Impact of non-audit services and tenure regulations on auditor independence and financial reporting quality: Evidence from the UK

by

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A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy of Cardiff University

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May 2016

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AAERs	Accounting and Auditing Enforcement Releases
ABSDAC	Absolute value of discretionary accruals
ACCA	Association of Chartered Certified Accountants
AICPA	American Institute of Certified Public Accountants
AIU	Audit Inspection Unit
APB	Auditing Practices Board
CAC	Current accruals
CEO	Chief executive officer
CGAA	Coordinating Group on Audit and Accounting Issues
CIMA	Chartered Institute of Management Accountants
CIPFA	Chartered Institute of Public Finance and Accountancy
CPAs	Certified Public Accountants
DTI	Department of Trade and Industry
EC	European Commission
ERCs	Earnings response coefficients
ES	Ethical standards
ESB	Ethics Standards Board
EU	European Union
FAME	Financial Analysis Made Easy
FASB	Financial Accounting Standards Board
FIFO	First-in, first-out
FRC	Financial Reporting Council
FRQ	Financial reporting quality
FSA	Financial Services Authority
FTSE	Financial Times Stock Exchange
ICAEW	Institute of Chartered Accountants in England and Wales
ICAI	Institute of Chartered Accountants in Ireland
ICAS	Institute of Chartered Accountants of Scotland
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
ISA	International Standards on Auditing
IT	Information Technology
LIFO	Last-in, first-out
NAS	Non-audit services
PCAOB	Public Company Accounting Oversight Board
POB	Public Oversight Board
SAS	Statement of Auditing Standards
SEC	Securities and Exchange Commission
SEO	Seasoned equity offerings
SFAC	Statement of Financial Accounting Concepts
SI	Statutory Instruments
SIC	Standard Industry Classification
SOX	Sarbanes-Oxley Act 2002
VIFs	Variance Inflation Factors

Acknowledgements

Dedication

This thesis is dedicated to my parents, wife and children.

Abstract

In response to the spectacular financial reporting failures in Western economies in the early 21st century, the UK has undergone a series of regulatory reforms and the Ethical Standards (ES) by the Auditing Practices Board (APB) are among the most prominent. While the issues of joint provision of audit and non-audit services (NAS) and long audit firm tenure died down following the enactment of ES in 2004, they attracted comments from regulators and policymakers in the wake of the 2007-09 financial crisis. This makes such joint provision and extended tenure long-standing, potentially unresolved issues even in a changed regulatory setting. In this context, the current study has been motivated to investigate the impact of NAS and audit firm tenure regulations on *de facto* auditor independence and financial reporting quality (FRQ) of FTSE350 companies. Using estimates of discretionary accruals and measures for auditors' economic dependence, the study finds little support against popular arguments that NAS fees and long audit firm tenure erode FRQ. Out of two measures of auditors' economic dependence, 'total fees to auditors' is documented to be significantly negatively associated with discretionary accruals during the post-APB ES period. The 'difference-in-differences' method provides some evidence at a marginally significant level for ES's causal impact in improving FRQ during post-APB ES period, *ceteris paribus*. Tests of association between audit firm tenure and FRQ suggest, with a caveat of marginally significant results, that audits conducted during the post-APB ES period have a mitigating effect on discretionary accruals and that longer audit firm tenure does not compromise auditor independence but in fact helps to improve FRQ in the form of lower discretionary accruals. These empirical findings have weak support for policymakers' views that an outright prohibition on supplying NAS for audit clients and mandating more frequent rotation of auditors would help to improve FRQ. Results from the final set of tests suggest a marginally significant negative association between audit firm tenure and discretionary accruals for companies audited by Big4 auditors but not for those audited by their non-Big4 counterparts. This provides insight to the most recent regulatory concerns about the concentrated audit market with Big4 domination. The study, therefore, makes important empirical contributions with policy implications.

Keywords: financial reporting quality, auditor independence, ethical standards, discretionary accruals, non-audit services, and audit firm tenure.

Chapter 1: Introduction

1.1 Introduction

Non-audit services (NAS) and auditor's long association with clients have remained significant debated issues in light of auditor independence and broadly, the financial reporting quality (FRQ) context. With spectacular corporate scandals in the early 2000s'in the USA, NAS and long tenure of auditors were generally blamed for the erosion of auditor independence and corresponding poor FRQ behind the demise of Enron, WorldCom and other large US and European companies. It was reported that most of the companies involved in the accounting scandals were paying a large NAS fees to their auditors. This created serious doubts regarding the appearance of auditor independence, and jeopardised the credibility of financial statements. To restore some degree of confidence on the market and on the profession, a number of regulations were enacted throughout the world, with the Auditing Practices Board (APB[1]) ethical standards (ES) in the UK leading the way.

The audit profession in the UK, like other countries of the world, has gone through significant changes over the past few years. One of the prominent changes has been the approval of a set of ethical standards for auditors (hereafter the APB ES) containing restrictive provision of NAS to the clients and auditor tenure amongst others (APB 2004). It prohibited the purchase of certain categories of NAS, prescribed safeguards for others, and introduced rotation of audit engagement partner every five years. Also, the Companies (Disclosure of Auditor Remuneration) Regulations 2005 required detailed disclosure of NAS fees in nine separate categories. Most recently, the Financial Reporting Council (hereafter the FRC[2]) has enforced mandatory tendering of audits every 10 years as an alternative to mandatory auditor rotation. Tendering is believed to allow companies "an effective way by which [they] can examine whether they have the best auditor available, yet does not preclude the reappointment of the incumbent auditor

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[1]   The Auditing Practices Board (APB) was established in April 2002, and replaced a previous APB, which had been in place since 1991. The APB became part of the Financial Reporting Council (FRC) in 2003. Work on audit and assurance is now carried out by the Audit and Assurance Council under a recent reorganisation within the same umbrella organization, FRC.

[2]   The Coordinating Group on Audit and Accounting Issues (CGAA 2003) assigned the APB to develop ES for auditors and brought the standard setting for auditing within a unified structure of the FRC as an independent regulator.

if that firm is demonstrably the best able to undertake the audit" (FRC 2013b, p. 1). Moreover, as part of audit market reforms initiatives, the UK reached a political agreement with the EU member states for capping the NAS fees at 70 per cent of the audit fees, which will come in force from mid-2016 (PwC 2014).

In the UK, the formation of an independent body, the FRC, to oversight the audit profession was a significant step forward towards regulatory reforms (Humphrey et al. 2007). As the above discussion suggests, NAS and auditor tenure has been subject of ongoing reform initiatives. For example, with the introduction of the APB ES, the issues attracted further comments from regulators and policymakers in response to the 2007-09 financial crisis in the Western economies including the UK (recent examples include the House of Lords Economic Affairs Committee 2011, the European Commission green paper on audit policy 2010 and the House of Commons Treasury Committee 2009). Despite such regulatory concerns and initiatives, the empirical findings on the link between NAS and long audit firm tenure to FRQ remain inconclusive to date (See for example, Campa and Donnelly 2016, Cameran et al. 2014, Ye et al. 2011, Lennox and Pittman 2010b, Quick and Warming-Rasmussen 2009, Chi et al. 2009, Gul et al. 2009, Knechel and Sharma 2008, Carey and Simnett 2006, Krishnan et al. 2005, Reynolds et al. 2004, Ferguson et al. 2004 and Frankel et al. 2002). The inconclusive research findings in the context of regulatory changes add to the tension of whether the fee dependence acts as the 'economic bonding' or 'reputational capital' reflecting on the auditor independence vis-à-vis FRQ. As such, the major tension in the debate centres on the issue of the extent to which NAS and long auditor tenure impair auditors' independence leading them to compromise FRQ. To address it, this study explores the association between restricted NAS and audit firm tenure and FRQ as a proxy of auditors' independence from the perspective of the APB ES.

In addition to the APB ES, other recent developments in the field of NAS and audit firm tenure also inform this study. Of particular interest here is the concern related to the concentrated audit market and joint audit provision, firstly hinted by the House of Commons Treasury Committee (2009, Paragraph 237) and then raised by the House of Lords Select Committee on Economic Affairs (2011) as a potential way out to enhance competition. It is argued, "if it [joint audit provision] were promoted in the UK as a means to reduce market concentration[3], it should be on the basis that at least one joint

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[3]   In May 2009, the FRC made an explicit concern over the dominance of the Big4 firms in the UK audit market in a published report *"Choice in the UK audit market - Third progress report"* (FRC 2009).

auditor was a non-Big Four firm" (Paragraph 40, House of Lords Select Committee on Economic Affairs 2011). Another regulator more recently joined this debate is the Competition and Markets Authority[4] (previously, the Competition Commission). The Commission, in a published report, addressed the barriers to entry, expansion, and selection for non-Big4 firms as one of the remedy packages and considers tendering audit process to offer more competitive environment for them (CC, 2013). Given such regulatory concerns, the empirical substance of FRQ differentiation between Big4 and non-Big4 across (long versus short) audit tenure bears important significance before further changes plug-in the field. These, therefore, set the motivation of this study.

This study aims to address the tension in the on-going debate around the effectiveness of the APB ES (particularly in relation to NAS and long audit firm tenure) in influencing auditor independence, specifically when these issues are brought back into limelight through further regulatory changes in the context of the recent financial crisis. The significant regulatory concerns preceded by the approval of a distinct set of professional ES (APB 2004, 2010a) has made the UK an interesting setting to conduct further research along this line. In addition, the recent financial crisis with its on-going impact exposed the vulnerability of the relationship between auditors and their clients (Campa and Donnelly 2016, EC 2014, CC 2013 and House of Lords Select Committee on Economic Affairs 2011). With this backdrop, this study seeks to investigate the aspect of FRQ differentiation between Big4 and non-Big4 to understand if non-Big4 firms have a similar capacity of handling the audit of the FTSE350 clients. Accordingly, this study examines if the FRQ differentiation holds for Big4 and non-Big4 firms with longer audit firm tenure.

The momentum of these regulatory initiatives set motivation to examine empirical substance in terms of FRQ in the UK companies, as Copeland (2005) argues that so much of the so-called reform of society and the accounting profession is based on perceptions and popular notions rather than empirical analysis. On this backdrop, assessing the impact of the recently introduced reforms in a heightened regulatory regime is the first study of its kind that would provide fresh insight in the on-going debate between the regulators and the accounting profession over the issues of NAS and long audit firm tenure. Moreover, no previous study investigated the impact of the APB

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[4] The Competition Commission was closed on 1st April 2014 when its functions were transferred to the Competition and Markets Authority.

ES on auditor independence and FRQ employing the sample of the largest UK companies. Also, the sample used in this study covers both pre- and post-APB periods that allows it to empirically compare the impact of these regulatory reforms on FRQ. This will be an important empirical and policy contribution to auditing literature from the UK perspective, in particular. Accordingly, this context motivates the current study to investigate the impact of the NAS and audit firm tenure related ES and other regulations on FRQ of UK FTSE350 companies.

1.2 Background of the study

Auditor independence is of pivotal importance for the auditing profession. Independence is considered to be one of the cornerstones of the profession (Mednick 1977, cited in Blay and Geiger 2013, p. 579). It is argued that the independent auditor's opinion adds credibility to the financial statements (Stice and Stice 2014, p. 1-8). Therefore, if auditors are not independent, or do not appear to be independent, their opinions do not add much. The importance of maintaining both independence *'in fact'* and *'in appearance'* has been acknowledged by a number of professional accountancy bodies (for example, ICAEW 2006 and AICPA 1988). Mautz and Sharaf (1961), in their seminal work on auditor independence, pointed out that the auditors perform a quasi-judicial function in ensuring credibility of financial statements. However, unlike the judicial system, the profession does not have built-in safeguards to ensure independence. Rather, the profession highlights a number of anti-independence factors that may raise concerns regarding auditor independence in the minds of the public. The joint provision of audit and NAS and long tenure of auditors are two such inherent anti-independence factors. The fact that a quasi-judicial function is being performed by a party that also works as an advocate to the client creates serious doubts regarding proper performance of such audit function (Griswold 1955). This will have considerable implications for the survival of the auditing profession.

Throughout the world, a number of accountancy bodies have identified the potential threats to auditor independence arising out of joint provision of audit and NAS and long association with auditors. It has been acknowledged that such joint provision and long tenure may create self-interest, self-review, advocacy, familiarity, and intimidation threats that may seriously jeopardize the credibility of the financial statements (e.g., APB 2004 and 2010a, ICAEW 2006 and IFAC 2005).

The impact of the provision of NAS and long auditor tenure on auditor independence and objectivity, investor perceptions, auditor's opinion, earnings management, FRQ and audit quality have been the subject of recent studies (for example, Cameran et al. 2014, Lennox and Pittman 2010b, Gul et al. 2009, Chi et al. 2009, Carey and Simnett 2006, Krishnamurthy et al. 2006, Ferguson et al. 2004, Reynolds et al. 2004, Myers et al. 2003 and Frankel et al. 2002). Though empirical evidence is inconclusive regarding the effects of NAS purchase on independence *in fact*, it is acknowledged that joint supply of audit and NAS creates an economic bonding between the auditors and the client. For the client, purchase of NAS from the incumbent auditors is convenient, as it results in cost savings. On the other hand, joint provision of audit and NAS creates a knowledge spill-over for the auditors, which minimizes their transaction costs (Simunic 1984) and such provision creates 'reputational capital', which acts as an incentive for independent behaviour (DeAngelo 1981). As for the issue of long auditor tenure, the literature has inconclusive evidence with a number of studies reporting potential benefits of longer tenure (such as Gul et al. 2009, Myers et al. 2003 and Geiger and Raghunandan 2002) and other studies (for example, Ye et al. 2011 and Carey and Simnett 2006,) finding detrimental effects of longer tenure on auditor independence and FRQ. Although audit firms have long been arguing that they have voluntary policies and professional guidance on rotation practices to help reduce the familiarity threat to an acceptable level, the Enron debacle and other high profile corporate collapses cast doubt over the effectiveness of these arrangements.

The above discussion indicates that long before the accounting scandals in the early 2000s', the relationship between audit and NAS fees and long association with auditors were already characterized by threats of loss of auditor independence in one hand, and on the other hand, by the economic bonding between the auditor and the client. The financial crisis of 2007-09 brought a renewed dimension to this relationship. With a view to restoring investor confidence in the market, the ES prohibited a number of NAS, identified threats arising from specific NAS, prescribed safeguards against such threats and mandated rotation of the audit engagement partner every five years.

The regulatory initiatives of the APB ES (APB 2004, 2010a) may have some impacts on the UK companies. The restrictions imposed by the regulations on the provision of NAS from incumbent auditors, rotating audit engagement partner on a more frequent

and regular basis, and the application of safeguards against potential threats may improve the level of auditor independence and FRQ. Accordingly, this APB ES regime sets the context for the thesis and it is timely to investigate the potentially long-standing unresolved issues in a new regulatory regime.

1.3 Research issues and principal research questions

NAS and auditors' long association with their clients and their impact on independence and FRQ have been at the focal point of auditing research. The alleged links between NAS and long association with auditors and eroded auditor independence and lower FRQ provide convenient explanations in the financial reporting glitches that ended up with the early 2000s' business failures. Accordingly, regulators and commentators such as the House of Commons Treasury Committee (2009), articles in financial press such as Liesman et al. (2002) and MacDonald (2001), and a number of other academic papers including Campa and Donnelly (2016), Cameran et al. (2014), Carey and Simnett (2006), Reynolds et al. (2004) and Ferguson et al. (2004) have associated the provision of joint supply of audit and NAS and longer auditor tenure to lower quality financial reporting.

As such, the major tension in the debate centres on the issue of the extent to which NAS and long audit tenure impair auditors' independence leading them to compromise FRQ. Empirical findings on the link of NAS and long audit firm tenure to FRQ are mixed (Campa and Donnelly 2016, Cameran et al. 2014, Ye et al. 2011, Lennox and Pittman 2010b, Quick and Warming-Rasmussen 2009, Gul et al. 2009, Carey and Simnett 2006, Krishnan et al. 2005 and Ferguson et al. 2004). The significant regulatory concerns followed by the APB ES (APB 2004, 2010a) has made the UK an interesting setting to conduct further research along this line. Particularly the recent financial crisis with its on-going impact exposed the vulnerability of the relationship between auditors and their clients. With this backdrop, this study aims to explore the relationship between two selected provisions of the APB ES (that is, joint provision of audit and NAS and audit firm tenure) on *de facto* auditor independence and FRQ of FTSE350 companies.

1.3.1 Impact of NAS on auditor independence and FRQ

The concerns over reduced FRQ associated with NAS have led to regulatory changes in the UK. For example, the APB ES (2004, 2010a) prohibit auditors from providing certain NAS to audit clients. Furthermore, since 2005, companies in the UK are required to disclose NAS, in addition to audit fees, in nine categories (The Companies (Disclosure of Auditor Remuneration) Regulations 2005). Consequently, it became possible to assess separately the economic bonding created by each of the fees that may have an impact on auditor independence and FRQ. Such assessment of categorised NAS was not possible before this regulation and has not been tested for UK companies before in prior studies.

An audit firm's dependence on its clients increases as the economic bonding between the firm and the client gets stronger (DeAngelo 1981). Beck et al. (1988) and Simunic (1984) assert that the NAS fee further strengthens the auditor-client bond as it increases the portion of audit firm wealth derived from a client. It can be argued that the client can use NAS fees as contingent fees to get the auditor biased to its opportunistic financial reporting which would pose a threat to independence (Beattie and Fearnley 2002). While the provision of contingent fees is explicitly prohibited by auditing standards in the UK and the US (for example, APB ES4 and ES5; and Section 302 of AICPA Code of Professional Conduct, respectively), Magee and Tseng (1990) note that clients can create contingent fees by withholding profitable NAS when the auditor does not allow the client to report its preferred financial condition. Accordingly, the current study intends to assess the impact of APB ES on the FRQ of the FTSE350 companies.

The results from this test will have implications for regulators and commentators in the UK and possibly worldwide[5]. First, the results from this empirical test will provide fresh evidence of whether the fee dependence acts as the 'economic bonding' or 'reputational capital' reflecting on the auditor independence and FRQ of UK companies. The empirical evidence will also contribute to the on-going debate around NAS and the effectiveness of the APB ES in influencing auditor independence, in particular when these issues are brought back into limelight in the aftermath of the recent financial crisis.

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[5]   Implications and contributions of this study are discussed in more detail in sections 5.6 and 6.5.

1.3.2 Impact of audit firm tenure on FRQ

The second research issue that this thesis empirically investigates is the association between audit firm tenure and FRQ in the FTSE350 companies. Along with the joint provision of NAS, regulators and commentators have raised concerns regarding long auditor tenure in the event of financial crises and financial reporting failures (e.g., House of Lords Select Committee on Economic Affairs 2011). While prior research incorporates two types of studies for auditor tenure - such as audit firm tenure and audit partner tenure- the APB ES has mandated the rotation of the audit engagement partner every five years. Prior literature generally provides mixed empirical evidence on this issue. Some studies document a negative association between extended audit firm tenure and FRQ as captured in the form of earnings management (e.g., Gul et al. 2009, Myers et al. 2003 and Johnson et al. 2002), while others find the association to be positive (for example, Ye et al. 2011 and Carey and Simnett 2006). However, none of these studies have investigated this issue in the UK setting.

In the context of on-going tension regarding the explanation for FRQ of companies with extended audit firm tenure, prior literature has inconclusive results. Two main possible explanations have been presented. First, the 'low-balling explanation' arguing that auditors charge relatively lower fees in the early years of an audit engagement to attract clients. Subsequently, they will need to keep the client for some years to recover their initial losses. This explains why discretionary accounting accruals are higher in the early years. This represents a threat to auditor independence. Gul et al. (2009), however, find no empirical evidence to support this argument. Second, the 'learning effect hypothesis' argues that auditors gain more client-specific knowledge through time and, therefore, audit quality and FRQ improve across time.

Studies examining *in fact* auditor independence mostly employ discretionary accruals as a proxy for earnings management or FRQ. No study has been conducted so far to test this association in the UK context, in particular for the FTSE350 firms in the changed regulatory regime under APB ES. None of the prior studies have investigated whether the effect of audit firm tenure on FRQ is the same for firms audited by Big4 firms compared with their non-Big4 firms. For the purpose of this investigation, it assumes that Big4 audit firms have more sophisticated knowledge transfer systems that allow them to benefit more from the accumulated knowledge compared against their non-Big4 counterparts. Also, this is the first study that investigates if the APB ES have a

mitigating effect on discretionary accruals for audits conducted during post-APB ES regime compared against those conducted during pre-APB ES period.

The results of the current research have three main implications for policymakers and regulators in the UK. First, the test of the association between audit firm tenure and FRQ will shed more light on auditor rotation and contribute to the debate of mandating audit firm rotation. Second, this study examines if higher FRQ is associated with audits conducted during post-APB ES period compared against those conducted prior to the enactment of the APB ES with a view to commenting on the effectiveness of those standards from the perspective of audit firm tenure. Third, this study examines if the quality differentiation of the Big4 holds for longer and shorter audit firm tenure.

1.3.3 Audit firm tenure, Big4 versus non-Big4 auditors and FRQ

In addition to the NAS and audit firm tenure perspective of the APB ES, this study also draws on the most recent developments in the field involving the reported concerns over the market domination of Big4 firms (see FRC 2013b, CC 2013 and House of Lords Select Committee on Economic Affairs 2011) and further policy changes such as capping of NAS at 70 per cent of the audit fees (PwC 2014) and the mandatory tendering of auditor every 10 years (FRC 2014a) to become effective from mid 2016. The Competition Commission, in a published report, addressed the barriers to entry, expansion, and selection for non-Big4 firms as one of the remedy packages and considers tendering audit process to offer more competitive environment for them (CC 2013). Given such regulatory concerns, the empirical substance of FRQ differentiation between Big4 and non-Big4 across audit firm tenure bear important significance. Following the dichotomy of Big4 and non-Big4 audit firms (DeAngelo 1981), it is argued that with higher resources the Big4 firms have more efficient and effective information systems, personnel training, and quality control systems in place that enable a better learning process. This can allow knowledge transfer and information sharing in such a way that utilizes longer tenure in delivering more independent audit services leading to better FRQ. On the other hand, non-Big4 firms can be argued to be smaller in size and have relatively weaker logistics and systems including a lower number of qualified personnel. These limitations may obstruct the non-Big4 auditors from benefitting from extended auditor tenure unlike their Big4 counterparts. Thus, the most recent developments in the field bring added tension to the issue of economic dependence created by the joint provision of audit and NAS, long association with

clients and FRQ. The findings of the study inform this tension to some extent trough the exploration of Big4 quality differentiation.

1.4 Summary of research methods and outline of the main findings

This study investigates the impact of the APB ES on the auditor independence and FRQ of UK companies. For the purpose of the analyses in this thesis, data have been collected from the annual reports of the UK FTSE350 companies, using a time period of ten years (2003 to 2012). This enables the assessment of APB ES for two years pre-APB ES (2003 and 2004), and eight years post-APB ES (2005 to 2012). Data have been obtained from the annual reports of the sample companies, in addition to using the FAME [6] database. The sample has been trimmed for extreme values (through winsorizing first and last percentiles), and companies in the financial services industries have been excluded due to the different nature of their operations. This has produced a final sample of 2420 firm-year observations (242 companies for 10 years). As the APB ES were enacted in 2004[7] following accounting scandals of the early 2000s', this study expects to assess the impact of APB ES on UK companies in terms of the variation in discretionary accruals.

In order to capture the economic bonding of auditors with their clients, the empirical chapter (chapter 5) uses two alternative measures of dependence: the ratio of NAS fees to total fees to the auditor and the natural log of total fees to the auditor. Estimates for discretionary accruals have been measured using three versions of the Jones-based approach such as the standard Jones model, the modified Jones model, and the current (working capital) version of the modified Jones model (or, the working capital accruals model). The empirical investigations employ correlations and regression analyses, 'difference-in-differences' analysis and t-tests. Furthermore, other tests and measures were used for sensitivity analysis to check the robustness of the results.

The results reported in the empirical chapter (section 5.2) document evidence of marginally significant negative association between the dependence measures and FRQ.

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[6] FAME provides comprehensive data for UK and Irish private and publicly listed companies and is maintained by the Bureau Van Dijk.

[7] APB ES became effective in December 2004. Accordingly, this study expects to have captured the influence of these ES on UK companies from 2005 onwards.

This association gets stronger at the 0.01 level when the dependence is measured through total fees to the auditor. Overall, the results suggest that economic dependence created by the joint provision of audit and NAS may act as an incentive for auditors to become more conscious about the potential threats to independence and to protect their 'reputational capital' as DeAngelo (1981) argued. Having used a comprehensive sample of FTSE350 industrial companies, the evidence provided can allay the concerns of regulators and commentators about the economic bonding of auditors. As an assessment of the causal impact of NAS related APB ES on FRQ, results from the 'difference-in-differences' method (section 5.3, chapter 5) suggest, with a marginally significant association, that the FRQ of FTSE350 companies in the post-APB ES period has improved.

The results of the empirical tests for audit firm tenure and FRQ (section 5.4, chapter 5) provide some support, at a marginally significant level, that audits conducted post-APB have more mitigating effects on discretionary accruals vis-à-vis FRQ than those conducted pre-APB. A further test between audit firm tenure and FRQ indicates a negative association that is also statistically marginally significant for Big4 auditors. With this caveat, the results agree with some prior studies such as Gul et al. (2009), Myers et al. (2003) and Johnson et al. (2002). The results suggest that longer tenure helps auditors to capitalise on the learning effect; contrary to one of the concerns conditioning regulatory drive that auditor independence is compromised by a lengthy relationship between auditor and client. The final test (reported in section 5.4.4.6, chapter 5) considers the dichotomy of Big4 and non-Big4 auditors in order to examine if the quality differentiation holds for longer and shorter audit firm tenure. The results suggest that the negative association between audit firm tenure and FRQ hold for firms audited by Big4 audit firms, indicating that Big4 firms benefit more in longer tenure than their non-Big4 rivals.

1.5 Contributions of the study

This study addresses one of the major and on-going tensions in the academic debate concerning the issue of the extent to which NAS and long audit tenure impair auditors' independence leading them to compromise FRQ. In so doing, it firstly adds fresh and timely empirical insight to the growing literature on restricted NAS and FRQ (Campa and Donnelly 2016, DeFond and Zhang 2014, Francis 2011, 2004, and Ferguson et al.

2004) drawing on the APB ES in the UK setting. The first empirical test (reported in section 5.2) is the first study of its kind to assess the impact of the APB ES from the perspective of restricted NAS on FRQ of FTSE350 companies using alternative measures of economic dependence created by the joint provision of audit and NAS. Extending the investigation, the study also tests whether a threshold level for the relative amounts of audit and NAS fees can distinguish between the circumstances when independence vis-à-vis FRQ may be weakened. An arbitrary benchmark of economic dependence is employed on the ground that auditors having a NAS fee ratio *(NASFR)* of less than 1 could have less incentive to jeopardise their independence while a higher *NASFR* may encourage auditor to risk independence and let managers exercise higher discretion in managing reported earnings leading to lower FRQ. The results, thus, provide fresh insights for policymakers and regulators in considering if higher fees generated from NAS motivate auditors to allow their clients greater discretion in earnings management leading to lower FRQ.

Secondly, a further test (reported in section 5.4) considers the association between the audit firm tenure on auditor independence vis-à-vis FRQ – another easy scapegoat that commentators and regulators occasionally blame in the wake of corporate failures and accounting scandals. The findings of this study provide further evidence in support of the learning effect associated with extended audit firm tenure as an explanation for the negative association between audit firm tenure and FRQ and thus contributes to the existing literature on audit firm tenure from the perspective of the APB ES.

The third contribution stems from examining if the mitigating effect of audit firm tenure on FRQ is valid in cases of companies audited by Big4 auditors versus companies audited by their non-Big4 counterparts (reported in section 5.4.4.6). Existing literature on audit firm tenure and FRQ remains reportedly weak in relation to the issue of Big4 concentration (Bandyopadhyay et al. 2014 and Francis et al. 2013). The findings extend this literature with the empirical substance of Big4 quality differentiation holding for longer audit firm tenure. It thus contributes to the literature on dichotomy of Big4 and non-Big4 audit firms (Francis 2011). More importantly, this study is informed by the most recent developments in the field involving the reported concerns over the market domination by Big4 firms (see FRC 2013b, CC 2013 and House of Lords Select Committee on Economic Affairs 2011) and further policy changes such as capping of NAS and the mandatory tendering of auditor (to be effective from mid-2016). These

developments bring added tension to the issue of fee dependence, long audit firm tenure and their influence on FRQ. The empirical findings of the study inform this tension to some extent trough the exploration of Big4 quality differentiation. To date, there appears to be a dearth of academic research along this line of enquiry.

The fourth contribution results from the use of Winship and Morgan's (1999)'difference-in-differences' approach to test if the FRQ has improved after the enactment of the APB ES. It has been examined if the APB ES, from the perspective of NAS, have a mitigating effect on FRQ for audits conducted during the post-APB ES regime compared against those conducted prior to the enactment of the APB ES (reported in section 5.3). Dividing the observations in the control group and the treatment group, the 'difference-in-differences' approach provides inference about the impact of the APB ES on FRQ of FTSE350 companies.

1.6 Organisation of the thesis

The thesis is organised as follows. Chapter 2 provides the context, related literature and regulatory environment for the research. The chapter discusses the importance of auditor independence and identifies the threats to auditor independence arising from joint supply of audit and NAS and long association with auditors. The chapter then presents a brief literature review regarding joint provision of audit and NAS and long audit firm tenure, accommodating prior studies regarding the economic relationship between auditors and clients, and approaches taken to study the impact of these relationships on auditor independence and FRQ. The potential impact of the accounting scandals on the economic relationship is also discussed, followed by a dedicated section reviewing the regulatory environment influencing the supply of NAS and debating the rotation of auditors as part of the audit reforms in the UK. Chapter 3 then briefly presents the hypotheses developed to test if the association between the degree of auditor-auditee bonding and the level of reported discretionary accruals as a surrogate for FRQ is mediated by the enhanced regulatory regime under the APB ES. It also develops hypotheses to assess the causal impact of the APB ES on the FRQ of UK companies. In the final sections, the chapter presents hypotheses dealing with the association between audit firm tenure and FRQ designed to test if the quality differentiation holds for longer and shorter tenure depending on audit firm size.

Chapter 4 discusses the philosophical underpinnings as a point of reference in guiding the methodology for conducting this research. The chapter then discusses the link between audit quality and FRQ, followed by an outline of alternative proxies to capture the variation in FRQ. The subsequent section then discusses discretionary accruals and alternative models to detect earnings management as the surrogate for FRQ. A following section reviews the models to estimate discretionary accruals and provides an evaluation to select models to use in the empirical analyses. The chapter then discusses the research design for the empirical analyses in the following chapter. Finally chapter 4 moves on to discuss the sample period chosen for this study and concludes with sample description and data collection for the study.

Chapter 5 presents the empirical evidence and discussion of the findings of tests assessing the associations between auditors' economic dependence and *in fact* auditor independence and FRQ of UK FTSE350 companies as the impact of APB ES. The central question addressed here is whether auditor independence and FRQ have improved under the APB ES regime defying the auditor's economic bonding created by such joint provision. The chapter then moves on to present the findings of a more causal and direct assessment of the impact of the APB ES on FRQ by employing a 'difference-in-differences' approach. Chapter 5 then tests the association between audit firm tenure and FRQ in the UK companies along with a final test examining whether companies audited by Big4 firms experience the same effect on their FRQ as companies audited by non-Big4.

Finally, chapter 6 summarises the research objectives, the philosophical underpinning adopted, the research approaches applied, and the contributions made by the research. The chapter also acknowledges the limitations of the current research, and identifies potentials for further research in the area.

Chapter 2: Motivations, regulatory environment and related literature for the research

2.1 Introduction

This chapter sets the context for the current research. The chapter will introduce the concept of auditor independence and its significance in ensuring credibility of the financial statements and enhancing financial reporting quality. The threats to auditor independence will then be discussed, with special attention on threats arising from the joint supply of audit services and NAS and that stemming from the longer auditor tenure, as these two are considered to be more significant threats than others in auditing literature and hence they form the bases of empirical analyses of the current study later in chapter 5. The chapter will then investigate the impact of the potential erosion of auditor independence on the resulting FRQ. Using a review of prior literature, the chapter will then move on to provide justification for the effect of joint supply of audit and NAS and longer audit firm tenure on *in fact* auditor independence. Different approaches taken in prior research will also be discussed. The chapter will then discuss the principal motivation for this study including accounting scandals and financial crisis. A dedicated section then aims at providing a review of the regulatory environment affecting the supply of NAS from incumbent auditors and the longer auditor tenure alleged for deterioration in auditor independence and lower FRQ. A review of the UK auditing regulations and the contexts in which they were developed is aimed to provide better understanding of the restrictions in the purchase of NAS and rotation of auditors in the UK. Having provided a comparative review of those regulations governing NAS and auditor rotation, the chapter then moves on to summarise and conclude the discussion.

2.2 Importance of auditor independence

The public accounting profession[8] rests on the foundation of independence (Previts and Merino 1998), with regulatory bodies requiring auditors to be independent both *in fact* and *in appearance*. In a broader sense, the basic postulates of auditing suggested by

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[8] For a general understanding of the role of profession, one may refer to Abbott (1988) where the author explained why and how the occupational groups control expert knowledge in modern life.

Flint (1988), Lee (1986) and Mautz and Sharaf (1961) include responsibility, independence, evidence and reporting where auditor independence is considered extremely important. The next two sub-sections will now discuss the importance of auditor independence in the context of external audit of financial statements and in the context of NAS and longer audit firm tenure.

2.2.1 Auditor independence in the external audit of financial statements

Auditor independence is considered one of the cornerstones of the auditing profession. In their seminal work on auditing philosophy, Mautz and Sharaf (1961, p. 204) acknowledged the importance of auditor independence:

> The significance of independence in the work of the independent auditor is so well established that little justification is needed to establish this concept as one of the cornerstones in any structure of auditing theory.

The opinion of an independent auditor adds credibility to the financial statements and enhances the quality of financial reporting. The professional independence of the auditors is considered to be one of the major postulates of auditing as per Mautz and Sharaf (1961) and it is, therefore, expected that while expressing an opinion, the auditors would act exclusively in the capacity of auditors. Stressing the importance of auditor independence at an early stage, The Accountant (1875, p. 3, cited in Chandler and Edwards 1996, p. 15) recognised:

> The necessity of [the auditor's] utter independence of any influences which may colour his conclusions must be insisted upon.

Focusing the importance of optimum capital market functioning[9], EC (2011) argues that auditor independence is very important in establishing trust and market confidence in reported financial statements, protecting investors through "providing easily accessible, cost-effective and trustworthy information about the financial statements of companies" (EC 2011, p. 2) and potentially reducing the cost of capital by ensuring more transparent and reliable financial statements. If rational investors cannot trust financial

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[9] The relationship between the independent auditor and client management has been historically seen as a monitoring mechanism (Wallace 2004, p. 271). That monitoring role can be regarded as an assurance role since Brown et al. (2009) suggest that the primary purpose of the audit is to reduce the information asymmetries between managers and stakeholders which, consistent with Wilson (1983), suggest that the independent audit is able to mitigate the moral hazard and adverse selection problems.

statements of companies, they will be less willing to invest in those firms which in turn will depress the stock prices and increase the cost of capital for all firms (Hughes et al. 2007 and Lambert et al. 2007). With this apparently causal relation, the tsunami of accounting scandals at the beginning of the millennium and the heightened global financial crisis of 2007-09 has been the central focus for regulators in financial reporting.

From a regulatory perspective, Gramling et al. (2010) opine that the independence rules are intended to meet two public policy goals: the first is to minimize the possibility that external factors (e.g., pressure to retain an audit client or sell NAS) will inappropriately influence an auditor's judgment (i.e., impair independence *in fact*), and thus promote high quality audits; and, the second is to inspire investors' confidence in the quality of public company financial statements (i.e., enhance independence *in appearance*).Professional accountancy bodies have similar views on the requirements of auditor independence (ICAEW 2011 and AICPA 1988).

The expertise of auditors enables them to mediate uncertainty and helps company management to construct independent, objective, true and fair accounts of corporate affairs and helps markets, investors, employees, citizens and state to limit and manage risks (Sikka 2009). Sikka (2009) offers a commentary on Suddaby et al. (2009) where they conduct a survey of Canadian auditors to examine the level of change in the organisational context, content and location of professional services that influence auditors' attitude toward their professional ideologies and institutions. In this regard, Power (1999) observes that external audit is promoted as a trust engendering technology to persuade the public that the capitalist corporations and management are not corrupt and that companies and their directors are made accountable while in a later study, he (Power 2010) reflects that audit is not well versed to dealing with the turbulent and uncertain times with financial crises. Being very critical about the audit process, Power (2003) labels auditing as a business taking on board the 'suppressed dilemma' of McNair (1991) where the auditor must learn the business of auditing by trading cost and quality in a grey zone because of the acute compromises that the auditor is forced to make.

From a sociological point of view, it is argued that professional aspects including independence of auditing are very important for an audit to successfully produce the comfort that the capital markets need where the [sacred] signature of the auditor is

viewed as the approval for the financial statements to get released (Pentland 1993). Relating this view, Power (1999) echoes that the quality of audit is conditioned by the professional appearance of the auditor. While this is the case, the financial scandals raised serious concerns about the ethical failure of auditors and therefore they must rebuild the reputation on their historical foundations of ethics and integrity (Copeland 2005, p. 35).

2.2.2 Auditor independence in the context of NAS and longer audit firm tenure

The aspects of independence are categorized as 'practitioner independence' and 'professional independence' by Mautz and Sharaf (1961). Practitioner independence (referred to as 'independence *in fact*' by other authors, for example, see Jeppesen 1998) refers to the ability of an individual auditor to "maintain the proper attitude in the planning of his audit programme, the performance of his verification work, and the preparation of his report" (p. 205). This definition of auditor independence is consistent with that of DeAngelo (1981) and Watts and Zimmerman (1986). For example, DeAngelo (1981) defines auditor independence as the probability that an auditor will detect, and report a discovered breach, and is synonymous with the concept of independence *in fact*. The approach taken in this study matches more to DeAngelo's definition as she defines it as the probability that an auditor will detect and report a discovered breach. Therefore, the client management seems to be aware of the fact that if they exercise accruals beyond the legitimate limit set by the GAAP and other applicable accounting standards, auditors are there to detect and report them. This helps the study in operationalising the definition of auditor independence.

Accordingly, it adopts DeAngelo's (1981) definition as the operational definition of auditor independence that provides the theoretical lens in the inquiry for the level of FRQ in terms of discretionary accruals. More elaborately, the prime motivation for preferring DeAngelo's definition is that it includes the probability of discovering and reporting a breach which can be easily operationalised in the discretionary accruals models adapted in the thesis. Other alternatives could be professional body's definition (ICAEW 2011) that involves independence in appearance that requires different methodological approach that is beyond the scope of this thesis. For example, Campa and Donnelly (2016) capture both components of the concept of auditor independence: independence in mind and independence in appearance. Due to the methodological

remit adopted, independence in appearance is excluded from the research design which is a limitation of this thesis.

In order to ensure credibility of the financial statements, auditors have a quasi-judicial role to play (Mautz and Sharaf 1961). However, unlike the judicial system, as they argue, the profession does not have any "built-in characteristics that assure the sceptic of its integrity and independence" (p. 210). Such lack of built-in assurance is worrying in the presence of some "built-in anti-independence factors" (p. 210) inherent to the auditing profession, and they may reasonably be considered detrimental for auditor independence. Some of these factors, as the authors mention, include apparent financial dependence; existence of confidential relationship between the client and the auditors; strong emphasis on service to management and they emerge because of the relationship between the auditors and their clients. In addition, the organization of the audit profession itself allows some other anti-independence factors to unfold, such as, a tendency toward emergence of a limited number of large firms; a lack of professional solidarity; and a tendency to introduce salesmanship. Inherent in the auditing profession, one of the contentious issues is auditor's close and confidential relationship with their clients. Most audit firms provide a bulk of services [10] to their clients, in addition to performing statutory audit duties. This makes the auditors economically dependent on their clients, and may create problems with professional independence.

From this observation, it is evident that the supply of NAS and longer auditor tenure give rise to doubts regarding the *de facto* independence of the auditors. However, Mautz and Sharaf (1961) argue that though the performance of NAS and long-term auditor association with the same clients create suspicion regarding auditor independence, the case against performance of such services is "neither so simple, nor so strong" (p. 219), because of a couple of factors. First, the authors noted that one of the major problems with regulating the joint provision of audit and NAS was the lack of specific standards in this area (around the time the book was published). However, they pointed out that the problems in setting standards for NAS should not be taken as an argument in favour of abandoning NAS, as such joint provision would enable auditors to provide maximum

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[10] A study by the APB finds that in 2008, 300 of the 1,740 listed UK companies had ratios of NAS fees to audit fees that were equal to or exceeded 1:1. Two thirds of these companies had a ratio of 2:1 or less, and only a few had ratios above 5:1 (APB 2010b). Other studies by the Professional Oversight Board (POB 2012) and the Financial Reporting Council (FRC 2013a, 2014a) have found broadly consistent evidence about this ratio.

services to their clients as professionals. Despite this argument, the authors acknowledged the importance of monitoring the performance of such services, as this might give rise to the loss of their professional identity and consequently their professional independence (Mautz and Sharaf 1961, p. 221):

> Not only may the profession suffer from a loss of identity as its members begin to compete with the various types of management service firms already in the field, but this continued close association with management inevitably raises questions of independence.

In their analysis of the relationship between audit and NAS, Mautz and Sharaf (1961) then considered the actual influence of NAS on auditor independence. The proponents of the joint provision of audit and NAS traditionally put forward two arguments in favour of such provision. The first argument is, as in Mautz and Sharaf (1961), that there is a real and substantial difference between advising the client management, and serving as the client management. And second, it is claimed that, independence being a state of mind, the individual auditor may possibly remain independent even when providing NAS to the client.

As to the first argument, Mautz and Sharaf (1961) acknowledge that management has the freedom to make decisions, and to accept or reject the advice provided by the auditors. However, with regard to the second, they argue that when client management seeks advice from professionals, and pays for it, it is crafted in a manner so that the advice supplied is not ignored. This makes the auditors a *de facto* participant in management decisions, giving rise to the problems of independence *in fact*. In addition, the authors observe that if independence is considered a state of mind, it should also be acknowledged that auditors are human beings with varying strengths of minds. While some professional auditors may be mentally strong enough to withstand the influences of social, personal, and economic relationships with clients, some others may lack that state of mind.

In summarising their discussion on auditor independence, Mautz and Sharaf (1961) acknowledge that even if the auditors are independent *in fact*, it is important that they appear to be independent in the broader public domain and the joint provision of audit and NAS casts doubt on such appearance of professional independence. In a related study, Ewert (2004) acknowledges the lack of economic models to explicitly address the

interdependencies of audit and NAS with regard to the possible consequences for auditor independence. This is in line with Beattie et al.'s (1999) observation that there was no formal theory of auditor independence.

Mautz and Sharaf note that the joint provision of audit and NAS and longer auditor association with the same clients are incompatible in nature. This incompatibility may lead to the separation of these two services and rotating auditors on a more frequent basis as auditor independence is of utmost importance for the sheer survival of the profession (Mautz and Sharaf 1961, p 224):

> If auditing is to continue to enjoy the respect of those who rely on its services, it must be and must appear to be quite independent. If auditing is to take its place as part of the mechanism of social control, it must be accepted as thoroughly independent.

The value of an audit, as DeAngelo (1981) argues, depends on the auditor's perceived ability to (a) discover errors or breaches in the accounting system, and (b) withstand client pressures to disclose selectively in the event a breach is discovered, and accordingly auditor independence is defined as the conditional probability that, given a breach has been discovered, the auditor will report the breach (DeAngelo 1981). Ashbaugh (2004) traces the concern about the provision of NAS affecting auditor independence to 1957 when it was noted in the SEC's annual report that the scope of audit firm services potentially threatened the independence of auditors.

The entire purpose of auditing is to add justified credibility to financial statements (AICPA 1952). If the auditor is not independent of the clients' management, his or her opinion will add nothing. Accordingly, it is expected that the auditors remain independent when performing the audit. Independent audits of financial statements help reduce the risk of manipulation by client management (Dart and Chandler 2013). Concerns for auditors to have suffered from lower than optimum level of independence in mind and *in appearance* are not new and they were rigorously debated throughout the nineteenth century (Chandler and Edwards 1996, p. 15-17). If the users have any reason to doubt the independence of the auditors in expressing their audit opinion, the reliability and usefulness of the audited financial statements gets affected drastically. In this regard, Blough (1960, p. 58) observes:

> Since one's usefulness as an auditor is impaired by any feeling on the part of third parties that he is likely to lack independence, he has the responsibility of not maintaining independence in fact but of avoiding any appearance of lack of independence.

This implies that remaining independent *in fact* is not enough for the auditors. They also need to refrain from getting involved in anything that may be construed as 'not independent' in the public perception. Therefore, auditors are required to maintain independence *in fact* while they need to be perceived as independent in public domain. These two aspects of auditor independence have commonly been referred to as 'independence *in fact*' and 'independence *in appearance*'. Both are of pivotal importance for auditing services to have value.

Professional accounting bodies across the globe have acknowledged the issues of independence *in fact* and *in appearance*. In its Code of Ethics B, (ICAEW 2011, Independence - Audit and Review Engagements, Section 290.6) the ICAEW provides a definition of independence, incorporating the concepts of 'independence of mind', and 'independence *in appearance*':

> Independence is:
>
> (a) Independence of mind
> The state of mind that permits the expression of a conclusion without being affected by influences that compromise professional judgment, thereby allowing an individual to act with integrity and exercise objectivity and professional scepticism.
>
> (b) Independence in appearance
>
> The avoidance of facts and circumstances that are so significant that a reasonable and informed third party would be likely to conclude, weighing all the specific facts and circumstances, that a firm's, or a member of the audit team's, integrity, objectivity or professional scepticism has been compromised.

Public Company Accounting Oversight Board (PCAOB) in the USA also acknowledges the importance of perceptions of auditor independence, mentioning that it is not enough for independent auditors to be independent *in fact*; they should also avoid situations that may lead outsiders to doubt their independence (Section 3, Rule 3520[11], PCAOB 2014).

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[11] Effective pursuant to SEC release no. 34-53677, file no. PCAOB-2006-01 (19 April 2006); and SEC release no. 34-72087, file no. PCAOB-2013-03 (2 May 2014).

The current rule on independence in the AICPA Code of Professional Conduct (Rule 1.200 Independence, AICPA 2015) explicitly requires its members in public practice to be independent in their professional services as required by the applicable standards. It also has developed Conceptual Framework for Independence (Rule 1.210.010, p. 41) to further clarify the importance of independence in a number of situations. Alwer and Olazabal (2001) note that the US SEC defined independence *in fact* and independence *in appearance* as separate but equally necessary factors in establishing the auditor's objectivity and integrity when certifying financial statements filed with the commission by an issuer of securities.

As such, it is evident that the professional bodies throughout the world have incorporated the concepts of independence *in fact* and *in appearance*, and in reality, and require auditors to possess both for the sake of objectivity and integrity. A number of auditing studies have also attempted to define auditor independence, and different elements of it. For example, Church and Zhang (2011) state that independence *in fact* is necessary to enhance the reliability of financial statements. On the other hand, independence *in appearance* is necessary to promote public confidence such that users will rely on audited financial statements. Also, Orren (1997) states that independence *in fact* refers to the actual, objective relationship between auditing firms and their clients whereas independence *in appearance* is the subjective state of that relationship as perceived by the clients and the third parties.

2.3 Provision of NAS

As argued by regulatory bodies such as FRC that NAS may create threats to auditor independence affecting FRQ of the audit clients (Paragraph 34, ES5 – Non-audit services provided to audited entities). Conflicts of interest may also be caused by the presence of NAS when auditors are posed by self-review threats, leading to affect the FRQ. The following sub-sections shed more light on these aspects:

2.3.1 Threats to auditor independence and FRQ

In the discussion of the joint provision of audit and NAS in the above section, Mautz and Sharaf (1961) acknowledged the lack of standards in regulating such provision. The lack of understanding of different types of NAS and their limits to which these might be

considered as not harmful for auditor independence, exerted a challenge for development of such standards. However, as auditor independence is of utmost importance for the sake of credibility of financial statements, professional and regulatory bodies across the world have attempted to identify the threats to auditor independence (for example, the APB ES (APB 2004, 2010a), the IFAC Code of Ethics (2005), the ICAEW Code of Ethics (2011) and so on). The ICAEW, in its Section 200 - Professional Accountants in Public Practice - has identified five threats to auditor objectivity and auditor independence, namely, self-interest threat; self-review threat; advocacy threat; familiarity threat; and intimidation threat (ICAEW 2011). In 2004, the APB enacted five ES, one of which specifically addresses the provision of NAS supplied by incumbent auditors. The APB ES, aimed to provide effective ethical guidance to auditors in upholding their professional independence post-Enron, identified one more threat, namely, the management threat that involves incumbent auditor making judgement or decisions that are normally the responsibility of the management whilst providing NAS. APB (2010a) also attempts to identify other threats arising out of the provision of specific NAS.

'Self-interest' threat, as defined in APB (2010a), arises whenever auditors have financial or other interests that may restrict them from taking actions that would harm the interest of the client company. ICAEW (2011) defines 'self-review threat' as threats that may occur when a previous judgment needs to be re-evaluated by the auditors responsible for that judgment[12]. The APB (2010a) explicitly mentions that the provision of NAS may give rise to a self-review threat when the results of such services may be included or disclosed in the financial statements (Paragraph 35, ES1 – Integrity, objectivity and independence). In such cases, the auditors may be unable to take an impartial view on evaluating the effects on financial statements stemming from a NAS engagement.

A 'management threat', as defined earlier, arises when an audit firm undertakes a non-audit work that involves making judgments or decisions, which are normally the

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[12] Some of the circumstances that may give rise to self-review threats as mentioned in section 200.3 of the ICAEW Code include (a) an audit firm issuing an assurance report on the effectiveness of the operation of financial systems after designing or implementing the systems; (b) an audit firm having prepared the original data used to generate records that are the subject matter of the assurance engagement; (c) a member of the assurance team being, or having recently been, a director or officer of the client.

responsibility of the management (Paragraph 35, ES1). In such cases, the auditors' views and interests may become closely aligned to that of the management that may lead to impair auditor independence and objectivity. 'Advocacy threats', also defined in Paragraph 35 of ES1, may occur when an auditor advocates or supports a position taken by the client management to an extent that subsequent objectivity and independence may be threatened. APB (2010a) mentions that in order to act in an advocacy role, the audit firm has to adopt a position closely aligned to that of the management that gives rise to both real and perceived threats to auditor independence.

'Familiarity threats' may arise when an auditor is predisposed to agree with client management view or when an auditor does not question sufficiently the views taken by the client management (Paragraph 35, ES1). ICAEW observes that a familiarity threat may emerge when, because of a close relationship, a professional accountant becomes too sympathetic to the interests of others (Section 200.7, ICAEW 2011). When auditors develop a close association with a client through long association, they may be content with asking fewer questions regarding the client's point of view. This may create threats to auditor objectivity and independence. APB also defines 'intimidation threat' that may occur when an auditor's conduct may be influenced by fear and threats that deters them from acting objectively (Paragraph 35, ES1).

Having identified the potential threats to auditor independence in ES1, the APB (2010a) then associates provision of specific NAS to different categories of auditor independence threat (Paragraphs 58 to 167, ES5). Table 2.1 presents the specific threats identified by the APB.

Table 2.1 Independence threats for specific NAS (ES5, APB 2010a)

NAS	Specific independence threats
Internal audit services (Paragraphs 58-69)	Self-review, management
Information Technology (Paragraphs 70-75)	Self-review, management
Valuation services (Paragraphs 76-83)	Self-review, management
Actuarial valuation services (Paragraphs 84-88)	Self-review
Tax services (Paragraphs 89-108)	Self-interest, management, advocacy, self-review
Litigation support services (Paragraphs 109-112)	Self-review, management, advocacy
Legal services (Paragraphs 113-114)	Self-review, management, advocacy

Recruitment and remuneration services(Paragraphs 115-125)	Management
Corporate finance services (Paragraphs 126-136)	Self-review, management, advocacy, self-interest
Transaction related services (Paragraphs 137-142)	Management
Restructuring services (Paragraphs 143-155)	Management, advocacy
Accounting services (Paragraphs 156-168)	Self-review, management

ES4 – Fees, remuneration and evaluation policies, litigation, gifts and hospitality (APB 2010a) identifies presence of 'self-interest threat' when an audit firm becomes economically dependent on a particular client. As mentioned in Table 2.1 above, ES5identifies the presence of specific auditor independence threats against provision of different types of NAS (APB 2010a). It can be noted from the above Table that most categories of NAS give rise to the 'self-review threat', as the auditors will be required to review their own prior NAS engagement.

The presence of 'self-interest threat' is attributed to the performance of tax services and corporate finance services, when such services are performed on a contingent fee basis. Table 2.1 reveals that the 'management threat' is also assigned to performance of most of the twelve categories of NAS listed, when the scope of such services involve making decisions which are normally the responsibility of the client management. According to ES5, the 'advocacy threat' emerges when auditors are engaged in litigation support services, legal services, and corporate finance services as the audit firm may need to advocate or support the position of management in a manner that could compromise their professional independence.

NAS may also create the potential threat of economic dependence in addition to the specific threats identified above. The problem of economic dependence occurs when the fees receivable from one client and its associates make up a significantly high percentage of the audit firm's gross fees. Referring to this problem as 'the self-interest threat', the ICAEW defines this as "a threat to the auditor's objectivity stemming from a financial or other self-interest conflict" (Section 200.4, ICAEW 2011). The ICAEW Code of Ethics observes that if the recurring fees from a client company or group of companies constitute a substantial proportion of the fee income of an audit firm, a self-

interest threat is likely to arise, that may lead to imperil auditor independence (ICAEW 2011).

An unduly large proportion is normally considered to be 15 per cent or more, or, in the case of listed or other public interest companies, 10 per cent[13] or more. Therefore, it is apparent that the ICAEW considers over-dependence on a single client as a threat for auditor independence[14]. Paragraph 31 of ES4 state that if the total fees for both audit and NAS receivable from a listed audited entity and its subsidiaries regularly exceed 10 per cent of the annual fee income of the audit firm, then the firm shall not act as the auditor and shall either resign as auditor or not stand for reappointment (APB 2010a). The same rule applies where the total fees regularly exceed 15 per cent in case of a non-listed audited entity and its subsidiaries (Paragraph32, ES4). However, if it does not regularly exceed 15 per cent, the auditor should report it to its ethics partner and the audit committee of the client and the auditor shall arrange for external independent quality control review before the audit report is finalized (Paragraph 39, ES4). In case of a listed company, if the total fees remain between 5 per cent and 10 per cent on a regular basis the auditor shall report this fact to the ethics partner of the audit firm and the audit committee of the audited entity and will consider if any safeguards need to be applied (Paragraph 37, ES4).

2.3.2 Conflicts of interest from NAS and FRQ

While Jonas and Blanchet (2000, p. 354) argue that the quality of financial reporting depends on the quality of each part of the financial reporting process, the definition of FRQ by Khurana and Raman (2004) focuses on relative auditor competence where an auditor will (a) detect and (b) correct/reveal any material omission or misstatements in the financial statements. It follows that the greater the observed economic interest (e.g., the greater the auditor's ownership interest in the client firm), the lower the perceived probability that the auditor will report a breach. Some early research also suggests that the joint provision of audit and NAS gives rise to economic rents, which create incentives for audit firms to compromise their objectivity, e.g., waive audit adjustments,

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[13] Article 9(3) of the EU Audit Reform Proposals (EC 2011) requires auditors to disclose to the audit committee of the client company if the audit firm earns more than 20 per cent of its total annual fees from that client in a single year or more than 15 per cent in each of two consecutive years.

[14] The ICAEW does not use any numeric percentage of fees to indicate the economic dependence of auditors on their clients.

to retain audit clients (Palmrose 1986 and Simunic 1984). In a recent study, Ronen (2010) reports that independence appears to be the most difficult requirement for the auditing profession to satisfy. This is probably because the profession incorporates a number of anti-independence factors, joint provision of audit and NAS being the most prominent, that may raise concerns over auditor independence in the mind of the public.

A conflict of interest arising from the audit firms performing NAS for audit clients has been long viewed as one of the major alleged reasons for the erosion of auditor independence and resulting reduced FRQ. Simunic (1984) argued that when a CPA firm performs as both auditor and consultant, it may be motivated not to report consulting deficiencies observed during the audit, thereby avoiding erosion of its consulting 'brand name'. The study generalizes that any situation that increases the probability that an auditor will not truthfully report the results of his audit investigation can be viewed as a threat to independence. In another study, as Ball (2009) notes, auditors had incentives to appease their clients with favourable audit treatments to retain more attractive consulting engagements.

Regulatory authorities such as Financial Services Authority (FSA) and FRC argue that "these relationships may adversely affect the auditor's oversight (on behalf of shareholders) of management (acting as agents for shareholders when managing the assets of the firm) and auditors may face potential conflicts of interest between their duties to shareholders and their relationship with the firm" (Appendix A1.9, FSA and FRC 2010, Oxera 2006). Also, the US Panel on Audit Effectiveness (POB 2000) notes that the main argument against one firm supplying both audit and NAS to a client is that they are in fact serving two different sets of stakeholders: the audit committee, shareholders and financial statements users in the case of audit; and, the management in the case of NAS. This gives rise to a potential conflict of interest for the audit firm.

2.3.3 Incentives for retaining clients for both audit and NAS

Reviewing the auditor's motives for retaining clients to supply both audit and NAS, Ryan et al. (2001) provide a survey of the existing literature addressing (a) auditors' incentive for retaining clients and (b) the institutional arrangements to enhance such incentives. Ryan et al. (2001) identify a number of incentives for auditors to retain audit clients, for example, high risk of losing audit engagements (Falk et al. 1999 and Beattie

et al. 1999), the basis for individual auditor's compensation (Carcello et al. 2002 and Trompeter 1994), specialization of NAS (Emby and Davidson 1998), and auditor tenure (Beck et al. 1988 and Shockley 1981). Ryan et al. (2001) also identify several incentives and institutional arrangements that mitigate the inducement for client retention. Such incentives include risk of litigation (Shafer et al. 1999, Trompeter 1994 and Farmer et al.1987) and auditors' reputation (Wilson and Grimlund 1990).

The institutional arrangements include self-regulatory mechanisms of the professional bodies, government regulations, governance arrangements of the client and the audit firm, and agency relationships. Shafer et al. (1999, p. 87) report that peer review reduces unethical behaviour by audit firms. A number of studies also reveal the effectiveness of the audit committee in ensuring auditor independence and FRQ. For example, Carcello and Neal (2000) report that auditors are more likely to issue a going concern audit opinion at the presence of an audit committee dominated by non-executive directors. Also, McMullen (1996) reports that the presence of an audit committee improves reliability of financial statements, as measured by less litigation by shareholders, fewer SEC actions, and fewer illegal actions.

2.4 Theoretical approach for NAS and mandatory auditor rotation studies

While there is no formal theory explaining the interdependencies of auditor independence and NAS or auditor tenure (see Beattie et al. 1999, p. 71), Ewert (2004) classifies existing theoretical approaches to relationship between audit services, NAS and auditor independence into two categories. The first category contains models based on arguments of economic bonding between the client and the auditor, while the second category includes models that consider NAS as a side payment representing collusion between management and the auditors, discussed in the next two sub-sections. The final sub-section presents theoretical argument for the association between mandatory auditor rotation and FRQ.

2.4.1 The auditor-auditee bonding argument

The seminal work of Jensen and Meckling (1976) uses the agency theory to explain why managers will engage independent auditors to testify the accuracy and correctness of the annual reports. The study defines agency relationship as "a contract under which one or more persons (or principals) engage another person (the agent) to perform some

service on their behalf which involves delegating some decision making authority to the agent" (p. 308). Essentially, when both parties try to maximise their self-interest, there will be the potential for conflict of interest. In order to eliminate such conflict, the interests of the agents must be brought in line with that of the principal. Therefore, agency cost includes (a) monitoring costs - costs to monitor the actions of the agents, as these actions are unobservable; (b) bonding expenditures - expenditures to guarantee that the agents will not take certain actions detrimental to the interests of the principal, and if he does so, the principal will be compensated; and, (c) the residual loss - the loss incurred by the principal because of divergence of agent's decision from the decision that would maximise principal's wealth.

Jensen and Meckling (1976) consider having accuracy and completeness of annual reports signed by independent auditors as a 'bonding cost' to be borne by the agent in order to for the principal to monitor their activities. The principal will compensate the absence of any contractual mechanism to restrict the agents' potentially opportunistic behaviour by paying poorer salary to the agents. As such, the agents will rather prefer to enter into contractual arrangements that may potentially reduce their ability to behave in an opportunistic way, harming the interests of the principals. Using this context, Watts and Zimmerman (1986) argue that agents, rather than the principal, will have incentives to enter into contracts for monitoring, and will provide accurate information to the principal to demonstrate that they are not acting in a way that may be perceived to be detrimental to the principal's interest. Audited financial statements serve this purpose.

Uses quasi-rents as a theoretical argument for auditor independence, DeAngelo (1981, p. 116) defines quasi-rents as an excess of revenues over avoidable costs, including the opportunity cost of auditing the next best alternative client. The study argues that if the auditors do not earn quasi-rents from a client, they will be indifferent regarding termination of the relationship, and will not have any incentive to conceal an identified breach. Therefore, there will be no problems with auditor independence. However, the problem arises when auditors are able to foresee a future stream of quasi-rents. As such, future economic dependence on a client management impairs auditor independence.

DeAngelo (1981) also argues that since auditor independence has potential benefits to clients (through its impact on firm value) and to auditors (through the fees they can charge for audit services), both parties have incentives to voluntarily choose contractual

arrangements which enable them to capture the expected net benefits of auditor independence. As such contracting is costly, the incumbent auditors will have a comparative advantage over other auditors for audits of future periods, because of significant initial start-up costs that they will not have to incur in future periods. Significant start-up costs occur because auditors need to verify the opening balances of balance sheet accounts, and also because auditors are less familiar with the client's business and the industry (Arens and Loebbecke 2000). The incumbents, as DeAngelo (1981) argues, will exploit such advantages by setting audit fees above the avoidable costs. The clients will also have incentives for not changing the incumbents; as such a change will mean incurrence of additional transition costs.

The study argues that the clients will, however, change auditors only if they perceive that the present value of the incumbent's fees (for a future outflow stream of audit fees) exceeds the present value of a new auditor's fees plus the transaction costs of changing auditors. Therefore, there is an economic bonding between the auditor and the client management, and both parties would be interested to maintain such relationships. Also, because of such economic bonding, both parties potentially gain from threats of termination. The clients may try to influence the auditors' actions, whereas the auditors may negotiate for higher audit fees. Accordingly, such economic bonding creates a scope for less than perfect state of auditor independence.

Simunic (1984), using DeAngelo's (1981) approach to quasi-rents, argues that an audit firm can earn even higher levels of quasi-rents because of 'knowledge spill-over'[15] effect achieved through joint provision of audit and NAS. Sharma et al. (2011, p. 134) observe that knowledge spill-over is the attainment of knowledge while performing management consulting services that can produce economic rents by reducing auditing costs. In line with this, Melancon (2000) argues that the joint provision of audit and NAS provides the audit firm valuable 'inside' knowledge about the client and such knowledge enhances the FRQ. Knechel and Sharma (2008) support this view as they report evidence of higher-quality financial reporting for clients generating higher levels of NAS fees for the auditor. The rationale is that, as argued in Sharma et al. (2011),

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[15] Knowledge spill-over can also be explained by that fact that both audit and NAS require the same set of information, and the same type of professional qualifications. Typically, economies of scope are believed to arise from information effects, thought of as knowledge spill-overs (Antle and Demski 1991, Beck et al. 1988, and Dopuch and King 1991).

joint provision of NAS creates knowledge spill-overs that enhance the auditor's knowledge about the client, including more timely recognition of potential accounting problems. However, Simunic (1984) argues that auditor independence will be impaired when the auditors earn quasi-rents, which are contingent to the performance of NAS to a client.

Although auditor-auditee bonding is established in DeAngelo (1981), the study does not incorporate NAS in the model. Beck et al. (1988) incorporate the provision of NAS to investigate auditor-auditee bonding where it assumes that the market for NAS is similar to the market for audit services. This implies that the client will incur transaction costs if it wants to switch consultants. Like the incumbent auditors, the incumbent consultants will have similar competitive advantage over other firms because of initial start-up costs. Beck et al. (1988), therefore, argue that NAS itself becomes a source for quasi-rents, even if knowledge spill-over does not happen, and this will strengthen auditor-auditee bonding. In case of knowledge spill-over due to the joint provision of audit and recurring NAS, Beck et al. (1988) argue that such bonding will strengthen when NAS start-up costs exceed audit start-up costs. Otherwise, such recurring services would actually weaken bonding between auditor and the auditee, as the competitors would also save in the audit start-up costs due to knowledge spill-over. In case of a non-recurring NAS, knowledge spill-over will reduce audit costs, and enhance such bonding, because in such a case, there will not be only subsequent sales of NAS allowing the competitors' entry to the market.

Ewert (2004) notes that if the magnitude of individual quasi-rents represents economic bonding, such bonding eventually increases because due to the joint provision of audit and NAS. Beck et al. (1988) concludes that fear of loss of quasi-rents from the part of the auditors may impair auditor independence. Other studies such as Ye et al. (2011) and Prakash and Venable (1993) acknowledge this auditor-auditee bonding.

2.4.2 The side payments argument

In the second stream of theories explaining the relationship between audit, NAS and auditor independence, Ewert (2004) includes studies where NAS is considered to be a tool for explicit or implicit collusion between management and auditors.

The relationship between the principal, the manager, and the auditor using an agency theory framework is assessed in Antle (1984) where, auditors, like any other parties, are treated as utility maximisers. The study applies game theory to model the relationship between the owner, the manager, and the auditor in three scenarios: strong auditor independence, auditor independence, and no auditor independence. An "independent auditor will not collude with manager to the detriment of the owner" (Antle 1984, p. 6). As utility maximisers, independent auditors are, however, not expected to act against their own self-interest. However, their actions will fall short of collusion with managers.

Therefore, the study argues that there are two levels of independence: at the strong independence level, the auditors will support the owners' strategies and will not implement their own strategies; whereas at the independence level, the auditor will like to implement strategies for achieving self-interest, but will not collude with the managers (Antle 1984, p. 7). A 'non-independent auditor' is defined as someone who would "engage in side payments with the manager" (Antle 1984, p. 9). Given these three scenarios, Antle demonstrates that the owner can be worse off when the auditors are not independent. In such a situation, the auditors may cooperate with the manager by not reporting as truthfully as the owner would expect. The manager would, in turn, be willing to make side-payments to the auditors, and as a result, the owners will be worse off. Baiman et al. (1991) and Dye (1993) report similar evidence. Regarding the possible role of NAS in such a scenario, Antle (1984, pp. 16-17) observes:

> The concern over management advisory service contracts may have arisen, at least in part, from the fear that managements could use these contracts as a vehicle for side-payments…. Another possibility is the role of multiperiod effects [where] two distinct types of effects may be isolated. First…if the observed long-run frequency of audit reports indicates that the auditor has probably not worked and truthfully revealed his/her information, the contract could call for penalties to be imposed on the auditor…The second type of multiperiod effects involves changes in the market value of the auditor's services due to adverse effects of evidence of nonindependence on the auditor's reputation.

Ewert (2004) clarifies that NAS is not always explicitly mentioned as a side payment in these studies. Nonetheless, it is acknowledged that NAS may be part of the story, and since side payments are always viewed negatively in prior literature, using NAS as a form of side payment would also be perceived to have a negative impact on auditor independence and FRQ. Prior studies on NAS and auditor independence provide

inconclusive results. For example, a number of studies such as Krishnan et al. (2005), Lowe et al. (1999) and Lowe and Pany (1995, 1996) find that users express greater concern regarding auditor independence when NAS are supplied by the incumbent auditors while others studies such as McKinley et al. (1985) and Pany and Reckers (1988) find that provisions of such services actually improve financial statement reliability and FRQ.

2.4.3 Theoretical argument for mandatory auditor rotation

The incentive for auditors to have longer tenure can be explained from both economic and sociological perspectives. Under the economic theory, as Kaplan and Mauldin (2008) argue, auditors have an economic incentive for continuous relationships with their clients to earn economic rents from future engagements. Audit firms may be less vigilant and may acquiesce to client's questionable accounting methods or policies when they anticipate future stream of revenues from on-going relationship in order to protect the quasi-rents (Watts and Zimmerman 1986). Independence *in fact*, as a result, may be affected. Kaplan and Mauldin (2008) argue that mandating audit firm rotation will place a limit on the future stream of revenues causing less economic incentives for auditors to be predisposed to a client's aggressive accounting method and encouraging them to act more independently. They also argue that "the impact of lessening economic incentives must occur at a firm level to be effective since all partners (current and rotating) are likely to be impacted by the firm's economic incentives" (Kaplan and Mauldin 2008, p. 180).

Taking a sociological perspective, Moore et al. (2006) explain the association between longer auditor tenure and auditor independence *in fact* and FRQ by 'moral seduction' in order to describe the gradual influence of client management on auditors when they are in long-term relationship. By 'moral seduction', Moore et al. (2006, p. 11) characterise a situation where "the majority of professionals are unaware of the gradual accumulation of pressures on them to slant their conclusions". Clearly, they indicate the cosy relationship between the auditors and client that emerge from longer auditor tenure and they have potential impact on auditor independence and FRQ. Another study finds consistent evidence that the length of auditor tenure is associated with greater acceptance of client-preferred outcomes (Bamber and Iyer 2007).

The above discussion clearly indicates that while it is unclear whether provision of NAS has a negative impact on auditor independence *in fact*, a higher level of NAS compared

to audit services always creates an adverse perception regarding such issue. This is consistent with the earlier discussion on auditor independence, presented in section 2.2, where Mautz and Sharaf (1961) stressed the need for auditors to appear independent in the presence of joint provision of audit and NAS and in longer association with same clients for the sake of survival of the auditing profession.

2.5 Prior literature on NAS and mandatory auditor rotation

The previous section discusses theoretical approaches to the association between NAS and auditor independence, and that between auditor tenure and auditor independence and FRQ. This section will now provide a brief review of the literature concerning joint provision of audit and NAS and their impact on auditor independence and FRQ (sub-section 2.5.1) and studies relating to long auditor tenure influencing auditor independence and FRQ (sub-section 2.5.2).

2.5.1 Review of prior studies on NAS

Auditing literature has a number of studies that investigated the debate around NAS and auditor independence. Research on this issue is, however, inconclusive. For instance, arguments advanced in favour of NAS for an audit client leads to efficient auditing (e.g., Mednick 1990); enhances the knowledge of auditor regarding the client, thus increasing auditor's objectivity and independence (e.g., Wallam 1996); creates 'reputational capital', which acts as an incentive for independent behaviour (e.g., DeAngelo 1981) and make an audit firm 'unique' to its clients, increasing the auditor's ability to resist management pressure (e.g., Schulte 1965). Later, Kinney et al. (2004) predict three bases for negative association between NAS fees and lower quality financial reporting: (a) some NAS improve audit effectiveness through a knowledge spill-over (e.g., Knechel and Sharma 2008); (b) NAS provided by the audit firm may increase the reputational capital; and (c) high quality registrants may choose their auditor as the preferred supplier of NAS either because of quality or cost. Quick and Warming-Rasmussen (2009) document that the perceived threat to auditor independence is lessened if NAS are supplied by a separate department within the audit firm. They also find that investors do not perceive a significant impairment of independence when the auditor supplies NAS in terms of accounting information

systems and forensic services. In a similar tone, Hussey (1999) reports that the majority of finance directors in UK thought that joint provision should be allowed.

On the other hand, a number of studies find some association between the NAS and erosion of requisite auditor independence. For example, in his earlier studies, Firth (1980, 1981) found that provision of NAS was rated as a higher threat by financial statement users than by chartered accountants. Beattie et al. (1999) report that a high level of NAS fees was ranked as a top threat factor by users and preparers but it was ranked twelfth by auditors. Examining the impact of agency cost, Ye et al. (2011) find that the cost of reduced perceived independence outweighs the benefits of purchasing NAS from a familiar supplier for companies with higher agency costs. Studies conducted by Coffee (2002), Healy and Papelu (2003), and Imhoff (2003) trace an apparent linkage between the erosion of audit quality of Big5 firms and the growth in their NAS.

Robinson (2008) notes that consistent with improved audit quality from information spill-over, she documents a significant positive correlation between the levels of tax services fee and the likelihood of correctly issuing a going-concern opinion prior to the bankruptcy filing. One implication of this result is that restricting tax services by auditors of poorly performing firms may diminish the quality of auditors' reporting decisions without leading to an improvement in auditor independence. This perception is supported by the study of Quick and Warming-Rasmussen (2009) conducted in the German context where they find that NAS from management consultancy, internal audit and tax advisory services appear to have the most serious denting on the auditor independence.

Beattie and Fearnley (2002), and Schneider et al. (2006) provide literature reviews of auditor independence and NAS. This thesis uses these studies as bases, and provides further updates to the literature concerning auditor independence at the presence of joint provision of audit and NAS. Beattie and Fearnley (2002) classify prior literature regarding NAS in terms of studies that involve economic models; studies that are descriptive of NAS fees earned over periods; studies that investigate determinants of NAS fees; studies that investigate the impact of joint provision of audit and NAS on perceptions of auditor independence; studies that provides evidence regarding joint provision, audit pricing, and audit tenure; and studies that investigate auditor

independence *in fact* at the presence of NAS. For the purpose of this thesis, the prior literature has been reclassified as: analytical models of relationship between audit fees and NAS fees, UK studies with analytical models of relationship, models for determinants of NAS fees, and studies investigating *in fact* auditor independence. The next few sub-sections will now present a brief review of prior literature.

2.5.1.1 Analytical models of relationship between audit and NAS fees

Analytical models involve non-empirical research investigating the relationship among audit fees, NAS fees, and auditor independence. In addition, a number of econometric models have also been used to empirically test the determinants of NAS purchase decisions. Therefore, these economic models attempt to explain how NAS affects auditor independence, the interdependencies between auditors and the clients regarding purchase of NAS, and the reasons why a particular audit client may choose to purchase NAS from the incumbent auditors.

The economics of joint supply of audit and NAS were investigated by Arrunada (2000). The study argues that joint provision of audit and NAS allows the auditors to achieve economies of scope. Such economies of scope may be achieved in two ways. The existence of economies of scope of a contractual nature relates to the fact that professional services involve high transaction cost because of information asymmetry between the client and the supplier of such services. Therefore, an incumbent auditor can make use of the safeguard procedures specifically developed for a particular client during the course of audit to extend the scope of services the firm offers. The other type of economies of scale, commonly referred as the knowledge spill-over effect, stems from the fact that both audit and NAS requires the same set of information, and the same type of professional qualifications. Arrunada (2000, p. 213) mentions that the contractual economies of scope may only be relevant for smaller audit firms, as large audit firms would tend to use separate teams for audit and NAS. However, the knowledge spill-over effect still would give the incumbent auditor a considerable cost advantage over other providers of NAS.

Research has attempted to identify the knowledge spill-over effect in case of joint provision of audit and NAS after the definition offered in Simunic (1984) where the

study observes that the provision of NAS to a client creates knowledge spill-over effect. Such knowledge flows from non-audit to audit services, hence making it cheaper to provide subsequent audit services. The paper argues that an external audit is combined by management with internal auditing function to form a monitoring system which motivates organization members to act in accordance with top management's objectives. Such control system reduces agency costs within the organization. As demand for audit service is price elastic, when such services become cheaper (due to provision of NAS), management would prefer to purchase more audit services and reduce agency costs.

2.5.1.2 UK studies with analytical models of relationship

Several studies investigate the relationship between fees paid to auditor and a number of audit quality indicators. For example, Ferguson et al. (2004) examine the association between the economic bonding created by the joint provision of audit and NAS and earnings management activity drawing on a sample of 610 UK companies over 1996-98 period. Employing three alternative measures of earnings management and three measures of NAS purchase levels, the study finds results consistent with the economic bonding argument (Beck et al. 1988, Simunic 1984 and DeAngelo 1981) implying that the joint provision may reduce auditor's resistance against client's opportunistic earnings management that may lead to a lower level of FRQ[16].

Antle et al. (2006) use audit and NAS fees data for the period of 1994-2000 to investigate knowledge spill-over in the UK. The study concludes that knowledge spill-over also occurs from audit to NAS. Clatworthy et al. (2002) investigate the relationship between audit fees and NAS fees in the UK public sector where they find a significant negative relationship. This is explained as consistent with the knowledge spill-over literature as it shows reduction in audit pricing due to performance of NAS. The fact that NHS trusts do not require more audit work because of lower audit fees may be attributed to the lower agency costs involved for trusts compared to public limited companies.

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[16] Results from this thesis are consistent, at least in terms of the direction of association, with the findings of Ferguson et al. (2004). For example, the regression analysis shows that *LnTOTFEE* has a non-significant positive association with *ABSDAC* during the pre-APB period (2003 and 2004) while it registers a significant negative association with *ABSDAC* post-APB (See Panel A, Table 5.3)

In another study, Chen et al. (2005) use a variable to examine the knowledge spill-over effect for specialist audit firms. The study hypothesises that industry specialist audit firms may be able to capitalize on knowledge spill-over effects more effectively than other firms, making it more desirable to purchase NAS from the incumbent audit firm. Consistent with the knowledge spill-over argument, the results indicate that mean level of NAS fees to total fees is higher for companies employing specialist audit firms.

Most studies investigating the joint provision of audit and NAS use audit fees as the dependent variable, and NAS as an explanatory variable. A positive relationship between audit fees and NAS fees has sometimes been attributed to knowledge spill-over. A number of UK studies use NAS fees as an explanatory variable to model determinants of audit fee. Most of these studies document a significant positive relationship between audit fees and NAS fees (for example, Beattie et al. 2001, Ezzamel et al. 1996 and O'Sullivan and Diacon 1996) using the simultaneous equation method.

However, Antle et al. (2006) pointed out that such models may suffer from problems of endogeneity, and hence, the results may be flawed. The study uses a two-step regression model to control for endogeneity. The results indicate that while the ordinary least square regression model indicates strong positive relationship between audit fees and NAS fees, the two-step model actually produces a negative relationship, indicating that joint provision leads to lower audit fees. McMeeking et al. (2006) use similar methodology in investigating a Big6[17] premium in the UK. In contrast with Antle et al. (2006), McMeeking et al. (2006) find significant positive association between audit fees and NAS fees even after controlling for endogeneity bias. This is interpreted as implying that the Big6 clients pay a premium for both audit and NAS.

2.5.1.3 Models for determinants of NAS fees

While most prior studies investigating joint provision of audit and NAS have used audit fees as a dependent and NAS fees as an explanatory variable, some studies attempted to explore the determinants of NAS fees. Most of these studies have used either log of

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[17] Studies generally categorise audit firms in a number of ways. There were 8 international audit firms in the UK in 1985 (Arthur Andersen, Arthur Young, Coopers and Lybrand, Ernst and Whinney, Deloitte Haskins and Sells, Peat Marwick, Price Waterhouse and Touche Ross). The UK mergers in 1989 between Ernst and Whinney and Arthur Young and in 1990 between Coopers and Lybrand and Deloitte, Haskins and Sells reduced the number of large firms from 8 to 6 (McMeeking et al. 2006).

NAS fees or the ratio of NAS fees to audit fees as the dependent variable in an ordinary least square model. For example, Parkash and Venable (1993) hypothesise that perceived impairment of auditor independence will only happen in the case of recurring purchases of NAS, and not if it is only a one-off case. Therefore, it is expected that companies with higher agency costs will not purchase higher amounts of NAS from incumbent auditors in order to allay concerns regarding the authenticity of their financial statements. The results support their hypothesis.

Firth (1997) conducted similar research in an UK context, and ended up with similar results. The study used the ratio of NAS fees to audit fees as the dependent variable, and a sample of 500 largest UK companies listed in *Times1000*. Chen et al. (2009) attempted to identify the determinants of NAS fees in the USA, using NAS fees to total fees as the dependent variable. Size of the firm, risk (proxied by debt), size of the auditor, and management compensation were found to be significant determinants of NAS fees. In addition to these studies, Antle et al. (2006), and McMeeking et al. (2006) use log of NAS fees as a dependent variable employing the two-stage least square analysis of determinants of audit fees.

2.5.1.4 Studies investigating auditor independence *in fact*

The issue of independence *in fact* has been of interest to academic researchers. A number of studies have concentrated in identifying whether provision of NAS adversely affects independence *in fact* using different approaches. Some empirical studies investigating auditor independence *in fact* have used auditors' propensity to issue going concern qualification as a proxy for auditor independence. Under this approach, auditor independence is measured by the probability of the auditors reporting error conditional upon the error being discovered (Watts and Zimmerman 1986). These studies concentrate on changes in audit opinions with the increase in NAS. The main problem of such an approach is that, even if the auditor is independent, he or she can issue a qualified opinion only when there is an error. Thus, such a study can only be conducted as a comparison between distressed companies audited by auditors not providing NAS and similar companies audited by auditors providing NAS. A number of such studies have also used the audit failure cases to investigate whether purchase of NAS from the incumbent auditor was a significant factor for such failures. Also, a stream of such studies has used earnings management as a proxy for auditor independence and the

current thesis uses earnings management in the form of discretionary accruals to proxy for auditor independence and FRQ.

Using data for listed Australian companies, Wines (1994) found a negative relationship between NAS and qualified audit opinion. A number of studies have used a cross-sectional logit model to investigate the association between NAS and auditor independence (for example, Krishnan 1994 and Monroe and Teh 1993). In these studies, both accounting and security market variables were considered. This approach was based on the assumption that unqualified audit opinion relative to a qualified opinion reflected lack of auditor independence. However, these do not take on board the appropriateness of a particular audit opinion in a particular situation.

Accommodating this factor of audit opinion in their study, Sharma and Sidhu (2001) examine the audit opinions of bankrupt companies. As these companies were already distressed, the auditors should have adequate signals during their last audits to decide on the non-feasibility of these companies as going concerns. The study was based on the comparison of going concern related audit opinions on stressed companies with NAS and similar companies without such services. The results of this study indicated that a higher proportion of NAS fees in relation to total audit fees would influence audit opinion on going concern qualification. This could imply that auditor independence could be affected by economic reasons. This is consistent with Barnes and Huan (1993). The results of Sharma and Sidhu (2001) imply that due to economic consequences, the auditors may be tempted not to issue a going concern qualification even though the situation demands so. This can act as an incentive for the regulatory agencies to define a limit for the proportion of NAS fees to be earned from audit clients.

Emphasizing concerns of the US standard setting bodies and the SEC in USA regarding auditor independence, DeFond et al. (2002) provide additional evidence of SEC's concerns by issuing a more direct indicator of auditor independence - the auditor's willingness to issue a going concern audit qualification. Auditor independence is sometimes linked with the probability that an auditor would issue a going concern qualification. Prior research on this issue suggests that auditors have market-based incentives to act independently-they care about the cost of reputation (Watts and Zimmerman 1983 and Benston 1975). DeFond et al. (2002) find no significant

relationship between NAS fees and auditor's propensity to issue a going concern audit qualification.

The study also finds a positive association between audit fees and the propensity to issue going concern qualification. The findings of this study suggest that, contrary to the notion of the regulatory bodies, the impact of market-based incentives on auditor independence outweigh auditors' temptation to be non-independent because of economic consequences. One explanation of these findings can be found in Reynolds and Francis (2000) who argue that auditors are more likely to be conservative towards clients paying high audit fees because of the cost of reputation.

2.5.1.5 Studies using proxies for the association between NAS and FRQ

As mentioned earlier, another stream of auditing literature investigating the relationship between NAS and independence *in fact* have used earnings management as a proxy for auditor independence. The basic premise is that if the auditors are not independent because of the presence of NAS, they will allow discretionary accruals to increase. A number of studies (for example, Ashbaugh et al. 2003, Chung and Kallapur 2003, Frankel et al. 2002) have found that NAS increase discretionary accruals. However, a number of other studies, such as Mitra and Hossain (2007) and Antle et al. (2006) have found no such association. More interestingly, Antle et al. (2006) report that the presence of NAS rather decreases discretionary accruals.

In this regard, a UK study by Fearnley and Beattie (2004) during the aftermath of corporate failure of Enron[18] and others, considers two key attributes of audit quality necessary to avoid audit failure: competence that errors, omissions and misstatements will be identified; and, independence that the auditor will ensure that management puts the problems right or, failing that will qualify the audit report. Francis (2004) offers an exclusive discussion on audit quality, which is thought to be a reasonable indicator of

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[18] Enron engaged in a number of financial reporting and disclosure manipulations. Enron's top management cooked the books both in form and in substance using volatile, risky and expensive hedging transactions to maintain phenomenal growth fuelled by the utility industry's deregulation in the US. Among others, their manipulations included (i) use of inappropriate Special Purpose Entities (SPE) that allowed Enron to shift its liabilities off the books; (ii) recognition of profit and removal of huge debt from Enron's books using those SPEs; (iii) use of discretionary valuation models for adjusting derivative contracts from mark-to-market accounting to fair market value; (iv) and lack of transparency in reporting financial affairs followed by restatements disclosing billions of dollars of omitted liabilities and losses (Reinstein and McMillan 2004).

auditor independence. This academic observes that "audit quality can be conceptualized as a theoretical continuum ranging from very low to very high quality audit" (p. 346) and the outright failures occur on the extreme low end of the quality. Given the outright audit failure rates far less than one per cent annually and audit fees are quite small, less than one-tenth of one per cent of aggregate client sales, Francis (2004, p. 345) argues that there may be an acceptable level of audit quality at a relatively low cost. The paper comments that audit quality depends on the information that audit reports contain; is positively associated with earnings quality (less affected by discretionary accounting accruals); and is affected by legal regimes and incentives they create (p. 360).

In the UK, the FRC has articulated a discussion paper and a framework for promoting audit quality that identifies five drivers of quality: (1) the culture within an audit firm; (2) skills and personnel qualities of the audit staff; (3) effectiveness of the audit process; (4) reliability and usefulness of audit reporting; and (5) factors outside the control of auditors such as governance, audit committee, and shareholder support of auditor (FRC 2006, 2008b). The extant research has attempted a number of proxies for audit quality including (a) the quantity of certain kind of litigations (Latham and Linville 1998); (b) SEC investigations and enforcements against auditors (Felker 2003); (c) restatements of corporate earnings (Kinney et al. 2004); (d) size of the auditors (Lennox 1999); (e) actual engagement hours (Caramanis and Lennox 2008); audit firms switching from unlimited to limited liability partnerships (Lennox and Li 2012); and (f) client earnings quality (Gunny and Zhang 2013). However, none of them is beyond limitations as they are binary in nature that suggests the audit is either good or bad while the quality varies on a continuum (Francis 2011 and Ronen 2010).

Ashbaugh (2004) notes that NAS creates a strong economic bond (more so than tenure) between the auditor and the client, a bond that could impair the auditor's objectivity. Proponents of this school often argue that provision of NAS has long been more profitable for audit firms than fees from auditing since the former is rather unique in content, whereas the audit itself is frequently described as a low-margin commodity. Accordingly, researchers continue to use NAS as a surrogate for auditor independence. In 1978, the SEC required publicly traded firms to disclosure in their annual proxy statements the fees for all NAS as a percentage of total fees paid to the auditor and whether the audit committee or board had approved the services and considered the possible effects on independence (SEC 1978). This gave accounting researchers the

opportunity[19] to examine the extent to which provision of NAS could potentially affect the auditor's independence and the SEC promulgated regulations that directly impinged on audit research (SEC 2000).

Although during the post-SOX[20] periods, the amount of NAS accounted for is significantly less than its pre-SOX periods, most audit researchers still use NAS fees rather than audit fees as a surrogate for independence, as median NAS fees as a percentage of audit fees should have declined due to SOX prohibitions on the type of NAS that audit firms can now provide. While Anandarajan et al. (2012) doubt that with the decline in the proportionate NAS to the percentage of total fees may not serve best as the surrogate for auditor independence, this thesis will use discretionary accruals to proxy for FRQ as the indicator of *in fact* auditor independence (e.g., see Dechow et al. 2011, Francis et al. 2009, Subramanyam 1996, Dechow et al. 1995, DeFond and Jiambalvo 1994, and Jones 1991).

The appropriateness of using a reduction in discretionary accruals in measuring improved audit quality can be supported, as Carcello et al. (2011) argue, for at least three reasons. First, prior literature finds that higher quality auditors reduce discretionary accruals (Francis et al. 1999 and Becker et al. 1998), and especially positive discretionary accruals (Becker et al. 1998). Gunny and Zhang (2013) establishes a direct causal link between a low quality audit (based on PCAOB inspections) and low quality earnings of all clients of the accounting firm. On the other hand, Carcello et al. (2011) comment that although the relation between audit firm quality and management behaviour is indirect, this stream of literature provides some evidence of a relation between audit firm quality and management behaviour (in the form of discretionary accruals) indicating that a higher quality audit firm is more likely to limit management's accounting policy choices thereby reducing earnings management. As such, an improvement in any firm's audit quality should be reflected in lower discretionary accruals for the firm's auditee portfolio. Second, Richardson et al. (2006) find that extreme earnings management is systematically related to SEC enforcement actions alleging accounting manipulation. Therefore, discretionary accruals indicate lower quality earnings - these earnings are less persistent and are therefore less value relevant (Sloan 1996) - and, in extreme cases, discretionary accruals may be indicative of accounting fraud (Richardson et al. 2006). Third, Li et al. (2008) find that

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[19]   In the UK, the requirement for disclosures of NAS fees started in 1991.
[20]   Sarbanes-Oxley (SOX) Act 2002.

firms with a higher level of discretionary accruals were more likely to experience positive abnormal stock returns during the legislative process leading up to the passage of SOX. They conclude that investors expect SOX to constrain earnings management. Investigating the impact of APB ES on FTSE350 companies, this thesis also employs discretionary accruals as the surrogate for FRQ[21].

Earnings management is not directly observable and extant research (e.g., Healy and Wahlen 1999 and Guay et al. 1996) uses surrogates or proxies to understand the quality of financial reporting released by companies. Existing research uses discretionary accruals as a common proxy of FRQ. Prior studies employ a number of other alternative measures as reviewed in DeFond and Zhang (2014) and the thesis discusses them in more detail in the methodology chapter (sections 4.4.1 and 4.4.2). These alternative measures of FRQ include Accounting and Auditing Enforcement Releases (AAERs), financial statement restatements, going concern opinions, auditor size, auditor industry specialisation, auditor brand name, tenure, office size and so on. Due to the discretion allowed to the managers and the technical aspects of accrual accounting and GAAP, earnings management can be achieved by employing alternative approaches and its effect is always reflected in accruals. This led academic researchers to use 'discretionary accruals' as a measure of earnings management vis-à-vis FRQ and accordingly this study uses discretionary accruals as the FRQ measure which is most commonly used in existing literature (For example, Campa and Donnelly 2016, Francis 2011, Reynolds et al. 2004, Ferguson et al. 2004). The limitations of alternative FRQ measures are summarised in a number of review studies such as DeFond and Zhang (2014), Francis (2011) and Francis (2004). For example, AAERs do not distinguish between errors and irregularities for enforcement actions leading to the lack of the power of the tests (Hennes et al. 2008). Echoing the same, Lennox and Pitman (2010) report that AAERs are rare due to the limitation of data[22]. Going concern opinion is very rare in FTSE350 companies that render this measure of FRQ almost impracticable to use in statistical tests.

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[21]Justifications for using this proxy are discussed in more detail in section 4.5 of chapter 4.

[22] Lennox and Pittman (2010b, p. 210) collected the AAERs issued by the SEC for accounting frauds committed by companies between 1981 and 2001 and they found a fraud sample of 1,109 company-years against their control sample consisting of 162,804 company-years with no allegations of accounting fraud.

One advantage of the chosen FRQ measure is that it is linked to 'within-GAAP' earnings manipulation, which managers use to try to meet earnings targets. In addition, DeFond and Zhang (2014) observe that discretionary accruals are associated with AAERs (Dechow et al. 1996), which help to detect prospects of more extreme misstatements. An additional advantage of this FRQ measure is the continuous nature of discretionary accruals that captures variations in audit quality in studies with relatively small samples and within the subset of clients having relatively less extreme earnings management. The rationale behind choosing FRQ measure in terms of discretionary accruals in this study is supported by the above-mentioned advantages. Nevertheless, discretionary accruals have certain limitations. As DeFond and Zhang (2014) argue, a variety of proxies to measure the FRQ have been used and to date there appears to be no consensus about the best possible proxy. This study therefore acknowledges the limitations of the chosen FRQ measure in section 6.6.

2.5.2 Review of prior studies on mandatory auditor rotation

Longer auditor tenure is probably the second major factor that could affect auditor performance and independence[23]. The proponents of mandatory auditor rotation argue that the auditor may become too familiar with the client where the objectivity may be compromised while a mandatory replacement of auditor after a certain number of years will help incoming auditor to take a fresh look at the company's financial statements that could discover previously undetected problems (for example, Cullinan 2004). Therefore, the two primary arguments supporting a negative association between long auditor tenure and FRQ are (1) erosion of independence that may arise with the development of personal relationships between an auditor and their client, and (2) deterioration in the audit partner's capacity to effect critical appraisal.

Over the years, the accounting profession and academics have debated the need for mandatory auditor rotation. Mautz and Sharaf (1961) and Shockley (1981) argue that the auditor's due care may be reduced, and the auditor's independence could be

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[23] While auditor independence is used more frequently in the auditing literature than auditor competence, they are regarded as 'congenial twins' of auditing by Lee and Stone (1995). Some authors such as Moizer (1991) and Lee and Stone (1995) argue that competence (defined as skills, knowledge and experience) precedes independence (defined as lack of prejudice). While both qualities are required for an effective audit, Lee and Stone (1995, p. 1171) argue "auditor competence as a prior condition for auditor independence." Other authors, however, place independence prior to competence (see Boritz 1992, Flint 1988 and Schandl 1978).

impaired after long association with the client. Though Mautz and Sharaf (1961, p. 208) did not call for mandatory auditor rotation, they noted, "the greatest threat to his [the auditor's] independence is a slow, gradual, almost casual erosion of his 'honest disinterestedness'."

The advantages of longer audit firm tenure have been highlighted in a number of studies (Cameran et al. 2014, Johnson 2012, Ye et al. 2011 and Tanyi et al. 2010). For example, the 'learning effect hypothesis' [24] argues that auditors gain more client specific knowledge through time and, therefore, FRQ improves across time since the learning effect tends to prevail on the risk of collusion (Cameran et al. 2014). In a similar vein, Tanyi et al. (2010) argue that effective audits require a thorough understanding of the client's business processes which develops over time and there is a steep learning curve that lasts a year or more. With the continuity of relationships, Ye et al. (2011) argue that audit clients have more trust in obtaining services from suppliers with consistent capability and reliability through past transactions. The knowledge and trust developed from lengthy audit firm tenure is often considered critical to the audit process (See for example, Ghosh and Moon 2005 and Khalil 1997).

The longer audit firm tenure leading to reduced costs has been highlighted in existing research (Johnson 2012, Myers et al. 2003 and Clark and Payne 1995). Johnson (2012) reports that time expended in getting the new auditor up to the speed on their business is costly. Consistent with this evidence, Myers et al. (2003) highlight the higher audit costs associated with early periods of auditor tenure and the increase in client and industry knowledge gained over repeated audits. Also longer tenure allows audit firms to amortize their setup costs over a longer customer lifetime (Clark and Payne1995).

Other studies that find support for long association of auditor with clients include Johnson et al. (2002) who provide evidence that short-tenured auditors (tenures of two to three years) are associated with lower-quality audits when compared to auditors with tenures of four to eight years. In a similar line, Carcello and Nagy (2004) find a higher incidence of fraudulent financial reporting in the early years of auditor tenure. Moreover, with only four large audit firms, there is a legitimate doubt about the viability of the rotation option (Cunningham 2006).

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[24]   Consistent with the 'existence of a learning effect' in the psychology literature (Lapre et al. 2000 and Glaser and Bassok 1989).

Many countries appear to remain skeptical about the potential benefits of mandatory rotation against its cost and therefore, Catanach and Walker (1999) doubt the effectiveness of this rotation in Italy where corporate collapses continued despite the requirement of audit firm rotation. In the Australian context, Ryken et al. (2007) show that introduction of mandatory rotation in 2003 adversely affected small audit firms. Austria, Greece, Spain and Turkey are the examples of countries where mandatory rotation has been adopted and since abandoned as the benefits of such rotation were not realized due to increased audit cost, lack of cost effectiveness as well as curbing the concentrated market for auditing (Raiborn et al. 2006).

Although audit firms have long been arguing that they have voluntary policies and professional guidance on rotation practices to help reduce the familiarity threat to an acceptable level, the Enron debacle and other high profile corporate collapses cast doubt over the voluntary arrangements of rotation. In particular, the familiarity developed through lengthy auditor tenure (e.g., Barclays has used PricewaterhouseCoopers or its predecessors since 1896 and since 1978 as sole auditor), personal relationships built through alumni employees were alleged to contribute to this erosion of auditor independence (Ramsey 2001).

Arising from regulatory interest in the issue of mandatory auditor rotation, several studies investigate the relation between auditor tenure and various measures of audit quality and FRQ. The remainder of this sub-section will now discuss prior studies debating nature of association between the auditor tenure and FRQ from a number of perspectives:

2.5.2.1 Mandatory auditor rotation studies using audit opinion

A number of studies have used audit opinions to understand the impact of long auditor tenure on auditor independence and FRQ. For a sample of bankrupt firms, Geiger and Raghunandan (2002) find that going-concern modified audit opinions are positively associated with auditor tenure. Contrary to Mautz and Sharaf (1961) argument, this study documents significantly more audit reporting failures in the early years of audit engagement than when these auditors have served the same clients for longer tenure. However, using a sample of Australian companies in 1995 when both partner rotation and firm rotation were voluntary, Carey and Simnett (2006) find that clients are less likely to be issued a going concern audit opinion, consistent with longer auditor tenure leading to eroded auditor independence. They also find that when partner tenure crosses

seven years clients are more likely to meet or beat earnings benchmarks, further confirming the association between longer tenure and lower FRQ. On the other hand, Choi and Doogar (2005) use a general sample of stressed firms and find that there is no association between auditor tenure and the likelihood of issuing a going-concern opinion.

2.5.2.2 Mandatory auditor rotation studies using audit cost aspects

Pointing to the long auditor tenure, Huntley (2006) comments that the organizational auditor-client relationship is an important marketing tool for them to maintain existing services and promote cross selling. This view is supported by Clark and Payne (1995) as it leads to reduced costs because setup costs can be amortized over a longer customer lifetime; and by Simunic (1984) who comments that the knowledge developed during the auditing process could result in knowledge spill-overs to NAS. Raiborn et al. (2006) report that mandatory auditor rotation has been adopted and since abandoned in Austria, Greece, Spain and Turkey when benefits of mandatory auditor rotation were not realized because of increased audit cost, lack of cost effectiveness as well as curbing the concentrated market for auditing.

An earlier study (Simunic 1980), however, rejects the allegation that large audit firms are monopolizing the market for audit services. Therefore, many countries appear to remain sceptical about the potential benefits of mandatory auditor rotation against its cost and therefore, Catanach and Walker (1999) question the effectiveness of mandatory auditor rotation in relation to Italy where corporate collapses continued despite the requirement of firm rotation after nine years. Using working hours of auditors, Caramanis and Lennox (2008) provide evidence that auditors spend more hours in the initial years of an audit engagement, suggesting that there are high set-up costs involved in the first year, and that audits become more efficient over time. These findings support the notion that auditors gain a fuller and more complete understanding of their client's operations as their tenure increases. Consistent with this evidence, the GAO has already recommended against the introduction of compulsory audit firm rotation in the US in 2003. Recently, the PCAOB issues a concept release in August 2011 that proposes the public companies to go for mandatory auditor rotation but senior finance executives from Apple, Google, AT&T, Caterpillar, Exxon Mobil, among others respond to abandon the project and they justify their stand with the additional cost (20 per cent as estimated by GAO in 2003) and time expended in getting the new auditor up to the

speed on their business (Johnson 2012).

In a similar tone, the investor protection director for the Consumer Federation of America vows that mandatory auditor rotation is an imperfect solution to improve audit quality as she perceives auditing as 'rubber-stamping management's disclosures' (cited in Johnson 2012). It is also less likely for incumbent audit firms receiving high levels of NAS from their clients to resign from such a relationship (Hay et al. 2006a). Consequently, audit firms are more likely to stay in the relationship and supply NAS to their current clients. While the above factors appear to encourage long-term relationship from the auditor's perspective, the auditees appear to be benefited in the form of value-adding solutions and reduced search and setup costs which influence the auditee's willingness to purchase NAS from current auditors.

2.5.2.3 Mandatory auditor rotation studies using proxies for FRQ

Another stream of auditing literature examines the impact of long auditor tenure on clients' FRQ. While studies in extant literature use a number of proxies to capture the actual FRQ such as discretionary accruals accounting restatements and alleged accounting frauds (see for example, Davis et al. 2009, Stanley and DeZoort 2007, Carcello and Nagy 2004, Myers et al. 2003 and Johnson et al. 2002), other studies employ cost of debts, credit ratings and earnings response coefficients to capture the perceived FRQ (e.g., Ghosh and Moon 2005 and Mansi et al. 2004).

Myers et al. (2003) and Johnson et al. (2002) use clients' discretionary accruals as a measure of audit quality and document a positive association between auditor tenure and audit quality. Examining the relation between audit quality and auditor tenure and the cost of debt financing, Mansi et al. (2004) report that through their dual roles of providing information and insurance, audit quality and auditor tenure matter to capital market participants. In another study, Davis et al. (2009) find that firms with both short and long tenure are more likely to use discretionary accruals to meet or beat earnings forecasts, suggesting that audit quality is lower in firms with short or long tenures. Ghosh and Moon (2005) show a positive association between auditor tenure and investors' perceptions of earnings quality as measured by the earnings response coefficient. Again, Jenkins and Vulery (2008) report that mandating auditor rotation may have an adverse effect on the conservatism of reported earnings while Johnson et al. (2002) provide evidence that short-tenured auditors (tenures of two to three years) are associated with lower-quality audits when compared to auditors with tenures of four

to eight years. Carcello and Nagy (2004) find a higher incidence of fraudulent financial reporting in the early years of auditor-client relationships.

An interesting finding is provided by Ryken et al. (2007) where they show that the introduction of mandatory auditor rotation in Australia in 2003 helped significantly reduce the level of excessively long audit partner rotation, however, small audit firms are adversely affected. In the same context, Carey and Simnett (2006) document that longer tenure may jeopardize auditor independence while Ye et al. (2011) find that longer audit partner tenure and a joint effect of NAS and alumni affiliation in the Australian context have a negative effect on the auditor's propensity to issue a going concern opinion. Therefore, the most frequently flagged problems with extended auditor tenure are the potential for economic dependency of the auditor on the client and the gradual erosion of the auditor's independence and audit quality. As a result, rotating the audit partner and audit firm is perceived as one of the ways to allay the concern of investors as it is believed to reduce the familiarity threat to auditor independence.

However, the recent literature provides little support in favour of mandatory auditor rotation. For example, Tanyi et al. (2010) argue that the mandatory auditor rotation can be opposed as effective audits require a thorough understanding of the client's business and processes; such understanding develops over time and there is a steep learning curve that lasts a year or more. Hence, audit quality is likely to be lower in the initial years of an audit (GAO 2003).The finding of Stanley and DeZoort (2007) is consistent with the concerns over reduced audit quality due to a lack of client-specific knowledge and low audit fees on new audit engagements. Along these lines, Loebbecke et al. (1989) find that irregularities are more likely in the initial years of an audit engagement. Brandon and Mueller (2008) find that perceptions of both competence and independence are significantly related to extended tenure with longer tenure improves perceptions of competence and lessens blame, while it decreases perceptions of independence resulting in greater blame.

2.5.2.4 Mandatory auditor rotation studies using capital market reactions

An empirical study of the effects of auditor tenure on ratings received on initial bonds by Crabtree et al. (2006) shows that auditor tenure is positively related to ratings received in capital markets and this remains consistent across all sample issues regardless of investment grade, firm performance, or time period. Therefore, they find no evidence that extended auditor–client relationships result in a decrease in the

perceptions of FRQ. Kaplan and Mauldin (2008) examine the impact of audit firm versus partner rotation on non-professional investors' independence-related perceptions and find that compared to audit partner rotation, audit firm rotation does not strengthen independence *in appearance* among non-professional investors and that non-professional investors recognize the value of strong audit committees. Lu and Shivaramakrishnan (2009) claim that when firms engage in opinion-shopping, mandatory auditor rotation improves investment efficiency for some firms but impairs investment efficiency for other firms. Dao et al. (2008) examine the investors' perception on the long tenure of auditor by using the shareholders' voting against the ratification of auditors. While traditionally management selects the auditor, the SOX (2002) has mandated the audit committee to appoint the auditor, thereby, involving shareholders in the selection process is now deemed as an important compliance. Their findings suggest that long auditor tenure adversely affects the investors' perception about audit quality.

2.5.2.5 Studies investigating concentration doctrine of audit market

While the debate over mandatory auditor rotation continues, Simunic (1980) examines the 'concentration doctrine' of Demsetz (1973) and finds that price competition prevailed throughout the market for audit of public-interest-entities irrespective of the share of a market segment which was serviced by the then Big8 firms and thereby he dismisses the allegation that the Big8 were monopolizing the market for audit services. With the continuity of relationships, as Ye et al. (2011) note, it appears that clients have more trust in obtaining a value-adding solution from those suppliers who have demonstrated consistent capability and reliability through past transactions.

This view is supplemented as the continuity of relationship makes the suppliers of audit services more familiar with the clients' needs and requirements that allow them to customize their offers to reach the best results. Prior research has recognized that the knowledge and trust developed from lengthy audit firm tenure is critical to the audit process (Ghosh and Moon 2005, Myers et al. 2003, and Khalil 1997). Moreover, with only four large audit firms, there is a legitimate doubt about the viability of the rotation option (Cunningham 2006). Coffee (2006) perceives that there would be a government-enforced cartel where the Big4 firms along with perhaps few other firms who will split up their business.

With mixed findings documented from literature, this study revises back Shockley (1981), who asserts that complacency, lack of innovation, less rigorous audit procedures and a developed confidence in the client may arise after a long association with the client while Arrunada and Paz-Ares (1997) comment that there is a tendency to anticipate results instead of being alert to subtle and often surreptitious, although important, anomalies. In a similar vein, Wang and Tuttle (2009) find that with mandatory rotation auditors adopt less cooperative negotiation strategies, producing asset values that are more in line with the auditor's preferences than with the client's preferences and more negotiation impasses. On the other hand, there are also counter-arguments that suggest that long audit partner association with a particular client can result in higher audit quality. These arguments highlight the higher audit costs associated with early periods of auditor tenure and the increase in client and industry knowledge gained over repeated audits (Myers et al. 2003). With the inconclusive findings, this study takes the basis of any policy of mandatory auditor rotation as the erosion in the quality of the audit associated with long audit partner tenure. This study, therefore, examines the existence of such an association by employing discretionary accruals as the measures of FRQ. Based on the above review of both NAS and mandatory auditor rotation studies, this thesis adapts Kinney and Libby's (2002) conceptual determinants of earnings management for the empirical analyses to be carried out in chapter 5.

| Independent variables | Unobservable process | Dependent variables |
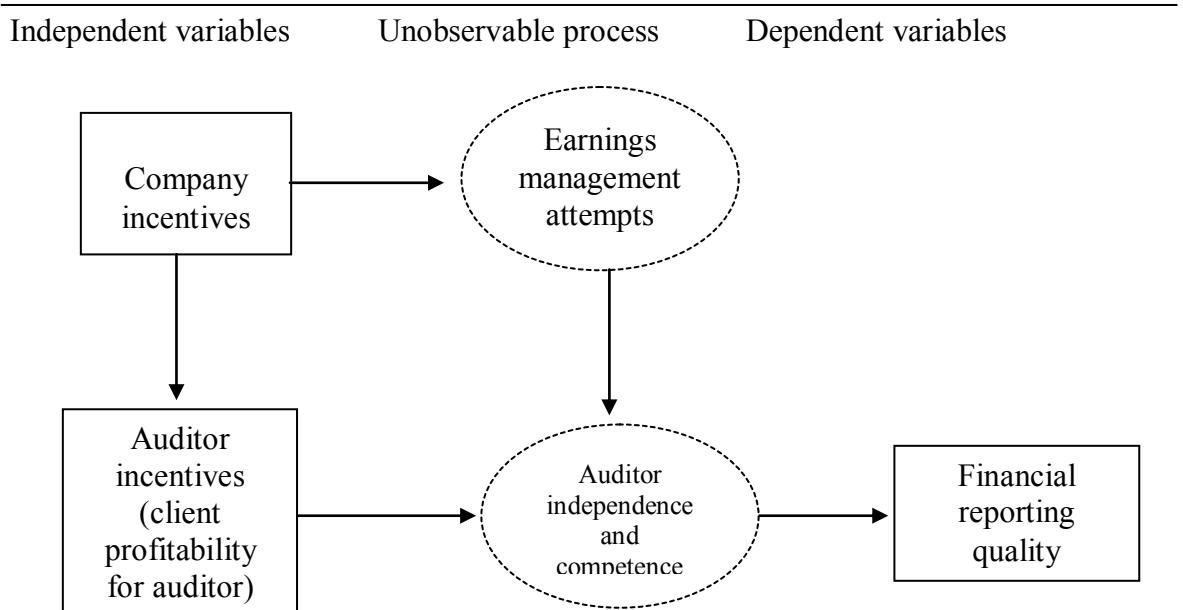
Figure 2.1 Conceptual determinants of earnings management (Adapted from Kinney and Libby 2002, p. 113)

Figure 2.1 portrays, as Kinney and Libby (2002) argue, that the conceptual relationship that is perceived to exist between the client management and auditors and the exercise of earnings management is not as simple as suggested in the literature. Rather, Nelson et al. (2002, p. 177) observe that managers are more likely to attempt earnings management while auditors have less incentive to resist those attempts that are "either structured to comply with precise standards or unstructured with respect to imprecise standards". Kinney and Libby (2002) note, through the model presented above, that an empirical association between fees and earnings management may stem from high fee paying clients trying to exercise more earnings management and/or from reduced independence of auditors, both of which are unobservable in archival studies and require proxies to discover. Therefore, a careful modelling of both management and auditor incentives is advised to get useful insights from research.

2.6 The accounting scandals and financial crisis: Further impetus for research

A series of spectacular accounting scandals in the USA, UK and Australia involving large companies like Enron, WorldCom, Waste Management, Sunbeam, HealthSouth, Life Assurance Society, One.Tel, HIH Insurance and so on attracted wider public attention regarding the issue of provision of NAS and auditor independence. The fact that companies involved in these scandals were all paying a huge amount of fees to their auditors for NAS that gave rise to suspicions of economic bonding and collusion between the client management and their auditors. As Culpan and Trussel (2005, p. 66) describe:

> Enron paid Andersen $52 million in fees, with a little more than half of those fees from consulting. There is at least an appearance of conflicting interests in this scenario. One might question whether or not Andersen would conduct a thorough audit of a transaction that they already approved (and for which they received a fee) wearing their consulting hats.

Regulators and financial statement users are concerned that auditors may compromise their independence by allowing their clients that contract for NAS more financial statement discretion relative to the clients that demand little NAS from them. As Unger (2001) reports, on an average, more than half of the *Fortune 1000* companies paid $2.69 of NAS fees for a dollar of audit fees. And this trend was not limited to the US (Enron and WorldCom) rather it affects companies in other countries such as the UK (Northern

Rock), Italy (Parmalat), Holland (Royal Dutch Shell), France (Vivendi), Belgium (Lernout and Hauspie), Germany (ComROAD AG), Australia (One.Tel), Canada (Livent) and Hong Kong (Guangnan Holdings). Not surprisingly, perceptions of auditor independence at the presence of NAS took a significant negative turn in the post-Enron period. This was corroborated by the findings of a number of studies.

Assessing CPAs' views on auditor independence in the presence of NAS pre- and post-Enron, Lindberg and Beck (2004) find that CPAs' perceptions of the effects of NAS on auditor independence are more strongly negative after the Enron bankruptcy. The study identifies the economic bonding between auditors and the clients as a major incentive to purchase NAS from the incumbent auditors. In a related study, Eduardo and Zhang (2011) acknowledge the prominence of the issue of the reliability of financial statements after the Enron collapse. The study investigates the effect of the Enron accounting scandals on the stock prices of other large companies using the ratio of NAS fees to audit fees as a proxy for financial statement reliability. The results show that the announcements of accounting irregularities at Enron triggered a negative stock price reaction on a sample of large companies. More specifically, the result suggests that the higher the level of the NAS fee ratio (the lower the degree of auditor independence), the greater the perception of financial statement unreliability and the more negative abnormal returns.

The credibility of the auditing profession received a major shake after the collapse of Enron. The scandals exposed the vulnerability of the relationship between NAS and auditor independence because of the auditor-auditee bonding. Andersen's professional independence from Enron started to be questioned, as the audit firm was receiving a large amount of NAS fees in addition to its audit fees. An immediate aftershock is reflected in Nussbaum (2002, pp. 37-38), cited in Unerman and O'Dwyer (2004, p. 984) as:

> The simple truth is that people are walking around in a state of shock this summer ... They are anxious, angry and not sure what to do. It has never occurred to them to question the basic truthfulness of companies or their corporate [reports]. That trust is now coming undone ... Even Enron Corp. could be perceived as a rogue. But the daily drip of scandal is spreading ... to all parts of the corporate [reporting] scene ... [and] people everywhere are asking who and in what can you trust? The cloud over the credibility of all financial numbers is undermining [non-experts'] confidence in proclaimed earnings.

The accounting scandals not only affected Enron, Andersen and other firms involved, it severely damaged the reputation of the auditing profession (Copeland 2003). This was acknowledged by a number of regulators including CGAA. It states (CGAA 2003, p. 4):

> Confidence in global financial markets was seriously shaken a little over a year ago by the high profile failure of Enron. As the scale of the accounting irregularities and the role of the auditors, Andersen, became clear, the credibility and reputation both of company directors and of the accountancy profession - and of auditors in particular - were called into question in a fundamental way.

In the UK, the APB also recognized that the collapse of Enron precipitated a major crisis in the governance and auditing of the US publicly quoted companies, and added that such developments have caused 'questions being asked about the systems and regulatory arrangements that underpin the capital markets in the UK' (APB 2001).

A number of studies investigated whether the accounting scandals had any effects on the reputation of the auditors. Prior research in this area has used the market price of audit clients as a proxy for audit quality (see for example, Datar et al. 1991, Beatty 1993).Chaney and Philipich (2002) investigate the impact of auditor reputation in the market prices of auditors' clients during the accounting scandals. The study finds that immediately after Andersen's admission to shredding of important documents related to the Enron case, the market prices of Andersen's other clients experienced a significant negative reaction. On the basis of this, the paper suggests that the investors downgraded the quality of audit performed by Andersen. Callen and Morel (2003) and Asthana et al. (2003) confirm the findings of Chaney and Philipich, but do not find a general spill-over effect. Krishnamurthy et al. (2006) document spill-overs within Andersen's US practice around the time when Andersen is indicted for obstruction of justice (March 2002) while Cahan et al. (2009) document spill-overs within Andersen's global practice. Doogar et al. (2006) examined whether the accounting scandals had spill-over effects on other Big5 auditors, as well as non-Big5 audit firms. The results indicate that though allegations of credibility do not impair reputation, regulatory sanctions do trigger negative market reactions. The paper finds that investors' cumulative loss of confidence in response to the accounting scandals was same for all Big5 auditors. With respect to magnitude of such effects, the study finds that the loss of confidence was lower for non-Big5 clients, though these firms still experience some spill-over effects.

The recent financial crisis and credit crunch of 2007-09 reinforced the issue of auditor independence and consequent FRQ once again in the wider public domain. In the UK, Barnes (2011) reports that the FTSE100 index fell 48 per cent, from over 6700 in July 2007 to 3500 in March 2009 that represents a huge change in economic conditions and mood and expectations of investors and lenders – a recession far more severe than those following the 1866 and 1987 crashes.

This is at least the message sent in regulatory responses to corporate scandals such as the UK Corporate Governance Code (2010), APB ES (2010a), and Audit Policy: Lessons from the Crisis (EC 2010) where audit quality was placed at the top of the policy agenda. While Lennox (2009) reports that SOX was not aimed at auditors exclusively but the profession has been impacted by many of its provisions, Oxley (2007), one of the proponents of SOX, argues that the Act has been able to restore investor confidence because it rebuilt two most vital pillars of corporate governance: transparency and accountability. The restriction imposed by SOX over NAS appears to have eliminated, at least in part as argued by Ashbaugh (2004), one source of tension related to the economic bonding between auditors and their clients, however, the ethical dilemma related to the nature of the audit contract remains.

The Parmalat scandal [25] in Italy was similar in scale and severity to Enron and WorldCom and resulted in a growing movement throughout Europe to adopt the SOX style reforms[26]. Accordingly, the European Union also announced the green paper on audit reforms (EC 2010) in order to make auditing more relevant and effective. On top of that, commentators such as the House of Commons Treasury Committee (2009) and the House of Lords Select Committee on Economic Affairs (2011) debate the credibility of financial statements and FRQ in the public policy arena.

Many commentators interpret the steep upward trend during the 1990s' and early 2000s' in accounting misstatements by companies with Big5 auditors as almost conclusive evidence that their assurance services have deteriorated over time (Coffee 2002, Imhoff 2003, and Zeff 2003). They motivate on the underlying reasons for the apparent erosion of the large firms' audit quality by highlighting well-known cases of fraudulent financial reporting by their clients (see for example, Cox 2003). With these, auditors have now been placed more firmly in the public spotlight with investigations

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[25] Parmalat, the multinational Italian dairy and food company, collapsed in December 2003 losing 97% of its value in what remains as Europe's biggest bankruptcy.

[26] One may refer to Quick et al. (2008) for an overview of regulatory responses throughout Europe.

raising questions regarding the contributions made by auditors and the designated role and scope of auditing both in law and in auditing standards (Humphrey et al. 2011).

The UK Treasury Select Committee, focusing on the 2009 banking crisis, notes that the audit process failed to highlight developing problems in the banking sector which led to question how useful audit currently is and probably the deficient audit process resulted in 'tunnel vision', where the big picture that shareholders want to see is lost in a sea of detail and regulatory disclosures (House of Commons Treasury Committee Report, May 2009). The Committee, also in its 2008 Report on Northern Rock, *The Run on the Rock*, states that there appears to be a particular conflict of interest between the statutory role of auditors and the other works it may undertake for a financial institution (House of Commons Treasury Committee Report 2008).

The recent EU proposal on 'Reforming the Audit Market' reports three major weaknesses of the audit market such as a lack of choices for clients resulting from highly concentrated market (as echoed in Clatworthy et al. 2009); a systematic risk if one of the Big4 firms collapses; and possible conflicts of interests and issues around the independence of auditors (EC 2011). In 2007, the PCAOB provides two incarnations such as Auditing Standard No 2 and Auditing Standard No 5 focusing on organization's internal control over financial reporting. As Vanstraelen et al. (2012) argue, past regulatory efforts focused on narrowing the audit expectation gap while the current objectives include narrowing a potential information gap in order for the stakeholders to make more informed decisions. Francis (2011) argues research can help assess the costs and benefits of proposed or new regulations such as the study by Ashbaugh-Skaife et al. (2007), Ashbaugh-Skaife et al. (2008), and Hammersley et al. (2008) examine the consequences of Sections 303 and 404 requirements of SOX 2002 while the Lennox and Pittman (2010a) study assesses the informativeness of PCAOB inspection reports where they show that a peer review report was actually more informative in assessing accounting firm quality as it contained an overall opinion on the quality of the accounting firm. The momentum of these regulatory initiatives from different government and agencies provide an opportunity to examine empirically whether the FRQ has improved as a result, because, as Copeland (2005) argues that so much of the so-called reform of society and the accounting profession is based on perceptions and popular notions rather than empirical analysis.

The findings presented above suggest that the accounting scandals and recent financial crisis not only affected the reputation of Andersen, but also had significant spill-over effects on other audit firms. While the magnitude of the spill-over effect was different, the Big5 audit firms lost higher degree of public confidence compared to other audit firms. Such apparent loss of public confidence, and legitimacy, would be very discomforting for the audit firms and Copeland (2005) opines that it is vital for the profession to regain this lost trust and rebuild its reputation on its historical foundation of ethics and integrity. Auditing is a profession based on trust, and legitimacy of the profession is very important, as it earns the profession the monopoly right to audit public companies (Francis 2008).

2.7 Regulatory environment for NAS and long audit firm tenure in the UK

The provision of NAS by incumbent auditors and their long tenure with the same client have always been contentious issues because of reasons discussed above in this chapter. The issues received further attention after the accounting scandals in the USA and elsewhere, in which the collapse of a number of apparently successful companies were associated with audit and corporate governance failure. The recent banking crisis of 2007-09 that produced a further blow to the financial services industries in particular, to some extent, were attributed to the loss of auditor independence because of provision of NAS and long audit firm tenure. Regulatory bodies in different parts of the world have been attempting to deal with these two issues[27] over a long time period. Until these accounting scandals, individual professional accounting bodies primarily dealt with such issues. However, the accounting scandals of early 2000s' and the recent financial crisis created a fresh impetus for recognising the need for regulating the provision of such services and long audit firm tenure. This call for reforms led to a series of regulatory initiatives (including government interventions) in different parts of the world.

This section aims at providing a review of the regulatory environment that affects the provision of NAS and the long audit firm tenure debates in the UK. A review of the UK auditing regulations and regulatory initiatives taken by other major jurisdictions, and the

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[27] As mentioned earlier, Mautz and Sharaf (1961, p. 210) term these as 'anti-independence factors'.

contexts in which they were developed, is aimed to provide better understanding of the restrictions in the supply of NAS and rotation of auditors in the UK. Another objective of this section is to investigate the pattern in which such regulations evolved. Earlier research shows that auditing regulations tend to move away from voluntary requirements at the initial stages to more stringent, mandatory requirements at the late stages. The section compares the development of NAS and auditor rotation-related regulations in the UK against such trends.

2.7.1 Trend of development of auditing regulations in the UK

Development of accounting regulations in the UK attracted a considerable amount of research. For example, Baggott (1989) identifies three criteria for evaluating regulations: degrees of formality, legal status, and the extent to which outsiders are involved. On the basis of such criteria, three classifications are proposed: informal self-regulations; formal self-regulation; and direct regulation. 'Informal self-regulations' are regulations set by organisations whose activities are the focuses of public concern. The second category, 'formal self-regulation', includes regulations that are set by bodies created by public associations. Such group includes regulations with statutory powers promoted by professional bodies. The third category is referred to as 'direct regulation', i.e., regulation set by statutory agencies promoted by the government.

Baggott observes that typically regulations tend to move away from voluntary to statutory systems. Whittington (1993) reviews the problems of financial reporting in the light of the Positive Accounting Theory (Watts and Zimmerman 1986). According to Efficient Market Hypothesis, in a strong form of capital market share price will reflect all available information, including accounting malpractices. As management likes the share prices to inflate for the sake of raising funds, they will be reluctant to indulge themselves in such malpractices. Once the funds are raised, the audit function will then help in ensuring the implementation of the accounting information contracts. However, Whittington points out that in practice, due to independence problems, auditors do not always perform the idealised role as suggested by the contracting theory. This creates the need for regulating the auditing function.

Establishing the need for regulations in auditing, Whittington (1993) then moves on to classify regulations into three categories: self-regulation, private sector regulations, and public sector regulations. 'Self-regulation' refers to the attempts of professional accounting bodies (such as the ICAEW) to devise a service contract that the members of the professional body will follow, thus improving their product. In line with Baggott (1989), Whittington also comments that in the UK, historically the self-regulation has been followed by private or public regulations. This trend has also been prominent in other parts of the world. Whittington links this trend to two inherent limitations of self-regulation: enforcement and independence. It is understandable that the success of self-regulation depends on the degree of enforcement of the standards. Such enforcement can be done through professional discipline or though legal support. Whittington states that professional discipline can only be ensured if the professional body has monopoly powers to penalise a member.

The monopoly powers of the professional bodies also create problems of independence. Whittington (1993) argues that the monopoly powers exercised by professional bodies under self-regulation are likely to be opposed by the proponents of the free market approach, as it could imply that the members of a certain profession could stick together to protect their own interest rather than the interest of the public. This is supported by a number of studies, which state that UK professional accounting bodies should act in the wider public interest (for example, Sikka et al. 1989), rather than protecting their own interest[28]. To overcome such problems associated with self-regulation, the trend of regulation setting then takes the form of 'private sector regulations', or more radically, 'public sector regulations'. In the case of private sector regulation, rules are set by an independent body that includes professional bodies, users of services and other representatives of broader public interest (e.g., the APB in the UK). This ensures that the standards are not too narrowly focused to subscribe to the needs of the professionals only[29]. For the purpose of this section, Whittington's (1993) classification of regulations

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[28] Investigating the role of Big4 firms in the development of a transnational regulatory field, Suddaby et al. (2007, p. 333) observe a shift where "historical efforts to separate professional practice from commercial interest are embraced rather than suppressed" and a shift that accommodates new actors such as the Big4 firms themselves and non-governmental organisations.

[29] Cooper and Robson (2006) may be referred for the analysis of the role of important sites such as professional accounting organisations, standard setting bodies and regulatory authorities in professionalization and regulatory processes. Other studies in this regard include Greenwood et al. (2002), and Cary (1969).

is used as a basis for evaluating the development of NAS and long audit firm tenure related regulations in the UK.

2.7.2 The regulatory environment for NAS and auditor rotation in the UK

The regulatory environment during this period is characterised by the presence of a number of self-regulations in the form of codes of best practices, private sector regulations in the form of codes of corporate governance and auditing standards, and public regulations requiring mandatory disclosure of NAS fees.

In the UK, the earliest piece of regulation regarding provision of NAS was the Companies Act 1985 (Disclosure of Remuneration for Non-Audit Work) Regulations 1991 (SI 2128, 1991). For the first time, companies were required to make disclosures, in the notes to their accounts, regarding the aggregate of the remuneration paid to the auditors during the current year and the previous financial year for audit and non-audit work (Section 390A). This included all benefits in kind as to payments in cash, and, in relation to any such benefit, its nature and its estimated money value shall also be disclosed in the annual reports as notes to the accounts. Following the Companies Act directives, a number of reports and codes of practices developed over the years, addressing the issue of joint provision of audit and NAS. The following sections will now present a review of these regulatory initiatives.

2.7.2.1 The Cadbury Committee Report (1992)

The Cadbury Committee was set up by the Financial Reporting Council (FRC), the London Stock Exchange, and a number of professional accountancy bodies in 1991, to conduct a study on financial aspects of corporate governance. Among other things, the committee considered the possible effects of purchase of NAS from incumbent auditors. One of the propositions made to the committee was that, in order to strengthen the objective relationship between auditors and management, auditors should not be allowed to provide NAS (Paragraph 5.10, Cadbury Committee Report 1992). The logic was that such prohibitions would remove any pressure on the auditors to succumb to management pressure. Also, such a restriction would eliminate any incentive for the auditor to offer audit services at lower rates in the hope of obtaining for lucrative engagement for NAS. Such lower rates would restrict the scope of audit. After carefully

considering the propositions, the Committee stated that such a ban would limit the freedom of the companies to select their sources of advice and consultancy. Furthermore, the Committee was convinced that any potential advantages achieved through such prohibitions would actually be outweighed by the disadvantages. Therefore, the Committee decided not to support the notion of an outright ban on the purchase of NAS from incumbent auditors.

Regarding long auditor tenure, the Committee proposed the introduction of some form of compulsory rotation of audit firms in order to prevent the auditor-auditee relationship from turning too cosy (Paragraph 5.12, Cadbury Committee Report 1992). Whilst being aware of the potential loss of the trust and experience built up during the tenure, the Committee agreed on a periodic change of audit partners for listed companies to allow a fresh approach to the audit. It recommended accountancy profession to develop appropriate guidelines that would allow flexibility over timing to take effect the changes in senior personnel, both in the audit team and in the client company, ensuring a distinction in auditor-client relationships.

The recommendations of the Cadbury Committee regarding an enhanced role for audit committees for a review of NAS fees paid to the auditors were strongly supported by the Hampel Committee Report (1998). The Hampel Committee suggested that the audit committee should have a key role where the auditors supply a substantial volume of NAS to the client. It was suggested that the committee should keep the nature and extent of such services under review, seeking to balance the maintenance of objectivity with value for money (Paragraph 6.9, Hampel Committee Report 1998). This suggestion was later incorporated in the Combined Code on Corporate Governance (FRC 2008a).

2.7.2.2 The Smith Committee Report (2003)

The Smith Committee Report (FRC 2003b) provides a more specific guidance regarding the responsibilities of the audit committee with reference to purchase of NAS. It requires the audit committee to have procedures installed to assess the independence and objectivity of the external auditor annually. The report mentions that such assessment should involve a consideration of all relationships between the company and

the audit firm, including the provision of NAS. The report further states that the audit committee should consider whether such relationships appear to impair the auditor's judgement or independence (Paragraph 5.22, FRC 2003b).

The Smith Report (FRC 2003b) further suggests formulation and adoption of a policy regarding purchase of NAS from the incumbent auditors. According to the guidance, the audit committee will be responsible for the preparation of this policy. The objective of the policy will be to ensure that purchases of NAS do not impair auditor independence (Paragraph 5.26, FRC 2003b). According to the Smith guidelines, the audit committee should not agree the purchase of NAS if such services involve the external auditors reviewing their own work, making management decisions or acting as advocates for the company. The audit committee should also assess 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. The nature of the NAS, the related fee levels and the fee levels individually and in aggregate relative to the audit fee and the criteria that govern the compensation of the individuals performing the audit should also be assessed by the audit committee.

The report also requires that the NAS policy, prepared by the audit committee, should provide proper guidelines regarding the extent of purchase of NAS. The policy will identify the types of non-audit work from which the external auditors are excluded; categories of NAS for which the external auditors can be engaged without referral to the audit committee; and NAS items for which a case-by-case decision is necessary (if not practicable, there may be a general pre-approval to a certain class of NAS, subject to fee thresholds). In addition, the policy may set fee limits generally or for particular classes of work.

The report proposes that the audit committee should annually seek information from the audit firm, about policies and processes for maintaining independence and monitoring compliance with relevant requirements (such as the rotation of audit partners and staff). It should also monitor the external audit firm's compliance with applicable UK ethical regulation relating to the rotation of audit partners, the level of fees that the company pays in proportion to the overall fee income of the firm, office and partner, and other related regulatory requirements (Paragraph 5.25, FRC 2003b). With regard to disclosure of the purchase of NAS, the Smith Report suggests that the annual report should explain

to shareholders how, if the auditor provides NAS, auditor objectivity and independence is safeguarded. The recommendations of the Smith Committee (FRC 2003b) regarding NAS purchase and disclosure (as explained above) were subsequently accommodated into the Combined Code (FRC 2003a), which became effective from November 2003.

2.7.2.3 The CGAA Report (2003)

Following the collapse of Enron, the Coordinating Group on Auditing and Accounting Issues (CGAA) was set up jointly in the UK by the Chancellor of Exchequer and the Secretary of State for Trade and Industry in order to coordinate the programmes taken individually by different regulatory agencies to review UK's audit and financial reporting regulatory environment. The CGAA submitted an initial report in 2002. On the basis of a careful consideration of this interim report and the EC recommendations (EC 2002), the final report was published in January 2003. CGAA (2003) contained a number of guidelines regarding the purchase of NAS and rotation of auditors.

The CGAA (2003) report states that the UK requirements regarding NAS purchases should continue to be principle-based rather than rules-based. However, the Group acknowledges the need for clearer and tougher safeguards in order to ensure that joint provision of audit and NAS do not undermine auditor independence, *in fact* or *in appearance*. For the audit firms, CGAA (2003) proposed tougher requirements governing the provision of NAS, independent setting of auditing standards and tougher monitoring of the requirements by the audit firms. For the buyers of NAS, the CGAA prescribed an enhanced role for the audit committees in the NAS purchase process and fuller disclosure of the nature and degree of such NAS purchases. The CGAA Report incorporated EC (2002) with regard to restricting purchase of NAS. However, in some cases, CGAA (2003) has prescribed stricter measures.

The CGAA recognised the importance of the Smith Committee guidelines and invited APB and FRC to consider how these suggestions may be incorporated in the auditing standards. The CGAA also acknowledged the ICAEW's initiative in developing best practice guidelines for the companies on the nature and services of NAS provided by the auditors. The Group set out an agenda for a tougher and more restricting NAS regime to protect both the appearance and fact of auditor independence. Following these changes there has been a substantial drop in NAS fees paid to audit firms particularly by

the larger companies while audit firm fees from non-audit clients have increased, suggesting that companies have changed service suppliers in response to the regulatory changes[30].

Regarding the long auditor tenure with UK companies, the CGAA (2003) report has a number of propositions. According to the report, it stresses that the requirements for the rotation of audit partners continued to enhance auditor independence and that the rotation of the audit engagement partner had been a requirement in the UK for years[31]. The report also confirmed the EU recommendation that the partner rotation should extend beyond the engagement partner to the other audit partners and concluded that the maximum period before rotation of the lead audit partner should be reduced from seven to five years (Paragraph 1.20, CGAA 2003). While the long-standing nature of the relationship between Enron and Andersen in the Houston office brought the mandatory audit firm rotation back in light, the CGAA carefully considered the arguments and concluded that the balance of advantage is against requiring the mandatory rotation of audit firms. The Group recognized the need to strike a balance between reinforcing auditor independence and leaving sufficient freedom to audit firms to plan succession so as not to damage audit quality.

The CGAA (2003) considers the following arguments for audit firm rotation in a long term audit relationship: (a) the auditors will have a tendency to be too cosy with client management; (b) there will be a declining trend in their professional scepticism; and (c) they will raise less or no questions in the areas of disputes to keep on-going relationship and in particular to protect the long term revenue flow. All these factors suggest that rotation would improve the effectiveness and quality of audit. Regardless of the improvement in independence *in fact*, the rotation improves, at least, the perception of independence and this changeover encourages competition. However, the CGAA (2003) recognized that audit firm rotation is a 'blunt regulatory instrument', and it justified its stand for the rotation of audit partner, not the audit firm, by presenting a number of arguments against mandating it (Paragraph 1.27, CGAA 2003):

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[30] Studies such as POB (2012) and FRC (2013a, 2014a) reveal that over the period of 2006 to 2013, revenues from audit fees steadily dropped from 26 per cent in 2006 to 22 per cent in 2013 while a similar trend is documented for income from NAS fees (19 per cent in 2006 and 12 per cent in 2013). The fees income from non-audit clients, however, experienced a gradual increment from 55 per cent in 2006 to 66 per cent in 2013. See also Gwilliam et al. (2014) for an additional analysis of the trend.

[31] The rotation of engagement partner came into force with the introduction of APB ES in 2004.

(1) There may be negative effects on audit quality and effectiveness during early years following a rotation. The Committee strongly argued that the cumulative knowledge of the existing audit team is lost and the new auditors need time to get familiar with the new engagement. Academic evidence reports higher instances of audit failures in the first years following a switch of auditors, and this may suggest the inability of the newly appointed auditor to identify problems[32].

(2) Rotating auditors on a regular basis involves significant costs in terms of management time through working with new auditors to familiarize them with the company. The Committee estimated a good number of listed companies who would otherwise be reluctant to change their auditors.

(3) Evidence from Italy (which requires audit firm rotation every nine years for the 20 listed companies) or Spain (which abandoned a similar requirement for listed companies in 1995) was not convincing for rotation to have a positive impact on audit quality. Interestingly, the study in Italy concludes that rotation carries significant threats to audit quality from competitive pressures. Rather, the stakeholders prefer other approaches such as audit partner rotation, quality control in firms and effective regulatory oversight (SDA 2002). Ireland and Australia also concluded against introducing audit firm rotation.

In light of the above counter arguments, the CGAA (2003) therefore, did not propose mandatory audit firm rotation but concludes with emphasis on the enhanced role for audit committees regarding the appointment and oversight of the company-auditor relationship; the requirements for audit partner rotation; greater responsibility on large audit firms in maintaining audit quality and auditor independence; and greater emphasis on independence when audit committees monitor long-standing auditors.

2.7.2.4 The ICAEW guidelines (2003)

The ICAEW guidelines regarding disclosure of the nature and cost of services provided by auditors, the initiative mentioned in the CGAA report, was published in July 2003. The purpose of this technical release (TECH 24/03[33], ICAEW 2003) was to provide guidance to the UK companies as to the form and extent of disclosures in their annual reports of the nature and cost of the company of services provided by the company's auditors. In preparing the guideline, the ICAEW (2003) considered the EC recommendations (EC 2002), the CGAA report (2003) and the US SEC final rule on disclosure of information regarding audit and NAS to the investors (SEC 2003), which

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[32] See Geiger and Raghunandan (2002). However, this study was conducted in a setting where rotation was not mandatory and therefore the evidence needs to be treated with caution.

[33] Now replaced with Disclosure of auditor remuneration (TECH14/13 FRF, ICAEW 2013). Updated in accordance with the requirements of the Companies (Disclosure of Auditor Remuneration and Liability Limitation Agreements) Regulations 2008 (Statutory Instrument 2008/489) as amended.

requires disclosure of NAS fees in the three categories: audit-related fees, tax fees, and other fees.

ICAEW (2003) recommended sufficient disclosure should be made regarding the nature and extent of services provided by the external auditors. This would help the investors make informed judgement as to whether the potential conflicts of interest arising from joint provision of audit and NAS have been sufficiently addressed by the auditors and by those in charge of governance. Paragraph 19.10 and 19.11 of the updated ICAEW guidelines (ICAEW 2013) stated that audit fees should be disclosed in two categories: fees paid to company's auditor for the audit of the company's annual accounts; and fees paid to company's auditor and its associates for other services pursuant to legislation). For the disclosure of NAS fees, the guidelines prescribe eight categories such as: (1) the auditing of accounts of any associate of the company; (2) audit-related assurance services; (3) taxation compliance services; (4) all taxation advisory services not falling within category 3; (5) internal audit services; (6) all assurance services not falling within categories 1 to 5; (7) all services relating to corporate finance transactions entered into, or proposed to be entered into, by or on behalf of the company or any of its associates not falling within categories 1 to 6; and (8) all NAS not falling within categories 2 to 7 (Paragraph 29.2, ICAEW 2013).

2.7.2.5 The APB ES (2004, 2010a)

The Department of Trade and Industry (DTI) published a review of regulatory regime governing the accountancy profession in the UK in January 2003 (DTI 2003). The report acknowledged CGAA's (2003) views regarding the need for installing tougher mechanisms to ensure auditor independence. The DTI report suggested that the APB should be in charge of setting standards for independence, objectivity and integrity of the auditors. In the UK, the Ethics Standards Board (ESB) was established earlier with a view to ES for accountants. However, rather than setting detailed standards, ESB's role was to identify which standards were needed. Comprising of six professional accounting bodies in the UK (namely, the ICAEW, the ICAS, the ICAI, the ACCA, the CIMA, and the CIPFA[34]), if the Consultative Committee of Accountancy Bodies

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[34] Abbreviations for the professional accountancy bodies: ACCA: Association of Chartered Certified Accountants; CIMA: Chartered Institute of Management Accountants; CIPFA: Chartered Institute of Public Finance and Accountancy; ICAEW: Institute of Chartered Accountants in England and Wales;

(CCAB) acknowledged such needs, they would have the responsibility to actually produce the standards. The ESB would only interfere in the standard setting process if the CCAB members fail to produce a timely and acceptable standard. Therefore, the ESB's role was only reactive, rather than proactive.

On the basis of comments received on the review of regulations, the DTI, however, recommended that the responsibilities for setting of standards regarding auditor independence, integrity and objectivity should be transferred to the APB from the professional accountancy bodies (Paragraph 4.21, DTI 2003). The report commented that this would enable the APB to build on certain aspects of the code of principles regarding independent auditing (which was under the purview of APB's scope), and issues an appropriate statement of ES in this area. The DTI (2003) also recommended that the ESB should eventually be abolished, and the oversight function of the ESB to be transferred to the Professional Oversight Board (POB), so that the APB and the POB, both subsidiaries of the FRC, would be able to coordinate their work. The remainder of this sub-section discusses the APB regulations in two parts: Part A – APB ES relevant to NAS, and Part B – APB ES relevant to audit firm rotation.

Part A - APB ES relevant to NAS

In line with DTI's comments, the APB issued five ES in December 2004. The standards apply for audits conducted in periods commencing on or after 15 December 2004. Four of these standards address the provision of NAS by the incumbent auditor and their long association with clients. ES1[35]- Integrity, objectivity and independence- identifies the threats to independence in addition to defining independence, objectivity and integrity. The standard identifies the existence of a self-review threat where the results of NAS performed by the auditors get reflected in the financial statements. ES1 requires the audit firms to identify and assess the significance of threats to auditor independence when considering the acceptance or retention of a NAS engagement (Paragraph 38, ES1). In case of listed companies, ES1 requires auditors to make certain disclosures to management including the total amount of fees received for performance of audit and NAS, analysed in appropriate categories. The auditors are also required to confirm in writing, the compliance with APB ES, and that independence and objectivity have not been compromised.

ICAI: Institute of Chartered Accountants in Ireland; and ICAS: Institute of Chartered Accountants of Scotland.
[35] ES1 was revised in December 2010 and updated in December 2011.

One of the major provisions of the ES1 is the requirement for the audit firms to have a designated 'ethics partner' who will have the responsibility for the adequacy of the firm's policies and procedures relating to integrity, objectivity and independence (Paragraph 22, ES1). The ethics partner will also be responsible for ensuring compliance with the APB ES. If the audit firm identifies any situation that might create threats to auditor independence, such audit engagements should be brought to the attention of the ethics partner.

While ES1 addresses general issues with regard to independence, objectivity and integrity, ES4[36] – Fees, remuneration and evaluation policies, litigation, gifts and hospitalities - provides requirements and guidance for specific circumstances arising out of fees, economic dependence, litigation and so on which might create threats to auditor independence. The standard also provides safeguard to eliminate or reduce threats to auditor independence under specific circumstances.

Paragraph 20 of ES4 requires audit firms to establish procedures that require audit engagement partner or the ethics partner to be informed when the audit firm proposes contingent fees arrangement in relation to provision of NAS to the client. In case of listed companies, auditors are required to disclose such arrangements in writing to the client's audit committee. ES4 acknowledges that where a significant part of professional fees for audit or NAS remains unpaid before the audit report of the following year is issued, a self-interest threat arises, because the auditors would then have incentives to issue an unqualified report in order to enhance the audit firm's prospects of securing payments for such overdue fees. In such cases, the engagement partner, in consultation with the ethics partner should decide whether it is appropriate to continue such audit engagements (Paragraph 27, ES4).

ES4 then addresses the issue of economic dependence and its potential effects on loss of auditor independence. It states that economic dependence[37] on a particular audit client may lead to the rise of a self-interest threat to auditor independence. Paragraph 31 states that where the fees for audit and NAS from a listed audit client regularly exceeds 10 per cent of the annual fee income of the audit firm, the firm should not act as auditors of

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[36] ES4 was revised in December 2010.
[37] APB ES4 guidance on auditor's economic dependence is also discussed in section 2.3.1.

that entity, and should either resign or decline to be reappointed. In cases where the audit and NAS fees are expected to be between 5 per cent to 10 per cent of the total fees income of the firm (10 per cent to 15 per cent for a non-listed client), the audit engagement partner is required to disclose such expectations to the ethics partner and to the audit committee of the client, and consider whether appropriate safeguards are in place to allay any concerns of lack of auditor independence and objectivity. Such safeguards may include reduction of NAS. For the new audit firms, the prohibition of not accepting audits for any listed companies where total fees exceed 10 per cent of the fees income of the audit firm stays in place.

ES5[38]– Non-audit services provided to audited entities – articulates requirements and guidance on specific conditions arising from provision of NAS. The standard also provides example of safeguards that can eliminate or reduce threats to auditor independence under specific circumstances. ES5 offers guidance regarding possible withdrawal from audit engagements in cases where safeguards are not available. The standard makes it clear that inadvertent non-compliance with the standard would not necessarily indicate the auditors' inability to express an audit opinion. However, under such circumstances, the audit firm must ensure that they have well-established procedures in place to allay concerns of loss of independence. The standard prescribes the general approach to be adopted by audit firms in relation to provision of NAS to their audit clients. It defines the nature and scope of NAS to be provided by the audit firms. Paragraph 14 requires that while making a decision regarding acceptance of a proposed NAS engagement, the audit engagement partner must be informed.

ES5 then proceeds to identify and assess threats to auditor independence and their corresponding safeguards. The audit engagement partner is required to assess the possible effects of accepting a particular NAS engagement on the appearance of auditor independence. In this regard, the auditor should assess the threats to auditor's objectivity and identify whether safeguards are available to dispel such concerns. If the audit engagement partner feels that taking up a NAS engagement may create problems regarding appearance of loss of auditor independence, such engagements should not be accepted. With respect to tendering for a new listed company audit client, the auditors are required to make sure that the client audit committee is informed of the nature and extent of recent NAS provided to the potential audit client.

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[38] ES5 was revised in December 2010, and updated in December 2011.

The presence of a self-review threat is identified when the results of a NAS is reflected in the amounts included or disclosed in the financial statements. A threat of objectivity arises because this would imply that the auditors, in the course of audit, might be reviewing their own work. In assessing such threats, the auditors are required to assess whether a particular NAS will involve either significant subjective judgement or have a material effect on the preparation and presentation of financial statements. In the absence of well-established principles or procedures, NAS may involve exercise of significant amount of judgment that can potentially have an adverse effect on the appearance of auditor independence. The standard mentions that in the event when a NAS has material effect on the financial statement of the client, it is unlikely that any safeguard may eliminate or reduce the self-review threat.

When an audit firm accepts an engagement that involves making decisions, which are primarily the responsibility of management, the management threat to auditor independence emerges. In such a case, the auditors may be so closely aligned with the views and interest of the management, and auditor independence may be severely impaired. The presence of informed management may act as a safeguard against management threat. However, in the absence of such management, the standard doubts whether any safeguards would be effective in eliminating or reducing such threats.

ES5 identifies the presence of an advocacy threat when the auditors' work also involves working as an advocate for the client and supporting management decisions in an advisory role. Threats to loss of independence *in fact* and *in appearance* exist because in such a role, the auditors have to assume a position that is closely aligned with the management (Paragraph 40, ES5). In cases where the audit firm acts as an advocate in matters that have a material effect on the financial statements, there are hardly any safeguards that can potentially eliminate such threats. In cases where the audit engagement partner concludes that no appropriate safeguards are available to reduce or eliminate a particular threat to auditor independence, Paragraph 45 of ES5 requires that the audit firm should either not accept the NAS engagement, or not accept (or withdraw from, in case of a continuing appointment) the audit engagement.

Paragraph 60 of ES5 states that the performance of internal audit services[39] (one of the important categories of NAS) for the client gives rise to self-review and management threats. The self-review threat is deemed to be unacceptably high where the auditors cannot perform audit of financial statements without having to place a significant amount of reliance on their work performed on the internal audit engagement. In cases where the audit firm provides internal audit services that involve audit staff making decisions that would otherwise be made by management, the management threat is construed to be at an unacceptably high level. In such cases, the audit firm should not accept an engagement to provide internal audit services. However, in other cases, the standard still allows audit firms to continue providing internal audit services subject to the presence of 'informed management' with the client and the application of adequate safeguards (such as separation of audit staff performing internal audit engagement from those performing audit, and review of audit of the financial statements by an independent audit partner).

ES5 considers design and implementation of information technology services (including financial information technology) to give rise to self-review and management threats. The standard prohibits provision of such NAS when they relate to the client's accounting system or to the production of financial statements or when the auditors would place significant reliance upon them. In other cases, the audit firms can continue provide such services provided the presence of an informed management and the application of appropriate safeguards (Paragraph 74, ES5). The EC recommendations, supported by CGAA, allows purchase of information technology services even when these create high risk related to self-review, provided that the client management take responsibility for internal control and the auditors are satisfied with that such provisions do not interfere with their independent assessment of client's internal control.

Self-review and management threats to auditor independence and objectivity are identified to arise out of providing valuation services to the client. In cases when such NAS involves valuation of amounts with high levels of subjectivity, the self-review threat is considered too high. In such a case, ES5 prohibits the audit firms to provide

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[39] Paragraph 63 of ES5 clearly prohibits internal audit services by statutory auditor where it is reasonably foreseeable that (a) for the purposes of the audit of the financial statements, the auditor would place significant reliance on the internal audit work performed by the audit firm; or (b) for the purposes of the internal audit services, the audit firm would undertake part of the role of management.

valuation services (Paragraph 77, ES5). This is consistent with the EC recommendations (EC 2002). The standard articulates the specific types of valuation services, which are not considered a serious threat to audit independence and objectivity. Complying with CGAA (2003) suggestions for specific guidelines regarding actuarial valuation services, the ES5 suggested that such services should not be provided, unless the informed client management takes responsibility for making all significant judgments, including assumptions, and in cases where the amounts values are considered immaterial.

Regarding another important category of NAS, ES5 distinguishes between three types of tax services provided by the audit firms such as advice to the client in specific areas at the request of the client; tax planning or compliance work and promotion of tax structures or products to the audit client. The provision of tax services gives rise to a number of threats to audit objectivity and independence, namely, the self-interest threat, the management threat, the advocacy threat and the self-review threat. The self-review threat is considered high when the audit firm undertakes a substantial portion of the audit planning and compliance work. However, paragraph 92 of ES5 provides a number of safeguards that may be undertaken to reduce such threats. Paragraph 93 prohibits audit firms from promoting tax structures or products or providing advice that may require adoption of an accounting treatment about which the audit engagement partner has reasonable doubt regarding its appropriateness. Such services would create serious problems of self-review (Paragraph 94, ES5). The standard disallows provision of tax services on a contingent fee basis where such fees are material to the audit firm. The contingent fee basis tax services are also prohibited in cases where the outcome is dependent on tax laws, which are not well established and on a future or contemporary audit judgment relating to a material balance in the financial statement.

Earlier, the CGAA (2003) also expressed concern regarding provision of tax services where the tax laws are not particularly well established. To reduce management threat, the standard also disallows provision of tax services where such engagement involves auditors assuming management responsibilities, unless the client has informed management or adequate safeguards have been applied. Paragraph 104 states that the audit firm should not undertake any assignments to provide tax services to the audit client where such services include representing the client before the appeals tribunal or the court in the resolution of an issue that is either material in relation to the financial statements or where the outcome depends on a future or contemporary audit judgment.

Such situations are construed to give rise to serious advocacy threat. The standard also prohibits provision of litigation support services (such as acting as a primary witness), which might involve estimation by the audit firm of a likely outcome of a pending litigation that could be material with regard to the disclosures made in the financial statement.

ES5 identifies the self-review, management, advocacy and self-interest threats where the auditors provide corporate finance services to the client. The standard provides a number of safeguards against the management threat at the presence of an informed management. Paragraph 131 prohibits the auditors to provide a number of corporate finance services. An unacceptably high level of advocacy threat was identified when the auditors promotes the interest of audit client by taking responsibility for dealing in, underwriting or promoting shares (Paragraph 132). In line with contingent fee guidelines provided earlier (for example, for tax services), the standard also disallows provision of corporate finance services on a contingent fee basis, when such fees are material to the firm or is dependent on a future or contemporary audit judgment. The standard also prohibits providing corporate finance services when such engagements involve taking a management role.

The self-review and management threats are recognized where the auditors provide transactions services to the client. Consistent with earlier guidelines regarding such work involving advice on an accounting treatment that creates reasonable doubt in the audit engagement partner's mind, the provision of NAS on a contingent fee basis, and audit staff taking up management roles while providing such services, similar prohibitions are also prescribed for transactions services (Paragraph 141, ES5). For other cases, the standard provides a number of safeguards to reduce concerns of management and self-review threats.

Regarding different accounting services provided as NAS, the standard states that such services create self-review and management threats. On the basis of such threats, the standard altogether prohibits provision of accounting services to the listed company audit clients (Paragraph 162, ES5). For other clients, such services are disallowed where it would involve assuming the role of management. The provision for disallowing accounting services to audit clients is consistent with the EC recommendations (EC 2002), which also recommend such provisions for public interest entities.

ES5 also requires that the audit engagement partner, should, on a timely basis, inform those in charge of client's governance of all significant matters relating to provision of NAS that might affect objectivity and independence of the auditor and the safeguards taken against such threats. For listed companies, the engagement partner is also required to report any inconsistencies between APB ES and the client's policy regarding supply of NAS by the audit firm. In line with EC recommendations (EC 2002) and the CGAA report (CGAA 2003), the APB ES5 also links categories of NAS with specific threats to auditor independence. However, compared to EC (2002), the ES5 is much more comprehensive in terms of the use of a wider number of NAS categories. Also, the standard provides recommendations regarding possible safeguards against particular threats arising from performance of a specific category of NAS.

Part B - APB ES relevant to auditor rotation

Turning to long auditor tenure, ES4 details the provisions in order to address the potential familiarity threat to auditor independence. ES4 provides requirements and guidance on specific circumstances arising out of long association with the audit engagement, which may create threats to the auditor's objectivity or perceived loss of independence. It gives examples of safeguards that can, in some circumstances, eliminate the threat or reduce it to an acceptable level. It stresses that in circumstances where this is not possible; the auditor either should not accept or withdraw from the audit engagement, as appropriate.

As per the ES3[40]– Long association with the audit engagement - the audit firm is required to have policies and procedures in place to monitor the tenure for senior personnel such as the audit engagement partners, key partners involved in the audit, including those from other disciplines, serving in the engagement team for each audit. Paragraph 6 of ES3 requires audit firm to assess the threats to the auditor's objectivity and independence and to apply safeguards to reduce the threats to an acceptable level that where the key people mentioned above are involved with the audit for longer time. The audit firm should either resign as auditor or not stand for reappointment, as appropriate, if appropriate safeguards cannot be applied.

Where these key people have a long association with an audit engagement, ES3 acknowledges that self-interest, self-review and familiarity threats to the auditor's

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[40] Revised in October 2009.

objectivity may arise leading to an actual or perceived loss of independence. The standard prescribes appropriate safeguards, including (Paragraph 8, ES3)

(a)   Removing ('rotating') the partners and the other senior members of the engagement team after a pre-determined number of years[41];

(b)   Where an additional partner is involved in the audit, who is not and has not recently been a member of the engagement team, the audit firm requires to review the work done by the partners and the other senior members of the engagement team and to advise as necessary;

(c)   Applying independent internal quality reviews to the engagement in question.

In the case of listed companies, the ES3 requires the audit firm to have policies and procedures in place to ensure that no one can be involved as the audit engagement partner with an audit for more than five years; and anyone acting in the same capacity for a particular audit engagement for five years does not subsequently participate in the audit engagement until a further period of five years has elapsed (Paragraph 12, ES3). However, where the audit committee (or equivalent) of the client decides for a degree of flexibility over the timing of rotation to safeguard the quality of the audit and the audit firm agrees, the tenure for the audit engagement partner may be extended for an additional two years, so that seven years in total at the maximum is spent in that position (Paragraph 16, ES3). In these circumstances alternative safeguards are applied to reduce any threats to an acceptable level including an expanded review of the audit work to be undertaken by the engagement quality control reviewer or an audit partner, who is external to the audit engagement.

2.7.2.6 Changes in the Companies Act (2006)

The CGAA (2003) called for changes to be made in the Companies Act to accommodate the expanded NAS fees disclosure requirements. In line with those comments, the Companies (Disclosure of Auditor Remuneration) Regulations 2005 was enacted to require mandatory disclosure of NAS fees in the following nine categories (SI No. 2417, 2005): NAS provided pursuant to company legislation; taxation services; information technology services; services relating to information technology; valuation and actuarial services; services relating to litigation; services relating to recruitment and remuneration; corporate finance services; and all other services.

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[41]   For listed companies, the audit engagement partner is required to rotate after 5 years with another 5 years of cooling off period (Paragraph 12, ES3).

The Companies Act (2006) requires that such disclosures should be made in the notes to the accounts (Regulation 4(3), Schedule 2). It may be noted that the categories of NAS are consistent with APB's (2010a) NAS categories, as stated in ES5. The mandatory disclosure requirements became effective from 1 October 2005. The mandatory disclosure requirements were later incorporated in Section 494 of the Companies Act (2006) (which received the royal ascent on 8 November 2006). The Companies Act 2006 also provides legal support for the Public Oversight Board to monitor compliance with auditing standards.

2.7.2.7 House of Commons Treasury Committee (2009)

The regulatory debate over auditor independence and FRQ died down after the APB ES came in force during the 2004-08. However, the issue again came under limelight when the UK experienced 2007-09 banking crisis. The House of Commons Treasury Committee (2009) was formed to assess the role of auditors in the banking crisis, among other allegations. The Committee remained concerned about the issue of auditor independence and argued that a ban on the joint provision of audit and NAS by audit firms for the same client would enhance investor confidence and trust in audit. It also recommended that the FSA should take charge to consult mechanisms to improve financial reporting in order for the stakeholders to allow more access to information on bank activities. Recognising AIU (2008) findings on UK audit as 'fundamentally sound with no systematic weaknesses', the Committee maintained for some banks to have failed immediately after receiving unqualified audit reports was not necessarily associated with deficient audits (Paragraph 221, House of Commons Treasury Committee 2009). The Committee noted that the audit process failed to highlight developing problems in the banking sector, leading them to question how useful the audit was. The Committee concluded that the process resulted in 'tunnel vision', where the big picture that shareholders wanted to see was lost in a sea of detail and regulatory disclosures.

The Committee acknowledged that auditors enjoy a privileged position in their client companies. Only the regulators, and nobody else, have access to a company's records, or can challenge the decisions made and strategies being pursued. While these powers are essentially granted to auditors to facilitate their statutory duties, the FRC warned

against any proposals to extend the remit of audit to include further assurance regarding client's risk management. While banking crisis prompted the aspect of further assurance from auditors, the FRC maintained that this would need to consider a number of factors including the competence of auditors in carrying out the new requirements; the costs involved; the exposure of auditors and others to liability risk; the need for legislation; and international considerations such as UK competitiveness (Paragraph 224).

Stressing the issue of NAS fees earned from the audit clients, the Committee concluded in another report, *The Run on the Rock*, that there appears to be a particular conflict of interest[42] between audit and NAS that auditor may undertake for a financial institution. The Committee was particularly concerned about auditors earning NAS fees from work arising from securitizations, especially where assets were held off-balance sheet.

Although independence is just one of several determinants of audit quality and FRQ, the Committee believes that, in the interest of ensuring uninterrupted revenues from NAS, audit firms will have strong incentives to go along with critical opinions of accounts prepared by client management (Paragraph 237). Investors expressed their doubt about independence of auditor under such circumstances. The concentrated audit market with so few large firms heightens this problem. Finally, the Committee was in favour of a ban on the joint provision of audit and NAS for the same client as it strongly believes that investor confidence, and trust in audit would be enhanced by the prohibition.

2.7.2.8 House of Lords Select Committee on Economic Affairs (2011)

The House of Lords Select Committee on Economic Affairs was responsible for their assessment and recommendations on *"Auditors: Market concentration and their role"* in 2011. Focusing on the NAS provision, the Committee recognized conflict of interest has been a continuous concern when a statutory auditor supplies NAS to the same client. While currently enforced APB ES prohibit certain NAS that "involve auditing one's own work, acting in a management capacity or acting as an advocate for an audit client" (Paragraph 80, House of Lords Select Committee on Economic Affairs 2011),

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[42] PwC received £700,000 in NAS fees that largely comprised of fees relating to assurance services in connection with Northern Rock's actions in raising finance through securitization (Paragraph 298, House of Commons Treasury Committee 2008).

audit firms are allowed to offer other NAS such as consultancy on tax and acquisitions by partners without knowledge of their colleagues' involvement in the audit for the same client, which the Committee dubbed as "the Chinese wall". With a requirement to disclose in the annual reports the audit and NAS fees paid, listed companies are allowed to purchase NAS from their auditor. Bringing the incidence of NAS fees paid to PwC by Northern Rock in 2006, immediately before the bank failed, the Committee stressed on the presence of apparent conflict of interest.

Despite the apparent conflict of interest, the Committee, however, was not convinced that a complete ban on the joint provision of audit and NAS for the same audit clients is justified. Instead, the Committee recommended prohibiting a statutory auditor from supplying "internal audit, tax advisory services and advice to the risk committee for that firm [company]" (Paragraph 87). Turning to the concentrated audit market, the Committee received conflicting views regarding Big4's domination[43]. Representatives from Big4, however, argued that it was 'nevertheless competitive'. For example, Mr. Ian Powell, Chairman and Senior Partner of PwC, was quoted as saying that "the large firm audit market was 'fiercely competitive' and that each tender was 'ferociously fought' and that competition had affected prices" (Paragraph 19). While partners from Big4 make this claim, Stringfellow et al. (2015, p. 87), drawing on evidence in the House of Lords Select Committee on Economic Affairs (2011) and following Bourdieu's (1977) system of thought conceptual framework to explore taken-for-granted power relations, document the institutional and micro mechanisms of symbolic domination of Big4 and how these mechanisms collectively secure the sustainability of this domination in the UK professional accounting services. Acknowledging rare instances of FTSE100 companies' switching of auditors and pointing to the rotation of audit partner, not the rotation of audit firm, Mr. John Griffith-Jones, Chairman at KPMG, argued that "continuity and a fresh approach could be achieved by the same audit firm through frequent rotation of audit staff when new audit teams could still draw on the firm's corporate knowledge of the client" (Paragraph 19).

During the Committee's consultation on long auditor tenure, the participants doubted the effectiveness of either the mandatory tendering or the more radical suggestion of mandatory rotation after a fixed period (Paragraph 42). They argued that companies

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[43] For a thorough analysis of the Big4's domination in both FTSE350 and AIM100, see McMeeking (2009).

could easily switch Big4 auditors leaving no dilution impact on the concentrated market. On top of that, some participants raised concerns that changes of auditors would not only cause costs to increase but also reduce the quality of audit in the early years of a new audit team[44]. Referring to the "very long tenure of auditors at large companies" and remaining concerned about "the lack of competition and choice in the market", the Committee suggested for "regular tender" inviting a non-Big4 to take part in the bid to allow greater competition to benefit from both cost and quality (Paragraph 44). The Committee, therefore, recommended FTSE350 companies to conduct a mandatory tendering for their audit contract every five years[45] and concerned audit committees to report to shareholders with detailed reasons for their choice of auditors.

2.8 Discussion

Table 2.2 (presented in Appendix 1) shows a comparison of different regulatory initiatives aiming to restrict joint provision of audit and NAS and long audit firm tenure. The APB ES (2004, 2010a), the CGAA report (CGAA 2003), the EC recommendations (EC 2002), the EU Audit Reform Proposals (2011) and SOX (2002) have been compared. The table indicates that the regulatory initiatives in different parts of the world are all consistent in their approaches towards prohibition of accounting and valuation services. Also, approaches towards internal audit, and information technology are similar, with some subtle differences. The UK regulatory initiatives (the CGAA and the APB) seem to be more willing to acknowledge that legal services vary widely, and that a blanket prohibition may not be appropriate. Regarding provision of tax services, although the SOX (2002), EC (2002), and CGAA (2003) adopts a similar position, APB takes a much stricter view, prohibiting a number of tax services.

Table 2.3 Chronology of NAS and auditor rotation related regulatory initiatives in the UK

Legislations	Major changes and requirements introduced
Companies Act 1985 (Disclosure of Remuneration for Non-Audit Work) (Effective from 1991)	• Mandatory requirement to disclose the audit and NAS fees in the notes to the accounts.

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[44] These concerns are consistent with studies by Catanach and Walker (1999), Geiger and Raghunandan (2002), Myers et al. (2003), Raiborn et al. (2006), Caramanis and Lennox (2008), and Johnson (2012).

[45] The UK Corporate Governance Code 2012 (FRC 2012) requires FTSE350 companies to conduct the mandatory tendering of their external audit contract every ten years (Article C.3.7).

Cadbury Committee Report 1992	• Recommendation to revise the 1991 regulations under Companies Act on disclosure requirements to ensure fuller disclosure of NAS fees; • Agreement for listed companies a periodic change of audit partners should be arranged to bring a fresh approach to the audit process and recommendation for the accountancy profession to draw up appropriate guidelines.
Hampel Committee Report 1998	• Suggestion for audit committees to have key roles in making NAS purchase decisions.
The Combined Code, FRC 2000	• Incorporates the suggestions of Hampel Committee (1998)
EC Recommendations (EC 2002, 2011)	• Prohibits a number of NAS; • Requirement for NAS fees to disclose in line with Sarbanes-Oxley Act 2002; • Identification of threats to auditor independence in the presence of NAS provision and suggestion of safeguards; • Introduces the mandatory rotation of audit firms after a maximum period of 6 years that may be, under certain exceptional circumstances, extended to 8 years; • Where a public interest entity (PIE) has appointed two or more statutory auditors or audit firms, the maximum duration of the engagements will be 9 years; on an exceptional basis, such duration may be extended to 12 years; • Requirement for a cooling-off period before the audit firm is able to carry out the statutory audit of the same entity again.
Smith Committee Report, FRC 2003b	• Offers more specific guidelines regarding expanded role of audit committees in recruitment of auditors and purchase of NAS; • Suggestion for the formulation and adoption of a NAS policy; • Requires the audit committee to seek from the audit firm, on an annual basis, information about policies and processes for maintaining independence and monitoring compliance with relevant requirements, including current requirements regarding the rotation of audit partners and staff.
The Combined Code, FRC 2003a (Effective from November 2003) [Later revised as the UK Corporate Governance Code, Effective from September 2014 (FRC 2014a)]	• Accommodates the Smith Committee recommendations on the enhanced role of the audit committee; • Audit committee to determine the length of tenure of the current audit firm and when a tender was last conducted; • Requires FTSE350 companies to conduct mandatory tendering for external auditor contract every 10 years.
CGAA 2003	• Accommodates some EC (2002) recommendations regarding the provision of NAS and suggests stricter approach for some categories;

	- Identifies threats to auditor independence and related safeguards; - Agrees with the Smith Committee recommendations regarding enhanced role of the audit committee; - Recommends fuller disclosure of NAS fees in line with EC 2002; - Suggests revision to Companies Act; - Acknowledges ICAEW initiatives in developing best practice guidelines - Does not recommend either mandatory audit firm rotation or mandatory re-tendering of audit contracts - Appreciates the adoption by the ICAEW and ICAS of strengthened requirements on audit partner rotation which is a maximum of five years for the audit engagement partner and seven years for other key audit partners.
ICAEW 2003 (Effective from July 2003)	- Considers the recommendations of EC (2002), CGAA (2003) and SEC (2003); - Recommendation for an extended disclosure of NAS fees. The categories are consistent with SEC (2003); - Requires disclosure of NAS policy (in line with the Smith Committee Report (2002); - Adopts the audit partner rotation every 5 years and other key audit partners every 7 years.
DTI 2003	Suggests that the APB should be in charge of formulating regulations regarding auditor independence, integrity and objectivity.
APB 2004 [Later revised and updated in 2008 through 2011 (APB 2010a)]	- In line with DTI 2003 recommendations, the APB issues five comprehensive ES for the auditors, one of which specifically addresses the issue of NAS provision. - Auditors are required to make extended disclosure to client management regarding NAS fees received. The categories prescribed are consistent with EC (2002), SEC (2003) and ICAEW (2003) - Audit firms to have 'ethics partner' who would review provisions of NAS - Provides specific thresholds (10% for listed companies) regarding fee dependence - ES5 provides specific guidelines regarding particular types of NAS. It prohibits a number of NAS and identifies safeguards for others - ES3 details the provisions regarding the auditor rotation as a safeguard against familiarity and self-review threat. - Prescribes that an audit engagement partner can be appointed for a maximum of 5 years with a cooling off period of 5 years - The most comprehensive piece of regulation addressing the issue of NAS and long association with clients in the UK
The Companies	Revises mandatory NAS fees disclosure requirements in the Companies Act to accommodate CGAA (2003)

(Disclosure of Auditor Remuneration) Regulations 2005 (Effective from 1 October 2005)	views; • NAS fees are required to be disclosed in nine categories.
The Companies Act (2006) (Effective from 6 April 2008)	• Incorporates the NAS fees disclosure requirements of the Companies (Disclosure of Auditor Remuneration) Regulations 2005.
House of Commons Treasury Committee 2008	• Identifies the joint provision of audit and NAS for the same client as conflict of interest situation for auditors; • Stresses on blanket ban for statutory auditors to perform NAS for audit clients to enhance investor confidence in the market and trust in audit.
House of Commons Treasury Committee 2009	• Maintains the view on blanket ban of NAS for audited entity as expressed in 2008 report in the wake of Northern Rock failure.
House of Lords Select Committee on Economic Affairs 2011	• Expresses concerns about the concentrated audit market for large companies with Big4 domination; • Recommends prohibition of NAS in the form of internal audit, tax advisory services and advice to the risk committee for client; • Suggests for regular tender inviting a non-Big4 to take part in the bid to allow greater competition to benefit from both cost and quality.

Table 2.3 above lists the major regulatory initiatives regarding the NAS and long association of auditors with clients in the UK and EU. It shows that after the changes brought to the Companies Act in 1991, there was a relatively quiet period for regulations addressing the provision of NAS and long auditor tenure in the UK. In this period, apart from a number of corporate governance codes issued by private regulatory bodies (the FRC, the London Stock Exchanges and a number of professional bodies), there was almost no self-regulations or public regulations in this area. These initiatives generally provided suggestions regarding best practice with regard to purchase of NAS and longer auditor tenure. The collapse of Enron led to the development of a series of regulatory initiatives. As the audit failures could be traced to independence problems of the auditors stemming from purchase of NAS and their longer tenure with the same clients, a number of regulations were directed to address such issues. Thus, the Enron collapse once again provided evidence why market based incentives is not enough for regulating the auditing profession. This is consistent with Whittington (1993).

It may be noticed that in the pre-Enron period, there was almost no mentionable self-regulation by professional bodies addressing the provision of NAS. However, immediately after the collapse of Enron, IFAC issued a revised code of professional ethics (IFAC 2003), and ICAEW (2003) issued guidelines regarding the provision of such services. As the ICAEW guidelines were based on EC recommendations (2002) and CGAA report (2003), it may be argued in such case that the self-regulation was aimed at protecting public interest in the context of the legitimacy crisis faced by the profession in general. Apparently, it took major accounting scandals for the professional self-regulations to take into account the protection of wider interests. The setting up of the CGAA in 2002 to coordinate the development of regulations by professional accounting bodies is consistent with Whittington's argument relating to the inherent weakness of self-regulation.

The concerns over self-regulation of the professional accounting bodies tend to lead the DTI (2003) to empower the APB as an independent regulator to set ethical standards for auditors. Earlier, Humphrey and Owen (2000) stress on the formation of an independent regulatory body for the audit of listed companies in the UK. Dewing and Russell (2002) also argued for establishment of an independent regulatory body with statutory power for audit oversight. All these studies incite debate in relation to the adequacy and effectiveness of professional self-regulation; hence, creating the case for private or public regulations. In the context of such pervasive debate and concerns from different stakeholders, the APB ES (2004, 2010a) can therefore be treated as a transition from self-regulation to private sector regulation in the area of audit. The provision of NAS and the long association of auditors with their clients form an important part of this initiative. The CGAA report (2003) also mandated changes in the Companies Act on mandatory disclosure of NAS fees categories. Given these regulatory initiatives, their empirical substance in terms of improved FRQ mitigating the independence concerns related to statutory audit bears further significance.

This study therefore seeks to investigate the empirical impact of restricted NAS and audit firm tenure on FRQ from the perspective of the APB ES (2004, 2010a). While there is large body of existing literature on the association of NAS and audit firm tenure to FRQ, the current study explores this in the context of the private sector regulation in the UK setting. In so doing, Winship and Morgan's (1999) 'difference-in-differences'

approach has been utilised giving fresh empirical insight on the association. This approach, dividing the observations in the control group and the treatment group, is deemed to strengthen inference about the impact of the APB ES on FRQ from the perspective of restricted NAS in FTSE350 companies. To summarise, this study is thus capable of addressing the on-going tensions in the academic debate concerning the issue of the extent to which NAS and long audit tenure impair auditors' independence leading them to compromise FRQ. Given this contribution, what sets this study apart from the existing ones is that it explores the audit firm tenure in the context of Big4 market concentration. To this end, it aims to examine if the mitigating effect of audit firm tenure on FRQ is valid in cases of companies audited by Big4 auditors versus companies audited by their non-Big4 counterparts. Existing literature on audit firm tenure and FRQ remains reportedly weak in relation to the issue of Big4 concentration (Bandyopadhyay et al. 2014 and Francis et al. 2013). The findings can extend this literature through providing empirical substance of whether Big4 quality differentiation holds for longer audit firm tenure. As discussed earlier, substantial regulatory concerns plug the field of audit firm rotation vis-à-vis tenure recently (see FRC 2013b, CC 2013 and House of Lords Select Committee on Economic Affairs 2011). The most recent developments in the field involve policy changes such as capping of NAS and the mandatory tendering of auditor (to be effective from mid-2016). These developments bring added tension to the issue of fee dependence, long audit firm tenure and their influence on FRQ. This eventually sets the motivation of this study to explore Big4 quality differentiation.

2.9   Conclusion

This chapter presents the motivations behind the current study. The chapter begins with an analysis of the concepts of auditor independence, *in fact*, and *in appearance*, and their significance in ensuring the credibility of the auditing profession. It is acknowledged that for the sheer survival of the profession, it is not only important that the auditors are independent in their minds while conducting an audit, but they must also make efforts to appear independent in the minds of the public. The chapter identifies that the auditing profession has some inherent characteristics that makes it appear non-independent, the joint provision of audit and NAS and longer auditor association with same clients being two of such traits. The fact that the auditors are economically dependent on their clients may create serious perception problem for auditor independence.

Having established the importance of auditor independence, the chapter then moves on to identify specific threats to independence in mind and in appearance that might arise from provision of NAS and longer audit firm tenure. It has identified that the joint provision of audit and NAS gives rise to a number of self-interest, self-review, management, advocacy, and familiarity threats that may create serious problems for auditor independence. However, it is acknowledged that despite the presence of such threats, clients still continue to purchase significant amounts of NAS from incumbent auditors.

In pursuit of finding answer for the above anomaly, the chapter then presents a number of possible explanations for such preference. It is found that prior literature provides two major explanations for the joint provision of audit and NAS and longer auditor tenure. First, it is argued that joint provision and long association with clients create an economic dependence between the auditor and the client. For the auditors, such joint provision leads to knowledge spill-over, which eventually provides them with higher profits. The clients also achieve economic benefits from engaging their auditors as suppliers of NAS rather than outsourcing such services from other suppliers at a higher price and by avoiding the tendering of audit contract to another provider more frequently. Therefore, both the auditors and the clients have incentives to maintain this relationship. Second, it is also argued that awarding the NAS contract to the incumbent auditors may be used by the clients as a tool for controlling the behaviour of the auditors.

Having established the rationale for joint supply of audit and NAS and longer association with clients, the chapter then moves on to provide a brief review of prior literature addressing the issue of such joint provision and longer association and their potential effects on auditor independence. Approaches taken in prior research in this area include formulation of analytical models of relationship between audit fees and NAS fees; models for determinants of NAS fees; and studies investigating *in fact* auditor independence and FRQ. It is found that though prior research is inconclusive regarding the effect of joint provision of audit and NAS on independence *in fact*, the perceptions of auditor independence have always been found to have negatively affected by such relationship. This is consistent with Mautz and Sharaf's (1961) observations, presented earlier in this chapter, that joint supply does create serious

doubts in the minds of the users regarding the credibility of the audited financial statements, and the auditing profession.

The review of literature suggests that the joint provision of audit and NAS and long association of auditors with the same clients were already a very well researched area. The accounting scandals in the early 2000s' and the recent financial crisis of 2007-09 and their subsequent effects on perceptions of auditor independence, discussed in the later sections of the chapter, set the context for this study. The fact that the companies involved in the accounting scandals were purchasing high amount of NAS from their incumbent auditors, that the financial services companies were in serious trouble even after getting clean bill of health from their auditors, and that the audit process failed to highlight developing problems in the banking sector which led to the doubt about the current audit process to be deficient, raised serious concerns regarding auditor independence. This concern was reflected in the share prices of companies purchasing above average NAS (Eduardo and Zhang 2011) and heavy-handed bailout plans for the banking sector by UK and other Western governments. Also, the audit firms expected significant spill-over effects of the scandals (Krishnamurty et al. 2006).

The final sections the chapter provide a review of the regulations restricting purchase of NAS from incumbent auditors and their long association with the clients in the UK and discuss the contexts at which specific regulations were produced. The review indicates that a number of international developments, such as, the accounting scandals, and subsequent regulatory developments in the USA and the EC, led to introduction of changes in the UK regulatory environment for joint provision of audit and NAS and long audit firm tenure. In addition to reviewing the current legal environment for joint provision of audit and NAS and auditor rotation requirements, these sections have also presented evidence regarding the process of development of regulations for these two major issues in the UK auditing arena. Using Whittington's (1993) classification of different stages of financial reporting regulation, three stages of development of NAS and long auditor tenure regulations have been identified. The chronology of regulatory initiatives presented in Table 2.3 above indicates that, consistent with other regulations in auditing and financial reporting, regulations regarding purchase of NAS and long association of auditors also tended to switch from voluntary self-regulations to mandatory private regulations or public sector interventions primarily due to market reaction after the accounting scandals of early 21st century, the recent banking crisis and

the apparent failure of self-regulations to protect broader public interest. Whereas in earlier years, the relationship between joint provision of audit and NAS was primarily addressed through a number of reports, and codes of best practice, the regulators eventually had to produce standards (such as APB 2004, 2010a), and amend the Companies Act (2006) to make disclosure of NAS fees in a number of different categories mandatory.

Prior to the accounting scandals, the environment for joint supply of audit and NAS was already characterised by economic dependence between the auditors and the clients, and a scepticism regarding such relationship in the minds of the users. The accounting scandals and banking crisis converted this scepticism into a concern. Regulatory and professional bodies in different parts of the world responded to such concerns by enacting a number of legislations, some of which specifically addressed the joint provision of audit and NAS and long audit firm tenure. The accounting scandals, recent financial crisis and the consequent regulatory environment, therefore, provides a new window of opportunity to study the impact of those regulatory initiatives on the auditor independence reflected in the FRQ of UK companies. This sets the context for this study. The first chapter introduces the research while this chapter provides an analysis of how NAS and auditor tenure related regulations evolved with a review of related literature to set the context for the study. The next chapter will now discuss the hypotheses to be tested while chapter 4 discusses the methodology and research design for the empirical analyses to be carried out in chapter 5.

Chapter 3: Development of hypotheses

3.1 Introduction

Chapter 2 presents the motivation for the research by reviewing the importance of independence and competence of auditors and apparently conflicting preference of clients for the joint provision of audit and NAS and longer association with their auditors. It also reviews the series of audit related regulations enforced in the UK, in particular, the APB ES (APB 2004, 2010a), to bring about improvement in auditor independence and FRQ through restricting the supply of NAS by incumbent auditors and mandating frequent rotation of auditors. The accounting scandals of the early 2000s', recent banking and financial crisis and regulatory initiatives for audit reforms leave further impetus for the study. Accordingly, this chapter will now develop hypotheses to examine if the association between the degree of auditor-auditee bonding created by the joint provision of audit and NAS and the level of reported discretionary accruals as a surrogate for FRQ is mediated by the enhanced regulatory regime. Another hypothesis will assess the direct and causal impact of the APB ES on the FRQ to substantiate the findings. In order to address the concern about long association of auditors with their clients, this study will develop hypotheses to test the association between audit firm tenure and FRQ and finally, a set of hypotheses will be developed to examine if the association between audit firm tenure and the magnitude of discretionary accruals is conditional on audit firm size.

3.2 Hypotheses for assessing the association between auditor's economic dependence and FRQ

The following hypotheses predict that economic bonding between the auditor and the client, proxied by two fee constructs (the ratio of NAS fees to audit fees and the natural log of total fees) will lead to a decline in FRQ evidenced by clients paying higher total fees appearing to exercise greater discretion in managing accounting accruals.

3.2.1 Proportion of NAS fees to audit fees and FRQ

Building on prior studies such as DeFond and Park (1997), Jones (1991) and Healy (1985), it can be argued that the auditor may acquiesce to a client's influence due to fee

dependence and consequently may allow that client greater discretion in its reported accruals. This greater latitude would make the client better able to manipulate earnings towards its desired earnings targets.

The sample period (2003-12) is characterised by a number of factors[46], which could be expected to have an impact on the size of NAS purchased from the statutory auditors and the degree of discretionary accruals exercised. The widespread attention paid to the accounting scandals and financial crisis raised questions about the joint purchase of audit and NAS and could have influenced company management attitudes towards the purchase of these services. The reviews[47] established by the UK government and the subsequent development of new ES for auditors (APB 2004) could also have heightened sensitivities on auditor independence and audit quality.

An audit firm's dependence on its clients increases as the economic bonding between the firm and the client gets stronger (DeAngelo 1981). Simunic (1984) and Beck et al. (1988) assert that the NAS fee further strengthens the auditor-client bond as it increases the portion of audit firm wealth derived from a client. It can be argued that the client can use NAS fees as contingent fees to get the auditor to accept its opportunistic financial reporting (Beattie and Fearnley 2002). While the provision of contingent fees is explicitly prohibited by auditing standards in the UK and the US (for example, APB ES 4 and 5; and Section 302 of AICPA Code of Professional Conduct, respectively), Magee and Tseng (1990) note that clients can create contingent fees by withholding profitable NAS when the auditor does not allow the client to report its preferred financial condition.

Reynolds et al. (2004) argue that "audit fees are a stable, predictable stream of revenue" for audit firms while NAS fees may differ significantly (p. 32). They observe that a client "paying high NAS fees relative to audit fees still may pay relatively small total fees" against other clients (p. 32). Consequently, it is argued that "an economically rational auditor would perceive greater fee pressure from a high-fee client receiving a relatively small proportion of non-audit services than from a low-fee client receiving a relatively high proportion of non-audit services" (Reynolds et al. 2004, p. 32). Finally,

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[46]   For details, see Figure 4.1 in Chapter 4.
[47]   Reviews include the Cadbury Committee Report (1992), the Smith Committee Report (2003), the EC Recommendations (2002), the CGAA Report (2003), the introduction of APB Ethical Standards (2004) and the changes in the Companies Act 2006.

employing resource dependence theory (Pfeffer and Salancik 1978) from the perspective of auditors, it can be argued that auditors enter into relationships with their clients because they have to rely on clients' resources (audit and NAS fees received) for their success. It can therefore be argued that auditors might tolerate more manipulation of accounting numbers where they receive higher NAS from a client.

Accordingly, the current study expects the association between the degree of auditor-auditee bonding and the level of reported discretionary accruals as a surrogate for FRQ is mediated by the enhanced regulatory regime, particularly after 2004 pronouncement of APB ES. Based on the above discussion, the first hypothesis can be stated as follows:

> **H1: The proportion of NAS fees to audit fees received from the audit client is positively related to the magnitude of discretionary accruals.**

3.2.2 Total fees and FRQ

In assessing the impact of total fees on audit quality, Reynolds and Francis (2000) and Hansen and Watts (1997) argue that audit and NAS fees may create similar incentive effects for auditors. In line with this, Ashbaugh et al. (2003) argue that the sum of audit and NAS fees, i.e., the total fees to the auditor, best captures the explicit economic bond between the audit firm and the client.

However, Ashbaugh et al. (2003) observe that the fee ratio as a measure of auditor's economic dependence may not capture the severity in cases where significantly higher fees are paid. They argue that the fee ratio can only capture the relative monetary value of the audit versus NAS provided by the audit firm to a client which may have an impact on the perception of independence (independence in appearance) held by regulators and the general public. Moreover, Reynolds et al. (2004), from the standpoint of an economic rationality, doubt the power of fee ratio (ratio of NAS fees to audit fees) in capturing economic dependence. They also note that the components of total fees (audit and NAS) form the heart of an economic decision from the auditor's perspective. Consequently, the second hypothesis is based on this clear and well-developed theoretical link between total fees and FRQ:

> **H2: The total fees received from the audit client are positively related to the magnitude of discretionary accruals.**

The level of economic dependence of the auditors for audit and NAS fees between 2003 and 2012 (i.e. two years before the ES were enforced and eight years into the APB ES regime) are examined through ordinary least square regressions. The chosen time period enables this study to examine the impact of the audit regulations in the UK both pre and post the focal point of the regulatory reforms that came in force in 2004 through the ES (APB 2004, 2010a). It is expected that the economic dependence of the auditors under the ES regime will be reflected in a change in discretionary accruals as a surrogate for FRQ for the sample period.

3.3 Hypotheses for assessing the impact of APB regulations in the form of restricted NAS on FRQ

As discussed at length in Chapter 2, the APB ES were promulgated in the UK in 2004 responding to the accounting scandals in the USA and other major Western countries during the early years of this century where the ethical failure of auditors, among others, was one of the alleged reasons (Copeland 2005). The APB, reflecting on the collapse of Enron as a major crisis in US public companies' governance and auditing, noted that such developments raised questions 'about the systems and regulatory arrangements that underpin the capital markets in the UK' (APB 2001).Sections 4.4 and 4.5 in Chapter 4 discuss and justify the choice of discretionary accruals models to capture the variation in the FRQ (i.e., the effect) as the impact exerted from the APB ES (i.e., the cause or treatment). Commonly used in sociology, economics and political sciences, the counterfactual modelling estimates 'causal effects' of policy interventions as a unified framework of dealing with causal questions (Morgan and Winship 2007, p. 14, Winship and Morgan 1999). Since the APB ES have been in force for more than 10 years now, and they were devised especially to improve the FRQ of the FTSE350 companies, this study develops the third hypothesis to test the effect of changes in regulations[48] as follows:

> **H3: The magnitude of discretionary accruals post-enactment of APB ES is lower than that pre-enactment as a result of restricted NAS provision.**

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[48] This study considers 2003 and 2004 to be pre-enactment period while the remaining 8 years (2005 through 2012) of the sample time span are categorized as post-enactment period for the purpose of this hypothesis. The APB ES became effective in December 2004.

3.4 Hypotheses for assessing the association between audit firm tenure and FRQ

This thesis tests the following hypotheses in establishing the association between audit firm tenure and the FRQ in FTSE350 companies.

3.4.1 Audit firm tenure and FRQ

Audit firm tenure can be defined as the number of years a company employs the same auditor. While the regulators and commentators remain concerned about the familiarity threat to auditor independence, the House of Lords Select Committee on Economic Affairs (2011, p. 5) reports that FTSE100 companies change their auditors on average every 48 years. The APB ES requires that an audit engagement partner can audit a listed company for a maximum of 5 years with a five year cooling off period for the same person to be reappointed (Paragraph 12, ES3). However, with the approval of audit committee the tenure for the audit engagement partner may be extended for an additional two years (Paragraph 16, ES3). The most recent development in the field of audit firm tenure relates to the FRC's initiative under the revised UK Corporate Governance Code (2012). Under this Code, a mandatory tendering of audits every 10 years is enforced as an alternative to mandatory auditor rotation (FRC 2014a). While the regulatory initiatives focus on the audit engagement partner tenure, this study uses audit firm tenure as data on the audit engagement partners have only been available in annual report disclosures since 2009.

A number of studies investigating the association between auditor tenure and FRQ report no evidence of lower FRQ for long auditor tenure (see for example, Ruiz et al. 2009, Myers et al. 2003 and Johnson et al. 2002). Empirics from studies investigating mandatory auditor rotation show that there is no evidence of increased auditor propensity to issue going-concern modified audit opinions associated with the mandatory audit firm rotation requirement. Ruiz et al. (2009) conclude that an auditor's 'reputational capital' acts as a stronger incentive than to retain existing clients for longer periods. Inspired by the call for mandatory auditor rotation, Myers et al. (2003) examine a similar association in the US context and conclude that auditors place greater constraints on extreme management decisions as a result of longer audit firm tenure.

Extant literature justifies this positive association between longer audit firm tenure and FRQ with the help of two well-established hypotheses. For example, Gul et al. (2009)

tested for the 'low balling hypothesis' [49] (threat to auditor independence) as an explanation for the association between shorter auditor tenure and lower earnings quality but they find weaker evidence to support this argument in the presence of an industry specialist auditor. Second, the 'learning effect hypothesis' [50] (threat to auditor competence) argues that auditors gain more client specific knowledge through time and, therefore, FRQ improves across time as the learning effect tends to prevail on the risk of collusion (Cameran et al. 2014). Examining Taiwanese data where mandatory auditor rotation has been enforced since 2004, Chi et al. (2009, pp. 381-84) report no significant difference between the audit quality (captured by the magnitude of discretionary accruals) of companies subjected to mandatory auditor rotation and those not subjected. Interestingly, they find that the audit quality of the same companies is lower in 2004 under the newly rotated partners than that in 2003 under the voluntary rotation regime. Other studies using discretionary accruals as the proxy for FRQ include Carey and Simnett (2006) who report no evidence of an association between long auditor tenure and abnormal working capital accruals in the Australian context and Davis et al. (2009) find both short and long term auditor tenure are associated with an increased use of discretionary accruals in cases of meeting or beating earnings forecasts.

From the above discussion, two aspects can be noted in order to motivate the hypotheses for this investigation: first, studies examining *in fact* auditor independence mostly employ discretionary accruals as the proxy for earnings management or FRQ, and second, no study was conducted so far to test this association in the UK context, in particular for the FTSE350 companies in the changed regulatory regime under APB ES. While the US and the UK are similar in many respects, they are different in organizational, cultural and regulatory aspects (Wright et al. 2006).

To summarize, extant research on association between audit firm tenure and FRQ is informed by two dominant assumptions: 'learning effect hypothesis' and 'auditor-client closeness'. The assumption of 'learning effect hypothesis' holds that audit quality vis-à-vis FRQ will change in only one direction with the tenure. More specifically, it is argued that auditor learning improves over the tenure (Cameran et al. 2014, Gul et al.

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[49] The US SEC and the Cohen Commission in the 1970s'were concerned that auditors apply a low balling approach in the initial years of engagement that impairs auditor independence. DeAngelo (1981, p. 113) demonstrated that a low balling approach is rather 'a competitive response to the expectation of future quasi-rents' and does not impair independence.

[50] Consistent with the 'existence of a learning effect' in the psychology literature (Lapre et al. 2000 and Glaser and Bassok 1989).

2009 and Myers et al. 2003). Consequently, the relationship between audit firm tenure and FRQ is predicted to be linear. This diverts from other studies finding non-linear relationship between audit firm tenure and FRQ under the assumptions of the 'auditor-client closeness' (Ruiz et al. 2009, Davis et al. 2009 and Boone et al. 2008).For example, Ruiz et al. (2009) observe that audit quality grows over the first few years of the engagement but then falls down in long tenures. The assumptions of 'auditor-client closeness' hold that in the early years of tenure auditors are most likely to bring fresh perspective to the audit and get familiarity with the client or industry knowledge. After passing this initial period, the quality is expected to rise and continue before it starts to fall due to potential familiarity threat. These studies therefore sensitise the tenure variable into different length of period in service of the client. This length of period is usually viewed as three to seven years (Ruiz et al. 2009 and Davis et al. 2009). However, the cut-off point for sensitising the tenure has been subject to debate (such as Cameran et al. 2014 and Carey and Simnett 2006). For example, Carey and Simnett (2006) argue that the initial period of familiarity with client business and industry, the period of maximum audit quality and the point if decline in the quality is somewhat unknown or at best set arbitrarily with some regulatory guidance. Casting doubt on such variation of auditor learning, Cameran et al. (2014) argue that auditor learning prevails over the risk of collusion (familiarity threat) in the longer tenure.

This study presumes that auditor learning improves at a constant rate over the audit firm tenure drawing on the assumption of 'learning effect hypothesis' (Gul et al. 2009). Thus the association between audit firm tenure and FRQ is predicted as linear and the audit firm tenure variable is not sensitised into different length of period. Under this linearity assumption consistent with Cameran et al. (2014), Gul et al. (2009) and Myers et al. (2003), this study expects a lower level of discretionary accruals (or higher level of FRQ) with longer audit firm tenure for UK companies. Therefore, the fourth hypothesis is:

H4: Audit firm tenure is negatively related to the magnitude of discretionary accruals.

3.4.2 Hypotheses for assessing the impact of APB regulations requiring more frequent rotation of auditor on FRQ

As discussed earlier, the APB ES were promulgated in the UK in 2004 in response to the early 2000s' spectacular accounting fiascos in the USA and other major Western economies. Reflecting on the collapse of Enron as a major crisis in US public companies' governance and auditing, the APB noted that such developments raised questions 'about the systems and regulatory arrangements that underpin the capital markets in the UK' (APB 2001). Accordingly, one of the ES requires the audit engagement partner to rotate every 5 years with another 5 years of cooling off period in case of listed companies (Paragraph 12, ES3). Whilst this requirement remains in force since the enactment of the APB regulations, the debate around auditors' long association with their clients received heightened attention in the House of Lords Select Committee on Economic Affairs Report (2011) following the banking crisis of 2007-09. Accordingly, this study investigates empirically the impact of the regulatory initiatives in the form of more frequent rotation of auditor pre- and post-APB ES regime on the FRQ captured in the magnitude of discretionary accruals. The thesis intends to test the impact of the APB regulations in the fifth hypothesis:

H5: The magnitude of discretionary accruals post-enactment of APB ES is lower than that pre-enactment as a result of more frequent rotation of auditor.

3.4.3 Audit firm tenure and Big4 versus non-Big4 auditors

Auditor differentiation research first started, as Francis (2004) reviews, with the dichotomy between large [now categorised as Big4] and small [now categorised as non-Big4] firms back in 1981 when DeAngelo argued that audit firm size is one of the determinants of auditor independence or audit quality as no single client is important to a large auditor and they have a greater reputation to lose (DeAngelo 1981, p. 117). Other corroborative evidence in favour of the large firm auditors include Feroz et al. (1991) and Palmrose (1988) who respectively report that large firms were sued and sanctioned relatively less frequently than their smaller counterparts. Weber and Willenborg (2003) demonstrate that companies associated with Big4 firms have more predictive accuracy than smaller firms in forecasting future stock returns and subsequent de-listings. In the UK context, Lennox (1999) finds Big4 auditor reports with greater accuracy.

While considering the aspect of concentrated audit market in the FTSE companies with

almost absolute domination by Big4 audit firms, the House of Lords Select Committee on Economic Affairs (2011) was assessing if the provision of joint audit in the UK would help dilute this concentration and make it more competitive. The committee was not convinced in favour of the joint audit with evidence from countries where it is enforced[51]. However, the Committee notes that "if it [joint audit] were promoted in the UK as a means to reduce market concentration, it should be on the basis that at least one joint auditor was a non-Big Four firm" (Paragraph 40, House of Lords Select Committee on Economic Affairs 2011).Prior to the issue was raised by the House of Lords Select Committee on Economic Affairs (2011), the FRC published a report in May 2009 titled *"Choice in the UK audit market- Third progress report"* where market concentration by the Big4 was investigated with significant coverage. The executive summary of the report made an explicit concern over the dominance of the Big4 firms in the UK audit market. It observes that "the implementation of the MPG's [Market Participants Group] 15 recommendations forms part of the FRC Audit Choice project, which aims to mitigate the risks to confidence in corporate financial reporting caused by the concentration in the audit market for the largest companies" (FRC 2009, p. 1), in apparent contrast to the empirical evidence from the academic research. Another regulator more recently joined in this debate is the Competition Commission (CC) (currently the Competition and Markets Authority). In its 2013 Report, the Commission addressed the barriers to entry, expansion and selection for non-Big4 firms as one of the remedy packages and considers tendering audit process to offer more competitive environment for them (Paragraph 16.10, CC 2013). The Commission expressed concerns in its 2012 Report as it observed that there is a significant difference between the switching rates for Big4 and non-Big4 clients and attributed this difference to high switching costs for Big4 clients in addition to the quality of audit (Paragraph 2, CC 2012).

This study, therefore, investigates the aspect of quality differentiation between Big4 and non-Big4 to understand if non-Big4 firms have a similar capacity of handling audits of FTSE clients. And following the dichotomy between Big4 and non-Big4 audit firms (DeAngelo 1981), this study examines if the quality differentiation holds for longer and

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[51] Andre et al. (2015) examine the cost and audit quality of French companies where joint audit is mandatory. The study finds significantly higher audit fees in France compared to that in the UK and Italy. More importantly, the study does not find statistically significant difference in the audit quality between these countries even after controlling for auditor, client and engagement attributes. Another study by Francis et al. (2009) examines the auditor-pair choice of French companies in the joint audit regime.

shorter audit firm tenure. Inspired by the inquiries of prior research considered above, this study argues that with higher resources the Big4 firms have more efficient and effective information systems, personnel training, and quality control systems in place that enable a better learning process. This can allow knowledge transfer and information sharing in such a way that utilizes longer tenure in delivering more independent audit services leading to better FRQ. On the other hand, non-Big4 firms can be argued to be smaller in size and have relatively weaker logistics and systems including a lower number of qualified personnel. These limitations may obstruct the non-Big4 auditors from benefitting from extended auditor tenure unlike their Big4 counterparts. Based on the above discussion, the sixth set of hypotheses is as follows:

H6: The association between audit firm tenure and the magnitude of discretionary accruals is conditional on audit firm size.

H6a: There is a negative association between audit firm tenure and the magnitude of discretionary accruals for companies audited by Big4 firms.

H6b: There is a no association between audit firm tenure and the magnitude of discretionary accruals for companies audited by non-Big4 firms.

3.5 Conclusion

Having been motivated by the extant literature review and regulatory initiatives enforced as noted in chapter 2, this chapter develops the hypotheses in three categories to test a number of associations to facilitate responses to the research questions: first, the association between two different parameters of auditors' economic dependence and FRQ as proxied by the magnitude of discretionary accruals; second, the causal effect of the APB ES on FRQ in terms of an expected lower level of discretionary accruals as a result of restricted NAS provision. In the final phase, the association between audit firm tenure and FRQ; the impact of APB ES on FRQ reflected in the magnitude of discretionary accruals as a result of more frequent rotation of auditors; and between auditor tenure and FRQ conditional on the firm size. The next chapter will now discuss the research methodology to be applied for the empirical investigations and analyses.

Chapter 4: Research methodology and accrual measurement models

4.1 Introduction

The objective of this chapter is to discuss the philosophical underpinnings that may be used as a point of reference in guiding the methodology for conducting this research. The chapter will then discuss the link between audit quality and FRQ, followed by an outline of alternative proxies to capture the variation in financial reporting quality. The subsequent section will then discuss discretionary accounting accruals and alternative models to detect earnings management as the surrogate for financial reporting quality. The following section then discusses the models and provides an evaluation to narrow down the choices from the alternatives to select the models to use in the empirical investigation in chapter 5. The sample is then discussed before the final section that concludes the chapter.

4.2 Philosophical underpinnings for the study

Philosophical underpinnings represent some assumptions about the nature of reality and the way reality can be comprehended. As some authors put it, these philosophical underpinnings "form the foundation for any line of inquiry" and therefore it is important for the researchers to "examine their ontological and epistemological commitments" (Schuh and Barab 2008, p. 80). Burrell and Morgan (1979) define ontology as the very essence of the phenomenon under investigation while Chua (1986, p. 604) notes that epistemological assumptions decide "what is to count as acceptable truth by specifying the criteria and process of assessing the truth claims." Being components of the foundational realm of philosophy, epistemology and ontology mutually support one another (Lombardo 1987). While epistemology relates to the "origins, nature, methods, and limits" of the inquiry (Reber 1995, p. 256), with a focus on questions about knowledge and the nature of knowledge (Everitt and Fisher 1995), an ontology defines "what is real in the world, whether physical or abstract structures" (Schuh and Barab 2008, p. 70). More succinctly, ontology refers to "what exists" while epistemology addresses the issue of how one comes to know about what exists (Barab et al.1999).

4.2.1 Research paradigms

Research paradigms are fundamental beliefs that influence the way a study is conducted including the choice of a particular research methodology. While accounting is a multi-paradigm science (Belkaoui 1981) and philosophical underpinnings usually remain implicit in most research. Accordingly, some authors (e.g., Neuman 2011, Creswell 2009 and Berry and Otley 2004) emphasise that it is important to initially clarify the research paradigm to be applied because it substantially influences the researcher undertaking a social study from the way of framing and understanding the social phenomena.

Chua (1986) identified three methodological assumptions of accounting research that delineate a researcher's way of viewing and researching the world. First, the positivist/functionalist (mainstream) research approach, used in the current research, that assumes that society or reality is objective and external to the subject, theory is separated from observations and human beings are passive and rational in pursuing their goals. This mainstream research approach claims that the objective reality has a determinate nature that is knowable (Chua 1986). Comte (1853) coined the term 'positivism' that embraced empiricism and aimed at "making universal and generalized claims about objectively assessable social or natural realities" (Johnson and Duberley 2000, p. 19). This approach favours the use of quantitative methods of data analysis, as Chua (1986, p. 608) labels it as 'hypothetical-deductive accounts', and collection of data by experiments, surveys and archival methods to understand social reality or objects that allow for generalisation of findings[52]. This hermetic point of view lies on the objective measures, on the direct observation and on the dismissal of research emotions and thoughts (Laughlin 1995, Ryan et al. 2002, and Sekaran and Bougie 2013).

Chua (1986) also sheds light on the interpretive turn in accounting research. With subjectivist ontology, interpretive approach holds that social reality does not exist independent of the human actors. The nature of reality is then fluid and subjective, having no objective existence. This form of subjectivist ontology drives researchers into an epistemological dimension in which knowledge is gained, or at least filtered, through social constructions such as language, consciousness, and shared meanings. In contrast

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[52] For more details about this approach, refer to Chua (1986).

to the positivist epistemology, the interpretive approach focuses on individual meaning and human constitution of reality rather than any independent reality that might exist objectively and external to them (Hopper and Powell 1985). As argued by Chua (1986) we do not only interpret our own actions, but also those of others with whom we interact and vice versa and through these interactions norms become real. Accordingly, interpretive research assigns human purpose and intention to all human actions and assumes an orderly society with a pre-given world of meanings.

Interpretive accounting researchers attempt to describe, understand and interpret the meanings that human actors apply to the symbols and structures within the settings in which they find themselves (Rowlands 2005). Essentially social constructionist epistemology lead them towards qualitative methods such as ethnographic work, case studies and participant observations to assess the 'true' claims as they emphasise awareness of linguistic cues and careful attention to detail.

The third research approach mentioned by Chua (1986) is the critical approach that views human beings as having inner potentialities that are alienated through a restrictive mechanism. Critical theorists believe that social reality is historically constituted and hence human beings, organisations, and societies are not confined to existing in a particular state (Chua 1986, p. 619). In other words, the critical approach believes theories are temporal and context bound. As such, historical, ethnographic and case studies are commonly used to understand social reality. Critical approach emphasise that a phenomenon cannot be understood without exploring it historically and as such they tend not to prefer mathematical or statistical modelling of situations. For example, many critical accounting researchers have emphasised long-term historical analysis when examining accounting issues (Wickramasinghe et al. 2004, and Uddin and Hopper 2003).

The critical perspective argues that the process of coming to an understanding is context-dependent. The epistemological belief of the critical perspective is that knowledge is grounded in social and historical practices (Chua 1986, p. 620). Orlikowski and Baroudi (1991) observe that there can be no theory-independent collection and interpretation of evidence to conclusively prove or disprove a theory. Because of the commitment to a "processual view of phenomena", critical approach tends to be longitudinal (Benson 1973, p. 384). The emphasis on historical analyses is

compatible with the ontological assumption that a phenomenon can only be understood historically, through an analysis of "what it has been, what it is becoming, and what it is not" (Chua 1986, p. 621). This analysis leads to research outcomes that differ from positivist paradigm.

This study could also have been conducted following an interpretive paradigm. In that case, FRQ would be seen as a subjective constitution of key actors (e.g., corporate managers and auditors) in the context of restricted NAS and mandated rotation of auditor. Research focus would be on exploring the institutionalised norms, rules and taken for granted assumptions of key players in shaping FRQ in the APB ES regime adopting interviews, case studies and other qualitative methods. However, this would inevitably lead to a knowledge claim about the reality to be relative. Arguably, existing research embracing positivist ontology tends not to use such relativism in knowledge claim (e.g., Gul et al. 2009, Carey and Simnett 2006 and Reynolds et al. 2004 and so on). The main objective of this thesis is to investigate the empirical substance of the regulatory concerns over the economic bonding created by the joint provision of audit and NAS and longer auditor tenure. Given this empirical focus, subjective ontology underpinned in interpretive paradigm does not seem to be conducive in achieving the research objective. Also, difficulty in accessing data and time constraints were concerns on the part of the researcher for the viability of this project. Drawing on the substance of existing literature, this study is also inspired by positivist paradigm.

4.2.2 Research Methods

This section describes the research approach taken in this thesis. The purpose of this section is to briefly outline the research methods used, and the rationale for selecting a particular approach. The analytical models are discussed at length later in the chapter.

Chapter 1 presented the objectives of this research. It was mentioned that this study aims to (a) investigate the impact of the APB regulations over the period 2003-2012 on FRQ of UK FTSE350 companies as a surrogate for *de facto* auditor independence, with a particular focus on an auditor's economic dependence created by the magnitude of both audit and NAS fees; and (b) to explore whether the more restrictive regulations of mandatory auditor rotation improve the *in fact* auditor independence in the UK and how the FRQ is influenced as a result. More specifically, the research examines the following:

- Whether the level of the auditor's economic dependence on the audit client is positively related to the magnitude of discretionary accounting accruals as the surrogate for FRQ.

- Whether there is a negative association between long audit firm tenure and the magnitude of discretionary accruals as the surrogate for FRQ

For the purpose of the research, it is important to select the appropriate research methods, which will facilitate collection and analysis of data in a way that answers the research questions.

4.3 Link between audit quality and FRQ

While most of the commonly used definitions of audit quality portray auditing as a binary process-auditors either succeed or fail in detecting GAAP violations, DeFond and Zhang (2014, p. 276) argue that auditors' responsibilities extend well beyond the simple detection of black and white GAAP violations, to providing assurance of financial reporting quality". In the US, the professional auditing standards also require auditors to consider "the quality, not just the acceptability" of the client's financial reporting (AICPA 1999, SAS 90). Moreover, this aspect of FRQ is further reflected in the standard audit opinion, which provides assurance that the "financial statements are fairly presented in accordance with GAAP," since fair presentation requires faithful representation of the company's underlying economics (FASB 1980, SFAC No. 2).

In line with this, Lennox et al. (2013) find that audit adjustments are associated with more earnings smoothness and persistence and higher accrual quality. DeFond and Zhang (2014) also note that the auditor's comprehensive responsibility to consider FRQ is also consistent with the US regulatory rulings that hold auditors liable for misleading financial statements even when those statements are GAAP-compliant. In the UK, where 'true and fair view'[53] of financial statements is not only considered as a matter of compliance with applicable accounting standards, it is also treated as a legal concept

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[53] Sections 393(2) and 495 to 497 of the Companies Act 2006 clearly set out the obligations of an auditor issuing an opinion on a company's financial statements. Those obligations include stating whether, in the auditor's opinion, the accounts give a true and fair view (Section 495(3)(a), Companies Act 2006). The importance of this approach is also recognised in the International Standards on Auditing (ISA) applicable in the UK (Paragraphs 8, 9 and 11, ISA (UK and Ireland) 700).

that requires auditors to express expert opinion on the completeness of information contained in those statements (Hoffman and Arden 1983, pp. 7-8). Collectively, these arguments suggest, as per DeFond and Zhang (2014), that audit quality is a continuous construct assuring FRQ, with higher quality auditing expected to provide greater assurance of high quality financial reporting that further endorses audit quality as a component of FRQ. Digging deeper into the relationship between audit quality and FRQ, DeFond and Zhang (2014) argue that a company's financial reporting system combined with its innate characteristics affect the quality of its pre-audited financial statements that subjects the achievable level of FRQ. Accordingly, the authors define higher audit quality as "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics" (DeFond and Zhang 2014, p. 276).

4.4 Alternative proxies to capture the variation in FRQ

Managers exercise discretion within GAAP framework in reporting the financial affairs of their companies. As the accruals basis of accounting recognises revenues and expenses when they are earned and incurred respectively, it leaves accounting return different from the cash flow. Managers cannot manipulate cash flows easily, and therefore, cash flows are more reliable measures of earnings. Due to the discretion allowed to the managers and the technical aspects of accrual accounting and GAAP, earnings management can be achieved by employing alternative approaches and its effect is always reflected in accruals, which is the difference between accounting earnings and the cash flow. Since earnings management is not directly observable, extant research (e.g., Healy and Wahlen 1999, Beneish 1999, and Guay et al. 1996) has used surrogates or proxies to understand the quality of financial reporting released by companies.

Auditing literature uses a variety of proxies[54] to measure the FRQ or audit quality and there appears no consensus about the best possible proxy. The remainder of this section is based on DeFond and Zhang (2014) categorization for commonly used proxies for audit quality or FRQ where the authors classified them into two broad bases: (1) output-based audit quality measures including (a) material misstatements; (b) auditor

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[54] In addition to DeFond and Zhang (2014), one may refer to Francis (2011) for a number of audit quality units of analysis and Francis (2004) for a review audit quality studies.

communication; (c) FRQ characteristics; and (d) perception-based measures; and (2) input-based audit quality measures such as (a) auditor characteristics and (b) auditor-client contracting features.

4.4.1 Output-based AQ measures

As DeFond and Zhang (2014) observe, an important feature of these output-based FRQ measures is that they are constrained by the company's financial reporting system and innate characteristics. The output-based measures are discussed below:

4.4.1.1 Material misstatements

Extant research recognises that restatements and Accounting and Auditing Enforcement Releases (AAERs) in the USA are two of the most commonly used misstatement measures. Internal control procedure deficiencies can be referred to as a third measure of earnings misstatements (Dechow et al. 2010). Since accounting restatements correct misstatements in previously issued financial statements, they are used in a variety of research settings, including tests of whether FRQ is associated with NAS fees, audit committee characteristics, and auditor industry specialisation. AAERs are enforcement actions concerning civil lawsuits brought by the SEC or administrative proceedings. While Lennox and Pitman (2010) report that AAERs are rare[55], Hennes et al. (2008) observe that most studies using AAERs do not distinguish between errors and irregularities for those enforcement actions lead to the lack of the power of the tests. Studies such as Doyle et al. (2007) and Ashbaugh-Skaife et al. (2008) document a positive association between internal control quality and various earnings quality measures such as discretionary accruals and earnings persistence and hence they provide justification to use internal control deficiencies as an indicator for earnings quality.

4.4.1.2 Auditor communication

The only direct communication between the auditor and shareholders regarding the audit process and its outcomes is the audit opinion. As DeFond and Zhang (2014) put it, managers have incentives to pressure auditors to issue clean opinions because going

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[55] Lennox and Pittman (2010b, p. 210) collected the AAERs issued by the SEC for accounting frauds committed by companies between 1981 and 2001 and they found a fraud sample of 1,109 company-years against their control sample consisting of 162,804 company-years with no allegations of accounting fraud.

concern modified (and other) opinions impose costs on the client. Succumbing to this pressure impairs auditor independence, resulting in lower level of FRQ. This relationship between client pressure and lower FRQ is supported by Butler et al. (2004) who examine this causality with large negative accruals and going concern modified opinions. Consistent with this, Krishnan(1994) report that going concern modified opinions lead to a greater incidence of auditor switching, which provides an incentive for auditors to report fewer going concern modified opinions in order to retain clients.

While there appears to be no direct association between a particular type of audit opinion and the level of FRQ, there is a well-established body of literature by DeFond et al. (2002), Mutchler et al. (1997), and Hopwood et al. (1989) that helps to predict the going concern modified opinion. For example, DeFond et al. (2002) argue that in issuing a going concern modified opinion, the auditor must objectively evaluate company performance and withstand client pressure to issue a clean opinion. This argument suggests a correlation between the issuance of going concern opinions and auditor independence or FRQ. The probability of issuing going concern opinions is inversely related to long auditor tenure, suggesting FRQ diminishes with long partner tenure. However, Carcello and Nagy (2004) report that fraudulent financial reporting is more likely to occur during the first three years of the auditor client relationship and hence a lower FRQ is reflected. These contrasting findings render an inconclusive association between audit firm tenure and FRQ, which is the second research question for this study.

As noted in Weil (2001) and Blacconiere and DeFond (1997), the auditor's report plays a critical role in warning market participants of impending going concern problems. Indeed, the term audit failure typically refers to cases in which auditors fail to issue going concern modified opinions to clients that subsequently file for bankruptcy. Paragraph 6 of ISA (UK and Ireland) 705 requires the auditor to issue modified opinion when: (a) The auditor concludes that, based on the audit evidence obtained, the financial statements as a whole are not free from material misstatement; or (b) The auditor is unable to obtain sufficient appropriate audit evidence to conclude that the financial statements as a whole are free from material misstatement.

While extant research uses going concern opinions to capture audit quality in a variety of settings, particularly in tests of perceived threats to audit quality, such as those potentially posed by NAS, client size, and auditor tenure (Campa and Donnelly 2016,

Cameran et al. 2014, Carey and Simnett 2006, Ferguson et al. 2004 and DeFond et al. 2002), Francis (2004, p. 351) argues that "most going concern reports are repeat offenders" that signal very little surprise value for the market. Going concern modified opinions are also used in tests of whether audit quality is associated with litigation risk, and with Big N[56] office size (Lennox and Li 2012 and Francis and Yu 2009).

4.4.1.3 FRQ characteristics

The close link between FRQ characteristics and audit quality makes FRQ an intuitively appealing proxy as per DeFond and Zhang (2014). They report that auditing researchers primarily use earnings quality measures to detect opportunistic earnings management despite the fact that FRQ is conceptually broad. "This is motivated by the assumption that high quality auditing constrains opportunistic earnings management" (DeFond and Zhang 2014, p. 287). The most frequently used measures are based on the Jones (1991) models employed in a number of studies including Becker et al. (1998), Francis et al. (1999), and Reynolds et al. (2004). Other studies use 'meet or beat' earnings targets (Degeorge et al. 1999), the Dechow and Dichev (2002) accruals quality measure, and Basu (1997) timely loss recognition and conditional conservatism, and earnings persistence and smoothness (Penman and Zhang 2002) as alternative FRQ characteristics.

Persistence of the reported earning is another commonly used measure of FRQ that is measured by the sustainability of the firm's reported earnings (Penman and Zhang 2002, Francis et al. 2004). Earnings are argued to be of high quality when they are more persistent and more sustainable while less persistent earnings are considered to be of lower quality (Perotti and Wagenhofer 2014). In their investigation for the association between earnings smoothness and earnings quality, Tucker and Zarowin (2006) observe that managers exercise influence to reduce abnormality in the reported earnings to the degree allowed by accounting standards. The study documents that smoothened earnings indicate high earnings quality while un-smoothened earnings represent lower quality earnings.

Drawing upon Basu's (1997) timely loss recognition, Brown et al. (2006, p. 606) argue that "when managers are allowed greater accounting discretion via accruals, conditional conservatism resulting from stronger legal institutions would prevent managers from

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[56] Lennox and Li (2012, p. 162) use Big N as an indicator variable in their model where it is one if the audit firm is one of the Big N firms or zero otherwise.

opportunistically recognizing gains and require more timely loss recognition". The study finds that the association of conditional conservatism with the value relevance of accounting earnings is subject to the country-specific level of accrual intensity - in countries with higher accrual intensity, conditional conservatism is positively associated with the value relevance of earnings. This is consistent with Hung (2001, p. 418) who reports that shareholder protection acts as an institutional factor that captures a country's corporate governance and legal environment and it has been found to reduce managers' opportunistic behaviour in countries with high accrual intensity.

Discretionary accruals as a representative of earnings manipulation may be either positive (income-increasing) or negative (income-decreasing) based on the underlying motivation of each company. Positive earnings management reflects numerous types of motivation such as raising stock prices for seasoned equity offering or attempting to meet analysts' forecasts; however, negative earnings management implies other motivations such as avoiding regulatory costs. Most prior studies (such as Becker et al. (1998), DeFond and Jiambalvo (1994), and Warfield et al. (1995)) propose the use of the absolute value of discretionary accruals.

4.4.1.4 Perception-based measures

DeFond and Zhang (2014) accommodate earnings response coefficients (ERCs), the stock market reaction to audit-related events, and the cost of capital in this category. ERCs are commonly employed to understand if perceived threats to auditor independence impair audit quality, and whether Big N auditors provide higher quality audit. Teoh and Wong (1993) report that ERCs of Big8 clients are statistically significantly higher than their non-Big8 counterparts. A relatively recent study by Francis and Ke (2006) finds significantly lower ERCs for firms with a higher level of NAS fees[57] than their lower level NAS fees counterparts.

Examining events such as auditor changes announcements, Griffin and Lont (2010) document that investors react negatively for a resignation announcement and much less for auditor dismissals; responses are likely to be more extreme in the case of companies having a history of securities litigation and a high bankruptcy risk. Another study, using stock market reaction tests in a case of issuing going concern opinions, reports negative responses when the going concern opinions are disclosed and more negative excessive

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[57] Francis and Ke (2006, p. 502) assume NAS fees to be higher if they are $1,074,000 or more.

returns are recorded when going concern opinions involve financing problem and technical violation of debt covenants (Menon and Williams 2010). A final perception-based measure, the costs of debt and equity, are used to address questions such as whether Big N auditors provide higher quality services (Mansi et al. 2004) and whether perceived threats impair audit quality (Pittman and Fortin 2004).

4.4.2 Input-based audit quality measures

Input-based measures assess audit quality employing observable inputs to the audit process. However, caution should be applied as inputs may not directly translate into outputs as they are relatively noisy audit quality measures (DeFond and Zhang 2014). Various input measures will now be examined.

4.4.2.1 Auditor size

The seminal paper of DeAngelo (1981) suggests that large auditors are expected to have stronger incentives and greater competencies to provide high audit quality, suggesting that auditor size, usually measured as Big N membership, is a proxy for audit quality. Also, auditor industry specialisation, generally measured by client industry concentration, is used to proxy for audit quality because specialist auditors are expected to have greater competency and stronger reputation incentives to provide high audit quality. DeFond and Zhang (2014) report that some studies typically use these measures as dependent variables to examine factors that drive client demand for audit quality (e.g., Wang et al. 2008), while there is also a large literature that uses these measures as independent variables to examine whether auditor characteristics affect the supply of audit quality (e.g., Lennox and Pittman 2010b).Consistent with the latter, this thesis uses Big4 as one of the independent variables in the analytical models.

4.4.2.2 Auditor-client contracting features

Several auditor-client contracting features can be used to estimate the audit quality. DeFond and Zhang (2014) present audit fees and audit hours in this category. Since audit fees are determined in line with an auditor's effort level, an input to the audit process and intuitively related to audit quality, audit fees are used to proxy for audit quality. One can argue that audit fees are the result of the interaction of their demand and supply factors (Hay et al. 2006b). As such DeFond and Zhang (2014) observe that audit fees cannot be increased for incremental efforts unless there is a corresponding surge in demand for those efforts from the clientele. Audit hours, another input to the

audit process that can be used to measure audit quality, has been examined by Dies and Giroux (1992) but its usage is rare due to a limitation of data.

4.4.3 Justification for FRQ measures

FRQ measures have several advantages that make them especially attractive candidates for capturing audit quality. First, audit quality is a component of FRQ. Studies by Magee and Tseng (1990), Dye (1991), and Antle and Nalebuff (1991) provide a theoretical motivation for these measures; financial statements are a joint product of both the manager and the auditor. DeFond and Zhang (2014) observe that "FRQ measures are conceptually well suited for measuring audit quality, where higher audit quality is defined as greater assurance that the financial statements faithfully reflect the firm's underlying economics conditioned on its financial reporting system and innate characteristics" (p. 287).

A second advantage of the FRQ measures, as reported in the review study by DeFond and Zhang (2014), is that they are linked to 'within-GAAP' earnings manipulation, which managers use to try to meet earnings targets. Auditing standards require auditors to evaluate those manipulations that include "qualitative aspects of company's accounting practices" reflecting "potential bias in management's judgments" (Paragraph 24, Auditing Standard 14, PCAOB 2010). In addition, DeFond and Zhang (2014) observe that discretionary accruals do not directly capture extreme misstatements, but they are associated with AAERs (Dechow et al. 1996), which help to detect prospects of more extreme misstatements. An additional advantage of the FRQ measures, as argued by the authors in the same study, is the continuous nature of discretionary accruals that captures variations in audit quality in studies with relatively small samples and within the subset of clients having relatively less extreme earnings management.

Despite the advantages discussed above, as per the audit quality proxy comparative dimensions developed by DeFond and Zhang (2014), FRQ proxies are argued to be less direct than restatements or going concerns opinions, because the auditor's influence on reporting quality is likely to be relatively more limited than restatements or going concerns opinions can reflect. Also, most FRQ measures may suffer from significant measurement error when captured through discretionary accruals or accounting conservatism. For example, focusing on discretionary accruals, Reichelt and Wang (2010) report that the average absolute value of discretionary accruals can range from 8 per cent to 14.7 per cent of pre-tax earnings and Gul et al. (2009) document that the

same may range between 4 per cent to 10 per cent of total assets, depending on the estimation models and samples, that seems too large for earnings management alone to have a plausible explanation. On the other hand, taking conditional conservatism or asymmetric earnings timeliness into the context, Ball et al. (2013) dismiss Patatoukas and Thomas (2011) findings, who report bias in firm-level cross-sectional asymmetry estimates. Theoretical and empirical analyses in Ball et al. (2013) establish that correlation between the expected components of earnings and returns biases estimates of how earnings incorporate the information contained in returns. Therefore, it is important for studies using these measures to exercise caution.

Researchers have little consensus on how these proxies of discretionary accruals should be measured-using an absolute value, a signed value, the standard Jones model, the modified Jones model, the current version of the modified Jones model and/or performance matching. Finally, DeFond and Zhang (2014) stress that FRQ is determined by many factors and audit quality is just one component. Accordingly, this study takes a number of control variables in the regression models used that are discussed in detail in chapter 5.

4.5 Justification for employing discretionary accruals to capture FRQ

Following prior studies, this thesis takes discretionary accruals as the main proxy to estimate auditor independence and the quality of financial reporting of UK companies on the assumption that independent auditors should strictly monitor discretionary accruals that may be used by the client management to manipulate the reported earnings. The previous two sections (sections 4.3 and 4.4) outlined alternative proxies used in the literature to capture the FRQ in the extant research. As per the audit quality proxy comparative dimensions, discretionary accruals have the following unique strengths (DeFond and Zhang 2014, p. 285): first, they are tightly linked to the continuous nature of audit quality; second, they suggest within-GAAP manipulations; third, they may signal more extreme undetected misstatements; and finally, they capture quality variations for a large number of firms. While being relatively less direct measures, discretionary accruals are assumed to capture actual FRQ, rather than perceived FRQ. Bowen et al. (1987) commented that accruals, on average, have more 'information content' above cash flows. Dechow (1994) further corroborated this opinion when she observed that accruals-based earnings is a superior measure of

company performance than various cash flow measures.

The assumption in the current study that FRQ is positively linked to earnings quality is not new and has been extensively documented in the accounting and auditing literature. The earnings management literature suggests that discretionary accruals may be opportunistically manipulated by managers to mask poor performance of the company and/or to bank a portion of the unusually good current earnings for future years through a 'big bath' mechanism (see for example, DeAngelo 1988, DeAngelo et al. 1994, Perry and Williams 1994, Warfield et al. 1995, and Guay et al. 1996). Healy and Papelu (1993) and Francis et al. (1999) argue that managers may exercise accruals to communicate value-relevant information. This causality between exercise of accruals and conveyance of value-relevant information is corroborated by Becker et al. (1998) who report that high-quality auditors act as an effective deterrent to earnings management because management's reputation is likely to be damaged and firm value reduced if misreporting is detected and revealed.

Discretionary accruals and/or earnings benchmarks can be taken to proxy for the violations of auditor independence or lower FRQ based on three assumptions. Ashbaugh et al. (2003, pp. 614-15) justify the preference of discretionary accruals on the following assumptions: first, independent auditors require their clients to post financial statements that are true and fair; second, discretionary accruals indicates the degree of company management's discretion in choosing the accounting policies in preparing the financial statements and tolerated by their auditors; and third, the assumption that just meeting or beating earnings benchmarks (e.g., prior years' earnings or current analyst forecast)does not follow a random walk, and findings from Burgstahler and Dichev (1997) suggest that managers manipulate financial statements (e.g., through big bath mechanism) to meet earnings targets.

Discretionary accruals have been employed as an indicator for earnings management in Frankel et al. (2002). Other studies using this linkage include Campa and Donnelly 2016, Cameran et al. 2014, Gul et al. 2009, Chi et al. 2009, Ghosh and Moon 2005, Ferguson et al. 2004 and, Myers et al. 2003. Considering the protection of audit partner's personal assets, Lennox and Li (2012) find no evidence that audit firms supply lower audit quality, lose market share or charge lower audit fees after they become limited liability partnerships. They use the absolute value of discretionary accruals to proxy for two of their three indicators of audit quality.

The economic bonding argument suggests that external auditors that provide lucrative NAS will be less likely to stand up to a client's inappropriate accounting treatments for fear of losing fee revenue associated with NAS (e.g., Joe and Vandervelde 2007, and Simunic 1984). Prawitt et al. (2012) note that this argument implies companies that use the external auditor to provide other services will have a higher level of accounting risk than companies that do not engage in this practice. Accordingly, Prawitt et al. (2009) employ discretionary accruals as one of two proxies to measure earnings management to examine the effects of internal auditing on companies' external FRQ.Similarly, this thesis assumes that the higher the size of discretionary accruals, the lower the FRQ.

4.6 Models for capturing the variation in FRQ

In order for company managers to communicate inside information to outsiders in a more comprehensive and efficient way (Dechow et al. 1998), the use of accruals in the financial statements is essential. While accounting earnings are superior to cash flows, the use of accruals involves accounting flexibility which managers can eventually use to practise earnings management. From a financial reporting perspective, managers may use earnings management in order to meet analysts' earnings forecasts, thereby protecting from reputational damage and a significant loss in share price stemming from not meeting investor expectations (Scott 2015).

There are other incentives for managers to exercise earnings management such as through bonus scheme (Healy 1985), managing debt covenants to avoid their violation (Dichev and Skinner 2002), and lowering political and regulatory pressure (Jones 1991). For example, Healy (1985, p. 106) reports that "managers are more likely to choose income-decreasing accruals when their bonus plan upper or lower bounds are binding, and income-increasing accruals when these bounds are not binding". The debt covenant hypothesis (Watts and Zimmerman 1986, 1990) argues that managers have incentives to make financial reporting decisions that reduce the likelihood of violating the accounting-based covenants in their firms' debt agreements. The strength of these incentives depends on the costs of violating the firm's debt covenants (Smith and Warner 1979). Consistent with the debt covenant hypothesis, Dichev and Skinner (2002, p. 1093) find "an unusually small number of loan/quarters with financial measures just below covenant thresholds and an unusually large number of loan/quarters with financial measures at or just above covenant thresholds". Taking the

US import relief regulations at the backdrop, Jones (1991, p. 193) examined if managers attempt to manage earnings downwards to enhance the chance of winning the import relief and/or increase the amount of relief granted. The study finds that managers have greater incentives for income-reducing accounting choices subject to their belief that "regulators do not completely adjust for these choices" (Jones 1991, p. 198). As one commentator has said, "Earnings management is the choice by a manager of accounting policies, or actions affecting earnings, so as to achieve some specific reported earnings objectives" (Scott 2015, p. 445).

While earnings management includes both accounting policy choices and real actions[58], Scott (2015) reports that managers tend to take advantage of these choices allowed within GAAP such as provisions for credit losses, warranty costs, inventory values, and timing and amounts of non-recurring and extraordinary items such as write-offs and provisions for reorganisation. Moreover, the use of accruals through a wide range of activities such as accounting estimates and altering the point of recognition of revenues and expenses are considered the most common methods for managing earnings as they are not observable by outside stakeholders unlike a change of accounting methods (FIFO to LIFO, for example). Studies such as Healy and Wahlen (1999), Fudenberg and Tirole (1995), and Dechow and Skinner (2000) indicate that managerial intervention in the financial reporting process may well be channelled through operational decisions in addition to conventional accounting estimates and methods. Those activities that managers engage in order to manipulate earnings may include price discounts, acceleration of sales, shifting the shipment of merchandise, delaying research and development programmes and reduction in discretionary expenditures in some particular economic circumstances that may not necessarily influence the firm value. Roychoudhury (2006, p. 336) observes that the motivation behind those actions is to avoid reporting losses, to lower the cost of goods sold, and to improve profit margins. Since auditors have no responsibility for detecting and reporting on the real earnings management, surveys conducted by Bruns and Merchant (1990) and Graham et al. (2005) suggest that financial executives prefer manipulating earnings through real activities rather than accruals.

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[58] Roychoudhury (2006) defines earnings manipulation through real activities. They include "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations" (Roychoudhury 2006, p. 337) and they fall within the purview of discretion allowed to managers in running the business operations.

Despite that practical limitation, accounting researchers have been interested in measuring discretionary accruals as a proxy for earnings management using different models (see for example, Healy 1985, McNichols and Wilson 1988, and Jones 1991). The major weakness of using discretionary accruals to proxy for the FRQ is that they are subject to large measurement errors and potential bias, as pointed out in section 4.4.3 above. Early earnings management detection models by Healy (1985) and DeAngelo (1986) fail to connect accruals with company performance. In a similar vein, Kothari et al. (2005) observe that inferences drawn from tests of hypotheses related to incentives for earnings management hinge critically on the researcher's ability to accurately estimate discretionary accruals. That is, all tests are joint tests of the researcher's model of discretionary accruals and earnings management. The importance of the caution is also prescribed by an earlier study where Dechow et al. (1995, p. 193) conclude that "all models reject the null hypothesis of no earnings management at rates exceeding the specified test levels when applied to samples of firms with extreme financial performance."

Research in this area has grown and more accurate models have been developed such as the performance matched discretionary accruals measures (Kothari et al. 2005), the Jones model with modifications (Larcker and Richardson 2004, and McNichols 2003), and measures of earnings quality (Dechow and Dichev 2002). While the Jones model and its modified version are the most frequent models used in earnings management studies, Dechow et al. (2010) report a declining trend in their use, rather there is a recent shift towards accrual estimation errors model, performance matched discretionary accruals measures, and current working capital measures. McNichols (2000) argues the research designs of the three commonly used approaches in the earnings management literature: total or aggregate accruals; specific accruals; and the distribution of earnings. For the purpose of this thesis, discretionary accruals models are discussed in the following subsections.

4.6.1 Total or aggregate accruals models

The usual starting technique for the measurement of discretionary accruals is aggregate accruals which is the most common approach employed by the accounting literature to estimate earnings management, and hence FRQ (Dechow et al. 1995). Total accruals consist of discretionary accruals, which are representative of earnings management, and non-discretionary accruals - that are economically determined without the intervention

from management. In other words, managers find a way to use discretionary accruals in order to exercise their discretion over accounting choices and estimates that enable them to practice earnings management.

Healy (1985) and Kaplan (1985) are the pioneers in separating the discretionary accruals and non-discretionary accruals from the aggregated one. Since both parts of the accruals cannot be observed directly, researchers have tried to estimate the nondiscretionary accruals using alternative estimation models. Following an income statement approach or balance sheet approach, total or aggregate accruals can be calculated from the financial statements. Finally, deducting non-discretionary accruals from the total accruals leaves the magnitude of discretionary accruals that is used as a proxy for earnings management and for the purpose of this study, these discretionary accruals will be deemed as the indicator for FRQ. Following McNichols and Wilson (1988) this relationship can be presented as:

TAC = DA+NA

Where

TAC = Total or aggregate accruals;

DA = Discretionary (abnormal) accruals; and

NA = Nondiscretionary (normal) accruals

Previous studies have presented two approaches for estimating total accruals. The first approach represents the balance sheet method employed by a large number of studies such as Healy (1985), Jones (1991), Dechow et al. (1995) and Kothari et al. (2005). The balance sheet approach is computed as follows:

$$TAC_t = \Delta CA_t - \Delta Cash_t - \Delta CL_t + \Delta DCL_t - DEP_t$$

Where:

TAC_t = Total accruals in year t;

ΔCA_t = Change in current assets in year t;

$\Delta Cash_t$ = Change in cash and cash equivalents in year t;

ΔCL_t = Change in current liabilities in year t;

ΔDCL_t = Change in debt included in current liabilities in year t; and

DEP_t = Depreciation and amortization expense in year t

The second approach is the cash flow method used by other studies such as Jaggi et al. (2009), Huang et al. (2007), Xie et al. (2003), Klein (2002), and DeFond and Subramanyam (1998). Under the cash flow approach, total accruals are measured as follows:

$$TAC_t = Income_t - Cash\ Flow_t$$

Where,

TAC_t = Total accruals in year t;

$Income_t$ = Earnings before extraordinary and abnormal items in year t; and

$Cash\ Flow_t$ = Operating cash flow in year t.

The differential aspects between the two approaches are investigated by Collins and Hribar (2002) who find that the cash flow approach is better than the balance sheet approach when companies are engaged in mergers or acquisitions. In addition, the balance sheet approach is biased in estimating accruals for companies with discontinuing operations that may be deemed discretionary items.

4.6.2 Specific models for capturing FRQ through earnings management

Various accruals-based models for detecting earnings management have been proposed by different studies, including: Jones (1991), DeAngelo (1986), and Healy (1985), the modified Jones model (Dechow et al. 1995), the Industry model (Dechow et al. 1995), Kasznik (1999), the forward-looking model (Dechow et al. 2003), the performance matched discretionary accruals model (Kothari et al. 2005) and a relatively recently developed one, the discretionary revenue model (Stubben 2010). Among these models, the Jones model (1991) and the modified Jones model (1995) still attract attention in studies of earnings management, since they are the most powerful tests of earnings management and the best in terms of robustness according to most of the prior studies. On the other hand, the performance matched discretionary accruals model by Kothari et al. (2005) has recently become the focus of accounting researchers and is characterised by controlling for the prior performance of the company. The development of measuring earnings management began with total accruals, then others models were

presented in the accounting literature as follows:

4.6.2.1 The Healy model (1985)

The Healy model (1985) attempts to measure earnings management by employing mean aggregate accruals (scaled by lagged total assets) in the computing period as the measure of nondiscretionary accruals. This model was the first attempt to measure earnings manipulation. Healy's argument was that systematic earnings management takes place in every period; accruals were defined as the difference between reported earnings and cash flow from operations. Measuring discretionary accruals as total accruals for the period as follows:

$$EDA_{it} = TAC_{it}/A_{it-1}$$

Where:

EDA_{it} = Measured discretionary accruals for the period;

TAC_{it} = Aggregate accruals for the period; and

A_{it-1} = Overall assets at the beginning of the period.

Healy uses the change in accounting principles and the change in total accruals as the proxy for discretionary accruals. This model takes average accruals in the previous year as nondiscretionary and then deducts it from total accruals to calculate discretionary accruals. Based on a trial simulation, Ronen and Yaari (2008) conclude that Healy (1985) model misclassifies normal accruals for abnormal performance as discretionary.

4.6.2.2 The DeAngelo model (1986)

The second attempt was provided by DeAngelo (1986) who avoided the shortcomings of the Healy model (1985) by ignoring a benchmark for what expected accruals may be. According to this model, discretionary accruals are measured by calculating the difference between total accruals in the current period and total accruals in the previous period. The model is presented below:

$$EDA_{it} = (TAC_{it} - TAC_{it-1})/A_{it-1}$$

Where:

EDA_{it} = Estimated discretionary accruals for the period;

TAC_{it} = Total accruals for the current period;

TAC_{it-1} = Total accruals for the prior period; and

A_{it-1} = Total assets for the prior period.

However, this model was criticized for misclassifying non-discretionary accruals as discretionary accruals, and the prior year, which could be employed as a benchmark for what anticipated accruals should be, could comprise earnings manipulation (Aljifri 2007). Earlier, in their evaluation of earnings management models, Dechow et al. (1995) note that both Healy (1985) and DeAngelo (1986) models assume constant non-discretionary accruals over time and discretionary part of accruals have a mean of zero over the estimation period.

4.6.2.3 The Jones model (1991)

While there were basic models for estimating earnings management using Healy (1985) and DeAngelo (1986), Jones (1991) represents a breakthrough model relaxing the assumption of constant discretionary accruals over time. This most frequently used model of earnings management was proposed by Jennifer J. Jones in testing for the firms under import relief investigations to see if managers use earnings management to reduce earnings and benefit from import relief regulation enforced at that time in the USA.

In common with the standard Jones model, this study estimates discretionary accruals using two-step procedures. In the first place, the following model is estimated for the full sample by regressing total accruals on the change in revenues from the prior year and the level of property, plant and equipment to control for the economic determinants of expected or normal accruals:

$$TAC_{ijt}/TASS_{ijt-1} = \alpha_{jt}[1/TASS_{ijt-1}] + \beta_{0jt}[\Delta REV_{ijt}/TASS_{ijt-1}]$$
$$+ \beta_{1jt}[PPE_{ijt}/TASS_{ijt-1}] + e_{ijt} \tag{1}$$

where:

TAC_{ijt} = total accruals which equals net income from continuing operations minus operating cash flows for company i in industry j for year t;

TASS$_{ijt-1}$ = total assets for the company i in industry j for year t-1;

ΔREV_{ijt} = change in revenues for company i in industry j for year t;

PPE$_{ijt}$ = gross PPE for the company i in industry j for year t; and

e$_{ijt}$ = error term for company i in industry j for year t.

All variables are scaled by lagged total assets to mitigate the effect of heteroskedasticity (Kothari et al. 2005, Daniel et al. 2008). Kmenta (1986) notes that a weighted least square approach to estimating a regression equation with a heteroskedastic disturbance term can be obtained by dividing both sides of the regression equation by an estimate of the variance of the disturbance term and Jones (1991) assumes lagged total assets to be positively associated with the variance of the disturbance term (p. 212).

Second, the appropriate industry-specific model parameters from this estimation are used to calculate a value for the company i in industry j for year t which is an estimate of the observation's expected or non-discretionary accruals. The absolute value of discretionary accruals (ABSDAC_{ijt}) is then determined as the absolute value of total accruals (ABSTAC_{ijt}) minus the calculated value for non-discretionary accruals, scaled by lagged total assets.

In this model, Jones included gross property, plant, and equipment and change in revenues in the expectations model to control for changes in nondiscretionary accruals caused by changing conditions (Jones 1991, p. 212). Revenues are included to control for the economic circumstances of the company. Jones assumed that revenues are an objective measure and not subject to manipulation but this assumption was relaxed later on by Dechow et al. (1995).

The Jones model has attracted a large number of studies such as Subramanyam (1996) and Guay et al. (1996) which suggest that the Jones model is more powerful than other models (the DeAngelo model and the Healy model) since they produce discretionary accruals that are consistent with the opportunistic accruals and performance measure hypotheses. Moreover, it has been found that using the Jones model with cross-sectional data provides more control than using it with the time series ones. In addition, Dechow et al. (1995) find that the Jones model is considered the most effective model for detecting earnings management.

Ronen and Yaari (2008) report that the Jones (1991) model is based on two

assumptions; first, no earnings management in the estimation period, and second, stationarity of the accruals intensity coefficients because the Jones model is based on a time-series analysis and the parameters of the regressions are tailored for each company. The expected sign of the coefficients is negative for property, plant and equipment as it determines the depreciation expense and is positive for sales revenues.

While this model has wider acceptance in the extant literature, however, it has some limitations as Aljifri (2007) claims that this model ignores the manipulation of sales because it assumes that all sales in the period are nondiscretionary and estimates are stationary and, over time, may generate a survivorship bias[59].

4.6.2.4 The modified Jones model (1995)

The shortcomings of the Jones model (1991) were a focus of Dechow et al. (1995) who presented a more effective model for detecting earnings management. Dechow et al. (1995) believe that the Jones model (1991) disregards the potentiality of revenue manipulation, which it considers as non-discretionary. They assume, in the modified Jones model, that all changes in the credit sales in the event period result from earnings management as it is, as per Dechow et al. (1995, p. 199), "easier to manage earnings by exercising discretion over the recognition of revenue from credit sales than it is to manage earnings by exercising discretion over recognition of revenue on cash sales". The modified Jones model also takes into consideration property, plant and equipment and the change in revenues are adjusted for changes in receivables. In other words, this model regresses aggregate accruals on gross property, plant and equipment and changes in cash revenues to present coefficients that are then employed to measure unmanaged accruals. The thesis uses the cross-sectional version of the Jones model (1991) as modified by Dechow et al. (1995) for all firms i in industry j for year t. The model can be presented as:

$$TAC_{ijt}/\text{TASS}_{ijt-1} = \alpha_{jt}(1/\text{TASS}_{ijt-1}) + \beta_{0jt}((\Delta REV_{ijt} - \Delta REC_{ijt})/\text{TASS}_{ijt-1})$$
$$+ \beta_{1jt}(PPE_{ijt}/\text{TASS}_{ijt-1}) + e_{ijt} \qquad (2)$$

and the discretionary accruals is then calculated as:

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[59] The review by DeFond and Zhang (2014) also points out that the survivorship bias with studies having interpreted the absence of an association between NAS and discretionary accruals as evidence that NAS does not pose a threat to audit quality.

$$DACMJ_{ijt} = TAC_{ijt}/TASS_{ijt-1} - NACC_{ijt}$$

$$= TAC_{ijt}/TASS_{ijt-1} - [\alpha_{jt}(1/TASS_{ijt-1}) + \beta_{0jt}((\Delta REV_{ijt} - \Delta REC_{ijt})/TASS_{ijt-1})$$

$$+ \beta_{1jt}(PPE_{ijt}/TASS_{ijt-1}) + e_{ijt}] \tag{3}$$

where:

ΔREC = change in trade receivables [$(\Delta REV_{ijt} - \Delta REC_{ijt})/TASS_{ijt-1})$ indicates changes in cash revenues]

$DACMJ_{it}$ = Discretionary accruals estimated using the modified version of the Jones model,

$NACC_{it}$ = normal or non-discretionary accruals, and

B_{0jt}, β_{1jt} = the industry-year ordinary least square parameters estimated in equation.

The main aspect of the Jones model is to expect normal accruals to be based on the normal pattern of accruals within each industry in each year. Dechow et al. (1995) expect that the estimation of earnings management would no longer be biased toward zero for samples where earnings management takes place through management of revenue. A significant number of studies have investigated the performance of discretionary accruals models. For example, although the two models were presented as time series, many studies such as Subramanyam (1996) and Bartov et al. (2001) who compare these models in terms of cross-sectional and time series, document that the Jones and modified Jones models are more powerful in cross-sectional than in time-series at detecting earnings management. Moreover, the cross-sectional model is characterized by having larger samples and more observations and does not presume the stationarity of the discretionary accruals models (Subramanyam 1996, Peasnell et al. 2000). One drawback that the suggestion made by the cross-sectional model is that the discretionary accruals model is similar for every company in an industry, regardless of its operating strategy or the phase in its product life cycle. If companies in an industry are not homogeneous, the measured discretionary accruals model may involve measurement errors (Dechow et al. 1995).

4.6.2.5 The current version (working capital) of modified Jones model

Both the Jones and modified Jones models include property, plant and equipment to explain long-term accruals. However, Gore et al. (2007) observe that depreciation is unlikely to be an effective means of managing earnings given its visibility that renders

the ability for the market to observe it (Young 1999). In addition, the use of property, plant and equipment may result in biased results due to the measurement error in the estimation of non-discretionary accruals in cases of revaluation of those items under International Financial Reporting Standards (Soderstrom and Sun 2007). Again, accruals that are generally driven by assumptions and estimates need to be corrected in future accruals and earnings and Dechow and Dichev (2002, p. 36) argued these estimation errors and their subsequent corrections as noise that "reduces the beneficial role of accruals". Empirically the study finds that the quality of accruals depends on the extent to which working capital accruals match with the operating cash flow realisations with a poor match suggesting lower accruals quality (Dechow and Dichev 2002). Therefore, as an additional measure of earnings management, this thesis uses the working capital (current) version of the modified Jones model as follows:

$$CAC_{ijt}/\text{TASS}_{ijt-1} = \alpha_{jt}(1/\text{TASS}_{ijt-1}) + \beta_{0jt}((\Delta REV_{ijt} - \Delta REC_{ijt})/\text{TASS}_{ijt-1})$$
$$+ \beta_{1jt}(PPE_{ijt}/\text{TASS}_{ijt-1}) + e_{ijt} \qquad (4)$$

and the DA is then calculated as:

$$DACMJC_{ijt} = CAC_{ijt}/\text{TASS}_{ijt-1} - NACC_{ijt}$$
$$= CAC_{ijt}/\text{TASS}_{ijt-1} - [\alpha_{jt}(1/\text{TASS}_{ijt-1})$$
$$+ \beta_{0jt}((\Delta REV_{ijt} - \Delta REC_{ijt})/\text{TASS}_{ijt-1}) + \beta_{1jt}(PPE_{ijt}/\text{TASS}_{ijt-1}) + e_{ijt}] \qquad (5)$$

where:

CAC_{it} = current accruals measured as earnings before extraordinary items plus depreciation and amortisation minus cash flows from operating activities,

$DACMJC_{ijt}$ = discretionary accruals for firm i in year t estimated using the current version of the modified Jones model.

All other variables are as defined earlier.

4.6.2.6 The industry model

Analysing the research and development spending during the last year of outgoing CEOs, Dechow and Sloan (1991) provide another attempt towards estimating earnings management. They assume that the variation of determinants related to non-

discretionary accruals is common among all firms in the same industry. Dechow et al. (1995) presented this industry model as follows:

$$NDA_{t+1} = \gamma_1 + \gamma_2 Median \, (TAC_{t+1})$$

Where Median (TAC_{t+1}) is the median value of total accruals scaled by lagged assets for all non-sample companies in the same industry and year. This model has the advantage that researchers are not required to formulate a specific model for each item of managing earnings (research and development, in this case). However, this model can be applied only in event studies where only sample companies experience the event.

The power of the industry model to mitigate measurement errors in nondiscretionary accruals depends on two factors. The first factor is, as Dechow et al. (1995, p. 200) identified, "if changes in nondiscretionary accruals largely reflect responses to changes in firm-specific circumstances, then the Industry Model will not extract all nondiscretionary accruals from the discretionary accrual proxy". The second factor determining the success of this model, as argued by Dechow et al. (1995), is the removal of variation in discretionary accruals having correlation across companies in the same industry.

4.6.2.7 Kasznik (1999) model

Extending the models of Jones (1991) and Dechow et al. (1995), Kasznik (1999) estimated discretionary accruals as total accruals (defined as the difference between earnings from continuing operations and cash flow from operations) using the following cross-sectional model:

$$TAC_{j,p} = \gamma_p + \alpha_{1,p}\Delta ADJREV_{j,p} + \alpha_{2,p} \, PPE_{j,p} + \alpha_{3,p} \, \Delta CFO_{j,p} + \varepsilon_{j,p}$$

Where,

$TAC_{j,p}$ = Total accruals;

$\Delta ADJREV_{j,p}$ = change in revenues (adjusted for the change in receivables);

$PPE_{j,p}$ = gross property, plant, and equipment; and

$\Delta CFO_{j,p}$ = change in cash flow from operations.

While this cross-sectional model deflates all variables by the total assets at the beginning of the year, Kasznik (1999) included the change in operating cash flows in the model as Dechow (1994) find that there is a negative correlation between this and total accruals. Following Dechow et al. (1995) this model adjusts sales revenue for changes in accounts receivable.

4.6.2.8 The forward-looking model

In examining the apparent 'kinkiness' of earnings, i.e., too few companies report small losses and too many companies report small profits, Dechow et al. (2003) tried to establish whether boosting of discretionary accruals to report a small profit is a reasonable explanation for this 'kink'. Their study was motivated by an empirical regularity documented by Hyan (1995) where the 'kink' was reported and a follow-up study by Burgstahler and Dichev (1997) concluded a kink in both the earnings change and the earnings level distributions and suggested the cause of the kink is earnings management. A closer look by Dechow et al. (2003) at this relationship motivates them to test it by introducing three main modifications to the modified Jones model to enable better estimation of earnings management. However, they do not find evidence to support the claim that the earnings management is the reason for the 'kink' using any of their four models. Controlling for company performance through adding three explanatory variables to the modified Jones model (1995) is the key issue in Dechow et al. (2003, p. 360) study, which increases the adjusted R^2 from 9 per cent in case of modified Jones model to 20 per cent in their forward-looking model of earnings management.

Aggregating all three explanatory variables added to the modified Jones model, Dechow et al. (2003) presented the forward-looking model for estimating earnings management as follows:

$$TAC = \alpha + \beta_1((1+k)\,\Delta Sales - \Delta REC) + \beta_2\,PPE + \beta_3\,LagA + \beta_4\,GR\_Sales + \varepsilon$$

Where

TAC = Total accruals is the difference between operating cash flow and income before extraordinary items;

k = the slope coefficient of capturing expected changes in accounts receivable for a given change in sales;

ΔSales = Changes in sales from previous year to the current year;

ΔREC = Difference in accounts receivable at the beginning and at the end of the year;

PPT = Property, plant and equipment at the year-end;

LagA = Lagged value of total assets; and

GR_Sales = Change in sales from the current year to the next year scaled by current year sales.

While the proponents of the forward-looking model demonstrated some improved results in terms of its higher explanatory power (Dechow et al. 2003, pp. 358-60) over its modified Jones counterpart, DeFond and Zhang (2014) did not include this model in their most recent review.

4.6.2.9 Performance matched discretionary accruals model

Numerous studies have raised the importance of performance when earnings management is computed. For example, Dechow et al. (1995) and Kasznik (1999) suggest that the findings estimated by the Jones model imply that discretionary accruals are significantly positively associated with the performance of the company or return on assets (ROA). To solve this issue of performance associated with misspecification, a number of studies conducted by Kasznik (1999), Bartov et al. (2001) and Kothari et al. (2005) exclude the possible influences of this correlation between discretionary accruals and earnings performance by using a matched-firm or portfolio method to adjust the discretionary accruals.

The pioneer study in the accounting literature that investigates this issue is that of Kothari et al. (2005) who argue that discretionary accruals, as measured by both Jones and the modified Jones models, might involve severe measurement error since these models disregard the performance of the company. Thus, the discretionary accruals are measured by the residuals of the following cross-sectional model:

$$TAC_{it} = \acute{\alpha} \left(1/A_{it-1}\right) + \beta 1 \left(\Delta REV_{it} - \Delta REC_{it}\right)/A_{it-1} + \beta 2 \left(PPE_{it}/A_{it-1}\right) + \beta 3 \ ROA_{it-1} + \varepsilon_{it}$$

Where,

ROA_{it-1} = net income divided by total assets of firm i at the end of year t-1.

Kothari et al. (2005, p. 169) use ROA as a performance measure for two reasons. First, by definition, earnings deflated by assets, which in turn measures performance and

second, prior research (for example, Ikenberry et al. 1996, Barber and Lyon 1996, 1997, and Lyon et al. 1999) analysing long-run abnormal stock return performance and abnormal operating performance finds matching on ROA results in better specified and more powerful tests compared to other matching variables. Kothari et al. (2005, p. 195) conclude that their findings suggest that a performance-matched discretionary accruals measure is useful in mitigating type I errors (probability of false rejection of a null hypothesis that earnings are not systematically managed) where the variable of interest is correlated with company performance.

4.6.2.10 Discretionary revenues model (2010)

Stubben (2010) presented the discretionary revenues model that tests the capability of revenue and accrual models to reveal simulated and actual earnings management. Revenue models, as per his claim, are well developed, less biased, and better than the commonly used accrual models, since the estimates from revenue models can be appropriate as an estimate of revenue management as a proxy for earnings management. However, one disadvantage of this model is that it cannot detect the manipulation of expenses.

4.6.3 Discussion and evaluation of the competing models

This section summarises some relevant aspects of the models discussed above based on the evaluation conducted in the prior literature. Depending on the technical analysis of the models, it appears that every model is imperfect to some extent in capturing the earnings management, and more specifically, discretionary and nondiscretionary accruals. Some models are better fit in time-series while others have more explanatory power when used as cross-sectional models. Yet, the current thesis prefers to employ a selected group of these models in examining its hypotheses based on the comments from the evaluation studies in prior literature.

A review study conducted by Dechow et al. (1995) takes model specification and explanatory power as the heart of investigation for five commonly used earnings management models where they measure specification by the frequency that a model generates type I errors while the power of the model is estimated through the frequency of type II errors (likelihood of wrongly not rejecting the null hypothesis when the null is in fact false. Out of the five models tested, they find that the Jones and modified Jones

models have more explanatory power and better specification precision (Dechow et al. 1995, p. 215) while all other models such as Healy (1985), DeAngelo (1986) and industry models (Dechow et al. 1995) appear well specified when applied to a random sample of firm-years. Bartov et al. (2008, p. 424), however, do not support the claim that DeAngelo model (1986) is able to detect earnings management.

Using a UK sample of non-financial firms, Peasnell et al. (2000) adopted simulation procedures to test the power of cross-sectional standard Jones and modified Jones models. The simulation allows for three different forms of induced earnings management: (a) revenue manipulation, (b) expense manipulation and (c) bad debt manipulation. Based on the simulation, they document that "all three procedures are capable of generating reasonably powerful tests for economically plausible levels [less than 10 per cent of lagged total assets] of all three forms of accrual management" (Peasnell et al. 2000, p. 314). They also report that these two models were found to be significantly more powerful to detect earnings management created by manipulating revenue and bad debt than to detect earnings management from expense manipulation. However, they mention a caveat that in case of extreme cash flow performance, the improved detection power may be distorted with greater misspecification.

With a sample of 142 fraud-year observations for companies charged by the SEC for overstating earnings between 1988 and 2001, Jones et al. (2008, p. 500) examined popular discretionary accruals models. Results from the logit model suggest that both Jones and modified Jones models are able to detect the existence of fraudulent earnings and accordingly they are significantly (at 0.05 level) associated with the existence of fraud and with the magnitude of fraud (Jones et al. 2008, p. 522). Their results are consistent with that of Dechow et al. (2005).

Recognising that the cross-sectional Jones and modified Jones models were not formally evaluated for their ability to detect earnings management and each type relies on a different set of assumptions and it is an empirical question which set is more descriptively valid, Bartov et al. (2008) evaluate these two models for association between discretionary accruals and audit qualifications after controlling for earnings performance and total accruals. They find that both cross-sectional Jones and modified Jones models "perform better than their time-series counterparts at least among firms with extreme earnings management" (Bartov et al. 2008, p. 424). The use of cross-

sectional models is also supported by Subramanyam (1996) who comments that this allows a larger sample size, compared to their time-series counterparts, that is less subject to survivorship bias. Another justification for employing cross-sectional Jones and modified Jones models is that only they allow for assessing relatively new companies (Bartov et al. 2008).

Although prior research reports better specification and power for cross-sectional standard Jones and modified Jones models, some caveats are important to consider. First, Ronen and Yaari (2008) note that a cross-sectional version, irrespective of the benchmark, may involve observations to estimate the coefficients of non-discretionary accruals that could incorporate some discretionary accruals themselves. Second, the concern about the validity of the homogeneity assumption - all companies in an industry having the same operating technology leading to the same non-discretionary accruals for a given level of performance at the same stage of the operating cycle - can be easily raised (Ronen and Yaari 2008, p. 417). In line with this concern, Bernard and Skinner (1996) doubt about the commonness of a large number of firms grouped under an industry with the two-digit SIC code.

While accruals estimation models have some limitations mentioned above, prior literature appears to prefer a cross-sectional design to a time series version. For example, based on the criteria of significance and standard error (Jeter and Shivakumar 1999, and Kang 2005) and taking the standard deviations of the parameters into account, Bartov et al. (2008) comment that the cross-sectional regressions are better specified than their time-series alternatives. Although cross-sectional models are less affected by survivorship bias (Subramanyam 1996), in order to mitigate this problem, this study conducts a number of sensitivity tests to examine the robustness of the results to this potentiality, in particular, by using alternative accruals estimation models and by conducting tests for survivorship bias problem[60] with observations excluded from the sample to corroborate the findings of the main tests. In summary, based on the relative strengths and weaknesses assessed by prior studies, this thesis employs the cross-sectional standard Jones model, the modified Jones model, and the current (working capital) version of the modified Jones model to estimate the discretionary and nondiscretionary accruals in order to capture the degree of FRQ.

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[60] To check against the potential survivorship bias problem, this study performs tests taking data from excluded companies of FTSE350 sample; the results are discussed in section 5.5 of chapter 5.

4.7 Research design

A research design provides a framework for the collection and analysis of data. Bryman (2001) states that choice of research design incorporates decisions regarding priorities given to a range of research dimensions. This includes developing a research design: that establishes a causal relationship between the variables; that promotes generalisation to larger groups, rather than limiting such relationships to the sample; and that explains the behaviour in its specific social context. All these factors facilitate the attainment of the ultimate research objectives. Research design appropriate for tests related to dependence measures and FRQ; assessing the causal impact of APB ES on FRQ; and audit firm tenure and FRQ is discussed below:

First, the economic bonding of auditors on their clients for audit and NAS fees is detectable, in the sense that such behaviours may be identified through an analysis of the annual reports of the sample companies. The annual reports contain information regarding NAS fees paid to the auditors, and present the NAS and other financial statement disclosures (see for example, Francis and Wang 2005, Iyer et al. 2003 and Lennox 1999). In addition, the information required for developing the analytical models for understanding the impact of the APB regulatory initiatives on the FRQ, and the indicators of FRQ for the lengths of auditor tenure and determinants for discretionary accruals is also available from the annual reports. For the purpose of observing the impact of recent regulatory initiatives and changes on the FRQ of UK companies, data will be collected from the annual reports of the sample companies. Consideration needs to be given to the development of appropriate analytical models that will capture the research questions, and the selection of methods for converting the information available from the annual reports into data that are suitable for use in those analytical models. The selection of sample size, and the sample period also requires consideration. The analytical models developed to estimate discretionary accruals for assessing the impact of APB ES on auditor independence and FRQ from NAS and audit firm tenure perspectives are discussed in detail in chapter 5.

Second, this study introduces 'difference-in-differences' method that has been extensively used in empirical economics, political science and sociology research to estimate a 'mean causal effect'. Generally, 'difference-in-differences' estimates the

causal effect of a treatment or intervention on an outcome with the comparison of average differences pre- and post-intervention in the outcome variable for the 'treatment group' against the differences over time for the 'control group'. Accordingly, 'difference-in-differences' estimation consists of identifying a specific intervention, often called 'treatment' (for the purpose of this study, the enactment of APB ES in 2004), and comparing the difference in outcomes pre and post the intervention for the groups affected by the intervention to the same difference for the control group (Bertrand et al. 2004).

For the purpose of this study, the pre-intervention period consists of 2003 and 2004 while the post-intervention period is allocated the remaining eight years of the sample period since the APB ES were effective in December 2004 with expected 'treatment' of ethical regulation in the form of restricted NAS and enhanced independent behaviour on auditors to start from 2005 audits. The study allocates observations with higher NAS fee (NASFR>=1) into 'control group' and observations with lower NAS fee (NASFR<1) into 'treatment group' as theoretically the 'treatment group' receives the treatment or intervention. The effect of the treatment of APB ES in this study is reflected in the comparison of average changes (or differences) over time (pre-APB ES period and post-APB ES period) in the *ABSDAC* between the 'control group' and 'treatment group'.

This quasi-experimental method is the second best at mitigating the selection bias after the experimental designs that are costly and not always practicable. Meyer (1995) reviews the 'difference-in-differences' method in great detail and reports that the best advantages of 'difference-in-differences' method are its simplicity that does not require complex econometric operations and its potential to circumvent many of the endogeneity problems that usually arise whilst comparing between heterogeneous objects[61]. The regression-based analyses require controlling a number of confounding variables where, for the purpose of this thesis, 'difference-in-differences' could be a method in order to have a relatively more direct assessment of the impact of APB regulatory regime on *in fact* auditor independence and FRQ of the UK companies.

And finally, prior studies investigating the debate around long auditor tenure use discretionary accruals as the surrogate for audit quality or FRQ and mostly employ

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[61] 'Difference-in-differences' method has a number of assumptions such as (a) Stable Unit Treatment Value (SUTVA, Rubin 1977), (b) exogeneity (EXOG), (c) no effect of the pre-treatment population (NEPT), (d) common trend (CT) and bias stability (BS). For more detail about these assumptions, see Lechner (2010).

Jones-based procedures to estimate discretionary accruals (see for example, Cameran et al. 2014, Gul et al. 2009, Chi et al. 2009, Carey and Simnett 2006 and Ferguson et al. 2004). Accordingly, the standard, the modified, and the current (or working capital) version of the modified Jones models are employed in this study to estimate the magnitude of *ABSDAC* as the proxy for FRQ in the FTSE350 companies in testing the hypotheses related to auditor tenure.

Since the current study uses the magnitude of discretionary accruals as the proxy for FRQ of UK companies as the dependent variable in the empirical models, the following section will discuss the justification for preferring discretionary accruals as the potential indicator of FRQ in both sets of research questions.

4.7.1 Earnings Management through discretionary accruals

Earnings management is generally unobservable to external parties (Dechow and Skinner 2000) and prior studies such as Kothari et al. (2005), Peasnell et al. (2000), Burgstahler and Dichev (1997) and Dechow et al. (1995) have used different measures to proxy for earnings management. Measures of earnings management range from discretionary accruals measures, which are the most frequently used measures in the literature and accordingly employed in this study, to measures of managing earnings towards a target such as loss avoidance (Degeorge et al. 1999). Other alternative measures estimate real earnings management activities which represent managerial decisions such as research and development costs (Cohen and Zarowin 2010) and the shifting of accounting classifications as a means of affecting operating income figures (McVay 2006).

The discretionary accruals models (Jones 1991) estimate abnormal or unexpected accruals relative to an expectation model of normal accruals. As Schipper (1989) defines, discretionary accruals imply that managerial discretion over accounting is used to manipulate reported earnings for private benefits and that the managed earnings are different from the outcome of a neutral application of generally accepted accounting principles. From the perspective of informing investors, accrual-based earnings are better than operating cash flows (Subramanyam 1996 and Dechow 1994), but a caveat should be added for two reasons: managerial discretion and incentives for opportunistic behaviour in setting accounting policies influence accrual-based earnings (Dechow et al.

1996 and Dye and Verrechia 1995); and some items such as bad debts, loan loss reserves, depreciation and amortizations, leases, contingent liabilities involve subjective estimates by the managers which auditors cannot objectively verify prior to the occurrence of their outcome (Francis and Krishnan 1999). Moreover, accrual accounting policies often develop realization problems in terms of potential uncollectibility of accounts receivable and cost irrecoverability due to asset impairment.

While accruals-based earnings have the above inherent limitations, extant research prefers to use discretionary accruals in investigating into the FRQ of firms (as discussed in more detail in section 4.5). Following the related literature (Francis and Yu 2009, Caramanis and Lennox 2008, Reynolds et al. 2004, Bartov et al. 2000), this study uses the cross-sectional Jones model, modified Jones model and the working capital version of modified Jones model to estimate discretionary accruals in order to measure earnings management.

4.7.2 Measures for economic dependence of auditors

This thesis uses two measures of economic dependence of auditors on their clients, namely the ratio of NAS fees to audit fees, *NASFR* (model 1) and the log of total fees, *LnTOTFEE* (model 2), to comment on whether the threats to FRQ emerge from the relative magnitude of NAS fee or total audit and NAS fees. The model and selection of variables is based on a review of the prior literature on auditor remuneration.

4.7.3 Model specification for NAS related tests

Previous studies including Campa and Donnelly 2016, Ferguson et al. 2004, Reynolds et al. 2004 and Frankel et al. 2002 employ discretionary accruals as a proxy for the level of audit quality, estimated by cross-sectional Jones (1991) and modified Jones model (Dechow et al. 1995). Accordingly, the current study estimates discretionary accruals as its primary proxy for the degree of audit quality. Other studies are also consistent with the research design chosen. For example, Nelson et al. (2002) report that, in their sample, the most frequently attempted method of earnings management by managers involves reserves and auditor prevented 35 per cent of these attempts.

Although clients' earnings management may be intended to facilitate several different purposes, consistent with prior studies including Reynolds et al. (2004), Reynolds and Francis (2000), Warfield et al. (1995), this study uses the absolute value of discretionary accruals *(ABSDAC)* as a measure of opportunistic earnings management. Healy (1985) and DeFond and Park (1997) assert that the magnitude of unsigned reported accruals measures a company's success in managing earnings either up or down, as needed, depending on year-specific big bath targets. Moreover, Levitt (1998) expresses concerns about 'cookie-jar accounting', which also implies that firms manage earnings in both directions.

The following ordinary least square regression model is used to test the hypothesised relationship between client dependence proxied by the fees paid to the audit firms and FRQ proxied by the discretionary accruals:

$$ABSDAC_t = a_0 + b_1 DEPENDENCE_t + b_2 BIG4_t + b_3 AUDCH_t$$
$$+ b_3 ACQ_t + b_4 ISSUE_t + b_5 SIZE_t + b_6 GROWTH_t$$
$$+ b_7 LEVERAGE_t + b_8 ZSCORE_t + b_9 LOSS_t$$
$$+ b_{10} HITECH_t + b_{11} ASSETGROW_t + e_t$$

The dependent variable is the absolute value of discretionary accruals, scaled by lagged total assets, *ABSDAC*, the main independent variable is the auditor's economic dependence, *DEPENDENCE*, discussed below, and a vector of control variables.

4.7.3.1 Economic dependence

Auditors' economic dependence is labelled *DEPENDENCE* and this is measured in two ways: the first is the ratio of NAS fees to audit fees *(NASFR)* and the second is the natural log *(ln)* of total fees paid to the auditor *(LnTOTFEE)*. An auditor's economic dependence can be captured by different fee constructs. The first fee construct, *NASFR*, implies one of the strong incentives for auditors' dependence on their clients for economic rents and follows from Beck et al. (1988) and Simunic (1984). A potential loss of these NAS fee revenues may lead to an erosion of auditor independence through allowing influential clients (paying higher NAS fees) greater discretion towards their desired earnings management targets (Gul et al. 2007, Srinidhi and Gul 2007, Reynolds

et al. 2004, Larker and Richardson 2004 and Frankel et al. 2002). The second construct, *LnTOTFEE*, is also supported by the literature. For example, Kinney and Libby (2002) point out that audit fees potentially pose a similar threat to auditor independence and cause economic bonding as NAS fees, consistent with similar arguments by Magee and Tseng (1990) and DeAngelo (1981).

4.7.3.2 Control variables for NAS related tests

The initial findings for the relationship between the fee ratio and audit quality in the US are reported by Frankel et al. (2002) after the mandatory fee disclosure rule by SEC in 2000. Several other studies such as Ashbaugh et al. (2003), Reynolds et al. (2004) follow a similar approach in the US. This study also, therefore, draws preliminary expectations and includes the following control variables:

BIG4	Consistent with prior studies by Craswell et al. (1995) and Francis and Wilson (1988), an indicator variable *BIG4* is used to control for the effect of the reputation advantages for providing higher quality audit by Big4 audit firms over their non-Big4 counterparts. Therefore, BIG4 is expected to have a negative association with discretionary accruals. The variable takes 1 if the auditor is a Big 4 firm or 0 otherwise.
AUDCH	Myers et al. (2003) and Johnson et al. (2002) report that earnings quality is higher with longer auditor tenure. Accordingly, the length of auditor tenure is considered another common proxy for audit quality. On the other hand, regulators perceive that rotation of auditor brings about a fresh approach to the audit and improves audit quality (Paragraph 5.12, Cadbury Committee Report 1992). However, due to unavailability of longer-window data before 2003, the model in this study incorporates a dummy variable, *AUDCH*, which takes 1 if a new auditor is appointed in a particular year within the 10-year investigation period and 0 if there is no auditor change. This study expects *AUDCH* to have negative co-movement with discretionary accruals on the basis of Myers et al. (2003) and Johnson et al. (2002) findings.
ACQ	Acquisitions often involve components with significant amount of

	accruals (Reynolds et al. 2004). Therefore, the variable *ACQ* takes on a value of 1 if the company was involved in acquisition activities in the year *t*, or 0 otherwise, with a positive correlation expected.
ISSUE	The issuance of seasoned equity offerings (SEO), changes in common equity, preferred stocks and long-term debts are associated with significant NAS. Therefore, a variable *ISSUE*, implying the ratio of changes in common stock, bonds and preferred stocks to beginning total assets, in the year *t*, is incorporated in the model. *ISSUE* is expected to have positive co-movement with discretionary accruals.
SIZE	Reynolds and Francis (2000) argue that company size may be associated with operating characteristics causing larger companies to have systematically smaller accruals despite the accruals are scaled by lagged assets. Therefore, company size is measured in the model by the variable *SIZE,* which is the natural log of total assets. The predicted sign of *SIZE* is, therefore, negative.
GROWTH	Reynolds et al. (2004) argue that high-growth firms have stronger incentives to meet earnings benchmarks. Following them, this study measures the future growth opportunities for companies by the ratio of market value of equity to its book value *(GROWTH)* and a positive association with discretionary accruals is expected.
LEV	DeFond and Jiambalvo (1994) document that highly levered companies have greater incentives to use accruals to manipulate earnings for the limits set by their debt covenants. Accordingly, the model uses *LEV,* which is the ratio of total debts to total assets to control it. The predicted association with discretionary accruals is therefore positive.
ZSCORE[62]	Financially distressed companies are argued to have an incentive to use accruals to increase reported earnings. Following Reynolds et al. 2004, this study uses *ZSCORE*, a bankruptcy score measuring financial distress as per Altman's (1983) Z-score. Since a lower Z-score indicates greater financial distress, the *ZSCORE* is expected to be negatively associated with discretionary accruals.

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[62] *ZSCORE* is measured by Altman's Z-score (0.717*Net Working Capital/Total Assets + 0.847*Retained Earnings/Total Assets + 3.107*Earnings Before Interest and Taxes/Total Assets + 0.42*Book Value of Equity/Liability + 0.998*Sales/Total Assets).

LOSS	Firms that report a net loss are argued to be less likely to manage earnings (Frankel et al. 2002, and Brown 2001). Therefore, an indicator variable, *LOSS* is used which takes a value of 1 for firms reporting a net loss in the year and 0 otherwise. A negative correlation with discretionary accruals is expected for *LOSS*.
HITECH	Francis et al. (1994) identify certain industries where companies operate in a relatively higher risk environment. Given the new economy boom during the 1990s, where 'intellectual capital' acts as a driving force, value creation, rather than cost recovery, is the focus of the new economy companies. Whereas traditional view of business strategy concentrates on a degree of fit between existing resources and current opportunities (Evans and Wurster 1997), these new economy companies are featured with an imbalance between resources and ambitions and management has to be innovative in order to bridge this gap (Hamel and Prahalad 1989). Francis et al. (1994) argue that companies in software, computers, telecommunications and pharmaceutical & biotechnology industry operate in a higher than normal risk climate. Accordingly, the model deploys a variable *HITECH* that takes 1 for firms in the industries with two-digit UK SIC code (2007) such as 18 (software), 21 (pharmaceutical), 26 (computer), 61 (telecommunications), 72 (biochemical); and a value of 0 otherwise. A positive association with discretionary accruals can therefore be predicted.
ASSETGROW	Prior research including Kothari et al. (2005), Hribar and Collins (2002) and Dechow et al. (1995) has shown that in case of firms with extreme performance, discretionary accrual models generally do not work well. Therefore, Reynolds et al. (2004) argue that a variable, *ASSETGROW*, which is the ratio of total asset change divided by beginning total assets, can capture the actual change in company size from one year to the next and accordingly used in the model with a positive association expected.

4.7.4 Measuring discretionary accruals

In order to estimate earnings management levels or levels of unexpected accruals, discretionary accruals models have been used extensively in the prior literature. For example, Peasnell et al. (2000, p. 314) find both standard and modified Jones models are "capable of generating reasonably powerful tests for economically plausible levels of accruals management". Accordingly, this thesis, following prior studies, computes discretionary accruals, denoted as DAC_{ijt} for firm i in industry j for year t using cross-sectional industry variation of the standard Jones (1991), the modified Jones (1995), and the working capital version of the modified Jones models[63]. Industry is classified according to the two-digit UK SIC Code (2007). Discretionary or abnormal accruals are calculated as the difference between total accruals and non-discretionary or normal or expected accruals.

Dechow et al. (2010) criticize the use of a single proxy for earnings quality that may 'enable' finding significant results consistent with the chosen hypothesis. Accordingly, this thesis estimates total accruals using the cash flow statement approach as suggested by Hribar and Collins (2002) rather than the balance sheet approach due to the potential error and bias in such an approach. This study defines total accruals as earnings before extraordinary items minus cash flows from operating activities and it defines current accruals as earnings before extraordinary items plus depreciation and amortisation minus cash flows from operating activities.

4.7.5 Model specification for tests related to auditor tenure

The following ordinary least square regression model is used to test the hypothesised relationship between the auditor tenure and the FRQ proxied by *ABSDAC*:

$$ABSDAC = a_0 + b_1 LnTENURE + b_2 BIG4 + b_3 MV + b_4 MB$$
$$+ b_5 LEV + b_6 CS + b_7 SG + b_8 LLOSS + b_9 ROA$$
$$+ b_{10} ZSCORE + b_{11\text{-}20} YEAR_{2003\text{-}2012} + \varepsilon$$

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[63] These models are discussed in detail in section 4.6.2.5.

The dependent variable is the absolute value of discretionary accruals, scaled by lagged total assets, *ABSDAC*. The main independent variable is audit firm tenure. Audit firm tenure is defined as the number of consecutive years the same audit firm conducts audit for a particular client (Gul et al. 2009). This study takes the natural log of the auditor tenure, *LnTENURE*, in order to normalise the distribution.

4.7.5.1 Control variables

This section discusses the choice of control variables based on the hypotheses and findings of prior studies investigating the association between auditor tenure and FRQ. Accordingly, the preliminary expectations for the chosen control variables are explained below:

BIG4	Consistent with prior studies by Craswell et al. (1995) and Francis and Wilson (1988), an indicator variable *BIG4* is used to control for the effect of the reputation advantages for providing higher quality audits by Big4 audit firms over their non-Big4 counterparts. Therefore, *BIG4* is expected to have a negative association with *ABSDAC*. The variable takes 1 if the auditor is a Big4 firm or 0 otherwise.
MV	Following prior studies, this thesis takes size of the client company, *MV*, measured by the market value of equity, to control for the differences in the accrual behaviour of managers for large and small firms (see Gul et al. 2009 and Reynolds and Francis 2000). Moreover, prior studies found evidence that larger companies engage less in discretionary accruals exercise (Ashbaugh et al. 2003) and, therefore, this study expects a negative association between *MV* and *ABSDAC*.
MB	Capital market pressure can be argued to have an influence on companies' earnings management exercise and following Francis and Yu (2009) this study uses the market to book ratio, *MB* (measured by market capitalization divided by total assets), as a control variable. Following the prior literature, a positive association is expected between *MB* and *ABSDAC*.

CS	Prior studies control for mergers and acquisitions to capture companies' business combination activities (for example, Ashbaugh et al. 2003). However, this variable was not available on the FAME database and therefore an alternative variable, *CS*, is computed. *CS* is the percentage change in the number of shares, to proxy for business change. Companies engaging in business change are expected to have incentives to increase income to benefit from share offerings. Therefore, this study expects to find a positive association between a change in the number of shares and *ABSDAC*.
SG	As an additional proxy for growth, this study controls for the growth in sales to capture changes in firm performance unrelated to earnings management (Gul et al. 2009, and Hribar and Nichols 2007). *SG* is computed as the percentage change in sales revenue for the year and a positive association with *ABSDAC* is expected.
LLOSS	Companies that report a net loss in the previous years are argued to be less likely to manage earnings (Francis and Yu 2009, Frankel et al. 2002, and Brown 2001). Therefore, an indicator variable, *LLOSS* is used which takes a value of 1 for firms reporting a net loss in the previous year and 0 otherwise. A negative correlation with *ABSDAC* is expected for *LLOSS*.
ROA	Following Frankel et al. (2002), this study controls for the return on investment *(ROA)* to capture firm performance as companies with higher *ROA* are argued to exercise less discretion in managing earnings. Measured as net income divided by total assets, *ROA* is expected to have a negative association with *ABSDAC*.
ZSCORE	Finally, financially distressed companies are argued to have an incentive to use accruals to increase reported earnings. Following Reynolds et al. (2004) this study uses *ZSCORE*, a bankruptcy score as per Altman's (1983) Z-score. Since a lower Z-score indicates greater financial distress, *ZSCORE* is expected to be negatively associated with *ABSDAC*.

4.8 Selection of sample period

Section 4.2 discusses the research approach followed in this thesis and the following sections explain and justify the choice of discretionary accruals models to capture the variation in the FRQ as the impact exerted from the APB ES. Sequentially, this section will briefly describe the selection of the sample time period. For the purpose of analysis

of the potential impact of APB regulations restricting NAS and heightened debate over long auditor tenure on FRQ of UK companies, companies in the FTSE350 have been chosen. Figure 4.1 presents the time period used for the analysis. The sample time period is ten years (from 2003 to 2012), covering two years[64] before APB ES were promulgated in the UK in 2004 in response to the earlier accounting scandals at the beginning of the 2000s' (i.e., 2003 and 2004), and eight years into the APB ES regime (2005 to 2012), a period when the UK and other major Western economies experienced the financial crisis and credit crunch in 2007-09 and the aftermath continues. The time frame covering two years prior to the enactment of the APB ES and eight years into the APB regime is expected to provide a comparative picture that may indicate the impact of the APB ES on auditor independence and FRQ.

This period is characterised by the consequences of the accounting scandals and the financial crisis and the subsequent enactment of various regulatory initiatives. As presented in Figure 4.1 below, the Sarbanes-Oxley Act (SOX) was enacted in the US in 2002 in response to the spectacular accounting failures at Enron and others, followed by a series of regulatory reforms in the UK such as the APB ES which were enforced in 2004 (and later revisions in 2010), changes made in the UK Companies Act 2006 regarding the disclosure of NAS fees through Disclosure of Auditor Remuneration Regulations (2005). The UK economy was severely hit by the financial crisis and credit crunch during 2007-09 despite the initial regulatory responses. Later, the Corporate Governance Code (2010) was promulgated, followed by Specific Requirements regarding Statutory Audit of public interest entities by the European Union (EU) (2011), and finally the Revised UK Corporate Governance Code (2012) was issued.

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[64] In order to have a comparison between the pre- and post-APB regime, this time frame has been chosen. A wider window of data pre-APB would have given possibly better results, however, there were immediate aftermaths following Enron collapse at the beginning of the century. As such, it can be argued that the chosen time frame is less influenced by those immediate environmental factors.

Accounting scandals	SOX enforced	SEC incorporates SOX	APB ES becomes effective	Companies Act (2006) becomes effective	Financial crisis and credit crunch	APB ES were revised	UK Corporate Governance Code by FRC	Specific Requirements for Statutory Audits by EU	UK Corporate Governance Code revised with MAR proposals
• Spectacular collapses of Enron, HealthSouth, Tyco, WorldCom and Pacific gas & Electric Co in the US; One.Tel and HIH Insurance in Australia; and Equitable Life Assurance Society in the UK appeared to have shaken the confidence of investors. • These companies were involved in major accounting manipulations.	• Creation of Public Company Oversight Board; • Auditors are required to provide a second partner review and approval of such review; • Civil and criminal certification of executive officers and directors; • Restricted NAS and rotation of lead audit partner; • Criminal penalties and civil liabilities for deceiving investors.	SEC adopted SOX rules (Section 404) that require each annual report of a company to contain (1) a statement of management's responsibility for establishing and maintaining an adequate internal control structure (ICS) and procedures for financial reporting; and (2) management's assessment of effectiveness of company's ICS and procedures for financial reporting.	APB enacted five ES: • ES1: Integrity, objectivity and independence; • ES2: Financial, business, employment and personal relationships; • ES3: Long association with the audit engagement; • ES4: Fees, remuneration and evaluation policies, gifts and hospitality; • ES5: Non-audit services provided to audited entities.	• Statutory Statement of Directors' Duties • Use of electronic communications • Improved shareholder rights to sue against directors for negligence, default, or breach of duty. • Limited liability for auditors in respect of an audit • New criminal offence of knowingly or recklessly including materially misleading information in an audit report.	• Credit crunch as mortgages sold to "sub-prime" borrowers and they began to default upon interest rate rise. • On 14 Sep '07 depositors withdrew £1bn in what is the biggest run on a British bank for more than a century. • In July 2008, FTSE100 dipped into 'bear market' where the index suffered a 20% fall from its recent highs.	Revised ES include: • Prohibition on providing some types of restructuring services; • Enhanced disclosure to audit committees; • Tightening on providing tax numbers to clients for use in the accounts; • A requirement to discuss fee ratios with the ethics partner where NAS fees exceed audit fees.	• UK Corporate Governance Code sets out standards of good practice in relation to board leadership and effectiveness, remuneration, accountability and relations with shareholders. • Listed companies are required to report on how they have applied the main principles of the Code, and either to confirm or - to provide an explanation.	• Mandatory rotation of auditors and audit firms every 10 years; • A list of NAS that cannot be provided to the audited entity; • Limitations on the fees charged for NAS; • Strengthening the audit report, and an additional report to the audit committee about the performance of the audit; • A dialogue between the auditor of a PIE and the supervisor of that given PIE.	•FTSE350 companies to put the external audit contract out to tender at least every ten years. • A separate section of the annual report should include: • an explanation of how it has assessed the effectiveness of the external audit process and the appointment or reappointment of the external auditor, and tenure of the current audit firm and when a tender was last conducted; and • if the external auditor provides NAS, an explanation of how auditor objectivity and independence is safeguarded.
2000-02	Mar-02	May-03	Oct-04	Nov-06	2007-09	2009-10	June-11	Nov-11	Sept-12

Post-Enron period	Pre-APB ES period	Post-APB ES period

Sample period for the study

Figure 4.1 Timeline used for the sample

4.9 Sample description and collection of data

The previous sections discuss the research methods to be followed for this study in order for assessing the impact of the regulations from the APB ES on the FRQ proxied by the magnitude of the discretionary accruals tolerated by auditors. Accordingly, the base sample for the study consists of audited financial statements of FTSE350 companies for a period of 10 years.

Table 4.1 Sample selection procedures
Panel A: FTSE350 population to sample

Companies in the initial sample for FTSE350	350
Exclude: Companies classified under financial services industry with SIC 65-69	80
FTSE350 sample excluding financial services industry	270
Exclude: Observations with less than 10 years' data	28
Final sample of FTSE350 excluding financial services industry	242
Firm-year observations for the final sample with 10-year data	**2420**

Panel B:Sample for the study

Classification by Year and Industry over 2003-2012

SIC	Industry	Obs per year	Total Obs	No. of Cos
01	Agriculture, hunting and forestry	1	10	1
10-12	Oil and natural gas extraction	10	100	10
13-14	Mining of iron ores and quarrying	15	150	15
15-16	Food, beverage and tobacco	11	110	11
17-18	Textiles and textiles products	2	20	2
21-22	Paper, publishing and printing	7	70	7
24	Chemicals, products and man-made	15	150	15
25	Rubber and Plastic Products	1	10	1
26	Non-metal mineral products	3	30	3
27-28	Basic metals and fabricated products	6	60	6
29	Machinery and equipment	7	70	7
30-33	Electrical and optical equipment	18	180	18
34-36	Manufacturing	7	70	7
40-44	Electricity, gas and water supply	5	50	5
45	Construction	17	170	17
50-54	Wholesale, retail and certain repairs	26	260	26
55-59	Hotels and restaurants	3	30	3
60-64	Transport, storage and communication	21	210	21
70-74	Real estate, renting and business	39	390	39
75-79	Public administration and defence	4	40	4
90-94	Other social and personal services	24	240	24
Total		**242**	**2420**	**242**

The study uses 2420 firm-year observations from 242 companies (each company with 10 years' data for 2003-2012) from the FTSE350 as on 19th May 2013[65]. Following prior studies, 80 companies in banking and financial services industries (SIC code 65-69) were excluded due to their different accruals generating process (Francis and Yu 2009, Maijoor and Vanstraelen 2006) and for their unique characteristics that might distort the inferences for non-financial companies. A total of 28 companies have been excluded for non-availability of data (See Panel A, Table 4.1). As such, the final sample incorporates 242 manufacturing and non-financial services companies having 10 years' observations that make 2,420 firm-year observations.

Out of 31 defined industries as per UK SIC Code (2007), the study includes 21 industries from manufacturing and non-financial services sectors. The final column of the Panel B of Table 4.1 presents the number of companies incorporated in the sample from each of the industries. As explained in Chapter 2, FTSE350 is chosen for this study as they were at the forefront of regulatory concerns in the UK (Paragraph 44, House of Lords Select Committee on Economic Affairs 2011) as this cohort of companies represents companies registered on the London Stock Exchange having highest market capitalization. Moreover, FTSE350 is a combination of FTSE100 and FTSE250 companies, referring to large listed UK companies[66]. Besides using FAME database that has occasional missing values, the author had to supplement the data collection from annual reports of the sample companies in the interest of having a more comprehensive sample of FTSE350 companies. Refer to Panel B of Table 4.1 for more details about the sample.

Extant research has hardly undertaken audit firm tenure studies using non-US data. This is arguably due to unavailability of audit firm tenure data except the Compustat[67] for US data. During the data collection for audit firm tenure, the author had to manually collect them from the respective annual reports of the FTSE350 companies. Since the current regression models use a number of previous year information such as total assets, lagged loss and so on, the author had to check annual reports of 2002 to 2012 (11 years) to facilitate 10-year data. Consequently, the author was able to collect audit

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[65] Companies in the FTSE350 exit and enter quarterly depending on their share price. Therefore, a randomly selected date has been chosen for collecting data for 10 years.

[66] Caution needs to be observed when generalising the findings and implications of the tests from this sample to relatively smaller firms outside the FTSE segment. Section 6.6 explicitly acknowledges the potential lack of generalizability of these results to other samples with smaller companies.

[67] Compustat retains auditor tenure data for 25 years.

firm tenure data for eleven years and therefore these data used in this chapter range from one to eleven years. The current audit firm tenure data are subject to this limitation. However, FAME database keeps a record of previous auditors in one grouped data item, called 'previous auditors grouped' for ten years, limiting the data collection for auditor tenure beyond ten years for UK companies.

Influenced by this limitation, this study argues that audit firm tenure can be viewed on a relative basis rather than an absolute one. Taking the relative basis, this study measures audit firm tenure as the natural logarithm of the consecutive years of the relationship between the company and the audit firm. Moreover, the study does not split the sample into short, medium, and long auditor tenure like some previous studies (see Carey and Simnett 2006, and Myers et al. 2003) but instead uses an auditor tenure dummy which takes the value of one if tenure is more than 3 years and zero if the tenure is 3 years or less, as Carcello and Nagy (2004) report that fraudulent financial reporting is more likely to occur during the first three years of the auditor client relationship and no evidence of such fraudulent reporting beyond that initial years.

Prior UK-based studies used similar samples in their investigations. For example, Ezzamel et al. (1996) employed a sample of 314 UK quoted companies for examining three aspects of the relationship between NAS and audit fees. McMeeking et al. (2007) used a sample of 7255 firm-year observations covering a wider period of 1985–2002 in their assessment of large audit firms' mergers on UK audit pricing in which they attribute the fee premiums following a merger to product differentiation, rather than anti-competitive pricing. In their 2006 study, McMeeking et al. (2006) used a sample of 3240 firm-year observations from 180 companies over the same 18 years. Antle et al. (2006) used a UK sample of 2294 firm-year observations to compare against a US sample of 1570 firm-year observations in examining the knowledge spill-over effects of NAS to audit and vice-versa. In a recent perception-based study, Holland and Lane (2012) examined the relationship between levels of total relative audit fees and market value for UK companies using 1157 company-year observations over a six-year period between 2001 and 2006. Companies in FTSE350 were in the focal point of the regulatory initiatives[68] undertaken in the UK following the early 2000s' accounting chicanery and therefore, this study takes this group of UK companies for the investigation.

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[68] See House of Commons Treasury Committee Report (2009) and House of Lords Select Committee on Economic Affairs Report (2011), for example.

4.10 Conclusion

This chapter has presented the philosophical underpinnings that guide the analysis of post-APB ES responses of companies and auditors in the UK with regard to joint provision of audit and NAS as well as long auditor tenure. The first few sections of the chapter discuss research paradigms and adapted research methods. Terming the current research as essentially of a positivist approach, the chapter then focuses on the link between audit quality and FRQ as the potential indicators of the impact of APB ES for FTSE350 companies in the UK. Having established the linkage between audit quality and FRQ in section 4.3, the chapter then moves on to consider alternative proxies to capture the variation in the FRQ as an impact of the APB ES. Positioned for a theory-neutral view, the current research uses the early 2000s' accounting scandals and 2007-09 financial crisis as a contextual backdrop that prompted the APB to issue the ES in 2004 and aims to investigate the impact of the regulatory initiatives on the FRQ.

A significant part of this chapter (section 4.6) covers different audit quality and FRQ proxies, use of discretionary accruals and specific discretionary accruals models employed in the extant research. Later on, the discussion narrows down the choices from a range of alternatives to a specific set of discretionary accruals models to be used in this research followed by their strengths and limitations. It is acknowledged that the research addresses a number of questions relating to responses of regulatory initiatives in the wake of 2007-09 financial crisis and accounting scandals at the beginning of the century in terms of the resultant FRQ of the UK companies. This research depends on archival data of FTSE350 companies' annual reports for the sample period. Finally section 4.8 details the sample period covered with events unfolding chronologically as the contextual backdrop for this study.

Chapter 5: Non-audit services and longer audit firm tenure affecting financial reporting quality

5.1 Introduction

The purpose of this chapter is to present the results of an empirical examination of the impact of NAS on FRQ in the regime following the 2004[69] introduction of new regulations in the form of ES for auditors in the UK. Further assessment of the NAS effect on FRQ is timely given the recent UK regulatory initiatives in response to the 2007-09 financial crisis. This chapter presents empirical evidence on the two main research questions in this thesis, namely the impact of the ES on FRQ in the form of the magnitude of discretionary accruals for the first research question and then moves on to empirically investigate the impact of long audit firm tenure on FRQ of the FTSE350 companies.

The chapter contributes to the relevant literature in a number of ways. First, it examines the impact of ES in the form of restricted NAS fees on FRQ using UK data. Most studies focus on the US market and to date only a few perception-based studies have been conducted in the UK. On this backdrop, this study compares the effect of the ES on FRQ of UK companies over time (2003-2012) in the presence of the economic dependence created by the joint provision of audit and NAS. This study uses a more direct approach[70] with estimates of discretionary accruals[71] to assess the *de facto* auditor independence and FRQ for a relatively large sample of FTSE350 companies. The evidence reported in this chapter fills a gap in the literature with regard to the FRQ of large companies under the ES regime in the UK with insights for policymakers and regulators in the debate over the joint provision of audit and NAS. Second, in addition to using correlations and regression techniques, this study

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[69] Revised in 2010.

[70] Studies conducted in the UK context are mostly perception-based, and include Firth (1980), Firth (1981), Beattie et al. (1999), Basioudis et al. (2008), Holland and Lane (2009), Humphrey et al. (2009), and Dart (2011).

[71] While Jones models are frequently used to assess the audit quality and/or FRQ in the US studies, no previous study has employed them in examining FRQ with UK data. Jones-based models, however, are used in Peasnell et al. (2005), Mouselli et al. (2013) for UK data to assess other associations.

assesses the causal impact of the ES on FRQ of UK companies using 'difference-in-differences' approach – a research design usually applied in political science and economics for causal inference to assess the impact of a particular regulation – to substantiate the impact of the new regulatory regime on auditor independence and FRQ. In the third and final phase of the analyses, this chapter assesses the association between auditor tenure and FRQ in order to address regulators' concern over the alleged link of longer auditor-auditee relationship and lower FRQ.

The remainder of the chapter is organized as follows: the next presents the empirical results and discussion of the findings for the association between the economic dependence created by the joint provision of audit and NAS and FRQ, followed by section 5.4 that presents the findings of the 'difference-in-differences' method as a more direct assessment of the causal impact of the ES on FRQ of UK companies. The chapter then moves on to discuss findings from the analytical models for the association between audit firm tenure and FRQ and if the quality differentiation holds for longer and shorter audit firm tenure in section 5.5. Section 5.6 then discusses the robustness and sensitivity tests for the models and approaches applied in statistical analyses and section 5.7 concludes the chapter.

5.2 Empirical results for NAS and FRQ

This section presents the results of the statistical analysis and provides a discussion of the findings. The following section discusses descriptive statistics regarding the sample and variables used in the ordinary least square regressions. The section then explains the correlation matrices to report the impact of independent and control variables on the size of the absolute value of discretionary accruals, as the measure of FRQ. The next section of this chapter focuses on the comparison between two measures of economic dependence of auditors on their clients, namely the ratio of NAS fees to audit fees (model 1), and the log of total fees (model 2), to comment on whether the threats to FRQ emerge from the relative magnitude of NAS fee or total audit and NAS fees. A later section of this chapter also discusses the comparative results obtained from a hypothesised benchmark test where the study separates observations having the ratio of NAS fees to total fees to the auditor of less than 1

(model 3) and those having that of equal to or greater than 1 (model 4) to understand if there is a significant difference between these two groups in terms of dependence measures. Finally, the chapter concludes with a discussion of the results in relation to the hypotheses developed earlier.

5.2.1 Descriptive statistics for NAS related tests

Table 5.1 reports descriptive statistics for all data items (winsorized at the top 1 per cent and bottom 99 per cent) used in the study. The results reported in the Table below show that the average absolute value of discretionary accruals measures is highest for the current version of the modified Jones model (0.172) followed by both standard and modified Jones model (0.074 for both). This result can be compared against Reynolds et al. (2004, p. 38) who report *ABSDAC* of 0.1094 using the standard Jones model. This suggests that FTSE350 firms, on average, exercise lower earnings management than US firms, implying that the APB ES has a contribution in enhancing the FRQ in the UK. Moreover, all three models estimate negative total accruals that imply the conservative approach of earnings management within Generally Accepted Accounting Principles.

Both standard and modified Jones models estimate the discretionary accruals to be negative which is consistent with the conservative approach of earnings management. A prior study by Young (1999, p. 847) also reported negative discretionary accruals using standard and modified Jones model for a sample of listed UK companies. However, the current version of the modified Jones model, applied in this thesis, produces positive discretionary accruals implying aggressive earnings management by companies on average. While the mean ratio of NAS fees to audit fees, *NASFR*, is 1.416 as shown in Table 5.1, the variation for the ratio is reasonably high (2.123). The second variable of interest, measuring auditor's economic dependence, *LnTOTFEE* (natural log of total fees), is 0.089 for UK firms. Reynolds et al. (2004) reported the mean absolute value of total fees of £1.18m[72] while it is £3.04m for the UK firms sampled in this study.

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[72] Figures converted into British pounds sterling at an exchange rate of $1=£0.66 and the figures in this particular paragraph are approximate.

Table 5.1 Descriptive statistics for all data items (N=2420)

Stats	Mean	Median	Std. Dev.	Min	Max	1st Quartile	3rd Quartile
Earnings management variables							
ABSDAC_SJ	0.074	0.044	0.102	0.001	0.680	0.020	0.087
ABSDAC_MJ	0.074	0.044	0.102	0.001	0.680	0.021	0.087
ABSDAC_WC	0.172	0.145	0.123	0.006	0.753	0.097	0.212
DAC_SJ	-0.018	-0.015	0.111	-0.534	0.384	-0.056	0.028
DAC_MJ	-0.018	-0.014	0.111	-0.535	0.384	-0.057	0.028
DAC_WC	0.160	0.142	0.129	-0.207	0.678	0.093	0.209
Independent variables							
NASFR	1.416	0.700	2.123	0.000	13.333	0.347	1.441
BIG4 (0/1)	0.955			0.000	1.000		
AUDCH	0.033			0.000	1.000		
ACQ (0/1)	0.734			0.000	1.000		
ISSUE	0.037	0.002	0.158	-0.334	0.963	-0.015	0.051
SIZE	3.126	3.068	0.726	1.470	5.074	2.660	3.587
GROWTH (times)	5.770	2.362	16.017	-19.115	121.866	1.222	4.173
LEV	0.530	0.525	0.233	0.075	1.460	0.375	0.641
ZSCORE	2.008	1.809	1.218	0.013	7.916	1.257	2.504
LOSS (0/1)	0.102			0.000	1.000		
HITECH (0/1)	0.182			0.000	1.000		
ASSETGROW	396.172	44.700	1728.856	-3732.000	11580.000	-3.050	232.900
NASF (£m)	1.275	0.420	3.257	0.000	102.000	0.200	1.300
AF (£m)	1.756	0.600	4.592	0.050	63.000	0.250	1.415
LnTOTFEE	0.089	0.041	0.545	-1.201	1.470	-0.274	0.434
TOTFEE (£m)	3.046	1.100	7.101	0.010	156.100	0.530	2.720
TASS (£m)	6309.277	1170.500	19798.890	6.200	257819.000	456.700	3859.050

Variable definitions:

ABSDAC_SJ=Absolute value of discretionary accruals measured using the standard Jones (1991) model. *ABSDAC_MJ*=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *ABSDAC_WC*=Absolute value of discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *DAC_SJ*=Discretionary accruals measured using the standard Jones (1991) model. *DAC_MJ*=Discretionary accruals measured using the modified Jones (1995) model. *DAC_WC*=Discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets. *NASF*=Non-audit services fee in £million. *AF*=Audit fees in £million. *LnTOTFEE*=Natural log of total fees. *TOTFEE*=Total of audit and non-audit services fees in £million. *TASS*=Total assets in £million.

The maximum NAS fees (£67.32m) were paid to PwC in 2008 by Rio Tinto Plc. Other high NAS fees paying companies include BP Plc, GlaxoSmithKline Plc, Royal Dutch Shell Plc, SABMiller Plc and British American Tobacco Plc. BP Plc paid the highest audit fees (£41.58m) in 2007 to E&Y. Other high spending companies for audit fees include Royal Dutch Shell Plc, Unilever Plc, and Rio Tinto Plc. The average NAS fees paid by FTSE350 companies for the 10-year period is £1.275m while it is £1.756m for their audit fees.

The sampled companies changed their auditors in 3.3 per cent cases, implying a stable relationship between the auditors and their clients. The movement between the components of equity, as depicted by *ISSUE*, is documented at only 3.7 per cent compared to the total assets. The average market value of equity for the sampled FTSE350 companies is about 6 times of their book value *(GROWTH)*, implying fairly efficient operation of the market at London Stock Exchange while the companies on average maintain a rather high level of leverage at 53 per cent *(LEV)*. It is noteworthy that the minimum value of *GROWTH* reported is -19.115 times. This is because some companies reported negative book value of equity that yielded negative values for the variable. For example, Dignity Plc. reported £28.3m of negative equity in their balance sheet in 2006 while the market value of equity was £407m. The mean Altman's Z-score implies that the sampled companies have a fair chance of bankruptcy with *ZSCORE* at 2.008. About 10 per cent of the companies reported operating losses while 18 per cent companies drawn in the sample come from high-tech industries. The average total assets for the sample companies stand at £6.3 billion.

Finally, un-tabulated results for governance related variables show that all sample companies comply with the UK Corporate Governance Code (FRC 2012, 2014b), in particular, the separation between the CEO and Chairman; at least 50 per cent or more non-executive directors on their board and the Audit Committee Chair having relevant finance and accounting knowledge. As a result the dichotomous variables such as *CEOVCH* (1 if the CEO and the chairman are two different persons, and 0 otherwise), *NONEX* (1 if 50 per cent or more are non-executive directors on the board, and 0 otherwise) and *EXPERT* (1 if the Audit Committee chair has relevant accounting and finance knowledge, and 0 otherwise) are excluded from the regression models due to constant nature.

5.2.2 Pearson correlation matrices

Table 5.2 presents the Pearson correlations between variables[73]. The correlation matrix for the regression variables of 1936 firm-year observations in the sample over the period 2005-2012 (post-APB period) is shown in Panel A while Panel B reports the same for 484 firm-year observations for pre-APB period (2003 and 2004) in the sample.

The highest correlation in Panel A is between *SIZE* and *LnTOTFEE* at 0.776 while it is -0.163 between *SIZE* and *ABSDAC*. According to Judge et al. (1988, p. 868), correlations below 0.80 are not too harmful for multi-collinearity among independent variables. *NASFR* documents a very insignificant positive association at 0.2 per cent while *LnTOTFEE* is significantly negatively correlated with *ABSDAC* for the pooled data at the 0.01 level[74]. In a simple univariate sense, this significant negative relationship between total fees and discretionary accruals weakens the policymakers' arguments about the 'economic bonding' of auditors as an alleged reason for audit failures and lower FRQ.

Most control variables exhibit significant association with *ABSDAC*. In particular, *BIG4* documents a significant negative association with *ABSDAC* at the 0.01 level, suggesting that Big4 auditors can exert more mitigating influence against the management discretion in accruals exercise that help improve FRQ of the companies audited. Company size has a major association with total fees paid to the auditor, as evidenced from a strong positive correlation (77.6 per cent) between *SIZE* and *LnTOTFEE*, as does *ASSETGROW* (33.9 per cent). This correlation signifies that larger companies and companies with extreme performance pay higher total fees to their auditors. These findings are consistent with Reynolds et al. (2004) who report that company size is a significant determinant of total fees to auditors. Correlations between the *DEPENDENCE* measures are found to be significant at the 0.01 level, where

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[73] Correlations are estimated as per Pearson product-moment correlations unless stated otherwise.

[74] In addition to the *DEPENDENCE* measures used in this study (*NASFR* and *LnTOTFEE*), it examines the association of two alternative *DEPENDENCE* measures such as (1) audit fee by total fee and (2) NAS fee by total fee. Un-tabulated results of correlations show that both measures register a significant positive association with *ABSDAC* at the 0.01 level with coefficients 0.374 and 0.373 respectively pre-APB while they have non-significant yet positive association with *ABSDAC* with coefficients 0.0118 and 0.0042 respectively post-APB. While the association between the economic bonding measured by audit fee by total fee and *ABSDAC* is similar to that of *NASFR*, the second alternative economic bonding estimated through NAS fee by total fee registers a non-significant positive association with *ABSDAC*. This is in contrast to the statistically significant negative correlation between *LnTOTFEE* and *ABSDAC* as discussed in the main tests.

LnTOTFEE and *NASFR* are positively associated at 0.079. More importantly, *NASFR* has a marginal association with *ABSDAC* at 0.2 per cent while *LnTOTFEE* is significantly negatively correlated at -0.15. Overall, the evidence has little support for the popular auditor-auditee bonding concept that auditors may compromise independence when the provision of NAS generates economic rents (Beeler and Hunton 2001). Panel B of Table 5.2 reports qualitatively similar association with an important distinction in regard to *NASFR* during the pre-APB period. It shows that *NASFR* has a marginal positive correlation with *ABSDAC* at the 0.10 level during the pre-APB period of the sample while the same has a statistically non-significant association post-APB.

Overall, there is marginally significant evidence against first and second hypotheses that fees generated from joint provision of audit and NAS help auditors acquiesce to their clients' accounting choices and thus allow their clients discretion in managing earnings. On top of that, statistically significant negative correlations of *LnTOTFEE* with *ABSDAC* at the 0.01 level support the view that higher total fees lead to auditor's reputational capital (DeAngelo 1981) and increased auditor objectivity and independence (Wallam 1996) and hence enhance the FRQ.

Table 5.2 Pearson correlation matrices

Modified Jones model estimate of ABSDAC (n=1936)

Panel A: Continuous Variable Correlations for post-APB period (2005 to 2012)

	ABSDAC	NASFR	LnTOTFEE	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000													
NASFR	0.002	1.000												
LnTOTFEE	**-0.150**	**0.079**	1.000											
BIG4	**-0.113**	0.008	**0.193**	1.000										
AUDCH	-0.012	0.002	**-0.043^b**	-0.001	1.000									
ACQ	**-0.052^a**	**0.116**	**0.078**	**0.074**	0.006	1.000								
ISSUE	**0.068**	**0.071**	-0.021	-0.068	0.005	**0.038^b**	1.000							
SIZE	**-0.163**	**-0.111**	**0.776**	**0.200**	**-0.043^b**	**0.080**	**-0.042^b**	1.000						
GROWTH	0.002	0.021	0.022	-0.015	0.009	-0.028	-0.009	**-0.061**	1.000					
LEV	**0.068**	0.034	**0.128**	**0.043^b**	0.032	**0.046^a**	0.024	0.036	0.030	1.000				
ZSCORE	0.034	-0.012	**-0.273**	**-0.074**	**-0.047^a**	**-0.071**	0.004	**-0.377**	**0.132**	**-0.295**	1.000			
LOSS	**0.226**	**0.072**	**-0.066**	-0.027	0.006	-0.019	**0.039^b**	**-0.067**	**-0.051^a**	0.015	**-0.178**	1.000		
HITECH	-0.008	**-0.063**	**0.085**	-0.005	-0.032	**-0.107**	0.016	**-0.062**	**0.044^b**	-0.030	**0.055^b**	-0.020	1.000	
ASSETGROW	**-0.044^b**	**-0.038^b**	**-0.339**	**0.042^b**	-0.021	**0.038^b**	**0.163**	**0.407**	**0.056^a**	**-0.046^a**	**-0.078**	**-0.083**	0.019	1.000

Coefficients in bold are significant at 0.01 ($p<0.01$), coefficients in bold with superscript a and b are significant at 0.05 ($p<0.05$) and 0.10 ($p<0.10$) respectively.

Table 5.2 Pearson correlation matrices

Modified Jones model estimate of ABSDAC (n=484)

Panel B: Continuous Variable Correlations for pre-APB period (2003 and 2004)

	ABSDAC	NASFR	LnTOTFEE	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000													
NASFR	**0.083**[b]	1.000												
LnTOTFEE	**-0.161**	**0.097**[a]	1.000											
BIG4	**-0.076**[b]	-0.041	**0.195**	1.000										
AUDCH	0.055	-0.035	0.013	0.040	1.000									
ACQ	**-0.156**	0.021	-0.026	0.057	-0.040	1.000								
ISSUE	-0.016	0.006	**-0.121**	0.074	0.071	0.034	1.000							
SIZE	**-0.273**[a]	-0.035	**0.793**	**0.247**	-0.021	0.045	-0.065	1.000						
GROWTH	**0.103**[a]	0.027	-0.043	-0.004	0.058	-0.050	0.009	**-0.098**[a]	1.000					
LEV	**0.154**	0.014	**0.113**[a]	0.075	**0.113**[a]	-0.067	0.096[a]	-0.022	0.035	1.000				
ZSCORE	0.063	**0.128**	**-0.182**	**-0.081**[b]	-0.052	-0.051	**-0.121**	**-0.323**	0.019	**-0.150**	1.000			
LOSS	**0.194**	-0.015	-0.006	0.030	0.058	**-0.118**	-0.051	**-0.102**[a]	0.020	0.058	**-0.229**	1.000		
HITECH	-0.041	**-0.109**[a]	**0.103**[a]	0.017	-0.045	**-0.091**[a]	-0.011	-0.040	-0.025	0.005	0.050	**0.127**	1.000	
ASSETGROW	-0.015	0.011	**0.213**	0.029	-0.033	0.042	**0.079**[b]	**0.261**	0.030	-0.028	-0.044	-0.031	0.038	1.000

Coefficients in bold are significant at 0.01 (p<0.01), coefficients in bold with superscript a and b are significant at 0.05 (p<0.05) and 0.10 (p<0.10) respectively.

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets.

5.2.3 Regression results

Panels A, B and C of Table 5.3 present the regression results. Panel A reports the cross-sectional regression results for both dependence measures pre- and post-APB. In order to ensure that these correlations do not affect the results in the models, Variance Inflation Factors (VIFs) have been examined for all variables. The VIFs are found to be below 4 while the conventional cut off point is 10 (McMeeking et al. 2007, p. 307) and their average is only 1.45. This indicates that correlations are not affecting the results.

5.2.3.1 Regression results for a comparison between pre- and post-APB period

Table 5.3 Cross-sectional regression model of absolute value of discretionary accruals
Modified Jones model used for ABSDAC estimates

Panel A: Comparison between pre- and post-APB period

Variable	Pred. Sign	Post-APB period (2005 to 2012)				Pre-APB period (2003 and 2004)			
		Estimate		Clustered St. Error	t-statistic	Estimate		Clustered St. Error	t-statistic
Intercept	?	0.0465	***	0.0103	4.52	0.0745	**	0.0234	3.18
NASFR	+	-0.0001		0.0005	-0.17	-0.0009		0.0014	-0.69
LnTOTFEE	+	-0.0123	***	0.0030	-4.06	0.0029		0.0075	0.38
BIG4	-	-0.0147	**	0.0047	-3.13	0.0035		0.0112	0.31
AUDCH	-	0.0001		0.0051	0.01	0.0031		0.0151	0.20
ACQ	+	-0.0022		0.0021	-1.02	-0.0067		0.0055	-1.22
ISSUE	+	0.0155	*	0.0063	2.46	0.0025		0.0141	-0.18
SIZE	-	0.0000		0.0025	0.01	-0.0102		0.0060	-1.70
GROWTH	+	0.0000		0.0001	-0.54	0.0002		0.0001	-1.65
LEV	+	0.0141	**	0.0045	3.15	0.0415	***	0.0095	4.37
ZSCORE	-	-0.0033	***	0.0010	3.43	-0.0019		0.0019	-1.00
LOSS	-	-0.0219	***	0.0033	6.67	-0.0340	***	0.0081	4.21
HITECH	+	0.0049		0.0025	1.96	0.0067		0.0066	-1.01
ASSETGROW	+	0.0000	*	0.0000	1.23	0.0000		0.0000	1.57
R-squared		9.34%				15.84%			

* p<0.10, ** p<0.05, and ***p<0.01
Note: Pooled regression is run after controlling for time dummy

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees.*BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets.

Out of two dependence measures, *NASFR* documents insignificant negative association during both pre- and post-APB periods, contrary to its hypothesised relationship to the magnitude of *ABSDAC* (Panel A, Table 5.3).The second dependence measure, *LnTOTFEE,* which is hypothesised to positively contribute to the magnitude of *ABSDAC,* document a significant negative correlation post-APB while it is positively correlated to *ABSDAC* during pre-APB period, prior to the enactment of the APB ES. Therefore, the association between *LnTOTFEE* and *ABSDAC* documents a significant shift from statistically insignificant positive correlation during pre-APB period to a significant negative association at the 0.01 level post-APB. This result provides evidence that the economic bonding created by the joint provision of audit and NAS may not be detrimental to auditor independence and FRQ, rather it can be argued that it offers an incentive for auditors to protect their 'reputational capital' as argued by DeAngelo (1981).

On the other hand, *NASFR* displays a negative association (although not statistically significant) with *ABSDAC* in both periods. The overall negative correlation with *NASFR* and the significant negative association with *LnTOTFEE* post-APB do not strongly support policymakers' and commentators' concerns (House of Commons Treasury Committee 2009, House of Lords Select Committee on Economic Affairs 2011) about the alleged failure in audit process stemming from the erosion of auditor independence and potential decline in the FRQ for UK companies due to their joint purchase of NAS from their statutory auditors. While there are some instances of large audit fees and NAS fees, as discussed in section 5.2.1, the ES promulgated by the APB (APB 2010a) seem to have some influence, *ceteris paribus*, for the auditors of FTSE350 companies in maintaining their *in fact* independence that help check the exercise of discretionary accruals by companies in enhancing FRQ.

Several of the control variables have significant association with *ABSDAC* during post-APB period. Among others, the Big4 auditors *(BIG4)* are negatively correlated with *ABSDAC* and are significant at the 0.05 level. This indicates that Big4 auditors tolerate less discretionary accruals, which is consistent with the findings of Craswell et al. (1995) that Big4 auditors provide higher quality audits than their non-Big4 counterparts. The potential for bankruptcy *(ZSCORE)* and companies reporting a net loss in the year *(LOSS)* document a significant negative association with *ABSDAC*. This implies that financially distressed companies tend to use accruals to increase their reported earnings

and companies reporting a net loss are less likely to manage earnings. The regression results also report marginally significant association for *LEV* and *ISSUE* with the dependent variable. These indicate that highly levered companies [75] have greater incentives to manage earnings in line with their debt covenants while companies involved in issuance of seasoned equity offerings, preferred stocks and bonds contribute to the magnitude of *ABSDAC*. Regression results for pre-APB period reports significant association of *LEV* and *LOSS* with the dependent variable at the 0.01 level.

5.2.3.2 Year-by-year results

While Table 5.3 above presents the results of regression on a pooled level, Table 5.3A presents the year-by-year regressions between *ABSDAC* and all independent variables employing the modified Jones model for estimating discretionary accruals. In order to ensure that these correlations do not affect the results in the models, Variance Inflation Factors (VIFs) have been examined for all variables. The VIFs are found to be below 3 while the conventional cut off point is 10 (McMeeking et al. 2007, p. 307) and their average is only 1.27. This indicates that correlations are not affecting the results.

Both dependence measures, namely *NASFR* and *LnTOTFEE,* which are hypothesised to positively contribute to the magnitude of *ABSDAC*, document statistically non-significant negative correlations in most of the years. *LnTOTFEE* is only positively correlated in 2004, prior to the enactment of the APB ES, and it is statistically insignificant while it has a positive correlation post-APB in 2011 and the association is statistically insignificant. With statistically insignificant association, *LnTOTFEE* is reported to have negative correlation with *ABSDAC* in remaining years. Overall, with the caveat of marginally significant association, these results provide little support for the economic bonding created by the joint provision of audit and NAS. On the other hand, *NASFR* displays a negative association (although not statistically significant) with *ABSDAC* in 7 out of 10 years. In line with the pooled results reported in Table 5.3 above, this year-by-year results, on an overall basis, have little support for policymakers' and commentators' concerns (House of Commons Treasury Committee 2009; House of Lords Select Committee on Economic Affairs 2011) about the alleged failure in audit process stemming from the erosion of auditor independence and potential decline in the FRQ for UK companies due to their joint purchase of NAS from their statutory auditors.

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[75]   The sample companies have an average leverage ratio of 53 per cent (See Table 5.2).

Table 5.3A Year-by-year regressions with the dependent variable
Modified Jones procedures applied for discretionary accruals estimates

Variable and pred. sign	2003 ABSDAC	2004 ABSDAC	2005 ABSDAC	2006 ABSDAC	2007 ABSDAC	2008 ABSDAC	2009 ABSDAC	2010 ABSDAC	2011 ABSDAC	2012 ABSDAC
NASFR	-0.0003	-0.0019	-0.0005	0.00323**	0.0007	-0.0013	0.0001	-0.0007	-0.0009	-0.0014
+	[0.00196]	[0.00181]	[0.00143]	[0.00110]	[0.000930]	[0.00146]	[0.00111]	[0.00209]	[0.00247]	[0.00294]
LnTOTFEE	-0.0049	0.0161	-0.0260**	-0.0222*	-0.0142	-0.0107	-0.0181*	-0.0018	0.0002	-0.0048
+	[0.0112]	[0.00960]	[0.00857]	[0.00878]	[0.00808]	[0.0112]	[0.00866]	[0.00894]	[0.00918]	[0.00828]
BIG4	0.0276	-0.0110	-0.0064	-0.0331*	-0.0519***	-0.0368*	0.0034	0.0003	-0.0234	-0.0006
-	[0.0172]	[0.0138]	[0.0121]	[0.0133]	[0.0122]	[0.0161]	[0.0133]	[0.0134]	[0.0155]	[0.0146]
AUDCH	-0.0076	0.0135	0.0370*	0.0106	-0.0089	-0.0060	0.0025	-0.0006	-0.0090	0.0009
-	[0.0221]	[0.0220]	[0.0153]	[0.0167]	[0.0126]	[0.0220]	[0.0139]	[0.0135]	[0.0146]	[0.0129]
ACQ	-0.0121	-0.0032	-0.0054	-0.0115	-0.0001	-0.0086	0.0128*	0.0006	-0.0041	-0.0068
+	[0.00844]	[0.00685]	[0.00594]	[0.00663]	[0.00590]	[0.00803]	[0.00623]	[0.00590]	[0.00628]	[0.00577]
ISSUE	0.0747**	-0.0137	-0.0101	0.0421**	0.0237	0.0195	-0.0137	0.0433	-0.0058	-0.0129
+	[0.0266]	[0.0158]	[0.0161]	[0.0148]	[0.0141]	[0.0197]	[0.0272]	[0.0275]	[0.0259]	[0.0304]
SIZE	-0.0161	-0.0121	0.0074	0.0066	-0.0012	0.0100	0.0078	-0.0012	-0.0122	-0.0043
-	[0.00931]	[0.00761]	[0.00664]	[0.00684]	[0.00678]	[0.00985]	[0.00708]	[0.00761]	[0.00773]	[0.00694]
GROWTH	-0.000484*	0.0000	0.0001	-0.0001	0.0000	0.0002	-0.0002	-0.0001	0.0000	-0.0001
+	[0.000217]	[0.000151]	[0.000177]	[0.000165]	[0.000162]	[0.000290]	[0.000181]	[0.000160]	[0.000208]	[0.000182]
LEV	0.0383**	0.0436***	0.0110	0.0113	0.0121	0.0207	0.0281*	0.0156	0.0177	0.0168
+	[0.0138]	[0.0129]	[0.0114]	[0.0135]	[0.0121]	[0.0166]	[0.0126]	[0.0133]	[0.0146]	[0.0128]
ZSCORE	-0.0017	-0.0033	-0.0003	0.0050	0.00646**	0.0022	0.00883**	0.0047	0.0027	0.0053
-	[0.00281]	[0.00258]	[0.00209]	[0.00266]	[0.00245]	[0.00391]	[0.00288]	[0.00309]	[0.00301]	[0.00308]
LOSS	0.0267*	0.0305**	0.0398***	0.0179	0.0099	0.0540***	0.0257***	0.0101	-0.0084	0.0230*
-	[0.0125]	[0.0102]	[0.00947]	[0.0120]	[0.00980]	[0.00992]	[0.00745]	[0.0118]	[0.0149]	[0.00984]
HITECH	-0.0128	-0.0048	0.0044	0.0071	0.0036	0.0151	0.0071	0.0044	-0.0064	0.0027
+	[0.0101]	[0.00822]	[0.00697]	[0.00762]	[0.00680]	[0.00935]	[0.00699]	[0.00708]	[0.00746]	[0.00698]
ASSETGROW	0.00000532*	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000364*	0.0000
+	[0.00000253]	[0.00000199]	[0.00000198]	[0.00000242]	[0.00000170]	[0.00000190]	[0.00000227]	[0.00000170]	[0.00000175]	[0.00000207]
Intercept	0.0804*	0.0872**	0.0239	0.0422	0.0732**	0.0454	-0.0246	0.0356	0.0980**	0.0453
?	[0.0353]	[0.0304]	[0.0263]	[0.0280]	[0.0268]	[0.0399]	[0.0293]	[0.0315]	[0.0338]	[0.0316]
N	242	242	242	242	242	242	242	242	242	242
R-squared	0.1884	0.2115	0.1265	0.146	0.1554	0.1908	0.132	0.0272	0.1667	0.0932

Standard errors in brackets   * p<0.10, ** p<0.05, and ***p<.01

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets.

5.2.3.3 Regression results for influence using total and NAS fees with sample partitioned into size quartiles

This part of the empirical analysis partitions the sample companies into size quartiles in relation to their total assets in order to further understand the influence of *LnTOTFEE* and *NASFR* on the magnitude of *ABSDAC*. Panels B to E of Table 5.3 report the results of this extended analysis. Panels B and C report the regression output of variables using *LnTOTFEE* as the influence variable for post- and pre-APB periods respectively while panels D and E document the same using *NASFR* as the influence variable post- and pre-APB respectively.

Reynolds et al. (2004) argue that smaller companies may not have enough incentive for auditors to jeopardise their independence while the 'auditors' reputational capital' argument by DeAngelo (1981) indicates that no single client is important to a large auditor as they have greater reputation to lose. Also, from the discussion of the first and second hypotheses in section 3.2 in Chapter 3, both *NASFR* and *LnTOTFEE* can be argued to have a stronger positive association with *ABSDAC* in larger companies (third and fourth quartiles) than in smaller companies (first and second quartiles). However, Panel B reports that for the post-APB period, the influence variable, *LnTOTFEE*, has a marginally significant negative association with *ABSDAC* in the larger two quartiles at the 0.10 level, while it has a negative association in first and second quartiles. On the other hand, Panel C reports that *LnTOTFEE* shares a positive association with *ABSDAC* in all four quartiles during the pre-APB period.

Table 5.3 Cross-sectional regression model of absolute value of discretionary accruals

Panel B: Influence using LnTOTFEE between quartiles during post-APB period

Quartile 1=smallest companies and quartile 4=largest companies in regards to their Total Assets

Variable	Pred Sign	Quartile 1 (n=484) Estimate	Clust. St Error	p-value	Quartile 2 (n=484) Estimate	Clust. St Error	p-value	Quartile 3 (n=484) Estimate	Clust. St Error	p-value	Quartile 4 (n=484) Estimate	Clust. St Error	p-value
Intercept	?	0.388 ***	0.079	0.000	-0.162	0.126	0.201	0.060	0.147	0.015	0.051	0.061	0.405
LnTOTFEE	+	-0.055	0.033	0.100	-0.016	0.017	0.369	-0.044 *	0.018	0.653	-0.013 *	0.010	0.198
BIG4	-	-0.044	0.024	0.068	-0.034	0.030	0.259	-0.014	0.031	0.856	(omitted)		
AUDCH	-	-0.007	0.014	0.600	0.001	0.016	0.972	0.002	0.011	0.012	-0.004	0.018	0.822
ACQ	+	-0.047 **	0.018	0.009	-0.011	0.011	0.330	0.020 *	0.008	0.245	-0.001	0.006	0.867
ISSUE	+	0.035	0.066	0.597	0.015	0.043	0.721	0.066	0.057	0.921	0.011	0.020	0.599
SIZE	-	-0.134 ***	0.029	0.000	0.092 *	0.045	0.040	-0.004	0.040	0.587	-0.010	0.013	0.434
GROWTH	+	0.000	0.000	0.360	0.000	0.000	0.346	0.000	0.000	0.654	0.000	0.000	0.532
LEV	+	0.148 *	0.062	0.017	0.008	0.015	0.599	0.013	0.029	0.490	0.030	0.020	0.134
ZSCORE	-	0.009	0.007	0.202	-0.004	0.003	0.211	0.007	0.010	0.004	0.018	0.013	0.171
LOSS	-	0.149 **	0.055	0.008	0.063 **	0.020	0.002	0.098 **	0.033	0.244	0.039 ***	0.011	0.000
HITECH	+	-0.007	0.014	0.600	-0.017	0.008	0.035	0.010	0.009	0.890	0.010	0.006	0.107
ASSETGROW	+	0.000	0.000	0.856	0.000	0.000	0.099	0.000	0.000	0.683	0.000	0.000	0.399
R-squared		20.17%			9.40%			9.70%			11.04%		

* $p<0.10$, ** $p<0.05$, and ***$p<0.01$

Note: Pooled regression is run after controlling for time dummy and BIG4 is omitted in quartile 4 due to collinearity

Panel C: Influence using LnTOTFEE between quartiles during pre-APB period
Quartile 1=smallest companies and quartile 4=largest companies in regards to their Total Assets

Variable	Pred Sign	Quartile 1 (n=121) Estimate	Clust. St Error	p-value	Quartile 2 (n=121) Estimate	Clust. St Error	p-value	Quartile 3 (n=121) Estimate	Clust. St Error	p-value	Quartile 4 (n=121) Estimate	Clust. St Error	p-value
Intercept	?	1.185 ***	0.262	0.000	-0.311	0.320	0.335	0.200	0.266	0.454	0.195 *	0.080	0.017
LnTOTFEE	+	0.095	0.128	0.458	0.050	0.060	0.406	0.020	0.032	0.527	0.016	0.016	0.296
BIG4	-	0.042	0.062	0.507	0.036	0.028	0.205	0.050 *	0.019	0.012	(omitted)		
AUDCH	-	-0.122	0.069	0.079	0.214	0.160	0.185	(omitted)			0.009	0.019	0.634
ACQ	+	-0.086	0.056	0.129	-0.038	0.031	0.221	-0.017	0.028	0.540	-0.042 **	0.016	0.010
ISSUE	+	-0.215 *	0.089	0.017	0.077	0.119	0.523	-0.023	0.051	0.646	0.064 *	0.029	0.028
SIZE	-	-0.474 ***	0.140	0.001	0.120	0.109	0.274	-0.042	0.070	0.546	-0.043	0.022	0.055
GROWTH	+	0.000	0.001	0.922	-0.001	0.001	0.236	0.003 ***	0.001	0.000	0.000	0.000	0.239
LEV	+	0.191	0.101	0.060	0.089	0.061	0.150	-0.035	0.071	0.621	0.060 **	0.018	0.001
ZSCORE	-	-0.006	0.033	0.851	0.005	0.010	0.610	-0.012	0.011	0.264	0.013	0.012	0.303
LOSS	-	0.146	0.075	0.055	0.045	0.056	0.424	0.047	0.033	0.154	0.079 **	0.026	0.003
HITECH	+	-0.154 *	0.060	0.012	-0.047	0.038	0.220	0.015	0.032	0.644	0.010	0.015	0.497
ASSETGROW	+	0.000	0.000	0.381	0.000	0.000	0.716	0.000	0.000	0.190	0.000	0.000	0.090
R-squared		27.70%			26.00%			26.25%			31.09%		

* p<0.10, ** p<0.05, and ***p<.01
Note: Pooled regression is run after controlling for time dummy and AUDCH in Q3 and BIG4 in Q4 are omitted due to collinearity

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees.*BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets.

While the quartile results on the control variables are qualitatively similar to those reported in the first set of regression in Panel A of Table 5.3, the evidence from Panel B implies that *LnTOTFEE* does not cause auditors to jeopardise their independence even in the larger segment of their clients post-APB, rather larger companies seem to provide an incentive for auditors to protect their reputational capital, as depicted by the marginally significant negative association in the third and fourth quartiles. When *LnTOTFEE* is considered as one of the *DEPENDENCE* measures and on the condition of *ceteris paribus*, this study may attribute the evidence from Panel C towards the provision of effective regulation through APB ES for auditors in upholding their independence and enhancing the FRQ of UK companies. The analysis is similar when *NASFR* is used as the influence variable (Panels D and E of Table 5.3, presented in Appendix 2).

5.2.4 Regression results for assorted models of auditor's economic dependence and FRQ

The study predicts two alternative measurements for auditor's economic dependence on clients, namely, *NASFR* (model 1) and *LnTOTFEE* (model 2). For the post-APB period of 2005-2012 as shown in Panel A of Table 5.4, although not statistically significant, both *NASFR* and *LnTOTFEE* are found to be negatively correlated with *ABSDAC*, in contrast to their expected association. Interestingly, Panel B of Table 5.4 for the pre-APB period of 2003 and 2004 reports a positive association, also not statistically significant, for both *DEPENDENCE* measures. This shift between the pre- and post-APB ES regime thus provides some evidence of the relevance of ES for the auditors guiding them to keep the discretionary accruals within legitimate limit and hence improve the FRQ for FTSE350 companies.

While no previous study assessed the impact of APB ES on FRQ, using discretionary accruals as the proxy for auditor objectivity in the US context Reynolds et al. (2004) find no evidence that auditor fees affect their independence, nor the NAS fees appear to have a systematic cause to reduced level of FRQ. Chung and Kallapur (2003) also did not find significant association between NAS and discretionary accruals as was in case of Antle et al. (2006) who were unable to detect a positive relationship between NAS and discretionary accruals using both ordinary least square regression and simultaneous equations approaches. After separating out the *DEPENDENCE* measures into two different models and the statistically non-significant association between the *DEPENDENCE* measures and *ABSDAC* post-APB, this study does not have strong

evidence to support the first and second hypotheses that proportion of NAS fees to audit fees received from audit client and total fees received from audit client is positively correlated to discretionary accruals.

Table 5.4 Dependence measured using the NAS fee ratio (Model 1) and the log of total fees (Model 2)

Panel A: For post-APB period (2005 to 2012) (n=1936)

		Model 1				Model 2			
Variable	Pred. Sign	Estimate		Clustered St. Error	t-statistic	Estimate		Clustered St. Error	t-statistic
Intercept	?	0.1529	***	0.0301	5.07	0.1157	***	0.0347	3.33
NASFR	+	-0.0017		0.0010	-1.76				
LnTOTFEE	+					-0.0160		0.0084	-1.90
BIG4	-	-0.0456	*	0.0199	-2.30	-0.0448	*	0.0182	-2.46
AUDCH	-	-0.0132		0.0085	-1.55	-0.0133		0.0085	-1.56
ACQ	+	-0.0092	**	0.0062	-2.48	-0.0096	**	0.0066	-2.66
ISSUE	+	0.0357		0.0284	1.26	0.0345		0.0279	1.24
SIZE	-	-0.0231	***	0.0048	-4.79	-0.0129	***	0.0081	-3.59
GROWTH	+	0.0000		0.0001	-0.43	0.0000		0.0001	-0.17
LEV	+	0.0484	*	0.0227	2.13	0.0525	*	0.0222	2.36
ZSCORE	-	0.0047		0.0036	1.29	0.0052		0.0036	1.42
LOSS	-	-0.0924	***	0.0194	4.75	-0.0917	***	0.0189	4.85
HITECH	+	-0.0061		0.0053	-1.17	-0.0026		0.0053	-0.50
ASSETGROW	+	0.0000		0.0000	1.93	0.0000	*	0.0000	2.08
R-squared		9.22%				9.31%			

* $p<0.10$, ** $p<0.05$, and ***$p<0.01$
Note: Pooled regression is run after controlling for time dummy

Panel B: For pre-APB period (2003 and 2004) (n=484)

		Model 1				Model 2			
Variable	Pred. Sign	Estimate		Clustered St. Error	t-statistic	Estimate		Clustered St. Error	t-statistic
Intercept	?	0.3072	**	0.1018	3.02	0.3728	***	0.0744	5.01
NASFR	+	0.0082		0.0098	0.84				
LnTOTFEE	+					0.0270		0.0496	0.54
BIG4	-	-0.0169		0.0521	-0.32	-0.0184		0.0490	-0.38
AUDCH	-	0.0335		0.0900	0.37	0.0274		0.0899	0.31
ACQ	+	-0.0648	*	0.0266	-2.44	-0.0632	*	0.0246	-2.57
ISSUE	+	-0.0500		0.0519	-0.97	-0.0423		0.0734	-0.58
SIZE	-	-0.0781	***	0.0220	-3.54	-0.0950	***	0.0271	-3.51
GROWTH	+	0.0007		0.0006	1.24	0.0007		0.0005	1.57
LEV	+	0.1226	*	0.0578	2.12	0.1163		0.0609	1.91
ZSCORE	-	0.0044		0.0156	0.28	0.0048		0.0167	0.29
LOSS	-	0.1207	**	0.0457	2.64	0.1191	*	0.0508	2.34
HITECH	+	-0.0485	*	0.0228	-2.13	-0.0582	*	0.0248	-2.35
ASSETGROW	+	0.0000	**	0.0000	2.92	0.0000	*	0.0000	2.56
R-squared		15.79%				15.54%			

* $p<0.10$, ** $p<0.05$, and ***$p<0.01$
Note: Pooled regression is run after controlling for time dummy

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets.

As expected, seven control variables, namely, *BIG4, ACQ, SIZE, LEV, LOSS, HITECH and ASSETGROW* are found significant at the 0.01, 0.05 and 0.10 level with R-squared ranging between of 9.22 and 15.79 per cent for both models. This assures that other control variables, not the *DEPENDENCE* measures, are able to explain the dependent variable. If discretionary accruals are taken as an indication of financial reporting discretion by company managers, then with the caveat of the non-significant association, these findings have little ground for the commonly held concern about economic bonding of auditors on their clients and warrant more rigorous assessment of the tension expressed by the commentators such as the Treasury Committee over NAS fees as an easy scapegoat for alleged audit failures.

5.2.5 Correlations with benchmark model of NASFR

With the analysis of economic bonding or dependence of auditor through two models, this study goes further to investigate the impact of APB ES on the FRQ by examining the influence of NAS fees on auditor independence and consequent FRQ. To facilitate the investigation, this study takes an arbitrary economic dependence benchmark that categorises observations having *NASFR* of less than 1 (model 3) and those having that of equal to and greater than 1 (model 4). This categorisation leaves 1478 firm-year observations under model 3, of which 1195 observations are for the post-APB period and 283 observations for the pre-APB. Model 4 is allocated 942 observations, where post-APB period has 741 observations while pre-APB period is allocated 201 firm-year observations. The rationale behind the arbitrary dependence benchmark is that auditors having *NASFR* of less than 1 could have less incentive to jeopardize independence while a higher *NASFR* may encourage auditor to risk independence and let managers exercise higher discretion in managing reported earnings leading to lower FRQ.

Table 5.5 presents the Pearson correlation matrices. While Panel A shows the continuous variable correlations for model 3 for the post-APB period, Panel B shows the same for the pre-APB period that use both *DEPENDENCE* measures. Contrary to the hypotheses developed in section 3.2 of Chapter 3, both measures exhibit negative correlation with *ABSDAC* for model 3 (NASFR<1) in both panels with *LnTOTFEE* having significant negative association with *ABSDAC* at the 0.01 level pre- and post-APB. Panels C and D of Table 5.5 (presented in Appendix 3) report a similar association between the *DEPENDENCE* measure and *ABSDAC* for post-APB period for model 4 (NASFR>=1) while *NASFR* exhibits a statistically non-significant positive association with *ABSDAC* in the pre-APB period.

Taking only *NASFR* as the *DEPENDENCE* measure, Panels E and F of Table 5.5 (also reported in Appendix 3) show a non-significant negative correlation with *ABSDAC* for model 3during both post- and pre-APB respectively. The final pair of Table 5.5, Panels G and H, report respectively statistically non-significant negative and positive correlations with *ABSDAC* for model 4 post- and pre-APB periods (reported in Appendix 3). With the caveat of non-significant positive correlation between *NASFR* and *ABSDAC* for model 4 during pre-APB period (Panels D and H of Table 5.5), these correlations imply that fees generated from relatively higher NAS clients might have some influence on auditors to allow them greater discretion in earnings management before the enactment of APB ES. However, these correlations provide evidence that NAS fees do not motivate auditors to jeopardise their independence for both higher and lower NAS clients post-APB (see Panels A, C, E and G). Moreover, the correlation results report a statistically significant negative association between *LnTOTFEE* and *ABSDAC* for model 3 and a marginally significant negative association between *LnTOTFEE* and *ABSDAC* for model 4. Hence, the models used in this study do not have strong support for the first and second hypotheses. These negative correlations rather provide support for the DeAngelo's (1981) 'reputational capital' argument and problematize the regulatory concerns over the erosion of independence perceived to be created from the provision of NAS supplied by the incumbent auditors.

Table 5.5 Pearson correlation matrices
Panel A: Continuous Variable Correlations for Model 3 (NASFR<1) using both dependence measures (n=1195) post-APB

	ABSDAC	NASFR	LnTOTFEE	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000													
NASFR	-0.032	1.000												
LnTOTFEE	**-0.181**	**0.167**	1.000											
BIG4	**-0.114**	**0.085**	**0.211**	1.000										
AUDCH	-0.011	-0.012	**-0.059**[a]	0.022	1.000									
ACQ	**-0.086**	-0.018	**0.064**[a]	**0.073**[a]	**0.052**[b]	1.000								
ISSUE	**0.071**[a]	**0.050**[b]	-0.028	**-0.116**	0.012	0.037	1.000							
SIZE	**-0.182**	**0.091**	**0.793**	**0.207**	**-0.073**[a]	**0.085**	-0.014	1.000						
GROWTH	0.009	**-0.062**[a]	0.030	0.022	0.031	**-0.055**[b]	0.001	-0.038	1.000					
LEV	0.039	-0.037	**0.153**	**0.135**	0.022	0.035	0.032	0.047	**0.053**[b]	1.000				
ZSCORE	**0.065**[a]	-0.002	**-0.307**	-0.040	-0.031	-0.043	0.009	**-0.383**	**0.152**	**-0.300**	1.000			
LOSS	**0.247**	**-0.091**	**-0.099**	**-0.081**	0.010	**-0.056**[b]	0.007	**-0.097**	-0.043	0.011	**-0.145**	1.000		
HITECH	-0.012	-0.001	**0.127**	0.007	-0.011	**-0.079**	-0.023	-0.007	**0.087**	-0.023	0.023	0.000	1.000	
ASSETGROW	-0.039	**0.065**[a]	**0.369**	0.047	-0.020	0.042	**0.177**	**0.426**	**0.093**	-0.038	**-0.095**	**-0.062**[a]	0.047	1.000

Coefficients in bold are significant at 0.01 (p<0.01), coefficients in bold with superscript a and b are significant at 0.05 (p<0.05) and 0.10 (p<0.10) respectively.

	ABSDAC	NASFR	LnTOTFEE	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000													
NASFR	-0.078	1.000												
LnTOTFEE	**-0.180**	**0.152^a**	1.000											
BIG4	**-0.186**	**0.113^b**	**0.221**	1.000										
AUDCH	**0.196**	-0.003	0.080	0.037	1.000									
ACQ	**-0.315**	-0.001	0.008	0.096	-0.086	1.000								
ISSUE	-0.039	-0.018	-0.059	0.067	0.061	0.027	1.000							
SIZE	**-0.287**	**0.131^a**	**0.785**	**0.285**	0.033	0.056	-0.052	1.000						
GROWTH	**0.134^a**	-0.046	**-0.158**	-0.011	0.048	-0.008	-0.026	**-0.170**	1.000					
LEV	**0.132^a**	0.043	**0.143^a**	**0.122^a**	**0.203**	-0.056	-0.031	-0.021	-0.014	1.000				
ZSCORE	0.065	-0.050	**-0.262**	**-0.137^a**	-0.052	-0.093	-0.052	**-0.346**	-0.014	**-0.155**	1.000			
LOSS	**0.196**	-0.034	-0.024	-0.016	0.033	-0.084	-0.051	**-0.128^a**	0.043	0.093	**-0.227**	1.000		
HITECH	-0.015	0.058	**0.107^b**	0.020	-0.076	-0.049	0.059	-0.073	-0.016	0.058	0.068	**0.150^a**	1.000	
ASSETGROW	0.003	0.084	**0.109^b**	0.015	-0.030	0.017	**0.169**	**0.121^a**	-0.077	0.021	-0.029	-0.059	-0.064	1.000

Coefficients in bold are significant at 0.01 ($p<0.01$), coefficients in bold with superscript a and b are significant at 0.05 ($p<0.05$) and 0.10 ($p<0.10$) respectively.

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets.

5.2.6 Regressions with benchmark model of NASFR

The regression results are reported in Panels A and B of Table 5.6.Panel A uses both *DEPENDENCE* measures while Panel B employs only NASFR as the single *DEPENDENCE* measure and both panels show the results for post- and pre-APB periods. A dummy variable, *NASFRDUM*, is created which takes 1 for observations having *NASFR* less than 1 (lower NAS), and 0 otherwise (higher NAS). Panel A reports that for the post-APB period, *NASFR* and *LnTOTFEE* document a statistically non-significant negative association with *ABSDAC* and so does *NASFRDUM*, contrary to the expected positive association. On the other hand, the associations between these variables are positive for the pre-APB period. The model shows that five control variables are significant at 0.01 and 0.05. The post-APB non-significant negative association between both dependence measures and *ABSDAC* and between *NASFRDUM* and *ABSDAC* reiterate that the evidence from this study does not find support that either NAS fees or total audit fees deteriorate auditor independence and FRQ in UK FTSE350 companies. Instead, taking the caveat of non-significant association into consideration, the study can argue that the economic bonding created by the joint provision of NAS and audit may offer incentives for auditors in mitigating discretionary accruals leading to improved FRQ. Accordingly, data from the UK companies appear to have support for the argument of DeAngelo's (1981) 'reputational capital' for auditors, with little evidence that total fees may create some economic bonding allowing their clients greater latitude in exercising discretionary accruals.

Moving on to Panel B of Table 5.6, which presents the same regression results for the *NASFRDUM* dummy using *NASFR* as the only *DEPENDENCE* measure, the study finds little evidence in support of the popular auditor-auditee bonding hypothesis. Results reported for the post-APB period show a negative association, although not statistically significant, between both *NASFR* and *ABSDAC* and *NASFRDUM* and *ABSDAC*, suggesting that *NASFR* does not tempt auditor to risk independence and let managers exercise higher discretion in managing reported earnings leading to lower FRQ. Hence, with the same caveat of non-significant association, data from FTSE350 companies provide some support to reject the first hypothesis that the proportion of NAS fees to audit fees received from audit clients is positively correlated to the magnitude of discretionary accruals.

Table 5.6 Regression results using NASFR dummy

Panel A: For both dependence measures

Variable	Pred sign	Estimate		Clustered St Error	t-statistic	Estimate		Clustered St Error	t-statistic
		Post-APB period (n=1936)				**Pre-APB period (n=484)**			
Intercept	?	0.1234	***	0.0383	3.22	0.3388	***	0.0798	4.25
NASFR	+	-0.0014		0.0012	-1.16	0.0099		0.0117	0.84
LnTOTFEE	+	-0.0140		0.0088	-1.60	0.0200		0.0396	0.51
NASFRDUM	+	-0.0026		0.0070	-0.37	0.0162		0.0303	0.53
BIG4	-	-0.0448	**	0.0200	-2.24	-0.0144		0.0522	-0.28
AUDCH	-	-0.0133		0.0083	-1.59	0.0341		0.0888	0.38
ACQ	+	-0.0093		0.0061	-1.53	-0.0658	**	0.0258	-2.55
ISSUE	+	0.0354		0.0284	1.24	-0.0468		0.0566	-0.83
SIZE	-	-0.0143		0.0086	-1.66	-0.0909	***	0.0244	-3.73
GROWTH	+	0.0000		0.0001	-0.16	0.0007		0.0006	1.23
LEV	+	0.0523	**	0.0221	2.36	0.1157		0.0604	1.92
ZSCORE	-	0.0052		0.0036	1.42	0.0033		0.0141	0.23
LOSS	-	-0.0922	***	0.0195	4.73	-0.1195	**	0.0476	2.51
HITECH	+	-0.0032		0.0056	-0.57	-0.0533	**	0.0221	-2.41
ASSETGROW	+	0.0000	**	0.0000	2.02	0.0000	***	0.0000	3.21
R-squared		9.35%				15.91%			

* p<0.10, ** p<0.05, and ***p<0.01

Panel B: Using only NASFR as the dependence measure

Variable	Pred sign	Estimate		Clustered St Error	t-statistic	Estimate		Clustered St Error	t-statistic
		Post-APB period (n=1936)				**Pre-APB period (n=484)**			
Intercept	?	0.1539	***	0.0301	5.11	0.2960	***	0.1151	2.57
NASFR	+	-0.0019		0.0012	-1.66	0.0104		0.0123	0.85
NASFRDUM	+	-0.0021		0.0069	-0.31	0.0143		0.0278	0.51
BIG4	-	-0.0458	**	0.0199	-2.31	-0.0152		0.0520	-0.29
AUDCH	-	-0.0131		0.0084	-1.55	0.0358		0.0907	0.40
ACQ	+	-0.0093		0.0060	-1.55	-0.0663	***	0.0253	-2.62
ISSUE	+	0.0356		0.0284	1.26	-0.0509		0.0508	-1.00
SIZE	-	-0.0229	***	0.0048	-4.73	-0.0780	***	0.0221	-3.52
GROWTH	+	0.0000		0.0001	-0.42	0.0007		0.0006	1.24
LEV	+	0.0485	**	0.0227	2.13	0.1220	**	0.0580	2.10
ZSCORE	-	0.0048		0.0036	1.31	0.0041		0.0153	0.27
LOSS	-	-0.0924	***	0.0194	4.76	0.1220	***	0.0449	2.72
HITECH	+	-0.0060		0.0053	-1.13	-0.0491	**	0.0225	-2.18
ASSETGROW	+	0.0000		0.0000	1.92	0.0000	***	0.0000	3.18
R-squared		9.22%				15.84%			

* p<0.10, ** p<0.05, and ***p<0.01

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees. *NASFRDUM*=Dummy variable that takes 1 if NASFR is less than 1, 0 otherwise.*BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets.

5.3 Impact assessment of APB ES in terms of restricted NAS on FRQ

Following the literature of causal inference in public policy and other branches of social science research, this study employs a quasi-experimental method, popularly known as 'difference-in-differences'. Imbens and Wooldridge (2009, p. 67) argue that 'difference-in-differences' approach is "often associated with so-called natural experiments, where policy changes can be used to effectively define control and treatment groups". This method has been commonly used in empirical economics since the seminal work by Ashenfelter (1978) and Ashenfelter and Card (1985). In a well-known paper using the difference-in-difference approach, Card and Krueger (1994) surveyed whether an increase in New Jersey's minimum wage reduced employment at fast food restaurants by comparing it with seven border counties in Pennsylvania. Schneider and Buckley (2003) study parental evaluation of traditional public schools and charter schools in Washington DC using the difference-in-difference approach.

As discussed in section 4.7 of chapter 4 and for the purpose of this study, the 'difference-in-differences' method categorises observations from 2005 through 2012 under post-APB ES period and those from 2003 and 2004 under pre-APB ES period, in line with the effective date of APB ES in December 2004. Following the key assumption of counterfactual framework of causality (Winship and Morgan 1999, p. 662), this study allocates observations with higher NAS (observations with *NASFR* equal to or greater than 1) into the control group and observations with lower NAS (observations with *NASFR* less than 1) into the treatment group, in line with the assumption that the treatment or intervention of APB ES help reduce *NASFR* for treatment group observations. Accordingly, this study expects to have the impact of APB ES on FRQ of the FTSE350 in terms of lower level of *ABSDAC* in the post APB

ES period. The results of the 'difference-in-differences' method are presented in Table 5.7:

Table 5.7 Assessment of the causal impact of APB ES on FRQ

Panel A: Impact output from Difference-in-Differences method

Variable (ABSDAC)	Pre-APB ES period	Post-APB ES period	Difference
Control group (NASFR>=1)	0.09945	0.10763	0.00819
	0.0084	*0.0110*	
Treatment group (NASFR<1)	0.06596	0.06917	0.00321
	0.0027	*0.0035*	
Diff-in-Diff or Impact			**-0.00498**

Figures in italics are clustered standard errors

Panel B: Regression for assessing the impact of APB ES

Variable	Pred. Sign	Estimate	Clustered St. Error	t-statistic
Intercept	?	0.09945	0.00839	11.85
PostAPBES	-	-0.03348	0.00847	-3.95
Impact	+	0.00819	0.01380	0.59
Interaction	-	-0.00498	0.01387	-0.36
R-squared				0.0201

Panel C: Pearson correlation for the impact assessment

	ABSDAC	PostAPB ES	Impact	Interaction
ABSDAC	1.0000			
PostAPBES	**-0.1399**	1.0000		
Impact	0.0239	-0.0267	1.0000	
Interaction	**-0.0336**	**0.3322**	**0.8321**	1.0000

Coefficients in bold are significant at 0.10 (p<0.10)

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. Control group= Observations with NASFR>=1.Treatment group=Observations with NASFR<1.*PostAPBES*=Dummy variable, takes 1 for years after 2004, 0 otherwise. *Impact* =Dummy variable, takes 1 for NASFR>=1, 0 otherwise. *Interaction*=Interaction variable between *PostAPBES* and *Impact*.

In line with expectation and consistent with the results reported in correlations and regression analyses in section 5.3, Panel A of Table 5.7 shows that the FRQ of FTSE350 companies in post-APB ES period has improved as the 'difference-in-differences' for *ABSDAC* is negative. The interaction variable for the period and

treatment dummies has a negative coefficient, as expected, which further supports the impact of the APB regulatory regime on the FRQ of UK companies (Panel B). Finally, Panel C of Table 5.7 shows marginally significant negative correlation between the interaction variable and *ABSDAC* that also bears support for the causal impact of the APB regulations in improving the FRQ. The evidence provided in Table 5.7 tests the third hypothesis, developed in section 3.3 of chapter 3.

5.4 Long audit firm tenure and FRQ

Chapter 2 covers the debate over longer audit firm tenure and regulatory initiatives to address the familiarity threat leading to alleged erosion of auditor independence and lower FRQ. Prior studies in auditor tenure mostly use a perception-based approach to answer the question relating to the audit firm tenure and competence and independence of the auditors (e.g., Tanyi et al. 2010, and Brandon and Mueller 2008). Other studies such as Cameran et al. (2014), Gul et al. (2009) and Myers et al. (2003) report that longer auditor tenure is associated with lower earnings management and hence higher FRQ, contrary to the policymakers' and commentators' argument. Motivated by the gap between popular 'longer auditor tenure and familiarity threat' and inconclusive academic findings, this thesis contribute to the on-going debate by investigating the association between 'audit firm tenure' and discretionary accruals as a surrogate for FRQ for FTSE350 companies.

This study contributes to the auditor firm tenure and earnings management literature in the following ways: (1) To the best of the author's knowledge, this is the first study of this kind taking a comprehensive FTSE350 sample. The House of Lords Select Committee on Economic Affairs (2011, p. 63) insists on greater or even mandatory auditor rotation as they argue that more frequent rotation would enhance auditor independence and would improve FRQ. From this perspective, this study is timely to shed some light on the debate in the UK context. (2) The APB ES3 exclusively deals with auditor tenure and suggests for safeguards to be applied when auditor independence seems to be compromised by a familiarity threat (APB 2010a). It requires mandatory partner rotation every 5 years (Paragraph 12, ES3) with an extra 2 years if the audit committee recommends (Paragraphs 12 and 16, ES3). This study tests the association between auditor tenure and *in fact* auditor independence in terms of discretionary accruals as the proxy for FRQ post-APB ES period. (3) Finally, this study

also provides some insights to the commentators such as House of Lords Select Committee on Economic Affairs who are concerned with concentrated audit market by testing the FRQ of Big4 and non-Big4 FTSE350 clients.

5.4.1 Empirical results for audit firm tenure tests

This section presents results of the statistical analysis and provides a discussion of the findings. The following section discusses descriptive statistics for the sample and variables used in the ordinary least square regressions. It then moves on to discuss the univariate test results for the *ABSDAC* and audit firm tenure, followed by Pearson/Spearman correlations for the regression variables. Finally, the regression results demonstrate the impact of audit firm tenure on the magnitude of *ABSDAC*, the proxy for the FRQ for the hypothesized relationship between them using three version of Jones (1981) model. The section concludes with regression results that partition the sample into companies audited by Big4 and non-Big4 firms and a discussion of the results in relation to the relevant hypotheses.

Table 5.8 Classification by Big4 versus non-Big4 audit firms and their tenure

Audit firm tenure	Auditor				Total		t-statistics
	non-Big4		Big4				
Tenure<=3	33	30%	568	24.59%	601	24.83%	1.2833
Tenure>3	77	70%	1742	75.41%	1819	75.17%	1.2903
Total	**110**	**100%**	**2310**	**100%**	**2420**	**100%**	

Variable definitions:

Tenure<=3=1 if the audit firm tenure is 3 years and less, 0 otherwise. Tenure>3=1 if the audit firm tenure is more than 3 years, 0 otherwise.

Table 5.8 provides sample classifications by audit firm tenure and audit firm size[76]. Note that non-Big4 firms have only 4.55 per cent market share within FTSE350 companies (110 firm-year observations out of 2420 total observations) during 2003-2012. The audit market is more concentrated for FTSE100 companies where a non-Big4 auditor audited only one company in 2010 (House of Lords Select Committee on Economic

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[76] This study sensitizes the audit firm tenure variable into three components such as Tenure<=3, 4<=Tenure<=6 and Tenure>6. This is done to check whether the breakdown reveals any change of the Big4 domination in the mid-tenure level. However, the Tenure variable *(LnTENURE)* in the regression is not sensitized as this would contradict the linearity assumption taken for the study (See section 3.4.1). This allocates a total of 758 observations for the mid tenure of 4 to 6 years, of which 37 observations for non-Big4 and 721 observations are for Big4 auditors. Overall, the non-Big4 auditors have a similarly weak market share (4.88 per cent) in this mid tenure segment as compared to the short (Tenure<=3) and long (Tenure>3) tenure segments demonstrated in Table 5.8.

Affairs 2011, p. 9). Regarding the audit firm tenure, Table 5.8 demonstrates that Big4 firms have 75.41 per cent engagement with longer tenure of more than 3 years[77] while it is 70 per cent for their non-Big4 counterparts. The short tenure engagement for 3 years or less is relatively lower: 24.59 per cent for the Big4 firms and 30 per cent for non-Big4 firms. Three aspects of UK audit market can be noted from these proportions: first, Big4 auditors dominate the FTSE350 audit market leaving their non-Big4 rivals on the margin despite the regulatory initiatives to encourage more competition; second, clients prefer longer auditor tenure with both groups of auditors; and third, Big4 auditors enjoy slightly more stable relationship with their clients than their non-Big4 counterparts, consistent with prior literature on auditor change (DeFond and Subramanyam 1998).

5.4.2 Descriptive statistics for tests of auditor tenure and FRQ

Table 5.9 reports descriptive statistics for all data items used in the study. The results show that the average of the absolute value of discretionary accruals is highest for the modified Jones and current version of the modified Jones models followed the standard Jones model.

The Table below shows that audit firm tenure has a mean of 6.055 years and ranges from 1 to 11 years. As mentioned earlier, in order for the tenure data to have normal distributions (Greene 2003), the natural log of the tenure has been used that has a mean of 1.656 years. The Table also shows that Big4 firms dominate the FTSE350 audit market with a 95.5 per cent market share leaving only marginal space for their non-Big4 counterparts such as BDO, Grant Thornton, Baker Tilly, PKF, Moore Stephens, and RSM Robson Rhodes.

On average, the sample companies grew 6.5 per cent by the number of outstanding shares indicating the business change and 17.4 per cent by their sales revenue during the 2003-2012 period. It is important to note here that this study in Table 5.9 uses firm-specific sales growth (*SG*) to control for differences in accrual behaviour in addition to the ratio of market to book value of equity *(MV)* as a separate control variable. This is done because *SG* can capture the possible difference in the accruals behaviour between firms with high and low growth unrelated to earnings management (see Gul et al. 2009

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[77] The cutoffs for audit firm tenure up to 3 years and more than 3 years are based on prior studies such as Johnson et al. (2002), Carcello and Nagy (2004), Stanley and DeZoort (2007) and Sharma and Iselin (2012).

and Hribar and Nichols 2007). However, the study uses the same ratio of market to book value of equity labelled as *GROWTH*[78] in Table 5.2 in order to control for high-growth firms that may have an incentive to meet or beat earnings benchmarks (Reynolds et al. 2004). About 10 per cent of the sample reported a loss in the previous year measured as a negative income before extraordinary items. The average market to book ratio for the sample companies is 2.39 while their return on assets averages 7 per cent. The average bankruptcy score that the sample companies are exposed to is 2.053. The *ABSDAC* estimated by the standard Jones and the modified Jones model is approximately 8 per cent while it is approximately 5 per cent when the working capital version of the modified Jones model is employed. In addition, descriptive statistics report that over 75 per cent auditor tenure was longer than 3 years and remaining a quarter of the audit engagements were shorter.

Table 5.9 Descriptive statistics for auditor tenure data (N=2420)

Stats	Mean	Median	Std. Dev.	Min	Max	1st Quartile	3rd Quartile
Earnings management variables							
ABSDAC_SJ	0.0798	0.0447	0.154	0.00000	3.161	0.020	0.087
ABSDAC_MJ	0.0799	0.0452	0.151	0.00006	3.159	0.021	0.089
ABSDAC_WC	0.0508	0.0368	0.059	0.00001	1.158	0.017	0.066
DAC_SJ	-0.0188	-0.0145	0.173	-3.16112	2.664	-0.057	0.029
DAC_MJ	-0.0192	-0.0143	0.170	-3.15910	2.665	-0.059	0.030
DAC_WC	0.0482	0.0364	0.061	-1.15850	0.716	0.016	0.065
Independent variables							
TENURE (raw)	6.055	6	2.916	1	11	4	9
LnTENURE	1.656	1.792	0.580	0.000	2.398	1.386	2.197
BIG4 (0/1)	0.955	1	0.208	0	1	1	1
MV	7.098	6.918	1.720	0.100	16.319	6.088	8.043
MB (times)	2.387	0.886	8.504	0.000	143.188	0.514	1.656
CS	0.065	0.004	0.566	-0.962	15.815	0.000	0.028
SG	0.174	0.071	1.138	-0.925	36.931	0.006	0.167
LLOSS (0/1)	0.104	0	0.305	0	1	0	0
ROA	0.070	0.063	0.147	-3.640	1.435	0.031	0.109
ZSCORE	2.053	1.809	1.681	-4.825	31.251	1.257	2.503
Tenure<=3	0.248	0	0.432	0	1	0	0
Tenure>3	0.752	1	0.432	0	1	1	1

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[78] For further clarification, the variable *GROWTH* in Table 5.2 and *MV* in table 5.9 implies the same market to book value ratio.

Variable definitions:

ABSDAC_SJ = Absolute value of discretionary accruals measured using the standard Jones (1991) model. *ABSDAC_MJ* = Absolute value of discretionary accruals measured using the modified Jones (1995) model. *ABSDAC_WC* = Absolute value of discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *DAC_SJ* = Discretionary accruals measured using the standard Jones (1991) model. *DAC_MJ* = Discretionary accruals measured using the modified Jones (1995) model. *DAC_WC* = Discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *TENURE(raw)* = Number of years a FTSE350 company employs the same audit firm. *LnTENURE* = Natural log of the number of years a FTSE350 company employs the same audit firm. *BIG4* = 1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *MV* = Natural log of the market capitalization of the company. *MB* = Market to book ratio measured by market capitalization divided by total assets. *CS* = Percentage change in the number of common stock for the year. *SG* = Percentage change in sales for the year. *LLOSS* = 1 if the company reported a negative income before extraordinary items and 0 otherwise. *ROA* = Return on assets measured as net income divided by average total assets. *ZSCORE* = A bankruptcy score measuring financial distress (Altman 1983). *Tenure<=3* = 1 if the audit firm tenure is 3 years and less, 0 otherwise. *Tenure>3* = 1 if the audit firm tenure is more than 3 years, 0 otherwise.

5.4.3 Univariate tests

Table 5.10 presents t-tests for the difference in means of *ABSDAC* between companies audited by audit firms with relatively shorter tenure compared against relatively longer ones. The table illustrates that a significant difference (significant at the 0.01 level) exists for all measures of *ABSDAC* and, with the caveat of univariate predictions, supports the fourth hypothesis that companies audited by audit firms with tenure of more than 3 years have significantly lower levels of earnings management, as depicted by lower level of *ABSDAC*.

Table 5.10 Univariate tests for discretionary accruals and audit firm tenure

Variables	Tenure<=3		Tenure>3		Differences in means	t-statistics
	Obs	**Mean**	**Obs**	**Mean**		
Absolute value of discretionary accruals-All models						
ABSDAC_SJ	599	0.0985884	1821	0.0665041	0.0320843	6.7224***
ABSDAC_MJ	599	0.0987952	1821	0.0670146	0.0317806	6.7168***
ABSDAC_WC	599	0.0607718	1821	0.0455586	0.0152132	6.8712***

***p<0.01

Variable definitions:

ABSDAC_SJ=Absolute value of discretionary accruals measured using the standard Jones (1991) model. *ABSDAC_MJ*=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *ABSDAC_WC*=Absolute value of discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *Tenure<=3*=1 if the audit firm tenure is 3 years and less, 0 otherwise. *Tenure>3*=1 if the audit firm tenure is more than 3 years, 0 otherwise.

Evidence from the univariate tests is consistent with prior research. For example, Johnson et al. (2002) provide evidence that short-tenured auditors (tenures of two to three years) are associated with lower-quality audits when compared to auditors with tenures of four to eight years. Myers et al. (2003) use clients' discretionary accruals as a measure of audit quality and document a positive association between auditor tenure and audit quality. Carcello and Nagy (2004) find a higher incidence of fraudulent financial reporting in the early years of auditor-client relationships. Tanyi et al. (2010), accordingly, argue that the mandatory auditor rotation can be opposed as effective audits require a thorough understanding of the client's business and processes; such understanding develops over time and there is a steep learning curve that lasts a year or more.

5.4.4 Correlations

Table 5.11 presents the correlation matrix using Pearson and Spearman correlations coefficients. The lower triangle presents the Spearman correlation coefficients while the upper triangle reports the Pearson coefficients. VIFs have been examined for all variables used in correlation. The highest VIF is 1.38 for *ROA* while the lowest VIF is 1.04 for *CS* and *LnTENURE* with the average VIF is 1.16; way below the conventional cut off point is 10 (McMeeking et al. 2007). This indicates no issues of multi-collinearity.

The absolute value of the discretionary accruals estimated using the current version of the modified Jones model is significantly negatively correlated with audit firm tenure (significant at the 0.01 level), which also supports the fourth hypothesis of a negative association between audit firm tenure and *ABSDAC*. In addition, the correlation coefficients report a positive association between audit firm tenure and Big4 auditors, consistent with DeFond and Subramanyam (1998) study, suggesting that Big4 auditors are more likely to be retained by the client for longer periods, in support of more stable relationship between them reported in Table 5.9 earlier.

Table 5.11 further shows a positive correlation between audit firm tenure and *MV* (17 per cent significant at the 0.01 level) suggesting that larger companies of the FTSE350 are more likely to retain their auditor for longer periods. However, a negative association exists between audit firm tenure and each of *CS, SG, LLOSS* and *ZSCORE*

that suggests that firms with higher leverage, a higher change in the number of outstanding shares, higher growth, more frequent losses, and higher bankruptcy risk are less likely to retain their audit firm for longer tenure. Another important negative association is documented between *BIG4* and *ABSDAC* (11 per cent significant at the 0.01 level) suggesting that Big4 auditors help reduce the exercise of discretionary accruals leading to improved FRQ.

Table 5.11 Pearson (above)/Spearman (below) correlations

Variables	ABS DAC	LnTE NURE	BIG4	MV	MB	CS	SG	LLOSS	ROA	ZSCORE
ABSDAC	1.0000	**-0.1416**	**-0.1108**	**-0.1767**	**0.1774**	0.0301	**0.2222**	0.0408	**0.1003**	**0.1418**
LnTENURE	**-0.1245**	1.0000	0.0352	**0.1555**	-0.0590	0.0158	-0.0062	-0.0393	0.0366	**-0.0641**
BIG4	**-0.0939**	0.0371	1.0000	**0.1444**	-0.0789	-0.0248	**-0.1283**	0.0030	**-0.0790**	**-0.0768**
MV	**-0.1723**	**0.1655**	**0.1533**	1.0000	**0.2273**	-0.0089	**-0.0536**	**-0.1512**	0.0984	**-0.1051**
MB	**0.1472**	-0.0418	**-0.1030**	**0.1583**	1.0000	0.0382	0.0328	-0.0142	**0.2004**	**0.2479**
CS	**0.0621**	**-0.1183**	**-0.0577**	**-0.0668**	0.0168	1.0000	**0.0750**	0.1374	**-0.1063**	**-0.0599**
SG	**0.1668**	-0.0312	**-0.0881**	-0.0371	**0.1424**	0.0470	1.0000	0.0030	**0.1184**	**0.1317**
LLOSS	-0.0057	-0.0427	0.0030	**-0.1553**	**-0.1018**	0.0666	-0.0684	1.0000	**-0.3118**	**-0.1376**
ROA	**0.1071**	0.0342	**-0.0872**	**0.0978**	**0.5319**	**-0.1040**	**0.1969**	**-0.3075**	1.0000	**0.4234**
ZSCORE	**0.0911**	-0.0422	**-0.0753**	**-0.1110**	**0.4649**	-0.0414	**0.1603**	**-0.1737**	**0.5030**	1.0000

Coefficients in bold are significant at the 0.01 level

Variable definitions:

ABSDAC_WC=Absolute value of discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *LnTENURE*=Natural log of the number of years a FTSE350 company employs the same audit firm. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *MV*=Natural log of the market capitalization of the company. *MB*=Market to book ratio measured by market capitalization divided by total assets. *CS*= Percentage change in the number of common stock for the year. *SG*= Percentage change in sales for the year. *LLOSS*=1 if the company reported a negative income before extraordinary items and 0 otherwise. *ROA*= Return on assets measured as net income divided by average total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983).

5.4.5 Regression results for auditor tenure and FRQ

The results in Tables 5.12, 5.13, and 5.14 are estimated using ordinary least squares and reported using clustered standard errors for robust regression. All models include year dummies for all years from 2003 to 2012.

The results reported in Table 5.12 show there is a negative relationship between audit firm tenure and *ABSDAC* estimated using the working capital version of the Jones model, the modified Jones model and the standard Jones model respectively. With marginally significant association at the 0.10 level the results provide some support for the fourth hypothesis that extended auditor tenure has a positive impact on FRQ through mitigating earnings management. Moreover, the results report a marginally significant negative association at the 0.05 level between Big4 auditor and discretionary accruals variables that conforms to the prior literature (see for example, Becker et al. 1998).

The results for most of the control variables are largely in line with expectations and they have both significant and marginally significant association with the dependent variable. For example, the results show a significant negative association between company size, *MV*, (measured by the natural log of market capitalization) and *ABSDAC*, suggesting that larger companies involve less in earnings management. From the perspective of earnings management incentives, the results are consistent with expectations and show a positive association between *ABSDAC* and each of the market to book ratio *(MV)*, the change in number of outstanding common stock *(CS)* and growth in sales revenue *(SG)* variables. However, firms reporting losses in the previous year *(LLOSS)* appear to have conservative approach and are negatively associated with *ABSDAC*, as expected.

The results also suggest that companies reporting a higher return on assets *(ROA)* exercise less discretionary accruals. The results show, contrary to the expectations, a weak positive association between *ABSDAC* and financially distressed companies *(ZSCORE)* suggesting that these companies may exercise more discretionary accruals than companies having better financial conditions. The regression results, using the current version of the modified Jones, the modified Jones, and the standard Jones models respectively and with the marginally significant association, support the fourth hypothesis that longer auditor tenure has a positive impact on FRQ through mitigating discretionary accruals levels and in consistent with prior studies discussed in section 5.4.3.

Table 5.12 Regression results using three models of *ABSDAC*

Variable and pred. Sign	(1) ABSDAC_WC		(2) ABSDAC_MJ		(3) ABSDAC_SJ	
LnTENURE	-0.00808	*	-0.0162	*	-0.016	*
-	[0.00332]		[0.00653]		[0.00662]	
BIG4	-0.00779		-0.0507	**	-0.0515	**
-	[0.00477]		[0.0133]		[0.0132]	
MV	-0.00578	*	-0.00814	***	-0.00846	***
-	[0.00202]		[0.00139]		[0.00140]	
MB	0.00189	**	0.00253	**	0.0025	**
+	[0.000446]		[0.000745]		[0.000728]	
CS	0.00311		-0.0131		-0.0166	
+	[0.00658]		[0.0119]		[0.0131]	
SG	0.0318	**	0.0254	*	0.0254	*
+	[0.00722]		[0.00974]		[0.0101]	
LLOSS	-0.00484		-0.0476	***	-0.0485	***
-	[0.00446]		[0.00906]		[0.00908]	
ROA	-0.0311		-0.0275		-0.0228	
-	[0.0212]		[0.0645]		[0.0657]	
ZSCORE	0.000783		0.0024		0.00178	
-	[0.00172]		[0.00274]		[0.00275]	
Year dummies	Yes		Yes		Yes	
Intercept	0.0991	***	0.192	***	0.196	***
	[0.0172]		[0.0244]		[0.0250]	
N	2420		2420		2420	
R-squared	16.47%		10.06%		10.02%	
Adjusted R-squared	15.84%		9.38%		9.35%	

Clustered standard errors in brackets

* $p<0.10$, ** $p<0.05$, and *** $p<.01$

Variable definitions:

ABSDAC_SJ=Absolute value of discretionary accruals measured using the standard Jones (1991) model. *ABSDAC_MJ*=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *ABSDAC_WC*=Absolute value of discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *LnTENURE*=Natural log of the number of years a FTSE350 company employs the same audit firm. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *MV*=Natural log of the market capitalization of the company. *MB*=Market to book ratio measured by market capitalization divided by total assets. *CS*= Percentage change in the number of common stock for the year. *SG*= Percentage change in sales for the year. *LLOSS*=1 if the company reported a negative income before extraordinary items and 0 otherwise. *ROA*= Return on assets measured as net income divided by average total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983).

5.4.6 Regression results for audits conducted during pre- and post-APB ES

The previous table (Table 5.12) reports results suggesting a significant effect of extended audit firm tenure on *ABSDAC*. In this section, the study investigates if the APB ES have a mitigating effect on discretionary accruals for audits conducted during post-APB ES regime compared against those conducted during pre-APB ES period, as per the expectations reflected in fifth hypothesis discussed in section 3.4.2 of chapter 3. Therefore, this study conducts regression analysis using the same (working capital version of the modified Jones[79]) model with the inclusion of an interaction variable between audits conducted during post-APB ES period *(PostAPBES)* and auditor tenure *(LnTENURE)*.

For the pooled sample (first column of the results), Table 5.13 reports insignificant coefficients for each of audit firm tenure *(LnTENURE)*, audits conducted during post-APB ES period *(PostAPBES)*, and the interaction terms *(PostAPBES*LnTENURE)* using the working capital version of the modified Jones model. More importantly, Table 5.13 also reports the results of partitioning the sample into companies audited during post-APB ES regime and pre-APB ES period (second and third results columns respectively). And in line with expectation, the results report a negative association, although not statistically significant, between audit firm tenure and *ABSDAC* for firm-years audited during post-APB ES regime but a non-significant positive association is documented for those audited prior to the enactment of ES and *ABSDAC*. With statistically non-significant association and *ceteris paribus*, this shift between pre- and post-APB may suggest the relevance of ES for the auditors that helps improve the FRQ as reflected by the negative association.

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[79] A similar regression test has been performed employing the other two versions of Jones (standard and modified) model in the robustness tests section (See Table 5.15)

Table 5.13 Regression results of *ABSDAC* estimates for pre and post APB ES audits

Variable and pred. sign	(1) ABSDAC_WC		(2) ABSDAC_WC		(3) ABSDAC_WC	
	All		**PostAPBES**		**PreAPBES**	
LnTENURE	0.0237		-0.00218		0.0215	
-	[0.0156]		[0.00302]		[0.0157]	
PostAPBES	-0.00922					
-	[0.0146]					
PostAPBES*LnTENURE	-0.0264					
-	[0.0154]					
MV	-0.00588	*	-0.00741	**	-0.0011	
-	[0.00210]		[0.00178]		[0.00611]	
MB	0.00193	**	0.00192	**	0.00204	
+	[0.000461]		[0.000474]		[0.00144]	
CS	0.004		0.00463		0.0158	
+	[0.00613]		[0.00664]		[0.0201]	
SG	0.033	**	0.0285	**	0.0454	*
+	[0.00758]		[0.00874]		[0.00838]	
LLOSS	-0.00481		-0.00616		-0.00483	
-	[0.00449]		[0.00502]		[0.00630]	
ROA	0.0348		0.0432		0.00301	
-	[0.0200]		[0.0228]		[0.0396]	
ZSCORE	0.000506		0.00338	**	-0.00623	*
-	[0.00179]		[0.001000]		[0.00133]	
Year dummies	Yes		Yes		Yes	
Intercept	0.0715	**	0.085	***	0.0575	
	[0.0186]		[0.0101]		[0.0378]	
N	2420		1936		484	
R-squared	16.39%		16.35%		16.14%	
Adjusted R-squared	15.76%		15.52%		15.09%	

Clustered standard errors in brackets
* p<0.10, ** p<0.05, and ***p<.01

Variable definitions:

ABSDAC_WC=Absolute value of discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *LnTENURE*=Natural log of the number of years a FTSE350 company employs the same audit firm. *PostAPBES*=1 if the audit is conducted after 2004, 0 otherwise. *PostAPBES*LnTENURE*=Interaction variable between *PostAPBES* and *LnTENURE*. *MV*=Natural log of the market capitalization of the company. *MB*=Market to book ratio measured by market capitalization divided by total assets. *CS*= Percentage change in the number of common stock for the year. *SG*= Percentage change in sales for the year. *LLOSS*=1 if the company reported a negative income before extraordinary items and 0 otherwise. *ROA*= Return on assets measured as net income divided by average total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983).

A review of the control variables reported in Table 5.13 also suggests that despite the effect of capital market incentives such as market to book ratio *(MB)*, size of the market capitalization *(MV)* and sales growth *(SG)* on *ABSDAC*, audits conducted post-APB ES period withstand those pressures and register a negative association with the magnitude of *ABSDAC* that provides some support, although statistically non-significant, for the positive impact of APB ES for audits conducted after 2004. This evidence can be related to an argument by Francis (2004, p. 356) where he observes that auditors have "strong economic incentives to maintain their independence and internal mechanisms such as the rotation of engagement personnel are sufficient to maintain the scepticism and independence of auditors."

5.4.7 Regression results for audit firm size and FRQ

In this section, the study investigates if the mitigating effect of audit firm tenure on discretionary accruals is valid in cases of companies audited by Big4 auditors versus companies audited by their non-Big4 counterparts, in line with the expectations reflected in the final set of hypotheses in section 3.4.3 of chapter 3. Therefore, this study conducts regression analysis using the same (working capital version of the modified Jones) model with the inclusion of an interaction variable between auditor size *(BIG4)* and audit firm tenure *(LnTENURE)*.

For the pooled sample (first column of the results), Table 5.14 reports insignificant coefficients for each of auditor tenure *(LnTENURE)*, auditor size *(BIG4)*, and the interaction terms *(BIG4*LnTENURE)* using the working capital version of the modified Jones model. In addition, Table 5.14 also reports the results of partitioning the sample into companies audited by Big4 firms and companies audited by non-Big4 firms (second and third results columns respectively). And interestingly, the results report a marginally significant negative association between auditor tenure and *ABSDAC* for firm-years audited by Big4 auditors but not for those audited by their non-Big4 counterparts – consistent with evidence reported in Myers et al. (2003) and Johnson et al. (2002).

Overall, the results of Table 5.14 suggest that Big4 auditors benefit more from extended tenure. These results provide some support for the final set of hypotheses which can be explained by relatively better quality control systems in place in Big4 audit firms that

enable them to better utilize client-specific knowledge acquired in the continuous engagement. Such quality control systems, perhaps, are not usually available in non-Big4 audit firms. Relating to the quality control systems, Francis (2004, p. 356) argues in a review study on audit quality that auditors have "strong economic incentives to maintain their independence and internal mechanisms such as the rotation of engagement personnel are sufficient to maintain the scepticism and independence of auditors."

Finally, a review of control variables reported in Table 5.15 also suggests that despite the effect of capital market incentives such as market to book ratio *(MB)*, size of the market capitalization *(MV)* and sales growth *(SG)* on *ABSDAC*, Big4 audit clients withstand those pressures and register a relatively stronger and marginally significant negative association with the magnitude of *ABSDAC*. With the caveat of marginally significant association, these results suggest that the quality differentiation holds for Big4 auditors in longer tenure.

Table 5.14 Regression results of absolute discretionary accruals estimates for Big4 versus non-Big4 audit firms

Variable and pred. Sign		(1) ABSDAC_WC		(2) ABSDAC_WC		(3) ABSDAC_WC	
		All		**Big4**		**non-Big4**	
LnTENURE		-0.0127		-0.00804	*	-0.000654	
	-	[0.0148]		[0.00305]		[0.0138]	
BIG4		-0.0154					
	-	[0.0239]					
BIG4*LnTENURE		0.00485					
	-	[0.0136]					
MV		-0.00578	*	-0.00567	*	-0.0158	*
	-	[0.00202]		[0.00192]		[0.00611]	
MB		0.00189	**	0.00176	**	0.00296	***
	+	[0.000447]		[0.000439]		[0.000627]	
CS		0.00313		0.00416		-0.0119	
	+	[0.00660]		[0.00745]		[0.0305]	
SG		0.0318	**	0.032	**	0.0257	*
	+	[0.00724]		[0.00827]		[0.00824]	
LLOSS		-0.00484		-0.00406		-0.0175	
	-	[0.00445]		[0.00440]		[0.0178]	
ROA		0.031		0.0283		-0.0149	
	-	[0.0213]		[0.0239]		[0.0485]	
ZSCORE		0.000772		0.0000		0.0195	***
	-	[0.00170]		[0.00170]		[0.00400]	
Year dummies		Yes		Yes		Yes	
Intercept		0.106	*	0.0925	***	0.105	
		[0.0337]		[0.0130]		[0.0543]	
N		2420		2310		110	
R-squared		16.49%		16.47%		13.72%	
Adjusted R-squared		15.82%		15.84%		13.40%	

Clustered standard errors in brackets
* p<0.10, ** p<0.05, and ***p<.01

Variable definitions:

ABSDAC_WC=Absolute value of discretionary accruals measured using the working capital (current) version of modified Jones (1995) model. *LnTENURE*=Natural log of the number of years a FTSE350 company employs the same audit firm. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *BIG4*LnTENURE*=Interaction variable between *BIG4* and *LnTENURE.MV*=Natural log of the market capitalization of the company. *MB*=Market to book ratio measured by market capitalization divided by total assets. *CS*= Percentage change in the number of common stock for the year. *SG*= Percentage change in sales for the year. *LLOSS*=1 if the company reported a negative income before extraordinary items and 0 otherwise. *ROA*= Return on assets measured as net income divided by average total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983).

5.5 Robustness tests

The study has conducted a number of robustness and sensitivity tests. First, it has conducted tests to check against potential survivorship bias problem. The study had to exclude 28 companies from the sample, as they did not have 10-year data. While the exclusion rate is very low - only 10.37 per cent[80], and the study covered 89.63 per cent of FTSE350 industrial companies, it runs similar tests for the data from those 28 companies. A total of 137 firm-year observations were used in the survivorship bias tests and the results (un-tabulated) document qualitatively similar evidence for these 28 companies. For example, regression results show that *LnTOTFEE* documents a negative association with *ABSDAC* while *NASFR* has a non-significant positive correlation with *ABSDAC* at 0.13 per cent. In addition, both model 1 and model 2 have negative association with *ABSDAC* while the correlations run for model 3 (NASFR<1) with 73 observations document both dependence measures to be negatively associated and correlation between *LnTOTFEE* and *ABSDAC* is marginally significant at the 0.10 level. The correlations for model 4 (NASFR>=1) with 64 observations documents negative association for both dependence measures. Overall, the results from these tests are similar to the reported results from main tests and accordingly the study argues that the results reported in this chapter are not affected by survivorship bias.

Second, the study employed three models to estimate discretionary accruals that were used in the main tests, namely the standard Jones model, the modified Jones model, and the current version of the modified Jones model. Furthermore, this study uses two measures for auditors' economic dependence. In addition, it uses a minimum of 10 firm-year observations for each industry as a condition for the firm to be included in the sample in the estimation stage of the discretionary accruals measures. Finally, this study repeated the tests with variables winsorized at the top 5 per cent and bottom 95 per cent in order to avoid outliers (Caramanis and Lennox 2008). For all the above-mentioned tests, the results (un-tabulated) are substantially similar to those reported in the chapter and that suggests that the results of this chapter are robust to all the above tests.

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[80] This study had 80 financial services companies in the FTSE350 on 19 May 2013 when it started collecting data for empirical analyses. Excluding 28 companies for non-availability of data, the study uses 242 industrial companies out of 270.

The study has then conducted the second group of robustness checks to address a number of econometric issues. For the regression tests, the use of discretionary accruals as a dependent variable may raise issues concerning the normality assumption of ordinary least squares regression. Therefore, the study has repeated the tests using the natural logarithm of discretionary accruals. Some recent studies (e.g., Caramanis and Lennox 2008) used truncated regression because discretionary accruals measures are truncated at zero. Therefore, the study has repeated the tests using this type of regression and the results (un-tabulated) are qualitatively similar to those reported in the chapter.

As an additional sensitivity test replicating the arbitrary benchmark models in section 5.3.5, this study repeated the tests dividing the sample observations with *NASFR* less than 1.5 in model 3 (n=1830) and those equal to and greater than 1.5 (n=590) to see if the dependence measures have a different correlation with the *ABSDAC* and the association is not qualitatively different from those reported in the chapter. Moreover, it has repeated the tests discussed in section 5.2.3 and 5.2.4 using standard Jones and current version of modified Jones models and the results are substantially similar to those reported earlier in the chapter.

Use of panel data sets always raises concerns regarding the reliability of results and possibilities of autocorrelation and heteroskedasticity. To address these limitations, this study has examined each variable for their VIF and all variables included in the tests have VIF less than 2, well below the conventional cut-off point of 10 (Hair et al. 1998, p. 193). Also, to mitigate this potential problem, this study, following Petersen (2009), used clustered robust standard errors in panel data analyses as the estimator of cluster-robust standard error converges to the true standard error as the number of clusters M approaches infinity, not the number of observations N (Nichols and Schaffer 2007).

Table 5.15 Regression results of *ABSDAC* estimates for post-APBES versus pre-APBES audits

Variable and pred. sign	(4) ABSDAC_MJ		(5) ABSDAC_MJ		(6) ABSDAC_SJ		(7) ABSDAC_SJ	
	PostAPBES		PreAPBES		PostAPBES		PreAPBES	
LnTENURE	-0.00581	*	-0.0345		-0.00494	*	-0.0298	
-	[0.00276]		[0.0409]		[0.00266]		[0.0403]	
MV	*-0.00683*	**	*-0.0163*	***	*-0.00738*	**	*-0.0159*	**
-	[0.00182]		[0.000397]		[0.00195]		[0.000525]	
MB	0.00151		0.00613	**	0.00149		0.00606	**
+	*[0.000712]*		*[0.000575]*		*[0.000704]*		*[0.000503]*	
CS	*-0.0101*		*0.0187*		*-0.014*		*0.0221*	
+	[0.00712]		[0.129]		[0.00870]		[0.129]	
SG	0.024	*	0.0617	*	0.0233	*	0.065	**
+	*[0.0106]*		*[0.00904]*		*[0.00971]*		*[0.00329]*	
LLOSS	-0.0392	**	-0.0828		0.0396	**	0.0853	
-	[0.0102]		[0.0213]		[0.0101]		[0.0206]	
ROA	-0.0599		0.124		-0.0551		0.133	
-	[0.0889]		[0.0421]		[0.0911]		[0.0430]	
ZSCORE	0.00474	*	-0.00535		0.00414		-0.00615	
-	[0.00207]		[0.00428]		[0.00211]		[0.00396]	
Year dummies	Yes		Yes		Yes		Yes	
Intercept	0.114	***	0.214	*	0.116	***	0.209	*
	[0.00961]		[0.0425]		[0.0113]		[0.0411]	
N	1936		484		1936		484	
R-squared	9.01%		8.54%		8.96%		8.76%	
Adj R-squared	8.36%		8.20%		8.31%		8.54%	

Clustered standard errors in brackets

* p<0.10, ** p<0.05, and ***p<.01

Variable definitions:

ABSDAC_SJ=Absolute value of discretionary accruals measured using the standard Jones (1991) model. *ABSDAC_MJ*=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *LnTENURE*=Natural log of the number of years a FTSE350 company employs the same audit firm. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *MV*=Natural log of the market capitalization of the company. *MB*=Market to book ratio measured by market capitalization divided by total assets. *CS*= Percentage change in the number of common stock for the year. *SG*= Percentage change in sales for the year. *LLOSS*=1 if the company reported a negative income before extraordinary items and 0 otherwise. *ROA*= Return on assets measured as net income divided by average total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983).

Finally, to check the sensitivity of the audit firm tenure regression models, this study repeated the tests of splitting the sample into pre- and post-APB ES audits (Table 5.15, presented above) and into Big4 firm-years and non-Big4 firm years (Table 5.16, presented below) using the modified Jones and the standard Jones models. Results

reported in Table 5.15 show negative association between *LnTENURE* and *ABSDAC* for both pre- and post APB ES audits. However, the negative association for post-APB ES audits is marginally significant at the 0.10 level which reiterates some support for the relevance of the APB ES in improving the FRQ of UK companies – similar evidence reported in the main test in section 5.4.6. Table 5.16 reports the results of sensitivity tests for the quality differentiation for Big4 auditors in longer tenure using the modified Jones and the standard Jones models. Overall, data from UK companies agree with the initial test and suggest the similar pattern of an effect of auditor tenure on *ABSDAC* for firm-years audited by Big4 auditors but not for the firm-years audited by non-Big4 auditors.

Table 5.16 Regression results of *ABSDAC* estimates for Big4 versus non-Big4 audit firms

Variable and pred. Sign	(4) ABSDAC_MJ		(5) ABSDAC_MJ		(6) ABSDAC_SJ		(7) ABSDAC_SJ	
	Big4		Non-Big4		Big4		Non-Big4	
LnTENURE	-0.0465	**	-0.0139		-0.0141	*	-0.0394	
-	[0.0131]		[0.00632]		[0.00621]		[0.0167]	
MV	-0.00723	***	-0.0307	*	-0.00752	***	-0.0309	*
-	[0.00124]		[0.0126]		[0.00128]		[0.0135]	
MB	0.00216	**	0.00437		0.00209	**	0.00469	
+	[0.000667]		[0.00217]		[0.000641]		[0.00231]	
CS	-0.0144		0.00761		-0.018		0.00239	
+	[0.0118]		[0.0219]		[0.0128]		[0.0269]	
SG	0.0277	**	0.0318		0.0285	**	0.029	
+	[0.00827]		[0.0381]		[0.00852]		[0.0356]	
LLOSS	0.0464	***	0.0288		0.0478	***	0.0179	
-	[0.00939]		[0.0384]		[0.00938]		[0.0373]	
ROA	-0.0794		0.515		-0.0751		0.527	
-	[0.0584]		[0.277]		[0.0604]		[0.275]	
ZSCORE	0.0025		0.0011		0.00196		-0.0012	
-	[0.00273]		[0.00646]		[0.00270]		[0.00629]	
Year dummies	Yes		Yes		Yes		Yes	
Intercept	0.135	***	0.315	***	0.138	***	0.311	***
	[0.0171]		[0.0652]		[0.0173]		[0.0661]	
N	2310		110		2310		110	
R-squared	8.45%		9.20%		10.02%		9.15%	
Adj R-squared	7.68%		8.86%		9.35%		8.81%	

Clustered standard errors in brackets

* p<0.10, ** p<0.05, and ***p<.01

Variable definitions:

ABSDAC_SJ=Absolute value of discretionary accruals measured using the standard Jones (1991) model. *ABSDAC_MJ*=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *LnTENURE*=Natural log of the number of years a FTSE350 company employs the same audit firm. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *MV*=Natural log of the market capitalization of the company. *MB*=Market to book ratio measured by market capitalization divided by total assets. *CS*= Percentage change in the number of common stock for the year. *SG*= Percentage change in sales for the year. *LLOSS*=1 if the company reported a negative income before extraordinary items and 0 otherwise. *ROA*= Return on assets measured as net income divided by average total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983).

5.6 Conclusion and implications of the results

This chapter investigates the effect of audit and NAS fees and longer audit firm tenure on FRQ using data from the UK. For the hypotheses developed in relation to the joint provision of audit and NAS fees and FRQ, the study finds some evidence against the popular arguments that NAS fees deteriorates FRQ. Using three estimation models for the discretionary accruals with data from FTSE350 companies, the study reports, with marginally significant association, that *NASFR* is not positively correlated to discretionary accruals post-APB in particular. Instead, total fees to auditors *(LnTOTFEE)* documents a significant negative correlation with discretionary accruals during the post-APB ES period (see Panel A of Table 5.2 and Panel A of Table 5.3, for example). The results from correlations and regressions are consistent with DeAngelo's (1981) 'reputational capital' argument that auditors have greater reputation to lose (the whole clientele) than the additional gain from a client in terms of audit fees. The findings have little support for the policymakers' view that an outright prohibition on the audit firms supplying NAS for their audit clients may help improve FRQ.

The study then uses two different *DEPENDENCE* measures to analyse the regression results. Finding very weak evidence[81] for the hypothesized relationships between the dependent and test variables, the study argues that fees generated from the joint provision of audit and NAS may not be a significant potential threat for auditor independence and FRQ. Since NAS fees is commonly blamed by commentators such as House of Commons Treasury Committee and House of Lords Select Committee on Economic Affairs in the UK, the study goes further with a benchmark test categorizing

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[81] Results from pooled regression analyses document negative association for both measures that suggest that the economic bonding created by the joint provision of audit and NAS does not jeopardise auditor independence and FRQ, rather it encourages auditors towards more independent behaviour leading to improved FRQ.

observations with low and high *NASFR*. This benchmark tests also reveal similar findings and maintain little support for the commonly held view that fees from the joint supply of audit and NAS reduces FRQ.

Following the results from correlations and regression tests in section 5.2, this study then applied a more direct approach of 'difference-in-differences' method in order to assess the 'causal impact' of the APB ES on auditor independence and FRQ of UK companies in section 5.3. Based on the assumption of counterfactual framework of causality, the study divided the observations with higher NAS into control group and observations with lower NAS into treatment group conforming to the assumption that the treatment or intervention of APB ES helps reduce *NASFR* for treatment group observations.

Results from 'difference-in-differences' method suggest that the FRQ of FTSE350 companies in post-APB ES period has improved as the 'difference-in-differences' impact factor for *ABSDAC* is negative - in line with expectation and consistent with the results reported in correlations and regression analyses. Moreover, the interaction variable is reported to have a marginally significant negative association with *ABSDAC* that provides some support for the causal impact of the APB regulations in improving the FRQ (see Panel C, Table 5.8). Accordingly, this study finds some support for the view developed in the third hypothesis.

Moving on to the tests related to audit firm tenure, this study finds evidence that audits conducted during post-APB ES period are negatively associated with *ABSDAC*, suggesting a positive impact of the enactment of ES in terms of reduced level of discretionary accruals (Table 5.13). Although not statistically significant, the association between the audit firm tenure and FRQ, the results agree with the recent trend of research (Johnson et al. 2002, Myers et al. 2003, Francis and Yu 2009, and Gul et al. 2009) that suggests that longer auditor tenure does not compromise auditor independence but instead help improve the FRQ. The study employed univariate tests, correlations and regressions analyses that provide evidence of negative association between audit firm tenure and discretionary accruals. The findings of these tests weakens the commonly held view that long association with clients helps to develop cosy relationship in which auditors may acquiesce to management pressure and allow clients exercise discretionary accruals at the cost of FRQ.

In terms of the auditor size effect on FRQ, this study reports some evidence that the Big4 auditors are more likely to benefit from longer auditor tenure than their non-Big4 counterparts, as depicted from the marginally significant negative correlation between tenure and discretionary accruals variables. Accordingly, the study argues that higher quality personnel, better quality control systems, more efficient knowledge sharing and transfer systems in place for Big4 audit firms could be a possible explanation for these differential results.

The results of this chapter have important implications[82] for a number of stakeholders such as regulators, practitioners, academics, commentators, and others. First, the results suggest weak empirical support for the restriction on the joint provision of NAS and audit services by the auditors for their clients. The hypothesis is failed to reject at 10 per cent significance level and thus the evidence remains statistically insignificant. Second, the study finds some support, not significant though, for the positive impact of extended audit firm tenure on FRQ. To summarise, the overall results suggest some support, statistically insignificant, for the relevance of ES for auditors in the UK setting in terms of improved FRQ in the FTSE350 companies. Put differently, the APB ES has only marginally significant impact in improving the FRQ, other things remaining the same.

In addition to the impact assessment of the APB ES, this thesis also examines the empirical substance of tenure on FRQ from the perspective of Big4 and non-Big4 market concentration. For example, the results, with the caveat of marginally significant association, indicate that the quality differentiation holds for Big4 auditors in longer tenure. In other words, it finds some empirical supports for higher FRQ in firm-years audited by Big4 auditors than for those audited by their non-Big4 counterparts. In the context of the considerable audit market concentration of the Big4 (over 95 per cent in FTSE350, see section 5.4.1), the impact of such domination on FRQ demands empirical exploration. More importantly, this is on the agenda of the recent regulatory initiatives such as mandatory tendering (see PwC 2014 and House of Lords Select Committee on Economic Affairs 2011). It is argued that these intended reforms would condition a level-playing field for non-Big4 audit firms in the FTSE350 companies. Therefore, this study is informed by these regulatory concerns and contributes in the academic literature on audit firm tenure, FRQ and Big4 domination.

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[82] Implications and contributions of this research are discussed in more detail in section 6.5 of chapter 6.

The tension between the auditors and regulators over auditors' professional independence and other related issues are an age-old problem and financial crises time to time expose the vulnerability of the relationship between auditors and their clients. As the profession incorporates a number of anti-independence factors (Mautz and Sharaf 1961) while auditor independence is one of the pre-requisites for quality audit, the research questions employed in this study will continue to have implications for the stakeholders in both short and long term. Particularly in the long term, the results of this thesis will provide empirical substance on issues concerning future policy reforms such as the most recent capping of NAS and the mandatory tendering (effective from 2016). This would allow informed basis for policy debates as far as regulators, commentators, and policy makers are concerned. Thus, the results have long-term policy implications.

The results are of academic interest as well. While there are substantial empirical studies on the link between NAS and FRQ, this thesis adds fresh and timely insight to this growing literature drawing on the ethical standards, here the APB ES (APB 2004, 2010a), in the UK setting. Additionally and more importantly, existing literature on audit firm tenure and FRQ remains reportedly weak in relation to the issue of Big4 concentration (Bandyopadhyay et al. 2014 and Francis et al. 2013). The findings extend this literature by exploring if the mitigating effect of audit firm tenure on discretionary accruals is valid in cases of companies audited by Big4 auditors versus companies audited by their non-Big4 counterparts. In the context of reported concerns over the market domination by Big4 firms (House of Lords Select Committee on Economic Affairs 2011) and further policy changes such as capping of NAS and the mandatory tendering, the findings of this thesis would be of academic interest in the long run.

Chapter 6: Summary and conclusion

6.1 Introduction

Chapter 5 presented the empirical findings of the study. This chapter now summarises the research objectives, the philosophical underpinning adopted, the research approaches applied, and the contributions made by the research. The chapter also acknowledges the limitations of the current research, and identifies potential for further research in the area. The chapter is organised as follows: the next three sections summarise the context for this research, the rationale for selecting a particular proxy to capture the variation in FRQ, and the findings. The subsequent sections then discuss contributions made by the research, followed by a section that identifies the limitations of the research.

6.2 Context of the research

The corporate world, particularly the Western economies including the UK, experienced a staggering economic meltdown in 2007 when a new wave of business failures was evidenced with the collapse of Northern Rock and London Scottish Bank, for example, along with bailing out of some other banks and financial institutions. Regulators and commentators seemed to respond in the crisis of confidence in financial reporting and auditing arguing that the problem is one of independence, apparently ignoring the auditor competence because it is a rather nebulous concept and less amenable to headline measures (Humphrey et al. 2007, p. 151). The UK Treasury Committee argued that investor confidence and trust in audit would be enhanced by an outright prohibition on the audit firms supplying NAS for their audit clients and recommended that the FSA (now FCA[83]) consult on ways in which financial reporting can be improved to provide information on company activities in a more accessible way (House of Commons Treasury Committee 2009, p. 5).

When the topic for research was chosen, the corporate world, the auditing profession, and the accounting regulatory bodies, were all experiencing the aftermath of a very

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[83] In 2013 the FSA became two separate regulatory authorities: the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA).

turbulent time that had severely dented trust in the authenticity of audited financial statements, and regulators around the world were busy responding to the scandals[84]. A flurry of regulations followed, the APB ES (APB 2004) in the UK being the most prominent. As the joint provision of audit and NAS and long association of auditors with their clients were identified as two of the major factors for the audit failures and subsequent accounting scandals, the standard setting bodies felt the need for regulating these areas[85]. As a result, almost all the post-Enron regulatory initiatives in different parts of the world attempted to allay concerns of perceived independence threats created by joint provision of audit and NAS and long auditor tenure by restricting auditor-provided NAS and rotating the auditor on a more frequent basis. As such restrictions would affect the auditor-client relationship as far as joint provision of audit and NAS and long association of auditor are concerned, it was expected that such regulatory initiatives would bring about an improvement in the level of *de facto* auditor independence, reflected in higher quality financial reporting. As a student of accounting, the author of this thesis became interested in investigating the impact of those APB ES in the post-APB ES period.

It is widely acknowledged that joint provision of audit and NAS and long association with auditors create real perceived threats to auditor independence (e.g., APB 2004, 2010a and EC 2002). However, proponents of such joint provision argue that provisions of many categories of NAS are not actually associated with such threats, and they should be allowed to be provided by the auditors. Such joint provision reduces costs for auditors and for their clients. The economic relationship between auditors and clients has been investigated by a number of researchers (for example, Beck et al. 1988 and Simunic1984), who find that joint provision of audit and NAS leads to a knowledge spill-over, which in turn, reduces cost of such services for the auditors. Also, the clients have economic incentives to purchase such services from the incumbent auditors, as purchasing these from other providers would lead to higher transaction costs. It has been argued that the clients might use NAS as a tool for collusion between the management and the auditors (Ewert 2004). The economic relationship between auditors and clients provides researchers with sufficient incentive to investigate regulatory initiatives on auditor independence and FRQ.

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[84] Refer to Figure 4.1 in chapter 4 for the events unfolding around that time.
[85] See for example, House of Lords Select Committee Report (2011).

Chapter 2 presented a brief review of the approaches followed by different researchers in investigating the effects of joint provision of audit and NAS and long auditor tenure on auditor independence and FRQ. A stream of research in this area concentrated on identifying the presence of a knowledge spill-over when auditor provides NAS in addition to audit services (for example, Simunic 1984, Palmrose 1986, and Beck et al. 1988, and later Clatworthy et al. 2002 (conducted on the public sector), Chen et al. 2005, and Antle et al. 2006). Another stream of research investigates the effect of such joint provision on auditor independence in fact. These researchers typically use a cross-sectional model in their investigation. The results are inconclusive. Whereas some researchers concluded that auditors might have economic reasons for not issuing a going concern qualification (e.g., Sharma and Sidhu 2001), others found no such association (for example, DeFond et al. 2002). Using earnings management as a proxy for auditor independence and taking the premise that 'if the auditors are not independent because of the presence of NAS, they will allow discretionary accruals to increase', another stream of studies (for example, Ashbaugh et al. 2003, Chung and Kallapur 2003, Frankel et al. 2002) has found that NAS increase discretionary accruals while a number of other studies such as Mitra and Hossain (2007), Antle et al. (2006), and Reynolds et al. (2004) have found no such association. Interestingly, Antle et al. (2006) report that the presence of NAS actually decreases discretionary accruals.

Turning to long auditor tenure, chapter 2 reviewed a number of approaches that researchers have followed in investigating its impact on auditor independence and FRQ. The evidence, however, is mixed. For example, using audit opinions to understand such impact, Geiger and Raghunandan (2002) documented more audit reporting failures during the early years of engagement than during the later years of the tenure while Carey and Simnett (2006) reported that clients are less likely to be issued a going concern audit opinion during longer auditor tenure, consistent with the argument that long association with clients leads to eroded auditor independence. Another stream of research, such as Gul et al. (2009), Myers et al. (2003) and Johnson et al. (2002) use clients' discretionary accruals to understand the audit quality with long auditor tenure and report a positive association between auditor tenure and audit quality. Carcello and Nagy (2004) find a higher incidence of fraudulent financial reporting in the early years of auditor-client relationships, leaving the debate around mandatory auditor rotation unresolved.

The presence of an auditor's economic bonding, mostly created by the joint provision of audit and NAS, and the debate around the need to mandate rotating auditors more frequently remain long-standing and unresolved issues in auditing. Moreover, NAS creating negative perceptions on auditor independence and the rising trend of NAS purchases by the UK companies[86] (Paragraph 1.31, CGAA 2003) had already made this topic worthy of further research. The accounting scandals of early 2000s' added this issue further. The fact that most of the companies involved in the accounting scandals were purchasing significant amounts of NAS from their incumbent auditors and were long associated with their auditor magnified the issue of auditor independence and FRQ. It was found that the accounting scandals triggered negative perceptions of auditor independence at the presence of NAS (Lindberg and Beck 2004), and the stock market reacted negatively to companies purchasing above-average NAS from their incumbent auditors (Eduardo et al. 2002). Chapter 2 (section 2.6) presents evidence that the accounting scandals not only affected the demand side in the market for NAS, i.e., the clients, but also significantly affected the reputation of the auditing profession as acknowledged by regulatory bodies in the UK (e.g., APB 2001 and CGAA 2003).

The accounting scandals served as a severe shock to the system regulating the relationship between audit and NAS. In an attempt to restore confidence in the reliability of audited financial statements, regulatory bodies all over the world felt the necessity to control the joint supply of audit and NAS. The regulatory initiatives are presented in chapter 2. In particular, APB ES (APB 2004, 2010a) imposed restrictions on the provision of certain NAS and required audit engagement partners to rotate every five years, and required greater disclosure of NAS fees paid to incumbent auditors. These regulatory initiatives, along with others, brought in a new dimension to auditor independence in the UK. While the APB ES were being in force in their initial years, the financial crisis of 2007-09 in the Western economies unfolded. This once more highlighted that the provision of NAS and long association with auditors were long-standing, potentially unresolved issues. This provides the context of the current study that inspired the investigation to assess the impact of the APB ES that influenced the joint provision of audit and NAS and long auditor tenure on auditor independence *in fact* and FRQ of FTSE350 companies following these regulatory reforms.

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[86] The ICAEW keeps archival documents on surveys conducted on audit and NAS fees. They can be accessed (http://www.icaew.com/en/library/subject-gateways/auditing/audit-fees-and-surveys) in order to discover more detail of the trends of the ratio of NAS fees to audit fees pre and post accounting scandals.

6.3 Research objectives and methodology

This thesis tests the impact of APB regulations on auditor independence and FRQ of FTSE350 companies. While the issues are relevant to accounting and auditing research in general, they are not just limited to the UK setting. The research approach can be applied where similar regulatory settings prevail. More specifically, this thesis has the following objectives with regard to each of the two major regulatory drives chosen for this study.

Section 5.2 of chapter 5 tests the effect of the APB regulations in different forms of economic dependence on FRQ, as proxied by discretionary accruals. Two measures of economic dependence were identified. In order to facilitate further investigation into the impact of NAS fees on auditor independence and FRQ, the chapter tests if higher NAS fees encourage auditors to risk their independence. To substantiate the findings of correlations and regressions based tests, the study then applied a more direct approach – the 'difference-in-differences' method - to assess the causal impact of the APB regulations on the FRQ of sample companies. As such, section 5.3 of chapter 5 tests whether discretionary accruals post-APB ES period reduce and therefore, improve auditor independence and FRQ.

As to the long audit firm tenure, section 5.4.4 of chapter 5 serves four objectives. First, in line with the concerns expressed by regulators (see for example, House of Lords Select Committee on Economic Affairs 2011) on the concentrated audit market, the section provides evidence of the Big4 audit firms' domination in FTSE350 companies. Second, the study investigates if the APB ES have a mitigating effect on discretionary accruals for audits conducted during post-APB ES regime compared against those conducted during pre-APB ES period, as per the expectations reflected in fifth hypothesis of the thesis. Third, following the learning effect hypothesis and, consistent with Cameran et al. (2014), this study assumes that auditors gain more client-specific knowledge through time and, therefore, FRQ improves across time as the learning effect tends to prevail over the familiarity threat. Finally, this study examines if the quality differentiation of the Big4 holds for longer and shorter audit firm tenure. The study, therefore, hypothesises that Big4 audit firms can benefit from extended tenure through knowledge transfer and established auditing procedures and tests this relationship.

The thesis utilises data for UK FTSE350 companies for the period covering 2003-2012. Data were collected using FAME and the annual reports of the sample companies. Appropriate filters were employed to exclude companies in financial services sector and companies with less than 10 years' data. This study shows that audits conducted during post-APB ES period are negatively associated with discretionary accruals estimated by three version of Jones model, namely the standard Jones model, the modified Jones model and the current (working capital) version of the modified Jones model. Empirical tests on NAS show that audits conducted during the post-APB ES period are negatively associated with discretionary accruals estimated by the modified Jones model while tests related to auditor tenure demonstrate that audits conducted during the post-APB ES period are negatively associated with discretionary accruals estimated by the current version of the modified Jones model. Additional tests are conducted in the same chapter as robustness checks to substantiate the results and findings. For all empirical analyses in chapter 5, different univariate and multivariate tests are performed.

6.4 Summary of empirical findings

The thesis assessed the impact of APB ES on auditor independence and the FRQ of UK companies. Two major aspects of the APB regulatory initiatives were investigated: restricted joint provision of audit and NAS and more frequent rotation of the audit firms for listed companies. Sections 5.2 to 5.4 of chapter 5 presented the empirical results of the analyses. The next two sub-sections will briefly present the findings and implications of each empirical section.

6.4.1 Findings on tests of NAS and FRQ

Section 5.2.2 documents the association between auditors' economic dependence created by the joint provision of audit and NAS and FRQ as measured by the absolute value of discretionary accruals pre- and post-APB. Contrary to the hypothesised positive association, results from the post-APB pooled data document a significant negative association between the economic dependence measured by the natural log of total fees and auditor independence and FRQ captured by the magnitude of discretionary accruals. This result has little support for the policymakers' and commentators' concerns about alleged failure in audit process stemming from erosion of auditor independence and declining FRQ due to strong economic bonding created by

joint provision of audit and NAS. However, a statistically non-significant positive association is registered for NAS fee measure of economic dependence and *ABSDAC*. Regression results from Panel A of Table 5.3 report negative association for both measures of economic dependence with discretionary accruals; confirming a significant negative association for the total fee measures post-APB and a statistically non-significant negative correlation for NAS fee measure. Overall, evidence from this study has little support for the policymakers' arguments about the 'economic bonding' of auditors as an alleged reason for audit failures and lower FRQ.

In order to investigate further into the effect of NAS fees on the auditor independence and FRQ, the study employs an arbitrary benchmark model that divides observations in higher and lower NAS fee ratios and the results hold the similar evidence as documented earlier. The negative association post-APB provides support for DeAngelo's (1981) argument regarding the 'reputational capital' of auditor. Employing the 'difference-in-differences' method, section 5.3 of this study documents empirical evidence on the causal impact of APB ES on the FRQ of FTSE350 companies at a marginally significant level during post-APB ES period.

6.4.2 Findings on tests of audit firm tenure, Big4 versus non-Big4 quality differentiation and FRQ

Section 5.4 of chapter 5 reports findings on tests conducted in relation to assessing the association between audit firm tenure and auditor independence and FRQ. Results from univariate tests of discretionary accruals and audit firm tenure document that companies audited by audit firms with a tenure of more than 3 years have significantly lower levels of discretionary accruals, than companies audited by firms with tenure of 3 years or less. This suggests that longer auditor tenure improves FRQ through mitigating discretionary accruals, contrary to the policymakers' and commentators' concern about cosy relationship between auditor and client management leading to erosion of auditor independence. Further evidence from correlations tests and regression tests also reports marginally significant negative association between audit firm tenure and discretionary accruals, opposing the commonly held view that longer tenure turns auditor-auditee relationship too cosy (Cadbury Committee Report 1992) where auditor independence faces a threat in the form of "a slow, gradual, almost casual erosion of …'honest disinterestedness'." (Mautz and Sharaf 1961, p. 208).

Following the dichotomy between Big4 and non-Big4 audit firms, this study examines if the quality differentiation, established by extant research, holds for longer and shorter auditor tenure by testing the validity for mitigating effect of audit firm tenure on discretionary accruals for Big4 clients and non-Big4 clients. Data from sampled FTSE350 report a marginally significant negative association between audit firm tenure and discretionary accruals for companies audited by Big4 auditors but not for those audited by their non-Big4 counterparts. With the caveat of statistically marginal significance level, this result suggests that Big4 audit firms can benefit more from extended audit firm tenure.

6.5 Major contributions of the study

The thesis makes a number of empirical contributions to auditing literature. First, this study addresses one of the major tensions in the academic debate concerning the issue of the extent to which NAS and long audit tenure impair auditors' independence leading them to compromise FRQ. The first empirical test (section 5.2) is the first study of its kind to assess the impact of the APB ES from the perspective of restricted NAS on FRQ using alternative measures of economic dependence created by the joint provision of audit and NAS. Thus, the study adds fresh and timely empirical insight to the growing literature on restricted NAS and FRQ in the UK setting (Campa and Donnelly 2016, Ferguson et al. 2004). Extending the investigation, the study also tests whether a threshold level for the relative amounts of audit and NAS fees can distinguish between the circumstances when independence vis-à-vis FRQ may be weakened. An arbitrary benchmark of economic dependence is employed on the ground that auditors having a NAS fee ratio *(NASFR)* of less than 1 could have less incentive to jeopardise their independence while a higher *NASFR* may encourage auditor to risk independence and let managers exercise higher discretion in managing reported earnings leading to lower FRQ. The results thus provide fresh insights for policymakers and regulators in considering if higher fees generated from NAS motivate auditors to allow their clients greater discretion in earnings management leading to lower FRQ.

The findings of the study bear significance in the context of reported concerns raised from the regulators, policymakers and commentators (such as the House of Commons Treasury Committee 2009 and the House of Lords Select Committee on Economic

Affairs 2011) over the alleged audit process that failed to highlight developing problems in the banking sector during 2007-09. Particularly, a blanket ban was suggested by the House of Commons Treasury Committee (2008) following the Northern Rock failure. This was followed by the early 2000s' scandals where companies were involved in purchasing high amount of NAS from their incumbent auditors. Moreover, the popular auditor-auditee bonding concept, as Beeler and Hunton (2001) argue, supplements regulators' concerns that auditors may compromise independence when the provision of NAS generates economic rents. However, empirics from this study have weak support for this regulatory concern as it finds statistically non-significant negative association with *NASFR in the* post-APB ES regime and significant negative association between FRQ and total audit fee measure.

It is argued that the joint provision of audit and NAS might act as a 'reputational capital' that helps auditors deliver more competent audits leading to improvements in FRQ. Empirical evidence for the first dependence measure of *NASFR* reports a negative association with the discretionary accruals. Although the association is not statistically significant, the negative correlation itself provides some support against the popular auditors' economic bonding hypothesis that NAS fees generated from the joint provision further strengthen the auditor-client bond as it increases the audit firm wealth derived from the clients (Simunic 1984 and Beck et al. 1988). Therefore, this study has weak ground for further restrictions on the NAS to audit clients.

The empirical findings for the second measure of economic dependence, the log of total fees *(LnTOTFEE)* provide stronger support against the positive association between discretionary accruals and *LnTOTFEE*. With statistically significant negative association post-APB, the study rejects the positive hypothesised relationship between *LnTOTFEE* and discretionary accruals. This association suggests that total fees generated from the joint provision of audit and NAS may not motivate auditors to allow their clients greater discretion in earnings management. The negative correlation supports the DeAngelo (1981) argument regarding the 'reputational capital' of auditor.

Secondly, a further test (reported in section 5.4) considers the association between the audit firm tenure on auditor independence vis-à-vis FRQ – another easy scapegoat that commentators and regulators occasionally blame in the wake of corporate failures and accounting scandals. With marginally significant association at the 0.10 level, the

results provide some support for the hypothesised argument that extended auditor tenure has a positive impact on FRQ through mitigating earnings management. It thus provides further evidence concerning the learning effect associated with extended audit firm tenure as an explanation for the negative association between audit firm tenure and FRQ and contributes to the existing literature on audit firm tenure. These findings address the regulatory concerns of Cadbury Committee Report (1992) that longer tenure turns auditor-auditee relationship too cosy arguably leading to the erosion of auditor independence. The results of partitioning the sample into companies audited during post-APB ES regime and pre-APB ES period report a non-significant, yet negative, association between auditor tenure and *ABSDAC* for firm-years audited during post-APB ES regime while a positive association is documented for those audited prior to the enactment of ES and *ABSDAC*.

The third contribution stems from examining if the mitigating effect of audit firm tenure on FRQ is valid in cases of companies audited by Big4 auditors versus companies audited by their non-Big4 counterparts (reported in section 5.4.4.6). Existing literature on audit firm tenure and FRQ remains reportedly weak in relation to the issue of Big4 concentration (Bandyopadhyay et al. 2014 and Francis et al. 2013). The findings extend this literature with the empirical substance of Big4 quality differentiation holding for longer audit firm tenure. It thus contributes to the literature on dichotomy of Big4 and non-Big4 audit firms (Francis 2011).

Fourth and more importantly, this study is informed by the most recent developments in the field involving the reported concerns over the market domination by Big4 firms (see House of Lords Select Committee on Economic Affairs 2011) and further policy changes such as capping of NAS and the mandatory tendering (to be effective from mid-2016). These developments bring added tension to the issue of fee dependence, Big4 tenure, and FRQ. The findings of the study inform this tension to some extent trough the exploration of Big4 quality differentiation and shed some light on the regulatory concerns of concentrated audit market where Big4 audit firms dominate in the FTSE350 segment of the UK companies (House of Lords Select Committee on Economic Affairs 2011). The recent EU proposal on 'Reforming the Audit Market' reports three major weaknesses of the audit market such as a lack of choices for clients resulting from highly concentrated market; a systematic risk if one of the Big4 firms collapses; and possible conflicts of interests and issues around the independence of auditors (EC 2011). Following the dichotomy between Big4 and non-Big4 audit firms,

empirical evidence from this study reports a marginally significant negative association between auditor tenure and discretionary accruals for companies audited by Big4 auditors but not for those audited by their non-Big4 counterparts. This suggests that Big4 audit firms can benefit more from extended audit firm tenure.

Fifth, this study uses Morgan and Winship's (2007) 'difference-in-differences' approach to test if the FRQ has improved after the enactment of the APB ES. While difference-in-differences method has been extensively used in empirical economics, political science and sociology research to estimate a 'mean causal effect' of a policy intervention, it is rarely used in the auditing literature. More specifically, it is used to examine if the APB ES, from the perspective of NAS, have a mitigating effect on FRQ for audits conducted during the post-APB ES regime compared against those conducted prior to the enactment of the APB ES (reported in section 5.3). Dividing the observations in the control group and the treatment group, the 'difference-in-differences' approach provides inference about the impact of the APB ES on FRQ of FTSE350 companies. Results from this method show marginally significant negative correlation between the interaction variable and *ABSDAC* that confirms the causal impact of the APB regulations in improving the FRQ.

Finally, the thesis also provides a review of the regulatory environment for NAS and auditor tenure in the UK. The regulatory initiatives restricting the provision of NAS and mandating the rotation of auditors have been analysed. Also, the context for regulatory developments in this area has been discussed. It has been found that consistent with other trends of regulatory developments, regulations restricting the joint provision of audit and NAS and rotating of the audit engagement partner in the UK also moved from private initiatives to independent regulations of the FRC.

6.6 Research limitations and directions for future research

Despite the efforts undertaken in this thesis, a number of research limitations exist as follows:

Similar to most earnings management studies, estimates of discretionary accruals suffer from measurement errors (DeFond and Zhang 2014). FRQ proxies are argued to be less direct than restatements or going concerns opinions, because the auditor's influence on reporting quality is likely to be relatively more limited than restatements or going

concerns opinions can reflect. Also, most FRQ measures may suffer from significant measurement error when captured through discretionary accruals or accounting conservatism. Following prior research other alternative measures of FRQ such as auditor brand name (e.g., Bandyopadhyay and Kao 2001), industry specialization (e.g., Fung et al. 2012), likelihood of financial statement restatement (e.g., Kinney et al. 2004), AAERs (Lennox and Pitman 2010a), audit opinion (e.g., Butler et al. 2004, and Krishnan 1994), office size (e.g., Lennox and Pitman 2010b) can be employed in future studies.

Apart from the limitation of the chosen FRQ measure, the findings of this study suffer from the limitations of the discretionary accrual models employed. The major limitation of the Jones-based model results from measurement errors when companies in an industry are not homogeneous (Dechow et al. 1995). It is assumed that the model is similar for every company in an industry, regardless of its operating strategy or the phase in its product life cycle. Another issue of measurement errors may stem from the property, plant and equipment in explaining long-term accruals in the model. Gore et al. (2007) observe that depreciation is unlikely to be an effective means of managing earnings given its visibility that renders the ability for the market to observe it (Young 1999) and in cases of revaluation of those items under International Financial Reporting Standards (Soderstrom and Sun 2007). Kothari et al. (2005) argue that disregarding performance of the company may give rise to severe measurement error. Dechow et al. (1995) and Kasznik (1999) suggest that the findings estimated by the Jones model imply that discretionary accruals are significantly positively associated with the performance of the company or return on assets (ROA). To solve this issue of performance associated with misspecification, a number of studies conducted by Kasznik (1999), Bartov et al. (2001) and Kothari et al. (2005) exclude the possible influences of this correlation between discretionary accruals and earnings performance by using a matched-firm or portfolio method to adjust the discretionary accruals. A further limitation arises when a cross-sectional version of the model involves observations to estimate the coefficients of non-discretionary accruals that could incorporate some discretionary accruals themselves (Ronen and Yaari 2008). Again, accruals that are generally driven by assumptions and estimates need to be corrected in future accruals and earnings, and Dechow and Dichev (2002, p. 36) argue these estimation errors and their subsequent corrections as noise that "reduces the beneficial

role of accruals". Therefore, some caveats are important to consider when using the results.

Also, another variation of Jones procedure, the performance matched discretionary accruals model (Kothari et al. 2005, discussed in section 4.6.2.9) can be employed in conjunction with other models for more accurate estimates of discretionary accruals. Similar to most multivariate analysis, results reported in the thesis are constrained by the research design and the control variables used for this study. A possible area for future research is to replicate the tests of the thesis in another country in order to validate the results of the thesis and to check whether the results are sensitive to the UK setting.

Following prior studies, this thesis uses the magnitude of discretionary accruals as the indication of earnings management and hence the level of FRQ (Frankel et al. 2002, Johnson et al. 2002, Krishnan 2003, Balsam et al. 2003, Myers et al. 2003, and Ghosh and Moon 2005). Carmona et al. (2015, p. 778) argue that while NAS may influence auditors to allow greater discretion to their clients in exercising earnings management, high audit fees may also have the same effect. These arguments imply that discretionary accruals and audit and NAS fees are simultaneously determined and Antle et al. (2006) argue that they should be estimated in a system of simultaneous equations that allow for many directions of effects among these variables. Future research can address this endogeneity issue by controlling for the endogeneity among audit fees, NAS fees and discretionary accruals.

Researchers use a number of alternative proxies to understand the level of auditor independence and FRQ. As such, some researchers may use proxies that capture only one or more components but not the whole essence of auditor independence. Independence studies conventionally use, as Reynolds et al. (2004, p. 32) note, some measures of a client's audit fee levels and relate that measure to an outcome variable implying independence. For example, until the US SEC's requirement to disclose the fees paid to auditors since 2001, researchers used the square root of client's assets (e.g., Pendley and Legoria 1999) and proxy statement disclosures (e.g., Chung and Kallapur 2003) as the indicators for client importance. Recent studies use other proxies as mentioned above in this section. Since the current study uses two measures of auditors' economic dependence and discretionary accruals estimates in its empirical tests, it may

suffer from this limitation. Future research may employ other proxies to better capture the whole essence of independence and FRQ.

As to audit firm tenure, this thesis was constrained by data availability. As the data used in this study have been collected using annual reports of the sample companies, the author was only able to collect audit firm tenure up to 11 years. Some prior US studies used audit tenure data up to 26 years. Therefore, results reported in section 5.4 of chapter 5 need to be interpreted with care due to this limitation. However, additional tests were used in the thesis using a tenure dummy variable and the results are generally qualitatively similar to those reported in the chapter. Another limitation emerges from the linearity assumption taken in this thesis (see section 3.4.1) for the relationship between audit firm tenure and FRQ.

Research on joint provision of audit and NAS could be extended in a number of directions. Since 2000, the UK audit regulations have undergone significant changes triggered by corporate failures and the resulting crisis of confidence in financial reporting. Moreover, politicians use NAS fees as an easy scapegoat for an alleged audit failure. For example, investigating the recent financial crisis the UK Treasury Committee commented that a blanket ban of NAS by incumbent auditors would help improve investor confidence in financial reporting. Humphrey et al. (2007), however, argue that auditor independence has been given much attention while *auditor competence*, the more basic issues, has been relatively ignored. Consequently, the study can be extended in future by taking FTSE All companies and other relatively smaller companies with a longer window making the sample comparable to studies conducted in the US context and meaningful generalisations can be reasonably made. Then this study can be used as a point of reference for all stakeholders, including policymakers. In addition, measures developed in this thesis could be used with a test of the propensity to issue modified audit opinions as additional evidence of the potential compromise of auditor independence.

Research on NAS and auditors' long association with clients and their association with FRQ in the financial services sector is very limited (see Kanagaretnam et al. 2010, for example). The concerns of the regulators in the UK were triggered by the failure of Northern Rock and the House of Commons Treasury Committee (2008) proposed a blanket ban on providing NAS to audit clients. Extant research generally excludes

companies in the financial services sector due to their unique characteristics and different nature of accruals generation. However, future research might contribute to the on-going regulatory debate by examining NAS and the long association of auditors using samples from the UK financial services industry.

As to the research on the association between audit firm tenure and FRQ, one potentially fruitful extension would be to use audit engagement partner tenure instead of audit firm tenure used in this study. Results in section 5.4 are only valid for audit firm tenure, as the study did not investigate audit engagement partner tenure. Since 2009, data about audit engagement partners can be obtained from their signatures on audit reports[87], which can be used to identify rotation of audit partners in future studies. Given the availability of data on a wider window, it will contribute to the literature by assessing the impact on FRQ with extended audit engagement partner tenure. This will allow researchers to examine if there is a real need for the mandatory rotation of audit partners.

Finally, the FTSE350 is a cohort of the largest 350 companies on the London Stock Exchange where companies exit and enter quarterly based on their market capitalisation. While this study takes a randomly selected date in 2013 for a representative list of these companies for all years, this may be treated as a potential limitation which was largely due to the time constraints for the author. Future research may be conducted taking a list of FTSE350 companies for each of the years included in the study. Also, results from this study may not be generalisable to relatively smaller business entities for which joint provision of audit and NAS is often very critical. As explained in section 4.9, the choice of FTSE350 companies was influenced by the regulators' concerns over the recent financial crisis of 2007-09 and alleged audit failures. A future study can address this bias in the sample selection by investigating a similar inquiry for smaller business entities.

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[87] Section 503 of Companies Act 2006 requires that when the auditor is an individual, his or her name must be stated on the auditor's report and the report must be signed and dated by the individual. In cases where the auditor is a firm, the section requires that the auditor's report must be signed by the senior statutory auditor in his or her own name, for and on behalf of the auditor. The requirement came in force for financial year on or after 6th April 2008 (Paragraph 10, APB 2008). Since 2006, the EC's Eighth Directive requires the engagement partner to sign the auditor's report in one's own name on behalf of the registered audit firm (Article 28, EC 2006). Prior to the Eighth Directive, several European countries such as Germany, Luxembourg and France required disclosure of the engagement partner's identity through signatures for a number of years (ICAEW 2006).

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Appendices

Appendix 1 Table 2.2 Comparison of regulations on NAS and rotation of auditors

Regulations on NAS				
Categories of NAS	**APB (2004, 2010a)**	**CGAA (2003)**	**EC (2002 and 2011)**	**Sarbanes Oxley Act (2002)**
Internal audit service	Prohibited, if it involves auditors making decisions that would otherwise be made by the management. Else, performance of internal audit services is allowed, subject to the presence of some safeguards.	Prohibited.	Allowed, subject to a number of safeguards in place.	Prohibited.
IT service	Prohibited, in case the engagement involves provision of services that relate to the client's accounting system or to the production of financial statements.	Agrees with EC (2002) recommendations	Design and implementation of financial information technology is prohibited, unless the client management assumes full responsibility for internal control.	Financial information systems design and implementation is prohibited. Other IT service requires to be pre-approved.
Tax	Prohibits auditors from promoting tax structures or products or providing advice that may require adoption of an accounting treatment. Disallows provision of tax services on a contingent fee basis, when such fees are	Allowed, subject to sufficient disclosure made to the audit committee.	Allowed	Allowed. Views tax services as not as harmful for auditor independence as some other NAS.

	material, or where the outcome is dependant on tax laws. Prohibits tax services to the audit client where such services include representing the client before the Appeals Tribunal or the Court in the resolution of an issue that is either material to the financial statements or where the outcome depends on a future or contemporary audit judgment.			
Recruitment and remuneration	Prohibits auditors to undertake recruitment engagements when such service involves appointment of any director or employee of the client company.	Prohibits auditors to undertake recruitment engagements when such service involves appointment of any director or employee of the client management.	Allowed, subject to careful review of whether provision of such services would significantly undermine auditor independence.	Prohibited
Accounting service	Prohibited.	Prohibited.	Prohibited.	Prohibited.
Appraisal/val uation service	Generally prohibited. Specifies specific valuation services that are allowed.	Prohibited.	Prohibited.	Prohibited.
Legal service	Acknowledges that such services vary widely, and a blanket prohibition would not be appropriate. ES5 only disallows the auditors to acting as solicitors in	Recommends more specific guidance regarding litigation support.	Prohibited, if such process involves the estimation of the outcome of a dispute or litigation, or making subjective judgment.	Prohibited.

	the resolution of a litigation or dispute that involves amounts which may be material to the financial statements.			
Rotation of auditor				
	Suggests that the audit firm shall establish policies and procedures to monitor the length of time that audit engagement partners, key partners involved in the audit and partners and staff in senior positions, including those from other disciplines, serve as members of the engagement team for each audit. For listed companies, no one can act as the audit engagement partner for more than 5 years and another 5 years of cooling off period is required for reappointment. With audit committee approval, this tenure can be a maximum of 7 years.	Welcomes the adoption by the ICAEW and ICAS of strengthened requirements on audit partner rotation, which is a maximum of 5 years for the audit engagement partner and 7 years for other key audit partners. While it does not recommend mandatory audit firm rotation, it recognizes (a) enhanced role for the audit committee in relation to the appointment and oversight of company-auditor relationship; (b) requirements for audit partner rotation; (c) greater transparency by major audit firms on how they maintain audit quality and auditor independence; and (d) greater emphasis on independence when monitoring long-standing auditors.	The regulation introduces mandatory rotation of audit firms after a maximum period of 6 years that may be, under certain exceptional circumstances, extended to 8 years. Where a public-interest entity has appointed two or more statutory auditors or audit firms, the maximum duration of the engagements will be 9 years; on an exceptional basis, such duration may be extended to 12 years. It also provides for a cooling-off period before the audit firm is able to carry out the statutory audit of the same entity again.	Audit partner, not the audit firm, rotation in every 5 years.

Appendix 2

Table 5.3 Cross-sectional regression model of absolute value of discretionary accruals

Panel D: Influence using NASFR between quartiles during post-APB period

Quartile 1=smallest companies and quartile 4=largest companies in regards to their Total Assets

Variable	Pred Sign	Quartile 1 (n=484)				Quartile 2 (n=484)				Quartile 3 (n=484)				Quartile 4 (n=484)			
		Estimate		Clust. St Error	p-value	Estimate		Clust. St Error	p-value	Estimate		Clust. St Error	p-value	Estimate		Clust. St Error	p-value
Intercept	?	0.269	**	0.082	0.001	-0.137		0.141	0.331	0.194		0.112	0.085	0.080		0.047	0.088
NASFR	+	0.003		0.002	0.157	-0.001		0.001	0.308	-0.004		0.002	0.054	-0.004	**	0.002	0.009
BIG4	-	-0.044		0.026	0.091	-0.036		0.030	0.233	-0.027		0.023	0.242	(omitted)			
AUDCH	-	-0.005		0.013	0.680	0.001		0.016	0.955	0.000		0.012	0.981	0.001		0.018	0.955
ACQ	+	-0.046	**	0.017	0.008	-0.010		0.010	0.333	0.021	**	0.008	0.013	-0.003		0.005	0.601
ISSUE	+	0.033		0.066	0.612	0.015		0.043	0.723	0.066		0.058	0.251	0.006		0.021	0.757
SIZE	-	-0.097	***	0.023	0.000	0.086		0.048	0.075	-0.039		0.032	0.232	-0.019	*	0.009	0.041
GROWTH	+	0.000		0.000	0.454	0.000		0.000	0.241	0.000		0.000	0.890	0.000		0.000	0.360
LEV	+	0.160	*	0.067	0.017	0.006		0.014	0.693	0.004		0.030	0.892	0.026		0.018	0.156
ZSCORE	-	0.009		0.007	0.207	-0.004		0.003	0.186	0.006		0.010	0.551	0.018		0.012	0.145
LOSS	-	0.147	**	0.055	0.008	0.064	**	0.021	0.002	0.102	**	0.033	0.002	0.038	***	0.011	0.001
HITECH	+	-0.004		0.014	0.758	-0.020	**	0.007	0.006	-0.008		0.010	0.445	0.010		0.006	0.075
ASSETGROW	+	0.000		0.000	0.802	0.000		0.000	0.096	0.000		0.000	0.763	0.000		0.000	0.451
R-squared		19.36%				9.26%				10.91%				11.40%			

* p<0.10, ** p<0.05, and ***p<.01

Note: Pooled regression is run after controlling for time dummy and BIG4 is omitted in quartile 4 due to collinearity

Panel E: Influence using NASFR between quartiles during pre-APB period
Quartile 1=smallest companies and quartile 4=largest companies in regards to their Total Assets

		Quartile 1 (n=121)				Quartile 2 (n=121)				Quartile 3 (n=121)				Quartile 4 (n=121)			
Variable	**Pred Sign**	**Estimate**		**Clust. St Error**	**p-value**	**Estimate**		**Clust. St Error**	**p-value**	**Estimate**		**Clust. St Error**	**p-value**	**Estimate**		**Clust. St Error**	**p-value**
Intercept	?	0.979	***	0.269	0.000	-0.331		0.316	0.299	0.142		0.203	0.486	0.157	*	0.079	0.049
NASFR	+	0.015		0.017	0.404	0.006		0.008	0.444	0.002		0.009	0.785	0.000		0.002	0.952
BIG4	-	0.045		0.072	0.531	0.048	*	0.021	0.026	0.040	*	0.019	0.037	(omitted)			
AUDCH	-	-0.093		0.057	0.104	0.217		0.168	0.202	(omitted)				0.005		0.017	0.759
ACQ	+	-0.089		0.072	0.221	-0.048		0.028	0.089	-0.018		0.028	0.514	-0.042	**	0.015	0.007
ISSUE	+	-0.213	**	0.076	0.006	0.052		0.102	0.613	-0.032		0.063	0.617	0.061	*	0.029	0.036
SIZE	-	-0.414	***	0.117	0.001	0.113		0.104	0.284	-0.023		0.051	0.660	-0.031		0.020	0.123
GROWTH	+	0.000		0.001	0.976	-0.001		0.001	0.239	0.003	***	0.001	0.000	0.000		0.000	0.248
LEV	+	0.208	*	0.097	0.034	0.110		0.065	0.093	-0.030		0.066	0.657	0.062	**	0.022	0.005
ZSCORE	-	-0.008		0.031	0.807	0.008		0.009	0.417	-0.011		0.012	0.338	0.014		0.013	0.291
LOSS	-	0.150		0.089	0.095	0.053		0.046	0.247	0.048		0.035	0.174	0.079	**	0.027	0.004
HITECH	+	-0.132	*	0.053	0.014	-0.034		0.035	0.329	0.024		0.031	0.445	0.012		0.015	0.433
ASSETGROW	+	0.000		0.000	0.364	0.000		0.000	0.728	0.000		0.000	0.186	0.000		0.000	0.106
R-squared		27.27%				25.11%				26.02%				30.29%			

* p<0.10, ** p<0.05, and ***p<.01

Note: Pooled regression is run after controlling for time dummy and AUDCH in Q3 and BIG4 in Q4 are omitted due to collinearity

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees.*BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total assets.

Appendix 3
Table 5.5 Pearson correlation matrices
Panel C: Continuous Variable Correlations for Model 4 (NASFR>=1) using both dependence measures (n=741) post-APB

	ABSDAC	NASFR	LnTOTFEE	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000													
NASFR	-0.013	1.000												
LnTOTFEE	**-0.092**[a]	**0.167**	1.000											
BIG4	**-0.114**	-0.023	**0.155**	1.000										
AUDCH	-0.014	0.012	-0.012	-0.041	1.000									
ACQ	0.004	**0.084**[a]	**0.118**	**0.069**[b]	**-0.083**[a]	1.000								
ISSUE	**0.066**[b]	0.058	-0.010	-0.016	-0.001	0.024	1.000							
SIZE	**-0.129**	**-0.076**[a]	**0.665**	**0.201**	0.012	**0.141**	**-0.063**[b]	1.000						
GROWTH	-0.009	**0.069**[b]	0.005	**-0.087**	-0.030	0.034	-0.019	**-0.117**	1.000					
LEV	**0.107**	0.042	**0.091**[a]	**-0.100**	0.046	0.058	0.013	0.028	-0.004	1.000				
ZSCORE	-0.007	0.043	**-0.224**	**-0.128**	**-0.071**[b]	**-0.100**	0.007	**-0.413**	**0.098**	**-0.288**	1.000			
LOSS	**0.198**	**0.072**[a]	-0.012	0.051	0.001	0.015	**0.062**[b]	0.002	**-0.061**[b]	0.016	**-0.213**	1.000		
HITECH	0.004	-0.020	-0.016	-0.024	**-0.074**[a]	**-0.133**	**0.082**[a]	**-0.234**	-0.049	-0.037	**0.097**	-0.036	1.000	
ASSETGROW	-0.053	-0.020	**0.259**	0.034	-0.025	0.060	**0.178**	**0.347**	-0.035	**-0.062**[b]	**-0.061**[b]	**-0.118**	**-0.079**[a]	1.000

Coefficients in bold are significant at 0.01 ($p<0.01$), coefficients in bold with superscript a and b are significant at 0.05 ($p<0.05$) and 0.10 ($p<0.10$) respectively.

Panel D: Continuous Variable Correlations for Model 4 (NASFR>=1) using both dependence measures (n=201) pre-APB

	ABSDAC	NASFR	LnTOTFEE	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000													
NASFR	0.091	1.000												
LnTOTFEE	**-0.173**[a]	0.004	1.000											
BIG4	0.018	**-0.145**[a]	**0.145**[a]	1.000										
AUDCH	-0.039	-0.098	-0.073	0.041	1.000									
ACQ	-0.035	0.120	-0.045	0.007	0.013	1.000								
ISSUE	0.002	0.020	**-0.202**	0.087	0.083	0.041	1.000							
SIZE	**-0.281**	**-0.113**[b]	**0.774**	**0.186**	-0.083	0.035	-0.081	1.000						
GROWTH	0.082	0.025	0.106	0.004	0.068	-0.100	0.055	-0.002	1.000					
LEV	**0.181**[a]	0.010	0.072	-0.002	0.016	-0.080	**0.258**	-0.025	0.101	1.000				
ZSCORE	0.062	**0.217**	-0.100	-0.012	-0.051	-0.008	**-0.194**	**-0.301**	0.055	**-0.146**[a]	1.000			
LOSS	**0.194**	-0.091	-0.008	0.089	0.077	**-0.145**[a]	-0.051	-0.077	-0.012	0.015	**-0.232**	1.000		
HITECH	-0.062	**-0.140**[a]	**0.132**[b]	0.020	-0.001	**-0.175**[a]	**-0.117**[b]	0.018	-0.035	-0.078	0.029	**0.114**	1.000	
ASSETGROW	-0.033	-0.065	**0.313**	0.041	-0.041	0.081	-0.013	**0.416**[a]	**0.144**[a]	-0.085	-0.059	-0.015	**0.187**	1.000

Coefficients in bold are significant at 0.01 ($p<0.01$), coefficients in bold with superscript a and b are significant at 0.05 ($p<0.05$) and 0.10 ($p<0.10$) respectively.

Panel E: Continuous Variable Correlations for Model 3 (NASFR<1) using only NASFR as the dependence measure (n=1195) post-APB

	ABSDAC	NASFR	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000												
NASFR	-0.032	1.000											
BIG4	**-0.114**	**0.085**	1.000										
AUDCH	-0.011	-0.012	0.022	1.000									
ACQ	**-0.086**	-0.018	**0.073**[a]	**0.052**[b]	1.000								
ISSUE	**0.071**[a]	**0.050**[b]	**-0.116**	0.012	0.037	1.000							
SIZE	**-0.182**	**0.091**	**0.207**	**-0.073**[a]	**0.085**	-0.014	1.000						
GROWTH	0.009	**-0.062**[a]	0.022	0.031	**-0.055**[b]	0.001	-0.038	1.000					
LEV	0.039	-0.037	**0.135**	0.022	0.035	0.032	0.047	**0.053**[b]	1.000				
ZSCORE	**0.065**[a]	-0.002	-0.040	-0.031	-0.043	0.009	**-0.383**	**0.152**	**-0.300**	1.000			
LOSS	**0.247**	**-0.091**	**-0.081**	0.010	**-0.056**[b]	0.007	**-0.097**	-0.043	0.011	**-0.145**	1.000		
HITECH	-0.012	-0.001	0.007	-0.011	**-0.079**	-0.023	-0.007	**0.087**	-0.023	**0.023**	0.000	1.000	
ASSETGROW	-0.039	**0.065**[a]	0.047	-0.020	0.042	**0.177**	**0.426**	**0.093**	-0.038	**-0.095**	**-0.062**[a]	0.047	1.000

Coefficients in bold are significant at 0.01 (p<0.01), coefficients in bold with superscript a and b are significant at 0.05 (p<0.05) and 0.10 (p<0.10) respectively.

Panel F: Continuous Variable Correlations for Model 3 (NASFR<1) using only NASFR as the dependence measure (n=283) pre-APB

	ABSDAC	NASFR	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000												
NASFR	-0.078	1.000											
BIG4	**-0.186**	**0.113**[b]	1.000										
AUDCH	**0.196**	-0.003	0.037	1.000									
ACQ	**-0.315**	-0.001	0.096	-0.086	1.000								
ISSUE	-0.039	-0.018	0.067	0.061	0.027	1.000							
SIZE	**-0.287**	**0.131**[a]	**0.285**	0.033	0.056	-0.052	1.000						
GROWTH	**0.134**[a]	-0.046	-0.011	0.048	-0.008	-0.026	**-0.170**	1.000					
LEV	**0.132**[a]	0.043	**0.122**[a]	**0.203**	-0.056	-0.031	-0.021	-0.014	1.000				
ZSCORE	0.065	-0.050	**-0.137**[a]	-0.052	-0.093	-0.052	**-0.346**	-0.014	**-0.155**	1.000			
LOSS	**0.196**	-0.034	-0.016	0.033	-0.084	-0.051	**-0.128**[a]	0.043	0.093	**-0.227**	1.000		
HITECH	-0.015	0.058	0.020	-0.076	-0.049	0.059	-0.073	-0.016	0.058	0.068	**0.150**[a]	1.000	
ASSETGROW	0.003	0.084	0.015	-0.030	0.017	**0.169**[b]	**0.121**[a]	-0.077	0.021	-0.029	-0.059	-0.064	1.000

Coefficients in bold are significant at 0.01 (p<0.01), coefficients in bold with superscript a and b are significant at 0.05 (p<0.05) and 0.10 (p<0.10) respectively.

Panel G: Continuous Variable Correlations for Model 4 (NASFR>=1) using only NASFR as the dependence measure (n=741) post-APB

	ABSDAC	NASFR	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000												
NASFR	-0.013	1.000											
BIG4	**-0.114**	-0.023	1.000										
AUDCH	-0.014	0.012	-0.041	1.000									
ACQ	0.004	**0.084^a**	**0.069^b**	**-0.083^a**	1.000								
ISSUE	**0.066^b**	0.058	-0.016	-0.001	0.024	1.000							
SIZE	**-0.129**	**-0.076^a**	**0.201**	0.012	**0.141**	**-0.063^b**	1.000						
GROWTH	-0.009	**0.069^b**	**-0.087^a**	-0.030	0.034	-0.019	**-0.117**	1.000					
LEV	**0.107**	0.042	**-0.100**	0.046	0.058	0.013	0.028	-0.004	1.000				
ZSCORE	-0.007	0.043	**-0.128**	**-0.071^b**	**-0.100**	0.007	**-0.413**	**0.098**	**-0.288**	1.000			
LOSS	**0.198**	**0.072^a**	0.051	0.001	0.015	**0.062^b**	0.002	**-0.061^b**	0.016	**-0.213**	1.000		
HITECH	0.004	-0.020	-0.024	**-0.074^a**	**-0.133**	**0.082^a**	**-0.234**	-0.049	-0.037	**0.097**	-0.036	1.000	
ASSETGROW	-0.053	-0.020	0.034	-0.025	0.060	**0.178**	**0.347**	-0.035	**-0.062^b**	**-0.061^b**	**-0.118**	**-0.079^a**	1.000

Coefficients in bold are significant at 0.01 (p<0.01), coefficients in bold with superscript a and b are significant at 0.05 (p<0.05) and 0.10 (p<0.10) respectively.

Panel H: Continuous Variable Correlations for Model 4 (NASFR>=1) using only NASFR as the dependence measure (n=201) pre-APB

	ABSDAC	NASFR	BIG4	AUDCH	ACQ	ISSUE	SIZE	GROWTH	LEV	ZSCORE	LOSS	HITECH	ASSETGROW
ABSDAC	1.000												
NASFR	0.091	1.000											
BIG4	0.018	**-0.145**[a]	1.000										
AUDCH	-0.039	-0.098	0.041	1.000									
ACQ	-0.035	0.120	0.007	0.013	1.000								
ISSUE	0.002	0.020	0.087	0.083	0.041	1.000							
SIZE	**-0.281**	**-0.113**[b]	**0.186**	-0.083	0.035	-0.081	1.000						
GROWTH	0.082	0.025	0.004	0.068	-0.100	0.055	-0.002	1.000					
LEV	**0.181**[a]	0.010	-0.002	0.016	-0.080	**0.258**	-0.025	0.101	1.000				
ZSCORE	0.062	**0.217**	-0.012	-0.051	-0.008	**-0.194**	**-0.301**	0.055	**-0.146**[a]	1.000			
LOSS	**0.194**	-0.091	0.089	0.077	**-0.145**[a]	-0.051	-0.077	-0.012	0.015	**-0.232**	1.000		
HITECH	-0.062	**-0.140**[a]	0.020	-0.001	**-0.175**[a]	**-0.117**[b]	0.018	-0.035	-0.078	0.029	0.114	1.000	
ASSETGROW	-0.033	-0.065	0.041	-0.041	0.081	-0.013	**0.416**	**0.144**[a]	-0.085	-0.059	-0.015	**0.187**	1.000

Coefficients in bold are significant at 0.01 (p<0.01), coefficients in bold with superscript a and b are significant at 0.05 (p<0.05) and 0.10 (p<0.10) respectively.

Variable definitions:

ABSDAC=Absolute value of discretionary accruals measured using the modified Jones (1995) model. *NASFR*=Proportion of NAS fees to audit fees received from the audit client. *LnTOTFEE*=Natural log of total fees. *BIG4*=1 if the company is audited by a Big4 audit firm (PwC, KPMG, DT or EY), 0 otherwise. *AUDCH*=1 if auditor is changed in the year, 0 otherwise. *ACQ*=1 if the company is involved in acquisition, 0 otherwise. *ISSUE*=The ratio of changes in common stock, bonds and preferred stocks to opening total assets. *SIZE*=Measured by the natural log of total assets. *GROWTH*=The ratio of market value of equity to its book value. *LEV*=The ratio of total debts to total assets. *ZSCORE*=A bankruptcy score measuring financial distress (Altman 1983). *LOSS*=1 for firms reporting a net loss in the year and 0 otherwise. *HITECH*=1 for firms in high-tech industries with SIC 24 (Pharma); 30 (Computer); 64 (Telecom) and 72 (Software); or, 0 otherwise. *ASSETGROW*=Total asset change divided by opening total asset.