994). The effects of client characteristics on auditor litigation risk judgements, required audit evidence, and recommended audit fees, *The Accounting Review*, Vol. 69(4), pp. 639-656.

Public Oversight Board. (1993). *In the public interest: Issues confronting the accounting profession. A Special Report*. Stamford, CT.

PwC Corporate Register (1998). *PwC Corporate Register*, June, HS Financial.

PwC Corporate Register (1999). *PwC Corporate Register*, June, HS Financial.

PwC Corporate Register (2000). *PwC Corporate Register*, June, HS Financial.

PwC Corporate Register (2001). *PwC Corporate Register*, June, HS Financial.

PwC Corporate Register (2002). *PwC Corporate Register*, June, HS Financial.

PwC Corporate Register (2003). *PwC Corporate Register*, June, HS Financial.

PwC Corporate Register (2004). *PwC Corporate Register*, June, HS Financial.

Quick, R. and Wolz, M. (1999). Concentration on the German audit market - an empirical analysis of the concentration on the German market for stock corporation audits, *International Journal of Auditing*, Vol. 3(3), pp. 175-89.

Raghunandan K. and Rama, D. (1999). Auditor resignations and the market for audit services, *Auditing: A Journal of Practice and Theory*, Vol. 18(1), pp. 124-134.

Reinstein, A., Callaghan, J. and Braiotta Jr., L. (1984). Corporate audit committees: Reducing directors' legal liabilities, *Journal of Urban Law,* Vol. 61, pp. 375-389.

Ritson, B., Jubb, C. and Houghton, K. (1997). Specialisation in the market for audit services: Its role in explaining auditor/client realignment'. Working paper, University of Melbourne.

Roberts, R. Glezen, W. and Jones, T. (1990). Determinants of auditor change in the public sector, *Journal of Accounting Research*, Vol. 28(1), pp. 220-228.

Sahlman, W. (1990). The structure and governance of venture-capital organizations. *Journal of Financial Economics*, Vol. 27(2), pp. 473-521.

Sarbanes-Oxley Act (2002) Pub. L. No. 107-204, 116 Stat. 745 retrieved on 30 November 2004 from http://www.law.uc.edu/CCL/SOact/soact.pdf.

Schroeder, M., Solomon, I. and Vickrey, D. (1986). Audit quality: The perceptions of Audit-Committee chairpersons and audit partners, *Auditing: A Journal of Practice and Theory*, Vol. 5(2), pp. 86-94.

Schwartz, K. and Menon, K. (1985). Auditor switches by failing firms, *The Accounting Review*, Vol. 60(2), pp. 248-261.

SEC (1976). Accounting Series Release No. 165.

SEC (1988). Financial Reporting Release No. 31.

SEC (2000). Financial Reporting Release No. 56.

Seetharaman, A., Gul, F. and Lyn, S. (2002). Litigation risk and audit fees: Evidence from United Kingdom firms cross-listed on United States markets, *Journal of Accounting and Economics*, Vol. 33 (1), pp. 91-115.

Shapiro, C. (1983). Optimal pricing of experience goods, *Bell Journal of Economics*, Vol. 14(2), pp. 497-507.

Shepherd, W. (1997). *The economics of industrial organization*, 4th edition, New Jersey: Prentice-Hall International.

Shockley, R. and Holt, R. (1983). A behavioral investigation of supplier differentiation in the market for audit services, *Journal of Accounting Research*, Vol. 21, pp. 545-64.

Short, H. and Keasey, K. (1999). Managerial ownership and the performance of firms: Evidence from the UK, *Journal of Corporate Finance*, Vol. 5(1), pp. 79-101.

Shu, S. (2000). Auditor resignations: Clientele effects and legal liability, *Journal of Accounting and Economics*, Vol. 29(2), pp. 173-205.

Simon, D. (1985). The audit services market: Additional empirical evidence, *Auditing: A Journal of Practice and Theory*, Vol. 5(1), pp. 71-78.

Simon, D. and Francis, J. (1988). The effects of auditor change on audit fees: Tests of price cutting and price recovery, *The Accounting Review*, Vol. 63 (2), pp. 255-269.

Simunic, D. (1984). Auditing, consulting, and auditor independence, *Journal of Accounting Research*, Vol. 22(2), pp. 679-702.

Simunic, D. and Stein, M. (1987). Product differentiation in auditing: Auditor choice in the market for unseasoned new issues, Research Monograph No. 13 of The Canadian Certified General Accountants' Research Foundation.

Simunic, D. and Stein, M. (1995). Research into markets for auditing services, Working paper presented on The advanced Course in Audit Research, October, Maastricht Netherlands.

Smith Report (2003). *Audit Committees: Combined Code Guidance by R. Smith*, Financial Reporting Council, London.

Smith, D. (1986). Auditor 'subject to' opinions, disclaimers, and auditor changes, *Auditing: A Journal of Practice and Theory*, Vol. 6(1), pp. 95-108.

Smith, D. (1988). An investigation of Securities and Exchange Commission regulation of auditor change disclosures: The case of accounting series release No.165, *Journal of Accounting Research*, Vol. 26(1), pp. 134-145.

Smith, D. and Nichols. D. (1982). A market test of investor reaction to disagreements, *Journal of Accounting and Economics*, Vol. 4(2), pp. 109-120.

Stein, M., Simunic, D. and O'Keefe, T. (1994). Industry differences in the production of audit services, *Auditing: A Journal of Practice and Theory*, Vol. 13 (Supplement), pp. 128-142.

Steven, M. (1991). *The Big Eight*, New York: Macmillan.

Stice, J. (1991). Using financial and market information to identify pre-engagement factors associated with lawsuits against auditors, *The Accounting Review*, Vol. 66(3), pp. 516-533.

Stone, M. and Rasp, J. (1991). Tradeoffs in the choice between Logit and OLS for accounting choice studies, *The Accounting Review*, Vol. 66(1), pp. 170-187.

Tabachnick, B. and Fidell, L. (1996). *Using multivariate statistictics*, 3rd edition, Harper Collins.

Teoh, S. (1992). Auditor independence, dismissal threats and the market reaction to auditor switches, *Journal of Accounting Research*, Vol. 30(1), pp.1-23.

Teoh, S. and Wong, T. (1993). Perceived auditor quality and the earnings response coefficient, *The Accounting Review*, Vol. 68(2), pp. 346-366.

Thavapalan, S., Moroney, R. and Simnett, R. (2002). The effect of the PricewaterhouseCoopers merger on auditor concentration in Australia: A note, *Accounting and Finance*, Vol. 42(2), pp. 153-67.

Titman, S. and Trueman, B. (1986). Information quality and the valuation of new issues, *Journal of Accounting and Economics*, Vol. 8(2), pp. 159-172.

Tomczyk, S. and Read, W. (1989). Direct measurement of supplier concentration in the market for audit services, *Auditing: A Journal of Practice And Theory*, Vol. 9(1), pp. 161-190.

Turnbull Report (1999). *Internal control: Guidance for directors on the Combined Code by N. Turnbull*, London: Institute of Chartered Accountants in England and Wales.

Vanstraelen, A. (2000). Impact of renewable long-term audit mandates on audit quality, *The European Accounting Review*, Vol. 9(3), pp. 419-442.

Wallace, W. (1980). *The economic role of the audit in free and regulated markets*, Touche Ross, New York.

Wallace, W. (1984). Internal auditors can cut outside CPA costs, *Harvard Business Review*, March-April, pp. 16 and 20.

Wallace, W. (1987). The Economic Role of the Audit in Free and Regulated Markets: A Review, *Research in Accounting Regulation*, Vol. 1, pp. 7-34.

Watts, R. (1977). Corporate financial statements: A product of market and political processes, *Australian Journal of Management*, Vol. 2, pp. 53-75.

Watts, R. and Zimmerman, J. (1983). Agency problems, auditing, and the theory of the firm: Some evidence, *Journal of Law and Economics*, Vol. 26(3), pp. 613-633.

Watts, R. and Zimmerman, J. (1986). Positive accounting theory, *Contemporary Topics in Accounting Series*, New Jersey: Prentice-Hall, Englewood Cliffs.

Weets, V. (1999). Who will be the new auditor? Working paper, University of Ghent.

Wells, D. and Loudder, M. (1997). The market effects of auditor resignations, *Auditing: A Journal of Practice and Theory*, Vol. 16(1), pp. 138-144.

Wetherill, G., Duncombe, P., Kenward, M., Köllerström, J., Paul, S. and Vowden, B. (1986). *Regression analysis with applications*, London: Chapman and Hall.

Whisenant, J. and Sankaraguruswamy, S. (2000). Evidence on the auditor and client relationship: What can be learned from reasons reported by managers for changing auditors? Working paper, SSRN.

Whisenant, J. and Sankaraguruswamy, S. (2001). An analysis of voluntary and involuntary reporting practices in form 8-K filings by managers following an auditor realignment. Working paper, SSRN.

Whisenant, J., Sankaraguruswamy, S. and Raghunandan, K. (2003). Market reactions to disclosure of reportable events, *Auditing: A Journal of Practice and Theory*, Vol. 22(1), pp. 181-194.

Williams, D. (1988). The potential determinants of auditor change, *Journal of Business Finance and Accounting*, Vol. 15(2), pp.243-261.

Wilson. T. and Grimlund, R. (1990). An examination of the importance of an auditor's reputation, *Auditing: A Journal of Practice and Theory*, Vol. 9(2), pp. 43-59.

Wines, G. (1994). Auditor independence, audit qualifications services: A note, *Accounting and Finance*, Vol. 34 (1), pp. 75-86.

Wolk, C., Michelson, S. and Wootton, C. (2001). Auditor concentration and market shares in the US: 1988-1999 a descriptive note, *British Accounting Review*, Vol. 33(2), pp. 157-174.

Woo, E. and Koh, H. (2001). Factors associated with auditor changes: A Singapore study, *Accounting and Business Research*, Vol. 31(2), pp.133-144.

Woolf, E. (1997). *Auditing today*, 6th edition, New York: Prentice Hall.

Wootton, C., Tonge S. and Wolk, C. (1994). Pre and post Big Eight mergers: Comparison of auditor concentration, *Accounting Horizons,* Vol. 8(3)*,* pp. 58–74.

Yardley, J., Kauffman, N., Cairney, T. and Albrecht W. (1992). Supplier behaviour in the US audit market, *Journal of Accounting Literature*, Vol. 11, pp. 151–84.

Yeoh, E. and Jubb, C. (2001). Governance and audit quality: Is there an association? Working paper, University of Melbourne.

Appendix 1

Methods for literature search

Introduction

In this appendix, the methods used to search for relevant literature are described. The purpose of this appendix is to demonstrate the steps that have been taken to identify relevant literature for this study. Next section explains the literature search procedures adopted. This section briefly presents a description of the databases covered, the keywords used and the search procedures followed. Further, this section also provides an explanation of how the search was done using electronic and manual search methods.

Literature search procedures

The purpose of this section is to outline the literature search procedures undertaken in this study. In particular, this section will explain what databases have been used and how the search was conducted.

According to Baker (2000), the review of existing literature relating to the topic being researched is an essential first step and foundation when undertaking a research project. The review's purpose is to avoid the 'calamities of ignorance' as well as to avoid the reinvention of what is already known (Baker, 2000). Jankowicz (2000) states that a literature review is a critical search for an analytical framework, or frameworks, which we can put to work to test a hypothesis or to systematically investigate a set of issues. In addition, the literature review can also help the researcher distinguish between what has been done and what needs to be done. It will also help in the discovery of important variables that are relevant to the topic of research. To perform an effective review on selected literatures, one must have access to a sufficient amount of quality literature.

Most of the literature referenced in this study was searched by using the various search methods outlined in the next section.

Description of databases

The source of literature for this study mainly came from journals that can be retrieved through various electronic databases. For the purpose of this study, only databases that cover management related subjects were chosen. The databases are either subscribed to by the University of Stirling or available for free access. Those databases have proven to be very useful with excellence coverage of both the academic literature and the professional / business literature. In addition to the search done directly on the databases, this study also utilised the use of several specialised search engines that have links to academic and professional journals. Descriptions of these electronic databases and specialised search engines are given in Table A1.1.

Most of the databases provide full-text access (e.g. Ebscohost) while some only provide abstracts (e.g. Web of Science). All of the available documents can be downloaded and printed. In addition, a large number of working papers and forthcoming papers were found by searching the SSRN eLibrary (www.ssrn.com). The search on this database produced a number of working papers of several well-known authors.[124] In addition to these databases, searching was also undertaken using the American Accounting Association's 'Twenty Five Years of Audit Research' document. The document, prepared as part of the celebrations for the twenty-fifty anniversary of the Audit Section, contains all auditing articles published in eight top accounting journals.[125] As at 16/12/03, this document can be found at http:// raw.rutgers.edu/raw/aaa/audit/.

[124] For example, one can find most of Jensen's working papers and published studies here.
[125] The journals are *Accounting, Organizations and Society*, *Auditing: A Journal of Practice and Theory*, *Behavioral Research in Accounting*, *Contemporary Accounting Research*, *Journal of Accounting and Economics*, *Journal of Accounting and Public Policy*, J*ournal of Accounting Research* and *The Accounting Review*.

Table A1.1: Description of electronic databases and search engines

Database/ Search engine	Description
EBSCOhost® (http://search.epnet.com/)	The database represents more than 3600 full text academic journals various databases such as Academic Search Elite and Business Source Premier.
Emerald Library @ Emerald Insight (http://www.emerald-library.com)	The database covers online professional and academic journals published by MCB University Press. It has 35,000 articles from 100 journal titles in full text since 1994.
Proquest Direct (ABI/INFROM) (http://proquest.umi.com)	The database provides in-depth full text and bibliographic coverage of business conditions, trends, corporate strategies and tactics, management techniques, competitive and product information, and a wide variety of other topics. It provides informative indexing and substantive abstracts to articles from more than 1,000 leading business and management publications, including over 350 English-language titles from outside the U.S.
ScienceDirect (http://www.sciencedirect.com)	ScienceDirect is the Elsevier Science digital library.
IDEAL (http://www.idealibrary.com)	An online journal library created by Academic Press. All Academic Press journals are available from 1993 to 2001.
Web of Science (http://wos.mimas.ac.uk/)	This host provides several databases including the ISI Citation Indexes, which cover many leading academic journals.
Ingenta (http://www.ingenta.com/)	Ingenta was launched in May 1998 and since then it supplies access to more than 5,400 full text online publications as well as to more than 26,000 publications.
Scirus (http://www.scirus.com/)	Scirus was launched by Elsevier Science and it focuses on web sites containing scientific content, including those of university web sites and author homepages. The search engine searches both free and journal sources such as ScienceDirect and IDEAL. During any search, Scirus returns results from 90 million science-related web pages.
Lexis-Nexis Executive (http://web.lexis-nexis.com/executive/)	Lexis-Nexis Executive News is a collection of databases containing in total around 2,300 UK and overseas newspapers, newswires and magazines, going back in some cases for 20 years.
Social Science Network Research (SSRN) (www.ssrn.com)	The SSRN eLibrary consists of two parts: an Abstract Database containing abstracts on over 45,600 scholarly working papers and forthcoming papers. As at 18 August November 2006, its Electronic Paper Collection contained over 100,000 downloadable full text documents in Adobe Acrobat pdf format.

Searching process

An extensive literature search was conducted to identify and review past studies in the areas of auditor concentration, auditor choice and related topics. The process used to search the relevant literature from 1967[126]-2002 involved two methods: (i) a computerised search of various electronic databases; and (ii) a manual search of existing literature. To facilitate the search, keywords were used and a search procedure was adopted.

Keywords used

Since most of the databases contain a huge number of items, it is important to specify the appropriate keywords. The keywords were identified after several attempts of searching as well as several keywords which were known to be used in the literature. This list includes: auditor change, auditor choice, auditor switching, auditor selection, auditor resignation, auditor dismissal, auditor termination and auditor-client realignment. These keywords were also used with other broader keywords such as audit market, audit quality and auditing by using Boolean syntax operators. The used of Boolean syntax operators (such as 'and', 'or' and 'not') allows the search to be expanded or restricted.

Search procedures

As it is easier and faster, the search was begun by using electronic databases. All databases were searched using the keywords mentioned in the previous section. Due to the huge number of items, some databases (e.g. Proquest and EBSCOhost) allow the search to be restricted to peer-reviewed articles. Applying this procedure reduced the number of 'hits' significantly. To search for a specific article in a specific journal, the

[126] Based on a preliminary literature review, Burton and Roberts (1967) appears to be the first systematic study of auditor change. Hence, it is appropriate, in some cases, to specify the search period as beginning from 1967.

search was confined by using specific Boolean operators. For instance, to locate for DeAngelo's (1981) 'Auditor Size and Audit Quality' paper which was published in the *Journal of Accounting and Economics*, the search was performed by using the following set of operators: au(DeAngelo) and ju(Journal of Accounting and Economics). This procedure will allow the researcher to locate the exact paper (if available) almost instantly. Most of the databases support keyword searches in the title or in the abstract and some in the full text. However, the results often overlap with one another. Each relevant 'hit' was identified and the full-text article or abstract (whenever the full-text is not available) was then downloaded from the databases.

The next stage of search was undertaken manually. In particular, a technique called the '*ancestry approach'* was employed. This technique involves the examination of research papers that have already been acquired to see if they contain references to studies still unknown (Cooper, 1989, p. 56). For the papers that were found to be relevant, the abstracts (or, if available, the full-text) were obtained via the internet, Stirling University Library or the British Lending Library. The same approach was used to obtain the full-text of papers not available in the electronic databases.

For each of the searches, information about the database, date of search, keywords used and number of 'hits, was recorded. This was to allow possible subsequent searches to be conducted as well as to identify the most fruitful keywords for different databases. All relevant articles were reviewed and filed according to the specific subject area. A complete list of literature, with information about availability (e.g. full-text or abstract, soft copy or hard copy) was maintained and up-dated frequently. Intensive search of previous literature was stopped when the results were substantially overlapping and did not produce anything new. Thereafter, the search for literature concentrated on finding new publications and unpublished studies.

Computerised search of electronic databases

A computerised search for published auditor change and auditor selection studies was made possible since a number of electronic databases, as in Table A1.1, are subscribed to by the University of Stirling.

Meanwhile, apart from using the Social Science Network Research (SSRN) database, frequent visits to numerous universities' research homepages, especially those in the UK, were undertaken. In addition, this study also utilised search engines that specialise in providing specific research related information. The methods used to search for unpublished studies are explained further in the next sub-section.

Search for published studies

The searches using EBSCOhost, Proquest and ScienceDirect produced the most fruitful results. Amongst the journals that are relevant to the current study and available on those databases are: *Auditing: A Journal of Practice and Theory* (EBSCOhost and Proquest), *The Accounting Review* (EBSCOhost), *Journal of Accounting Research* (EBSCOhost) and *Journal of Accounting and Economics* (ScienceDirect).

Search for unpublished studies

As has been mentioned earlier, the search for unpublished studies included the SSRN database and various universities' webpages. For the search on SSRN, the keywords used to facilitate the searches were similar to those of the published studies. The used of the keywords 'auditor switch' and 'auditor change' for instance, produced two and 14 hits, respectively. In addition, broader keywords were also used and the results were browsed in detail. The use of 'audit market' as a keyword, for example, returned 21 hits. Out of this number, only two were identified as relevant to the current study.

Meanwhile, some of the working papers retrieved had in fact have already been accepted for publication.

Meanwhile, the use of the Scirus search engine also produced several useful results. Besides directing the search on ScienceDirect and IDEAL databases, this search engine also helped the researcher to locate several unpublished working papers in several university web sites and author homepages. Some organisations and researchers have now placed working papers, in full-text or abstract form, for public access and most universities now seem to regard putting those documents on the World Wide Web as a common practice. For instance, the use of the Google search engine (on 20 November 2002) and the keyword 'auditor change' uncovered several working papers on the American Accounting Associations' (AAA) website.[127] The working papers are those of the AAA mid-year meeting for the years 1999 to 2001, which are downloadable.

To find the latest UK-based unpublished working papers, several universities' homepages were visited. Amongst them were the Universities of Manchester, Lancaster, Edinburgh, Leeds, Bristol, Essex and Exeter. These universities were identified based on the affiliation of researchers in the topic area.

Manual search of literature

In performing a manual search for auditor change studies, two steps were used. Reference lists from studies located through the computerised search were reviewed and those relevant to the current study were identified. All auditor change studies cited in Beattie and Fearnley (1995 and 1998)[128] were reviewed.

[127] The website address is http://www.accounting.rutgers.edu/raw/aaa/audit/midyear/

[128] Both studies were chosen on the grounds that they provide useful summaries of the empirical literature on auditor selection. For the Beattie and Fearnley (1995) study, this was acknowledged by Abbott and Parker (2000).

The relevant studies were identified and the searches then were done by the use of computer. Those that were not available online then were obtained from the Stirling University Library and British Lending Library.

Appendix 2
Multicollinearity assessment

Table A2.1: Results of Pearson correlation for auditor change models

Model 1

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_b1	incman_b1	levtdta_b1	sizeasset_b1	lnsubs_b1	growth_b1	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00															
nedbod_b1	**0.22**	1.00														
dual_b1	**-0.19**	**-0.16**	1.00													
mgtchg_b1	-0.10	-0.01	0.00	1.00												
dirown_b1	**-0.24**	**-0.18**	**0.16**	-0.06	1.00											
incman_b1	-0.10	0.03	0.00	0.01	-0.10	1.00										
levtdta_b1	0.07	0.05	**-0.12**	0.03	**-0.12**	**-0.12**	1.00									
sizeasset_b1	**0.32**	**0.20**	**-0.15**	-0.01	**-0.39**	-0.03	**0.37**	1.00								
lnsubs_b1	**0.17**	**0.13**	-0.06	-0.01	**-0.31**	-0.02	**0.35**	**0.63**	1.00							
growth_b1	-0.07	-0.08	0.00	-0.03	**0.12**	0.02	-0.02	-0.02	0.00	1.00						
feeb1to0	-0.07	-0.01	-0.05	0.08	-0.05	-0.04	**0.12**	0.00	0.04	**-0.14**	1.00					
nasb1to0	**-0.11**	-0.01	0.00	0.04	-0.03	-0.06	0.08	0.01	0.01	**-0.11**	**0.15**	1.00				
nasaudfeeb1	0.02	0.06	-0.02	0.04	0.03	-0.05	-0.03	-0.08	-0.10	-0.06	0.03	0.00	1.00			
opinion	0.00	0.01	-0.01	-0.01	-0.07	-0.04	**0.21**	0.04	0.08	-0.10	**0.11**	0.03	-0.04	1.00		
big5	**0.12**	0.08	-0.10	0.01	**-0.31**	-0.08	**0.21**	**0.30**	**0.18**	**-0.11**	0.09	**0.12**	-0.08	-0.06	1.00	
spec30feeb1	0.10	0.05	-0.09	-0.02	**-0.18**	-0.06	**0.18**	**0.28**	**0.23**	-0.02	0.02	0.02	0.00	0.02	**0.32**	1.00

Model 2

	nedac_ăb12	nedbod_ăb12	dual_b1	mgtchg_b1	dirown_ăb12	incman_ăb12	levtdta_ăb12	sizeasset_ăb12	lnsubs_ăb12	growth_b1	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_ăb12	1.00															
nedbod_ăb12	**0.30**	1.00														
dual_b1	**-0.19**	**-0.16**	1.00													
mgtchg_b1	-0.01	-0.03	-0.01	1.00												
dirown_ăb12	**-0.27**	**-0.21**	**0.15**	-0.06	1.00											
incman_ăb12	-0.06	0.02	-0.04	-0.04	-0.03	1.00										
levtdta_ăb12	0.10	0.10	-0.10	0.02	**-0.12**	**-0.11**	1.00									
sizeasset_ăb12	**0.39**	**0.26**	**-0.15**	-0.01	**-0.44**	-0.03	**0.35**	1.00								
lnsubs_ăb12	**0.27**	**0.15**	-0.09	0.01	**-0.35**	0.00	**0.36**	**0.66**	1.00							
growth_b1	-0.05	-0.06	-0.01	-0.02	**0.14**	0.00	0.03	**-0.11**	-0.04	1.00						
feeb1to0	-0.02	0.00	-0.04	0.08	-0.06	-0.06	**0.15**	0.03	0.07	**-0.12**	1.00					
nasb1to0	**-0.11**	0.00	0.01	0.05	-0.02	-0.07	0.04	0.03	0.02	**-0.12**	**0.14**	1.00				
nasaudfeeb1	0.01	**0.12**	-0.04	0.04	0.01	-0.03	-0.04	-0.08	-0.09	-0.06	0.04	0.01	1.00			
opinion	-0.02	0.01	-0.01	-0.01	-0.05	-0.06	**0.16**	0.06	0.09	-0.10	**0.11**	0.03	-0.04	1.00		
big5	**0.17**	**0.13**	**-0.11**	0.00	**-0.31**	-0.07	**0.20**	**0.30**	**0.18**	-0.09	0.07	**0.11**	-0.07	-0.06	1.00	
spec30feeb1	**0.11**	0.10	-0.08	-0.02	**-0.19**	-0.04	**0.17**	**0.29**	**0.25**	-0.01	0.01	0.02	0.01	0.02	**0.32**	1.00

Notes: Two-tailed, **bold** = significant at 5% level

Model 3

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_cb12	incman_cb12	levtdta_cb12	sizeasset_cb12	lnsubs_cb12	growth_b1	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00															
nedbod_b1	**0.23**	1.00														
dual_b1	**-0.20**	**-0.17**	1.00													
mgtchg_b1	-0.09	-0.03	-0.01	1.00												
dirown_cb12	0.00	0.00	0.07	0.02	1.00											
incman_cb12	-0.07	-0.02	0.08	0.05	-0.01	1.00										
levtdta_cb12	-0.03	0.00	0.05	-0.05	-0.01	-0.01	1.00									
sizeasset_cb12	0.00	**-0.11**	-0.03	-0.02	-0.09	-0.05	-0.04	1.00								
lnsubs_cb12	-0.10	**-0.13**	0.07	-0.08	-0.07	-0.06	**0.24**	**0.16**	1.00							
growth_b1	-0.04	-0.07	-0.01	-0.02	-0.04	-0.02	0.09	**0.46**	**0.19**	1.00						
feeb1to0	-0.08	-0.01	-0.04	0.08	0.05	0.07	-0.10	**-0.20**	**-0.20**	**-0.12**	1.00					
nasb1to0	**-0.11**	-0.01	0.01	0.05	0.03	-0.01	0.05	**-0.15**	-0.10	**-0.12**	**0.14**	1.00				
nasaudfeeb1	0.01	0.06	-0.04	0.04	0.04	-0.04	0.01	0.02	-0.05	-0.06	0.04	0.01	1.00			
opinion	-0.01	0.01	-0.01	-0.01	-0.07	0.04	-0.01	**-0.15**	-0.04	-0.10	**0.11**	0.03	-0.04	1.00		
big5	0.10	0.09	**-0.11**	0.00	0.03	0.01	0.06	-0.06	-0.02	-0.09	0.07	**0.11**	-0.07	-0.06	1.00	
spec30feeb1	0.09	0.05	-0.08	-0.02	0.04	-0.03	0.04	-0.05	-0.05	-0.01	0.01	0.02	0.01	0.02	**0.32**	1.00

Model 4

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_scb12	incman_scb12	levtdta_scb12	sizeasset_scb12	lnsubs_scb12	growth_b1	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00															
nedbod_b1	**0.23**	1.00														
dual_b1	**-0.20**	**-0.17**	1.00													
mgtchg_b1	-0.09	-0.03	-0.01	1.00												
dirown_scb12	-0.02	0.08	-0.06	0.10	1.00											
incman_scb12	-0.01	0.05	0.04	-0.06	**-0.13**	1.00										
levtdta_scb12	-0.04	-0.05	0.09	0.01	-0.05	-0.08	1.00									
sizeasset_scb12	-0.09	-0.09	-0.07	0.01	0.06	**-0.12**	**0.19**	1.00								
lnsubs_scb12	-0.03	-0.04	0.07	**0.14**	0.08	-0.07	**0.12**	**0.15**	1.00							
growth_b1	-0.04	-0.07	-0.01	-0.02	0.03	0.03	0.10	**0.13**	-0.07	1.00						
feeb1to0	-0.08	-0.01	-0.04	0.08	0.03	-0.01	-0.06	0.08	-0.08	**-0.12**	1.00					
nasb1to0	**-0.11**	-0.01	0.01	0.05	-0.02	-0.04	-0.06	0.10	0.02	**-0.12**	**0.14**	1.00				
nasaudfeeb1	0.01	0.06	-0.04	0.04	-0.01	-0.02	0.04	-0.05	0.00	-0.06	0.04	0.01	1.00			
opinion	-0.01	0.01	-0.01	-0.01	0.03	-0.01	-0.09	0.07	-0.10	-0.10	**0.11**	0.03	-0.04	1.00		
big5	**0.10**	0.09	**-0.11**	0.00	0.07	-0.04	-0.07	-0.01	0.00	-0.09	0.07	**0.11**	-0.07	-0.06	1.00	
spec30feeb1	0.09	0.05	-0.08	-0.02	**0.13**	-0.03	-0.04	-0.04	**-0.12**	-0.01	0.01	0.02	0.01	0.02	**0.32**	1.00

Notes: Two-tailed, **bold** = significant at 5% level

Model 5

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_b1	incman_cb1a0	levtdta_cb1a0	sizeasset_cb1a0	lnsubs_cb1a0	growth_a0	finance_a0	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00																
nedbod_b1	**0.22**	1.00															
dual_b1	**-0.19**	**-0.16**	1.00														
mgtchg_b1	-0.10	-0.01	0.00	1.00													
dirown_b1	**-0.24**	**-0.18**	**0.16**	-0.06	1.00												
incman_cb1a0	0.01	-0.08	-0.07	0.01	**0.12**	1.00											
levtdta_cb1a0	**-0.11**	-0.06	**0.13**	-0.03	**0.18**	0.04	1.00										
sizeasset_cb1a0	0.00	-0.03	-0.06	-0.09	0.09	-0.02	**0.13**	1.00									
lnsubs_cb1a0	0.01	0.02	-0.03	-0.05	0.02	-0.04	0.04	0.01	1.00								
growth_a0	-0.02	0.04	0.02	-0.01	**0.14**	-0.09	0.07	**0.46**	0.05	1.00							
finance_a0	0.02	-0.03	0.05	0.08	**0.11**	-0.02	-0.01	0.00	0.02	**0.12**	1.00						
feeb1to0	-0.07	-0.01	-0.05	0.08	-0.05	-0.01	**-0.22**	**-0.30**	-0.10	**-0.34**	-0.02	1.00					
nasb1to0	**-0.11**	-0.01	0.00	0.04	-0.03	0.02	0.02	-0.09	-0.04	0.02	-0.07	**0.15**	1.00				
nasaudfeeb1	0.02	0.06	-0.02	0.04	0.03	-0.04	0.08	0.02	**0.13**	0.07	0.07	0.03	0.00	1.00			
opinion	0.00	0.01	-0.01	-0.01	-0.07	-0.03	-0.01	-0.09	-0.05	-0.07	-0.06	**0.11**	0.03	-0.04	1.00		
big5	**0.12**	0.08	-0.10	0.01	**-0.31**	-0.04	-0.10	-0.05	-0.01	-0.01	-0.07	0.09	**0.12**	-0.08	-0.06	1.00	
spec30feeb1	0.10	0.05	-0.09	-0.02	**-0.18**	-0.06	-0.03	-0.03	0.02	**-0.12**	0.04	0.02	0.02	0.00	0.02	**0.32**	1.00

Model 6

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_b1	incman_scb1a0	levtdta_scb1a0	sizasset_scb1a0	lnsubs_scb1a0	growth_a0	finance_a0	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00																
nedbod_b1	**0.22**	1.00															
dual_b1	**-0.19**	**-0.16**	1.00														
mgtchg_b1	-0.10	-0.01	0.00	1.00													
dirown_b1	**-0.24**	**-0.18**	**0.16**	-0.06	1.00												
incman_scb1a0	-0.08	-0.10	0.00	0.04	0.06	1.00											
levtdta_scb1a	**-0.12**	-0.05	0.07	0.04	0.10	**0.15**	1.00										
sizeasset_scb1a0	**-0.11**	**-0.13**	0.10	**0.14**	0.04	0.07	**0.19**	1.00									
lnsubs_scb1a0	0.02	-0.07	0.05	0.01	0.10	0.10	0.10	0.06	1.00								
growth_a0	-0.02	0.04	0.02	-0.01	**0.14**	0.09	0.06	**0.16**	0.02	1.00							
finance_a0	0.02	-0.03	0.05	0.08	**0.11**	-0.04	0.00	0.07	-0.04	**0.12**	1.00						
feeb1to0	-0.07	-0.01	-0.05	0.08	-0.05	0.03	-0.02	-0.07	0.10	**-0.34**	-0.02	1.00					
nasb1to0	**-0.11**	-0.01	0.00	0.04	-0.03	0.03	-0.03	0.05	0.00	0.02	-0.07	**0.15**	1.00				
nasaudfeeb1	0.02	0.06	-0.02	0.04	0.03	-0.04	0.03	-0.01	0.04	0.07	0.07	0.03	0.00	1.00			
opinion	0.00	0.01	-0.01	-0.01	-0.07	-0.09	-0.02	-0.02	-0.06	-0.07	-0.06	**0.11**	0.03	-0.04	1.00		
big5	**0.12**	0.08	-0.10	0.01	**-0.31**	-0.09	-0.09	0.00	-0.02	-0.01	-0.07	0.09	**0.12**	-0.08	-0.06	1.00	
spec30feeb1	0.10	0.05	-0.09	-0.02	**-0.18**	**-0.12**	-0.10	-0.05	-0.07	**-0.12**	0.04	0.02	0.02	0.00	0.02	**0.32**	1.00

Notes: Two-tailed, **bold** = significant at 5% level

Model 7

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_b1	incman_a0	levtdta_a0	sizeasset_a0	lnsubs_a0	growth_a0	finance_a0	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00																
nedbod_b1	**0.22**	1.00															
dual_b1	**-0.19**	**-0.16**	1.00														
mgtchg_b1	-0.10	-0.01	0.00	1.00													
dirown_b1	**-0.24**	**-0.18**	**0.16**	-0.06	1.00												
incman_a0	-0.10	-0.01	-0.02	0.02	-0.03	1.00											
levtdta_a0	0.10	0.06	-0.09	0.01	-0.10	**-0.11**	1.00										
sizeasset_a0	**0.31**	**0.20**	-0.16	-0.02	**-0.37**	-0.01	**0.36**	1.00									
lnsubs_a0	**0.18**	**0.16**	-0.08	-0.02	**-0.31**	0.00	**0.34**	**0.65**	1.00								
growth_a0	-0.02	0.04	0.02	-0.01	0.14	0.02	-0.01	0.10	0.01	1.00							
finance_a0	0.02	-0.03	0.05	0.08	0.11	0.04	-0.09	-0.07	-0.05	**0.12**	1.00						
feeb1to0	-0.07	-0.01	-0.05	0.08	-0.05	-0.07	-0.04	-0.06	-0.06	**-0.34**	-0.02	1.00					
nasb1to0	**-0.11**	-0.01	0.00	0.04	-0.03	-0.05	0.12	0.00	0.00	0.02	-0.07	**0.15**	1.00				
nasaudfeeb1	0.02	0.06	-0.02	0.04	0.03	-0.05	-0.01	-0.07	-0.08	0.07	0.07	0.03	0.00	1.00			
opinion	0.00	0.01	-0.01	-0.01	-0.07	-0.05	**0.16**	0.02	0.05	-0.07	-0.06	0.11	0.03	-0.04	1.00		
big5	**0.12**	0.08	-0.10	0.01	**-0.31**	**-0.11**	**0.17**	**0.29**	**0.20**	-0.01	-0.07	0.09	**0.12**	-0.08	-0.06	1.00	
spec30feeb1	0.10	0.05	-0.09	-0.02	**-0.18**	-0.08	**0.15**	**0.27**	**0.25**	**-0.12**	0.04	0.02	0.02	0.00	0.02	**0.32**	1.00

Model 8

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_b1	incman_ăa01	levtdta_aa01	sizeasset_ăaa01	lnsubs_aa01	growth_a0	finance_a0	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00																
nedbod_b1	**0.22**	1.00															
dual_b1	**-0.19**	**-0.16**	1.00														
mgtchg_b1	-0.10	-0.01	0.00	1.00													
dirown_b1	**-0.24**	**-0.18**	**0.16**	-0.06	1.00												
incman_ăa01	-0.08	0.01	-0.05	0.02	-0.05	1.00											
levtdta_ăa01	0.07	0.06	**-0.11**	0.02	-0.10	0.04	1.00										
sizeasset_ăa01	**0.31**	**0.20**	**-0.16**	-0.05	**-0.36**	0.01	**0.32**	1.00									
lnsubs_ăa01	**0.22**	**0.15**	-0.10	-0.02	**-0.35**	0.02	**0.33**	**0.71**	1.00								
growth_a0	-0.02	0.04	0.02	-0.01	**0.14**	0.00	0.00	**0.11**	0.00	1.00							
finance_a0	0.02	-0.03	0.05	0.08	**0.11**	0.02	-0.09	-0.06	-0.07	**0.12**	1.00						
feeb1to0	-0.07	-0.01	-0.05	0.08	-0.05	-0.07	-0.06	-0.06	0.02	**-0.34**	-0.02	1.00					
nasb1to0	**-0.11**	-0.01	0.00	0.04	-0.03	-0.02	**0.11**	-0.02	0.03	0.02	-0.07	**0.15**	1.00				
nasaudfeeb1	0.02	0.06	-0.02	0.04	0.03	-0.03	-0.03	-0.06	-0.10	0.07	0.07	0.03	0.00	1.00			
opinion	0.00	0.01	-0.01	-0.01	-0.07	-0.03	**0.15**	0.02	0.06	-0.07	-0.06	**0.11**	0.03	-0.04	1.00		
big5	**0.12**	0.08	-0.10	0.01	**-0.31**	-0.10	**0.14**	**0.28**	**0.21**	-0.01	-0.07	0.09	**0.12**	-0.08	-0.06	1.00	
spec30feeb1	0.10	0.05	-0.09	-0.02	**-0.18**	-0.06	**0.13**	**0.27**	**0.24**	**-0.12**	0.04	0.02	0.02	0.00	0.02	**0.32**	1.00

Notes: Two-tailed, **bold** = significant at 5% level

Model 9

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_b1	incman_ca01	levtdta_ca01	sizeasset_ca01	lnsubs_ca01	growth_a0	finance_a0	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00																
nedbod_b1	**0.22**	1.00															
dual_b1	**-0.19**	**-0.16**	1.00														
mgtchg_b1	-0.10	-0.01	0.00	1.00													
dirown_b1	**-0.24**	**-0.18**	**0.16**	-0.06	1.00												
incman_ca01	0.07	0.09	**-0.12**	0.01	**-0.18**	1.00											
levtdta_ca01	**-0.16**	0.01	-0.02	0.03	-0.02	**-0.12**	1.00										
sizeasset_ca01	-0.08	0.00	0.01	**-0.19**	**0.11**	**-0.12**	**0.27**	1.00									
lnsubs_ca01	-0.01	-0.02	-0.07	0.00	0.03	0.07	0.09	**0.13**	1.00								
growth_a0	-0.02	0.04	0.02	-0.01	**0.14**	-0.06	0.05	0.10	-0.03	1.00							
finance_a0	0.02	-0.03	0.05	0.08	**0.11**	**-0.12**	0.04	0.07	-0.04	**0.12**	1.00						
feeb1to0	-0.07	-0.01	-0.05	0.08	-0.05	0.02	0.05	0.03	**0.16**	**-0.34**	-0.02	1.00					
nasb1to0	**-0.11**	-0.01	0.00	0.04	-0.03	**0.12**	-0.09	**-0.13**	0.03	0.02	-0.07	**0.15**	1.00				
nasaudfeeb1	0.02	0.06	-0.02	0.04	0.03	0.09	-0.01	0.01	-0.01	0.07	0.07	0.03	0.00	1.00			
opinion	0.00	0.01	-0.01	-0.01	-0.07	0.09	-0.06	-0.01	-0.03	-0.07	-0.06	**0.11**	0.03	-0.04	1.00		
big5	**0.12**	0.08	-0.10	0.01	**-0.31**	0.05	**-0.13**	-0.09	-0.07	-0.01	-0.07	0.09	**0.12**	-0.08	-0.06	1.00	
spec30feeb1	0.10	0.05	-0.09	-0.02	**-0.18**	0.07	**-0.14**	-0.03	-0.05	**-0.12**	0.04	0.02	0.02	0.00	0.02	**0.32**	1.00

Model 10

	nedac_b1	nedbod_b1	dual_b1	mgtchg_b1	dirown_b1	incman_sca01	levtdta_ sca01	sizeasset_sca01	lnsubs_sca01	growth_a0	finance_a0	feeb1to0	nasb1to0	nasaudfeeb1	opinion	big5	spec30feeb1
nedac_b1	1.00																
nedbod_b1	**0.22**	1.00															
dual_b1	**-0.19**	**-0.16**	1.00														
mgtchg_b1	-0.10	-0.01	0.00	1.00													
dirown_b1	**-0.24**	**-0.18**	**0.16**	-0.06	1.00												
incman_sca01	0.04	0.04	0.00	-0.04	-0.04	1.00											
levtdta_sca01	**-0.14**	-0.05	-0.02	-0.04	**0.14**	0.07	1.00										
sizeasset_sca01	**-0.13**	-0.04	0.07	0.04	**0.14**	0.08	**0.17**	1.00									
lnsubs_sca01	0.04	0.00	-0.03	0.05	0.00	-0.01	-0.01	0.00	1.00								
growth_a0	-0.02	0.04	0.02	-0.01	**0.14**	0.03	-0.03	-0.01	**-0.14**	1.00							
finance_a0	0.02	-0.03	0.05	0.08	**0.11**	0.01	-0.04	0.02	-0.01	**0.12**	1.00						
feeb1to0	-0.07	-0.01	-0.05	0.08	-0.05	-0.02	0.12	-0.04	0.03	-0.34	-0.02	1.00					
nasb1to0	**-0.11**	-0.01	0.00	0.04	-0.03	0.09	-0.06	0.00	0.01	0.02	-0.07	**0.15**	1.00				
nasaudfeeb1	0.02	0.06	-0.02	0.04	0.03	0.05	0.00	0.05	-0.05	0.07	0.07	0.03	0.00	1.00			
opinion	0.00	0.01	-0.01	-0.01	-0.07	-0.05	-0.02	-0.05	0.03	-0.07	-0.06	0.11	0.03	-0.04	1.00		
big5	**0.12**	0.08	-0.10	0.01	**-0.31**	-0.03	**-0.11**	-0.09	-0.01	-0.01	-0.07	0.09	**0.12**	-0.08	-0.06	1.00	
spec30feeb1	0.10	0.05	-0.09	-0.02	**-0.18**	-0.03	**-0.12**	-0.05	0.05	**-0.12**	0.04	0.02	0.02	0.00	0.02	**0.32**	1.00

Notes: Two-tailed, **bold** = significant at 5% level

Table A2.1: Results of Variable Inflation Factor (VIF) for auditor change models

Model 1

Variable	VIF	VIF SQRT	Tolerance	R^2
nedac_b1	1.25	1.12	0.80	0.20
nedbod_b1	1.11	1.05	0.90	0.10
dual_b1	1.09	1.04	0.92	0.08
mgtchg_b1	1.03	1.01	0.97	0.03
dirown_b1	1.36	1.17	0.74	0.26
incman_b1	1.07	1.03	0.94	0.06
levtdta_b1	1.31	1.15	0.76	0.24
sizeasset_b1	2.09	1.45	0.48	0.52
lnsubs_b1	1.77	1.33	0.57	0.44
growth_b1	1.07	1.04	0.93	0.07
feeb1to0	1.08	1.04	0.93	0.07
nasb1to0	1.06	1.03	0.94	0.06
nasaudfeeb1	1.04	1.02	0.97	0.03
opinion	1.09	1.04	0.92	0.08
big5	1.31	1.15	0.76	0.24
spec30feeb1	1.18	1.09	0.85	0.15

Model 2

Variable	VIF	VIF SQRT	Tolerance	R^2
nedac_ăb12	1.31	1.14	0.76	0.24
nedbod_ăb12	1.17	1.08	0.85	0.15
dual_b1	1.08	1.04	0.93	0.07
mgtchg_b1	1.02	1.01	0.98	0.02
dirown_ăb12	1.38	1.17	0.73	0.27
incman_ăb12	1.04	1.02	0.96	0.04
levtdta_ăb12	1.28	1.13	0.78	0.22
sizeasset_ăb12	2.29	1.51	0.44	0.56
lnsubs_ăb12	1.91	1.38	0.52	0.48
growth_b1	1.08	1.04	0.93	0.07
feeb1to0	1.08	1.04	0.93	0.07
nasb1to0	1.07	1.03	0.94	0.06
nasaudfeeb1	1.05	1.03	0.95	0.05
opinion	1.07	1.03	0.93	0.07
big5	1.30	1.14	0.77	0.23
spec30feeb1	1.18	1.09	0.84	0.16

Model 3

Variable	VIF	VIF SQRT	Tolerance	R^2
nedac_b1	1.14	1.07	0.87	0.13
nedbod_b1	1.11	1.05	0.90	0.10
dual_b1	1.09	1.04	0.92	0.08
mgtchg_b1	1.03	1.01	0.97	0.03
dirown_cb12	1.03	1.01	0.97	0.03
incman_cb12	1.03	1.01	0.97	0.03
levtdta_cb12	1.10	1.05	0.91	0.09
sizeasset_cb12	1.39	1.18	0.72	0.28
lnsubs_cb12	1.18	1.09	0.85	0.15
growth_b1	1.34	1.16	0.75	0.25
feeb1to0	1.13	1.06	0.89	0.11
nasb1to0	1.08	1.04	0.93	0.07
nasaudfeeb1	1.03	1.02	0.97	0.03
opinion	1.05	1.02	0.95	0.05
big5	1.19	1.09	0.84	0.16
spec30feeb1	1.13	1.06	0.88	0.12

Model 4

Variable	VIF	VIF SQRT	Tolerance	R^2
nedac_b1	1.14	1.07	0.88	0.12
nedbod_b1	1.10	1.05	0.91	0.09
dual_b1	1.10	1.05	0.91	0.09
mgtchg_b1	1.05	1.02	0.95	0.05
dirown_scb12	1.08	1.04	0.93	0.07
incman_scb12	1.05	1.02	0.95	0.05
levtdta_scb12	1.10	1.05	0.91	0.09
sizeasset_scb12	1.15	1.07	0.87	0.13
lnsubs_scb12	1.12	1.06	0.89	0.11
growth_b1	1.10	1.05	0.91	0.09
feeb1to0	1.08	1.04	0.92	0.08
nasb1to0	1.08	1.04	0.93	0.07
nasaudfeeb1	1.03	1.01	0.97	0.03
opinion	1.06	1.03	0.94	0.06
big5	1.18	1.09	0.85	0.15
spec30feeb1	1.16	1.08	0.86	0.14

Model 5

Variable	VIF	VIF	VIF SQRT	Tolerance
nedac_b1	1.17	1.08	0.86	0.15
nedbod_b1	1.10	1.05	0.91	0.09
dual_b1	1.11	1.05	0.90	0.10
mgtchg_b1	1.05	1.02	0.96	0.04
dirown_b1	1.28	1.13	0.78	0.22
incman_cb1a0	1.05	1.03	0.95	0.05
levtdta_cb1a0	1.12	1.06	0.89	0.11
sizeasset_cb1a0	1.36	1.17	0.73	0.27
lnsubs_cb1a0	1.04	1.02	0.96	0.04
growth_a0	1.47	1.21	0.68	0.32
finance_a0	1.07	1.03	0.94	0.06
feeb1to0	1.30	1.14	0.77	0.23
nasb1to0	1.07	1.04	0.93	0.07
nasaudfeeb1	1.06	1.03	0.95	0.05
opinion	1.04	1.02	0.96	0.04
big5	1.27	1.13	0.79	0.21
spec30feeb1	1.17	1.08	0.86	0.14

Model 6

Variable	VIF	VIF SQRT	Tolerance	R^2
nedac_b1	1.18	1.09	0.85	0.15
nedbod_b1	1.12	1.06	0.90	0.10
dual_b1	1.09	1.04	0.92	0.08
mgtchg_b1	1.06	1.03	0.95	0.05
dirown_b1	1.25	1.12	0.80	0.20
incman_scb1a0	1.08	1.04	0.92	0.08
levtdta_scb1a0	1.09	1.04	0.92	0.08
sizeasset_scb1a0	1.12	1.06	0.90	0.10
lnsubs_scb1a0	1.06	1.03	0.94	0.06
growth_a0	1.25	1.12	0.80	0.20
finance_a0	1.07	1.03	0.93	0.07
feeb1to0	1.23	1.11	0.81	0.19
nasb1to0	1.06	1.03	0.94	0.06
nasaudfeeb1	1.03	1.02	0.97	0.03
opinion	1.05	1.02	0.96	0.04
big5	1.28	1.13	0.78	0.22
spec30feeb1	1.17	1.08	0.86	0.14

Model 7

Variable	VIF	VIF	VIF SQRT	Tolerance
nedac_b1	1.24	1.11	0.81	0.19
nedbod_b1	1.10	1.05	0.91	0.09
dual_b1	1.09	1.04	0.92	0.08
mgtchg_b1	1.04	1.02	0.96	0.04
dirown_b1	1.36	1.17	0.74	0.26
incman_a0	1.06	1.03	0.95	0.05
levtdta_a0	1.27	1.13	0.79	0.21
sizeasset_a0	2.14	1.46	0.47	0.53
lnsubs_a0	1.82	1.35	0.55	0.45
growth_a0	1.26	1.12	0.80	0.20
finance_a0	1.07	1.03	0.94	0.06
feeb1to0	1.22	1.10	0.82	0.18
nasb1to0	1.08	1.04	0.93	0.07
nasaudfeeb1	1.04	1.02	0.96	0.04
opinion	1.07	1.03	0.94	0.06
big5	1.31	1.14	0.77	0.23
spec30feeb1	1.22	1.10	0.82	0.18

Model 8

Variable	VIF	VIF SQRT	Tolerance	R^2
nedac_b1	1.23	1.11	0.81	0.19
nedbod_b1	1.10	1.05	0.91	0.09
dual_b1	1.09	1.04	0.92	0.08
mgtchg_b1	1.04	1.02	0.96	0.04
dirown_b1	1.37	1.17	0.73	0.27
incman_ăa01	1.05	1.02	0.96	0.04
levtdta_ăa01	1.22	1.10	0.82	0.18
sizeasset_ăa01	2.39	1.55	0.42	0.58
lnsubs_ăa01	2.15	1.47	0.46	0.54
growth_a0	1.26	1.12	0.80	0.20
finance_a0	1.07	1.03	0.94	0.06
feeb1to0	1.23	1.11	0.81	0.19
nasb1to0	1.08	1.04	0.93	0.07
nasaudfeeb1	1.04	1.02	0.96	0.04
opinion	1.06	1.03	0.94	0.06
big5	1.31	1.14	0.77	0.23
spec30feeb1	1.22	1.10	0.82	0.18

Model 9

Variable	VIF	VIF SQRT	Tolerance	R^2
nedac_b1	1.20	1.10	0.83	0.17
nedbod_b1	1.10	1.05	0.91	0.09
dual_b1	1.09	1.04	0.92	0.08
mgtchg_b1	1.08	1.04	0.92	0.08
dirown_b1	1.29	1.13	0.78	0.22
incman_ca01	1.12	1.06	0.90	0.10
levtdta_ca01	1.18	1.09	0.85	0.15
sizeasset_ca01	1.20	1.09	0.84	0.16
lnsubs_ca01	1.07	1.03	0.93	0.07
growth_a0	1.23	1.11	0.81	0.19
finance_a0	1.08	1.04	0.93	0.07
feeb1to0	1.25	1.12	0.80	0.20
nasb1to0	1.10	1.05	0.91	0.09
nasaudfeeb1	1.04	1.02	0.96	0.04
opinion	1.05	1.02	0.96	0.04
big5	1.29	1.13	0.78	0.22
spec30feeb1	1.17	1.08	0.85	0.15

Model 10

Variable	VIF	VIF SQRT	Tolerance	R^2
nedac_b1	1.19	1.09	0.84	0.16
nedbod_b1	1.09	1.05	0.92	0.08
dual_b1	1.08	1.04	0.92	0.08
mgtchg_b1	1.05	1.02	0.96	0.05
dirown_b1	1.27	1.13	0.79	0.21
incman_sca01	1.04	1.02	0.96	0.04
levtdta_sca01	1.11	1.05	0.90	0.10
sizeasset_sca01	1.08	1.04	0.93	0.07
lnsubs_sca01	1.03	1.02	0.97	0.03
growth_a0	1.24	1.11	0.81	0.19
finance_a0	1.06	1.03	0.94	0.06
feeb1to0	1.23	1.11	0.81	0.19
nasb1to0	1.08	1.04	0.92	0.08
nasaudfeeb1	1.03	1.02	0.97	0.03
opinion	1.04	1.02	0.96	0.04
big5	1.27	1.13	0.79	0.21
spec30feeb1	1.17	1.08	0.86	0.14

Appendix 3
Results of auditor change determinants (robust standard errors)

Table A3.1 Models of ex post auditor change determinants (robust)

		Model 1			Model 2			Model 3			Model 4		
Variables	**Ex. sign**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics													
nedac_b1	-	-0.01	-2.58	**0.010**	-	-	-	-0.01	-2.25	**0.024**	-0.01	-2.28	**0.023**
nedac_ăb12	-	-	-	-	0.00	-1.08	0.278	-	-	-	-	-	-
nedbod_b1	-	0.02	2.75	**0.006**	-	-	-	0.02	2.85	**0.004**	0.02	2.70	**0.007**
nedbod_ăb12	-	-	-	-	0.02	2.08	**0.037**	-	-	-	-	-	-
dual_b1	+	0.98	2.85	**0.004**	1.03	2.96	**0.003**	0.96	2.77	**0.006**	0.98	2.87	**0.004**
mgtchg_b1	+	0.10	0.36	0.717	0.10	0.37	0.715	0.11	0.43	0.668	-0.11	-0.42	0.676
dirown_b1	-	-0.01	-0.82	0.414	-	-	-	-	-	-	-	-	-
dirown_ăb12	-	-	-	-	0.00	-0.45	0.650	-	-	-	-	-	-
dirown_cb12	+	-	-	-	-	-	-	0.26	1.71	*0.087*	-	-	-
dirown_scb12	+	-	-	-	-	-	-	-	-	-	0.21	0.65	0.514
incman_b1	+	-0.14	-0.42	0.672	-	-	-	-	-	-	-	-	-
incman_ăb12	+	-	-	-	-0.18	-0.58	0.563	-	-	-	-	-	-
incman_cb12	+	-	-	-	-	-	-	0.09	0.33	0.742	-	-	-
incman_scb12	+	-	-	-	-	-	-	-	-	-	-0.07	-0.24	0.812
levtdta_b1	?	-0.09	-0.12	0.908	-	-	-	-	-	-	-	-	-
levtdta_ăb12	?	-	-	-	-0.53	-0.66	0.511	-	-	-	-	-	-
levtdta_cb12	+	-	-	-	-	-	-	0.02	0.35	0.725	-	-	-
levtdta_scb12	+	-	-	-	-	-	-	-	-	-	0.13	0.41	0.685
sizeasset_b1	-	-0.02	-0.25	0.800	-	-	-	-	-	-	-	-	-
sizeasset_ăb12	-	-	-	-	-0.05	-0.53	0.593	-	-	-	-	-	-
sizeasset_cb12	+	-	-	-	-	-	-	0.10	0.86	0.392	-	-	-
sizeasset_scb12	+	-	-	-	-	-	-	-	-	-	-0.12	-0.38	0.705
lnsubs_b1	?	0.13	0.86	0.389	-	-	-	-	-	-	-	-	-
lnsubs_ăb12	?	-	-	-	0.16	1.02	0.308	-	-	-	-	-	-
lnsubs_cb12	+	-	-	-	-	-	-	0.02	0.44	0.663	-	-	-
lnsubs_scb12	+	-	-	-	-	-	-	-	-	-	1.01	3.14	**0.002**
growth_b1	+	-0.21	-0.71	0.477	-0.25	-0.84	0.401	-0.35	-1.08	0.282	-0.17	-0.59	0.553
Audit characteristics													
feeb1to0	+	1.27	3.47	**0.001**	1.34	3.70	**0.000**	1.32	3.56	**0.000**	1.50	3.87	**0.000**
nasb1to0	+	0.13	2.80	**0.005**	0.13	2.91	**0.004**	0.13	2.87	**0.004**	0.14	2.73	**0.006**
nasaudfeeb1	+	0.33	2.77	**0.006**	0.33	2.73	**0.006**	0.31	2.63	**0.009**	0.37	3.06	**0.002**
opinion	+	0.40	0.51	0.611	0.45	0.56	0.578	0.57	0.73	0.465	0.70	0.87	0.387
Auditor characteristics													
big5	-	-0.58	-1.95	*0.051*	-0.48	-1.60	0.111	-0.54	-1.87	*0.062*	-0.53	-1.83	*0.068*
spec30fee	-	-0.38	-1.25	0.213	-0.38	-1.21	0.226	-0.32	-1.05	0.294	-0.21	-0.68	0.497
constant	?	-1.50	-1.42	0.154	-1.71	-1.61	0.108	-2.03	-2.97	**0.003**	-2.41	-3.48	**0.000**

Notes: Two-tailed, **bold** = significant at 5% level, i*talic* =significant at 10% level

Table A3.2 Models of contemporaneous auditor change determinants (robust)

		Model 5			Model 6		
Variables	**Ex. sign**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics							
nedac_b1	-	-0.01	-2.64	**0.008**	-0.01	-2.64	**0.008**
nedbod_b1	-	0.02	2.54	**0.011**	0.02	2.95	**0.003**
dual_b1	+	0.98	2.77	**0.006**	1.05	2.99	**0.003**
mgtchg_b1	+	0.07	0.26	0.794	0.04	0.15	0.884
dirown_b1	-	-0.01	-1.50	0.135	-0.01	-1.54	0.125
incman_a0	?	-	-	-	-	-	-
incman_ăa01	?	-	-	-	-	-	-
incman_cb1a0	+	-0.15	-0.34	0.731	-	-	-
incman_scb1a0	+	-	-	-	0.47	1.57	0.117
levtdtatdt_a0	?	-	-	-	-	-	-
levtdtatdt_ăa01	?	-	-	-	-	-	-
levtdtatdt_cb1a0	+	0.09	1.26	0.208	-	-	-
levtdtatdt_scb1a0	+	-	-	-	-0.31	-1.00	0.318
sizeasset_a0	?	-	-	-	-	-	-
sizeasset_ăa01	?	-	-	-	-	-	-
sizeasset_cb1a0	+	0.07	0.20	0.842	-	-	-
sizeasset_scb1a0	+	-	-	-	0.43	1.36	0.173
lnsubs_a0	?	-	-	-	-	-	-
lnsubs_ăa01	?	-	-	-	-	-	-
lnsubs_cb1a0	+	-0.02	-0.90	0.370	-	-	-
lnsubs_scb1a0	+	-	-	-	0.54	1.90	*0.058*
growth_a0	+	0.92	2.63	**0.009**	0.87	2.88	**0.004**
finance_a0	+	0.02	0.03	0.977	0.06	0.11	0.915
Audit characteristics							
feeb1to0	+	1.93	4.52	**0.000**	1.77	4.25	**0.000**
nasb1to0	+	0.13	2.68	**0.007**	0.13	2.77	**0.006**
nasaudfeeb1	+	0.32	2.66	**0.008**	0.33	2.63	**0.009**
opinion	+	0.50	0.63	0.531	0.76	0.97	0.332
Auditor characteristics							
big5	-	-0.68	-2.23	**0.026**	-0.67	-2.24	**0.025**
spec30fee	-	-0.26	-0.84	0.401	-0.19	-0.59	0.555
constant	?	-2.26	-3.11	**0.002**	-2.48	-3.47	**0.001**

Notes: Two-tailed, **bold** = significant at 5% level, i*talic* =significant at 10% level

Table A3.3 Models of ex ante auditor change determinants (robust)

		Model 7			Model 8			Model 9			Model 10		
Variables	**Ex. sign**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**	**Coef.**	**z**	**P>|z|**
Auditee characteristics													
nedac_b1	-	-0.01	-2.63	**0.009**	-0.01	-2.76	**0.006**	-0.01	-2.63	**0.008**	-0.01	-2.56	**0.010**
nedbod_b1	-	0.02	2.56	**0.010**	0.02	2.63	**0.008**	0.02	2.61	**0.009**	0.02	2.58	**0.010**
dual_b1	+	1.02	2.91	**0.004**	1.01	2.84	**0.004**	1.00	2.85	**0.004**	1.05	2.96	**0.003**
mgtchg_b1	+	0.09	0.34	0.737	0.08	0.29	0.775	0.04	0.15	0.881	0.13	0.48	0.632
dirown_b1	-	-0.01	-1.45	0.147	-0.01	-1.45	0.146	-0.01	-1.31	0.191	-0.01	-1.34	0.180
incman_a0	?	-0.38	-1.21	0.228	-	-	-	-	-	-	-	-	-
incman_ăa01	?	-	-	-	-0.66	-2.01	**0.044**	-	-	-	-	-	-
incman_ca01	+	-	-	-	-	-	-	-0.44	-1.00	0.316	-	-	-
incman_sca01	+	-	-	-	-	-	-	-	-	-	0.52	1.72	*0.085*
levtdtatdt_a0	?	0.56	0.73	0.465	-	-	-	-	-	-	-	-	-
levtdtatdt_ăa01	?	-	-	-	0.52	0.68	0.494	-	-	-	-	-	-
levtdtatdt_ca01	+	-	-	-	-	-	-	0.03	0.64	0.524	-	-	-
levtdtatdt_sca01	+	-	-	-	-	-	-	-	-	-	0.17	0.56	0.579
sizeasset_a0	?	-0.09	-0.93	0.354	-	-	-	-	-	-	-	-	-
sizeasset_ăa01	?	-	-	-	-0.10	-1.01	0.312	-	-	-	-	-	-
sizeasset_ca01	+	-	-	-	-	-	-	-0.14	-0.89	0.375	-	-	-
sizeasset_sca01	+	-	-	-	-	-	-	-	-	-	-0.05	-0.15	0.878
lnsubs_a0	?	0.19	1.17	0.240	-	-	-	-	-	-	-	-	-
lnsubs_ăa01	?	-	-	-	0.24	1.35	0.178	-	-	-	-	-	-
lnsubs_ca01	?	-	-	-	-	-	-	-0.03	-1.37	0.171	-	-	-
lnsubs_sca01	?	-	-	-	-	-	-	-	-	-	-0.60	-2.00	**0.045**
growth_a0	+	1.02	3.14	**0.002**	1.01	3.07	**0.002**	0.95	3.07	**0.002**	0.87	2.86	**0.004**
finance_a0	+	0.03	0.05	0.960	0.07	0.14	0.892	-0.05	-0.09	0.925	0.00	-0.01	0.994
Audit characteristics													
feeb1to0	+	1.88	4.45	**0.000**	1.81	4.31	**0.000**	1.92	4.56	**0.000**	1.81	4.36	**0.000**
nasb1to0	+	0.13	2.66	**0.008**	0.13	2.73	**0.006**	0.13	2.66	**0.008**	0.13	2.65	**0.008**
nasaudfeeb1	+	0.32	2.62	**0.009**	0.33	2.67	**0.007**	0.34	2.73	**0.006**	0.31	2.50	**0.012**
opinion	+	0.39	0.52	0.605	0.39	0.52	0.604	0.62	0.83	0.406	0.63	0.78	0.435
Auditor characteristics													
big5	-	-0.73	-2.34	**0.019**	-0.75	-2.40	**0.017**	-0.70	-2.24	**0.025**	-0.68	-2.21	**0.027**
spec30fee	-	-0.29	-0.92	0.358	-0.29	-0.91	0.363	-0.22	-0.70	0.483	-0.18	-0.57	0.572
constant	?	-1.38	-1.30	0.195	-1.08	-1.00	0.319	-2.18	-3.10	**0.002**	-2.17	-3.07	**0.002**

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level

Appendix 4
Models of industry specialist selection determinants (continuous measures)

Table A4.1: New auditor selection models using specialist as dependent variable (continuous measures) holding brand name effect constant

Panel A: Model 1

		spec_msfee (n=75)			spec_msclient (n=75)		
	ex. sign	Coef.	t	P>|t|	Coef.	t	P>|t|
Auditee characteristics							
nedac_b1	+	0.06	0.58	0.563	0.04	0.74	0.465
nedbod_b1	+	-0.26	-1.07	0.288	-0.04	-0.36	0.720
dual_b1	-	-2.05	-0.23	0.818	1.32	0.30	0.767
mgtchg_b1	+	-1.94	-0.25	0.801	2.54	0.66	0.511
dirown_b1	-	0.19	0.69	0.496	0.00	0.03	0.980
incman_b1	+	-2.57	-0.21	0.836	5.04	0.81	0.420
levtdta_b1	+	-16.04	-0.64	0.523	-0.47	-0.04	0.970
sizeasset_b1	+	1.25	0.50	0.620	1.16	0.92	0.359
lnsubs_b1	+	-7.89	-1.83	*0.073*	-3.13	-1.45	0.153
growth_b1	+	-1.84	-0.22	0.827	-0.57	-0.14	0.892
Audit characteristics							
feeb1to0	?	4.28	0.42	0.673	-1.07	-0.21	0.834
nasb1to0	+	-0.86	-0.92	0.363	-0.85	-1.81	*0.076*
nasaudfeeb1	+	-1.79	-0.56	0.581	0.38	0.23	0.817
opinion	-	-19.93	-0.91	0.364	-1.23	-0.11	0.911
constant	?	16.52	0.62	0.534	-12.90	-0.97	0.334
Prob > F				0.713			0.835
Adj R^2				-0.05			-0.08

Panel B: Model 2

		spec_msfee (n=75)			spec_msclient (n=75)		
	ex. sign	Coef.	t	P>|t|	Coef.	t	P>|t|
Auditee characteristics							
nedac_ăb12	+	0.11	0.89	0.379	0.05	0.83	0.412
nedbod_ăb12	+	-0.30	-1.15	0.257	0.01	0.06	0.953
dual_b1	-	-2.53	-0.29	0.773	1.45	0.32	0.746
mgtchg_b1	+	-3.21	-0.44	0.664	2.18	0.58	0.564
dirown_ăb12	-	0.20	0.74	0.460	0.01	0.08	0.935
incman_ăb12	+	-12.72	-1.13	0.265	-0.19	-0.03	0.974
levtdta_ăb12	+	-1.31	-0.05	0.960	3.12	0.23	0.816
sizeasset_ăb12	+	1.83	0.74	0.459	1.51	1.20	0.235
lnsubs_ăb12	+	-10.74	-2.41	**0.019**	-4.63	-2.03	**0.046**
growth_b1	+	-0.52	-0.06	0.949	0.20	0.05	0.962
Audit characteristics							
feeb1to0	?	7.92	0.81	0.421	0.66	0.13	0.896
nasb1to0	+	-0.76	-0.83	0.408	-0.89	-1.91	*0.061*
nasaudfeeb1	+	-2.39	-0.76	0.452	0.15	0.09	0.927
opinion	-	-25.43	-1.20	0.237	-2.68	-0.25	0.807
constant	?	15.20	0.56	0.575	-15.87	-1.15	0.255
Prob > F				0.493			0.832
Adj R^2				-0.01			-0.08

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.

Continued on next page

Table A4.1 (Continued): New auditor selection models using specialist as dependent variable (continuous measures) holding brand name effect constant

Panel C: Model 3

	ex. sign	spec_msfee (n=75) Coef.	t	P>|t|	spec_msclient (n=75) Coef.	t	P>|t|
Auditee characteristics							
nedac_b1	+	0.03	0.33	0.742	0.04	0.76	0.452
nedbod_b1	+	-0.19	-0.84	0.406	-0.05	-0.42	0.676
dual_b1	-	-9.84	-1.13	0.265	-3.03	-0.67	0.506
mgtchg_b1	+	-6.39	-0.86	0.392	1.15	0.30	0.765
dirown_cb12	-	0.98	0.33	0.743	0.60	0.39	0.698
incman_cb12	?	24.87	2.81	**0.007**	7.80	1.70	*0.094*
levtdta_cb12	?	-4.27	-1.77	*0.082*	-1.18	-0.94	0.350
sizeasset_cb12	?	-4.92	-0.96	0.341	-1.98	-0.74	0.459
lnsubs_cb12	?	1.90	1.34	0.185	1.08	1.46	0.149
growth_b1	+	2.40	0.23	0.822	-0.16	-0.03	0.977
Audit characteristics							
feeb1to0	?	-2.35	-0.27	0.788	-0.43	-0.10	0.924
nasb1to0	+	0.02	0.02	0.986	-0.61	-1.36	0.180
nasaudfeeb1	+	-1.16	-0.40	0.689	0.38	0.25	0.802
opinion	-	-27.14	-1.40	0.168	-1.03	-0.10	0.919
constant	?	13.76	0.78	0.438	-3.69	-0.40	0.687
Prob > F				0.193			0.581
Adj R^2				0.04			-0.02

Panel D: Model 4

	ex. sign	spec_msfee (n=75) Coef.	t	P>|t|	spec_msclient (n=75) Coef.	t	P>|t|
Auditee characteristics							
nedac_b1	+	0.07	0.59	0.555	0.06	0.98	0.330
nedbod_b1	+	-0.27	-1.13	0.263	-0.06	-0.46	0.644
dual_b1	-	-2.73	-0.30	0.762	0.40	0.09	0.929
mgtchg_b1	+	-2.26	-0.28	0.781	2.31	0.57	0.568
dirown_scb12	-	-1.46	-0.17	0.864	2.16	0.51	0.609
incman_scb12	?	6.13	0.72	0.473	0.65	0.15	0.878
levtdta_scb12	?	3.31	0.27	0.785	0.09	0.01	0.988
sizeasset_scb12	?	0.83	0.09	0.930	4.30	0.92	0.362
lnsubs_scb12	?	10.25	1.15	0.256	0.62	0.14	0.890
growth_b1	+	-1.78	-0.22	0.823	-0.35	-0.09	0.930
Audit characteristics							
feeb1to0	?	-0.62	-0.06	0.949	-1.10	-0.23	0.818
nasb1to0	+	-0.52	-0.54	0.590	-0.78	-1.64	0.106
nasaudfeeb1	+	-1.33	-0.42	0.679	0.31	0.20	0.844
opinion	-	-21.69	-1.01	b0.315	-0.63	-0.06	0.953
constant	?	8.49	0.44	0.665	-5.74	-0.59	0.555
Prob > F				0.931			0.945
Adj R^2				-0.11			-0.13

Notes: Two-tailed, **bold** = significant at 5% level, *italic* =significant at 10% level.