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FRC intervention, financial reporting quality and due diligence

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ABSTRACT

This study provides evidence of the relationship between government intervention, financial reporting quality and due diligence. Specifically, the authors examine the consequences of the disclosure of inspection reports by the Financial Reporting Council (FRC) for individual audit firms inspected in the UK. Using a difference-in-differences design, it is found that clients are more likely to receive qualified audit opinions during the post-disclosure period. This significant impact on reporting decisions is more concentrated among clients of small audit firms. Moreover, despite general efficiency during the sample period, clients affected by an FRC intervention experience longer delays in receiving their audit reports. Overall, this study contributes to literature on corporate governance and audit regulation, and has implications for policy making. FRC inspections are of greater concern to small audit firms than large firms, as the latter have already built a strong reputation. In general, the transparent inspection process may be beneficial in enhancing auditor oversight.

1. Introduction

Corporate governance is crucial to firm success, and annual audits are a cornerstone of corporate governance (Cadbury, 1992). Following several accounting scandals in the early 21st century (e.g. Enron and WorldCom), the literature has increasingly focused on public oversight of the audit profession (e.g. Carcello et al., 2011; DeFond and Lennox, 2017). In the UK, exercising this oversight is a central role of the Financial Reporting Council (FRC). In 2008, the FRC began to publish inspection reports for major audit firms with UK clients (FRC, 2016).¹ These reports provide inspection results for individual audit firms, enabling clients to distinguish between high- and low-quality firms. This study extends previous research by examining the impact of the FRC's disclosure of individual inspection reports on financial reporting quality and due diligence, including the likelihood of clients receiving qualified audit opinions, and the time taken for clients to receive signed off auditors' reports.

In order to protect their reputation, audit firms may be "tough or conservative" on important reporting issues and devote additional inputs into audits. Intuitively, the greater the expertise brought to reporting decisions, the more likely that misstatements will be detected. However, "gaming" behaviour by audit firms (e.g. "meet or beat") may reduce the quality of the reports' content (Christensen et al., 2016). With regard to the time taken to produce audit reports and to reduce reputational damage, on the one hand, auditors may spend more time than they used to, and on the other hand, this additional input into the auditing process may also improve auditing efficiency, thereby reducing the time and work involved in the audit engagement. Overall, the consequences of FRC disclosure are thus open to question.

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¹ According to the FRC (2016), these clients are "related to FTSE 100, FTSE 250, other listed and other major public interest entities".

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To examine the consequences of FRC disclosure, first, the impact of disclosure on auditors' reporting decisions is measured. This study uses the likelihood of issuing a qualified audit opinion as a proxy for reporting decisions. Based on a large sample of UK-listed clients for the period 2007–2011, a significant increase in the likelihood of issuing a qualified audit opinion is found in the period following a disclosure. Specifically, the likelihood of treatment firms receiving a qualified audit opinion is 35.5 per cent greater than for the benchmark control sample, and this impact is more concentrated among clients of small audit firms. A possible explanation is that small auditors may have stronger incentives to establish their reputation with clients compared with large auditors that have already secured a dominant position and reputation in the audit market. Regarding audit efficiency, a longer audit delay is found, measured by audit report lags, for firms affected by the FRC's disclosure of individual reports, probably because auditors become more cautious in auditing their clients. For example, they may employ more substantial audit procedures to avoid significant audit risk, given potential reputational concerns arising from the FRC's disclosure.

Carcello et al. (2011) investigate the effects of Public Company Accounting Oversight Board (PCAOB) inspections on the quality of audits by Big 4 audit firms. Using abnormal accruals as a proxy of audit quality, the authors find a reduction in abnormal accruals following the first PCAOB inspection, and this reduction continues after the second inspection. These results indicate improved audit quality following a PCAOB inspection.

However, the present study differs in several ways from that of Carcello et al. (2011). First, Carcello et al. (2011) investigate the impact of PCAOB inspections on auditor quality, whereas this study examines the consequences of FRC disclosure for both audit quality and auditor report lag. In doing so, it examines the consequences of changes to auditor regulation more comprehensively. Second, Carcello et al. (2011) only investigate Big 4 audit firms, and it is unknown whether their results also apply to small audit firms. The present study focuses on both Big 4 and small audit firms, and the results indicate that the impact of FRC disclosure is more concentrated among clients of small audit firms. Third, there are research design differences between the two studies. Rather than using a pooled-OLS regression, this study forms treatment and control samples and attempts to measure the incremental effect of the FRC disclosure regime on the treatment sample. Finally, the institutional settings also differ between these two studies. Carcello et al.'s (2011) study is based on a US setting, while this paper focuses on the UK and extends the literature on the consequences of audit inspections beyond the US.

Another related study on audit firm inspections is provided by Gunny and Zhang (2013). In classifying PCAOB inspection reports into three types based on the severity and number of deficiencies disclosed, these authors find that PCAOB inspection results are associated with lower audit quality when the reports are seriously deficient, and that this result applies only to triennially-inspected audit firms rather than annually-inspected audit firms. Gunny and Zhang (2013), classify reports as "clean" if no deficiencies are identified, "deficient" if one or more audit deficiencies are found, and "seriously deficient" if the deficiency relates to a "failure to identify a departure from GAAP" and/or a particular deficiency results in a "restatement" of the financial statements.

The present study differs from Gunny and Zhang (2013) on several dimensions. First, in order to test the informativeness of PCAOB inspection reports, Gunny and Zhang (2013) focus on the association between inspection results and audit quality, whereas this study investigates the impact of the disclosure of inspection reports on auditors' incentives. Second, rather than looking solely at auditor quality proxies, this study measures both auditor quality and auditor report lag in order to recognise the timeliness of accounting information and audit effort. Finally, like Carcello et al. (2011), Gunny and Zhang's (2013) study is US-based, whereas this study extends to the UK.

In addition to these two studies, other studies also attempt to study the consequences of public inspections of the audit profession (e.g. Palmrose, 2006; Lennox, 2009; DeFond, 2010; Lennox and Pittman, 2010; Abbott et al., 2012; Boone et al., 2015; DeFond and Lennox, 2017). However, all these studies are based on US data, and it is unclear whether the results are applicable to other institutional settings. Also, none of these studies examines changes to the disclosure regime resulting from FRC inspections, so it is unknown whether a transparent inspection process may be beneficial to the auditing process.

This paper complements the current stream of literature on the role of government regulation in corporate governance (e.g. Hermanson and Neal, 2002; Abbott et al., 2007; Salim et al., 2016). We provide evidence that regulation of the audit profession has a positive impact on financial reporting quality and due diligence. The findings suggest that auditors are more "tough or conservative" in issuing auditor opinions and devote additional time and inputs into reporting decisions following the disclosure of individual inspection reports. This result is consistent with Gramling et al.'s (2011) finding that audit firms with deficiencies found by the PCAOB are more likely to issue going concern opinions following the PCAOB inspection.

This paper also contributes to literature on the costs and benefits of the public oversight regime in a non-US setting. Most research has used US data to measure the impact of audit inspections by the PCAOB (e.g. Gunny and Zhang, 2013; Boone et al., 2015).² This research focuses on the UK and extends the literature on the consequences of audit inspections beyond the US, in relation to both financial reporting quality and due diligence. Moreover, few countries publicly disclose individual inspection reports for audit firms under inspection,³ and even fewer have moved from disclosing annual inspection reports to disclosing individual reports. This study based on UK data therefore provides an opportunity to investigate the impact of this change to the disclosure regime.

Finally, this paper sheds light on quality assurance and other corporate governance changes enacted by EU Directive 2014/56/

² Acito et al. (2017) investigate the relationship between the PCAOB's inspection findings and changes to audit fees and audit firm switching for clients of Big 4 audit firms. By measuring the relative exposure to deficient auditing, they find that such exposure is positively related to audit firm changes but is unrelated to changes in audit fees.

³ For example, in Europe, the only country (apart from the UK) that publicly discloses individual inspection reports is Sweden, and inspection reports are disclosed only for some Big 4 auditors.

EU, which does not mandate the disclosure of individual inspection reports for audit firms reviewed. Hence, the results of this study provide potentially useful insights for policy makers and national audit firm regulators in revealing that a more transparent inspection process (e.g. disclosure of inspection reports) may be beneficial to financial reporting quality, particularly in light of other corporate governance changes enacted by the EU Directive, such as its stricter requirement for audit committee competence.

In the remainder of this paper, Section 2 provides a brief introduction to the background of the UK's FRC disclosure regime, Section 3 discusses theory and related literature, Section 4 elaborates on the research design and sample for this study, Section 5 presents the empirical findings, and Section 6 draws some conclusions.

2. Background

The FRC became the UK's public oversight authority in 2003 (IFIAR, 2013), and a Professional Oversight Board (POB) was subsequently set up within the FRC to inspect the audit profession (FRC, 2012). In 2006, the UK began a transposition process in drafting the Companies Act 2006, which took effect in 2008, after the EC released Directive 2006/43/EC to introduce public oversight across Europe (UK Parliament, 2016). Unlike the PCAOB in the US, which discloses inspection reports for each individual audit firm inspected, the FRC initially published annual inspection reports on the overall results for all audit firms reviewed, not for each individual firm. Then, in December 2008, it began to publicly disclose inspection reports for major individual audit firms that audit listed and other major public interest UK entities (FRC, 2016).

Individual inspection reports contain extensive information, including the name of the audit firm reviewed, the period over which the inspection was conducted, the fiscal year covered, the inspection's areas of focus, its principal findings, and the audit firm's response to the inspection results (FRC, 2016). They also provide an overall quality rating for each audit engagement reviewed: "Good" (category 1), "Limited improvements required" (category 2A), "Improvements required" (category 2B) and "Significant improvements required" (category 3) (FRC, 2016).

Nevertheless, the FRC's inspection regime does not cover all listed firms in UK. FRC staff confirm that companies listed in the Alternative Investment Market (AIM) can only be selected if they meet certain thresholds (e.g. a market capitalisation of £100 million), and since only a minority of AIM companies meet these requirements, most are not within the scope of FRC inspection. Moreover, the FRC only discloses individual inspection reports for major or big audit firms under inspection, so reports for smaller audit firms are not publicly available.

Table 1 provides data for the fiscal year ends covered in each inspection, listed by audit firm and publication year (2008–2016). Owing to the time lag, the fiscal year ends covered in each inspection normally refer to the previous fiscal year. The Big 4 audit firms are inspected annually, while others are inspected biennially or triennially.

3. Theory and related literature

Research on public oversight of the audit profession has begun in the last decade (e.g. Boone et al., 2015; DeFond and Lennox, 2017), and previous literature acknowledges the role of regulation in shaping audit firms' incentives (Francis, 2011; Knechel et al., 2013; DeFond and Zhang, 2014). Audit firm misconduct may have severe consequences, including loss of a licence to practice, and high litigation and reputational costs (Boone et al., 2015).

3.1. Auditors' opinion

By comparing an audit firm's previous annual inspection report with the overall results for all audit firms inspected, clients may be able to distinguish between high- and low-quality audit firms. Favourable inspection reports may bolster audit firms' reputation and market share, whereas unfavourable reports may increase their reputational losses and litigation costs (Lennox and Pittman, 2010). Accordingly, on the one hand, in order to reduce reputational loss and obtain favourable inspection reports, audit firms may "stand up to the client" and be "tough or conservative" on important reporting issues. On the other hand, they may devote greater inputs and expertise into reporting decisions, increasing their likelihood of discovering clients' misstatements. Therefore, the disclosure of individual inspection reports may alter auditors' reporting behaviour, making them more likely to issue qualified audit opinions to clients.

However, as audit quality is multidimensional, individual inspection reports may provide misleading information. For instance, the PCAOB claims that the quality of auditing services cannot be judged solely on the number of deficiencies identified in its inspection reports (Christensen et al., 2016). Moreover, the desire to obtain a favourable report may provoke "gaming" behaviour by audit firms, so the content quality of individual reports is potentially limited. Therefore, the impact of disclosing an individual inspection report may be reduced, and it may have a negative or no impact on auditors' reporting behaviour. Based on the above, we derive the first hypothesis:

H1. Clients are more likely to receive a qualified audit opinion following FRC disclosure of their audit firm's inspection.

3.2. Audit report lag

The FRC disclosure regime may also impact on audit report lag (ARL). Previous studies show that ARL is a reasonable proxy for the timeliness of accounting information (e.g. Knechel and Payne, 2001) and audit effort (e.g. Knechel et al., 2009; Tanyi et al., 2010;

Table 1
Fiscal year ends covered by FRC inspection reports.

Publication Year	Deloitte	E&Y	KPMG	PwC	BDO	Grant Thornton	Mazars	Crowe Clark	Baker Tilly	PKF
2008	07/2006-04/2007	12/2006-03/2007	06/2006-03/2007	09/2006-04/2007	12/2006-05/2007	11/2006-04/2007				12/2006-08/2007
2009	06/2007-06/2008	09/2007-12/2007	06/2007-03/2008	03/2007-05/2008	03/2008-12/2008	12/2007-03/2008		03/2008-06/2008	12/2007-01/2008	
2010	06/2008-05/2009	06/2008-05/2009	06/2008-01/2009	08/2008-06/2009						12/2008-06/2009
2011	09/2009-01/2010	06/2009-05/2010	09/2009-02/2010	07/2009-04/2010	12/2009-03/2010	03/2009-03/2010				
2012	08/2010-03/2011	10/2010-03/2011	06/2010-04/2011	06/2010-03/2011			08/2010-03/2011	03/2010-03/2011	03/2009-12/2010	02/2010-12/2010
2013	06/2011-03/2012	12/2011-04/2012	06/2011-03/2012	09/2011-03/2012	04/2011-03/2012	03/2011-03/2012				
2014	06/2012-03/2013	12/2011-03/2013	06/2012-03/2013	04/2012-04/2013					03/2012-12/2012	
2015	06/2013-04/2014	09/2013-06/2014	06/2013-05/2014	06/2013-06/2014	12/2012-12/2013	03/2013-03/2014	03/2013-12/2013	03/2013-09/2013		
2016	06/2014-04/2015	06/2014-04/2015	06/2014-04/2015	06/2014-04/2015	06/2014-04/2015	06/2014-04/2015				

This table shows the data for the fiscal year ends covered in each inspection, listed by audit firm and publication year (2008–2016).

Mitra et al., 2015), and is closely associated with investors' decision making (Ettredge et al., 2006; Mitra et al., 2015). Specifically, a prolonged ARL may lead to negative market reactions (e.g. Givoly and Palmon, 1982; Blankley et al., 2014) and increased information asymmetry (e.g. Bamber et al., 1993). An extensive body of literature focuses on the influence of regulatory reforms on ARL. For example, Ettredge et al. (2006) and Munsif et al. (2012) find shorter ARL for firms with clean SOX 404 opinions, and Mitra et al. (2015) document a positive association between the PCAOB's introduction of Auditing Standard No.5 (AS5) and ARL.

In the context of the FRC disclosure regime, there is likely to be a positive association between ARL and the public disclosure of individual inspection reports, because auditors may spend more time and effort than previously in order to reduce reputational loss and obtain favourable inspection reports. However, putting greater inputs into the auditing process may improve auditing efficiency, thereby reducing the time and work involved in the audit engagement. That is, under the FRC disclosure regime, auditors may improve corporate governance, facilitate internal controls and promote high-quality disclosures. Greater internal control quality is thus associated with lower ARL (Ettredge et al., 2006; Khlif and Samaha, 2014). Analogously, higher-quality corporate governance and firm disclosures may reduce the time and work required in the audit engagement, rendering it more efficient. This leads to the following hypothesis regarding the impact of FRC disclosures on ARL:

H2. Clients will experience longer delays in receiving their audit reports following FRC disclosures.

4. Research design and data

4.1. Auditor opinion analysis

$$\text{OPINION} = \beta_0 + \beta_1\text{POST} + \beta_2\text{POST}*\text{TREAT} + \sum\delta_j \text{FSCONTROL}_j + \sum\beta_k \text{Fixed Effects} + \varepsilon$$

Probit regression analysis is used to measure the impact of disclosing the FRC's inspection report on auditors' reporting behaviour.⁴ OPINION is the likelihood of auditors issuing a qualified audit opinion, equalling 1 if the client receives a qualified audit opinion, and 0 otherwise.

As observed in Section 2, few AIM companies are within the scope of FRC inspections, and the FRC only discloses individual reports for major audit firms. Therefore, the treatment and control samples for this study are as follows. TREAT equals 1 for firm-years in the treatment sample (i.e. clients not listed in AIM, and audited by major auditors for which individual inspection reports are publicly available), and 0 for firms in the benchmark control sample (i.e. clients listed in AIM or audited by non-major auditors for which individual inspection reports are not publicly available). POST is an indicator variable equal to 1 for fiscal years ending after the public disclosure year (i.e. 2008) of the individual inspection report. The variable of interest is POST × TREAT, which measures the incremental effect of the FRC disclosure regime on the treatment sample.

In addition, a number of client-specific variables are included, including size, distress, leverage, sales growth, book-to-market ratio, liquidity and return on assets (e.g. Gramling et al., 2011; Gunny and Zhang, 2013). Year and industry dummies are included to control for year-fixed and industry-fixed effects on the dependent variables (e.g. Gunny and Zhang, 2013). All continuous variables are winsorised at the one per cent and 99 per cent levels.

4.2. Audit report lag

$$\text{ARL} = \beta_0 + \beta_1\text{POST} + \beta_2\text{POST} \times \text{TREAT} + \sum\delta_j \text{FSCONTROL}_j + \sum\beta_k \text{Fixed Effects} + \varepsilon$$

Regression analysis is used to measure the impact of FRC inspection report disclosure on ARL. ARL is measured as the number of days between the fiscal year end and the date of the audit report, manually collected from each firm's annual reports.

A series of client-specific variables is included in the model to control for the impact of important determinants of ARL. Firm size (SIZE), the number of business segments (BUSSEG), the number of geographic segments (GEOSEG) and mergers and acquisitions (M&A) are added, since ARL is positively associated with the complexity of operations. In addition, following Blankley et al. (2014), the model includes the incidence of a loss (LOSS), debt-to-asset ratio (LEVERAGE), book-to market ratio (BM), return on assets (ROA), sales growth (GROWTH) and current ratio (CR) to capture risks that may affect audit effort. Firm age (AGE) is also added to the model, since previous evidence suggests that newer firms are more likely to engage in report distortion (Lee et al., 1999). An indicator for busy season (BUSY) is added because ARL may be longer for firms with a December or January fiscal year end. A measure of lagged accruals (LAGACCRUALS) is added to control for the impact of aggressive accounting, as suggested by Blankley et al. (2014). Lastly, the model controls for the ARL in the previous fiscal year, as auditors are under pressure from their clients to complete their audits within the same time frame as the previous year (Jelinek and Jelinek, 2008; Blankley et al., 2014).

⁴ As a robustness test, logit regression is used and the result is in line with the main results.

4.3. Sample selection

For auditor opinion and ARL analysis, the sample period begins in 2007 (i.e. one year prior to the disclosure of individual inspection reports) and ends in 2011 (three years after the disclosure). This aims to alleviate the effect of other concurrent events on the sample, such as mandatory adoption of IFRS in the EU in 2005, and publication of the EU Directive on Statutory Audit in 2006. The period ends in 2011 to avoid the impact of the UK's Corporate Governance Code in 2012.⁵ Clients' audit firm data were collected mainly from the Thomson Reuters database. Data on the dates when audit reports were signed off, which are used to measure audit report lag, were collected manually from each firm's annual report. Data for other control variables were collected from Datastream Worldscope.⁶

The initial sample focused on all UK-domiciled companies listed on the London Stock Exchange (LSE). For auditor opinion analysis, the sample period was 2007–2011, and for ARL analysis the period started from 2006 because an additional year of data was required to measure lagged ARL. For all analyses, firm-year observations were excluded for: firm-year observations with zero total assets, sales or market value of equity; firm-year observations with fiscal year-end changes; firm-year observations without market segment data; clients in the financial sector; firm-year observations with no auditor data; clients not domiciled in the UK; clients cross-listed in the US; lack of data to measure client-level control variables; and firm-year observations without data to form treatment and control firms. In addition, for ARL analysis, firm-year observations without data to measure ARL were dropped from the sample. Following Kim et al. (2012), construction of the treatment and control groups required each client to have data in both the adoption year t and the pre-adoption year $t-1$, with at least one observation in the post-disclosure years [$t+1$ to $t+3$] to minimise the impact of changes in the sample composition on the results.

Table 2 describes the sample selection process. For auditor opinion analysis, the final full sample had 2661 firm-year observations. The treatment sample had 251 unique clients (1166 firm-year observations) and the control sample had 332 unique clients (1495 firm-year observations). For ARL analysis, the final full sample had 2317 firm-year observations, with 1129 in the treatment sample and 1188 in the control sample. Table 3 provides an overview of the sample composition by year. As expected, the sample size was evenly allocated for all analyses. Moreover, the number of observations in the control sample was slightly higher than in the treatment sample.

Table 4 describes the firm-level variables used for all analyses. The table reports the distributional properties of all variables for the full, treatment and control samples respectively. For audit opinion, only 5.5 per cent received a qualified opinion (2.7 per cent of the treatment sample and 7.8 per cent of the control sample). For ARL, the average number of days between the fiscal year end and the date of signing the auditor report was around 90 days (approximately 74 days for the treatment sample and 107 days for the control sample). For POST, around 56 per cent of observations fell after the disclosure of the FRC report for all analyses.

Table 5 shows the pairwise correlation coefficients between firm-level variables for auditor opinion analysis (Panel A) and ARL analysis (Panel B). Correlation coefficients between control variables with values above 0.600 are marked in bold. For auditor opinion analysis, few multicollinearity issues are identified, the exceptions being the correlation between DISTRESS and ROA (-0.795), DISTRESS and CFO (-0.608), ROA and CFO (0.774), and AUDITOR and MSHARE (-0.688). Nevertheless, the variance inflation factor (VIF) is 2.83, which is below the cut-off value of 10. The authors also ran the baseline model while dropping DISTRESS, ROA and MSHARE, and the results were similar to the baseline model and did not change qualitatively. For ARL analyses, the correlation coefficients above 0.600 are for AUDITFEES and SIZE (0.878), and AUDITOR and MSHARE (-0.705). Similarly to auditor opinion analysis, when AUDITFEES and MSHARE were dropped, the results were consistent with the baseline model. Also, the VIF for ARL analysis is 2.03. Overall, no multicollinearity issues are identified for either auditor opinion analysis or ARL analysis.

5. Empirical findings

This section presents findings on the impact of disclosing individual inspection reports on a) the likelihood of auditors issuing a qualified audit opinion, and b) the time lag between the fiscal year end and the audit report signing date.

5.1. FRC disclosure and audit opinion

Table 6 reports the results of the audit opinion analysis. In Model 1, the coefficient of POST is positive and insignificant ($\beta_1 = 0.001$; $t = 0.00$), suggesting that the FRC's disclosure may not have had a significant impact on reporting decisions for clients in the control sample. However, the coefficient of POST*TREAT, which captures the incremental effect on auditors' reporting decisions associated with FRC disclosure in the treatment sample, is significant and positive ($\beta_2 = 0.355$; $t = 2.42$). These results indicate that, on average, clients audited by major auditors experienced a 35.6 per cent increase in the likelihood of receiving a qualified audit opinion after an FRC disclosure, and this increase was 35.5 per cent greater than that experienced by clients in the benchmark control sample over the same period. The control variables are generally in line with signs in previous studies.

⁵ The UK Corporate Governance Code introduced an audit tender requirement, which requires FTSE 350 companies to tender for external audit firms at least every ten years (FRC, 2012).

⁶ Since 2009, the UK Companies Act 2006 requires engagement partner to sign the audit report, which may impact on auditors' reporting behaviour (Carcello and Li, 2013). In order to mitigate the impact of this signature requirement, firm-year observations for 2009 were removed and the results produced were in line with the main results.

Table 2
Sample selection process.

Panel A: Audit opinion analysis		Observations
Firm-year observations listed on LSE, 2007–2011		8,941
Delete: Total assets, sales or market value of equity zero		844
Firm-year observations with fiscal year-end changes		127
Firm-year observations without market segment data		1,329
Firm-year observations from the financial sector		1,200
Firm-year observations without audit firm data		505
Firm-year observations with clients not domiciled in UK		70
Firm-year observations with clients cross-listed in US		415
Firm-year observations without data to measure client control variables:		356
Delete: Firm-year observations without data to form treatment and control firms		1,434
Final sample of audit opinion analysis 2007–2011		2661
Panel B: ARL analysis		Observations
Firm-year observations listed on LSE, 2006–2011		11,147
Delete: Total assets, sales or market value of equity zero		1,072
Firm-year observations with fiscal year-end changes		168
Firm-year observations without market segment data		1,638
Firm-year observations from the financial sector		1,484
Firm-year observations without audit firm data		1,073
Firm-year observations with clients not domiciled in UK		79
Firm-year observations with clients cross-listed in US		463
Firm-year observations without data to measure ARL		383
Firm-year observations without data to measure client control variables:		1,276
Delete: Firm-year observations without data to form treatment and control firms		1,194
Final sample of ARL analysis 2007–2011		2317

Table 3
Composition of sample.

Panel A: Sample composition for auditor opinion analysis							
Year	Full sample		Treatment sample		Control sample		
	N	%	N	%	N	%	
2007	583	21.91	251	21.53	332	22.21	
2008	583	21.91	251	21.53	332	22.21	
2009	553	20.78	236	20.24	317	21.20	
2010	492	18.49	219	18.78	273	18.26	
2011	450	16.91	209	17.92	241	16.12	
Total	2661	100	1166	100	1495	100	
Panel B: Sample composition for ARL analysis							
Year	Full sample		Treatment sample		Control sample		
	N	%	N	%	N	%	
2007	505	21.80	243	21.52	262	22.05	
2008	505	21.80	243	21.52	262	22.05	
2009	485	20.93	230	20.37	255	21.46	
2010	430	18.56	211	18.60	219	18.43	
2011	392	16.92	202	17.89	190	15.99	
Total	2317	100	1129	100	1188	100	

This table provides an overview of the sample composition by year for the full sample, treatment sample and control sample for audit opinion analysis (Panel A) and ARL analysis (Panel B). OPINION is a dummy variable that equals 1 if the client receives a qualified audit opinion, and 0 otherwise; ARL is the time lag between the date of signing the audit report and the corresponding fiscal year end. The treatment sample comprises clients not listed in AIM and audited by major auditors for which individual inspection reports are publicly available. The benchmark control sample comprises clients listed in AIM or audited by non-major auditors for which individual inspection reports are not publicly available.

Table 4
Firm-level descriptive statistics.

Panel A: Auditor opinion analysis									
Variable	Full Sample (N = 2661)			Treatment Sample (N = 1166)			Control Sample (N = 1495)		
	Mean	Median	Std.Dev	Mean	Median	Std.Dev	Mean	Median	Std.Dev
OPINION	0.055	0.000	0.228	0.027	0.000	0.161	0.078	0.000	0.268
POST	0.562	1.000	0.496	0.569	1.000	0.495	0.556	1.000	0.497
POST*TREAT	0.250	0.000	0.433	0.569	1.000	0.495	0.000	0.000	0.000
SIZE	11.003	10.978	2.037	12.644	12.704	1.464	9.723	9.721	1.406
LOSS	0.328	0.000	0.469	0.178	0.000	0.383	0.444	0.000	0.497
DISTRESS	-3.156	-3.520	1.828	-3.362	-3.464	1.169	-2.995	-3.609	2.197
LEVERAGE	0.111	0.037	0.155	0.155	0.115	0.165	0.077	0.008	0.136
ROA	-0.044	0.035	0.289	0.039	0.049	0.121	-0.109	0.014	0.358
CFO	0.026	0.063	0.199	0.090	0.088	0.104	-0.025	0.032	0.238
BM	0.856	0.603	1.051	0.768	0.544	0.829	0.924	0.672	1.191
AUDITOR	0.870	1.000	0.336	1.000	1.000	0.000	0.870	1.000	0.336
BUSY	0.469	0.000	0.499	0.433	0.000	0.496	0.496	0.000	0.500
MSHARE	0.066	0.006	0.196	0.013	0.005	0.046	0.107	0.007	0.251
SALES_GROWTH	0.230	0.077	0.897	0.100	0.067	0.364	0.331	0.092	1.143
LITIGIOUS	0.293	0.000	0.455	0.273	0.000	0.446	0.308	0.000	0.462

Panel B: ARL analysis									
Variable	Full Sample (N = 2317)			Treatment Sample (N = 1129)			Control Sample (N = 1188)		
	Mean	Median	Std.Dev	Mean	Median	Std.Dev	Mean	Median	Std.Dev
ARL	90.829	79.000	48.687	73.743	67.000	44.812	107.066	96.000	46.638
POST	0.564	1.000	0.496	0.570	1.000	0.495	0.559	1.000	0.497
POST*TREAT	0.278	0.000	0.448	0.570	1.000	0.495	0.000	0.000	0.000
SIZE	11.178	11.186	2.038	12.637	12.690	1.452	9.791	9.831	1.467
LOSS	0.310	0.000	0.463	0.180	0.000	0.384	0.434	0.000	0.496
LEVERAGE	0.137	0.042	0.727	0.157	0.117	0.170	0.118	0.006	1.002
BM	0.856	0.614	2.113	0.783	0.552	0.937	0.926	0.696	2.805
AUDITFEES	5.255	5.118	1.417	6.194	6.215	1.163	4.362	4.331	0.996
AUDITOR	0.890	1.000	0.313	1.000	1.000	0.000	0.785	1.000	0.411
OPINION	0.050	0.000	0.218	0.025	0.000	0.156	0.074	0.000	0.262
BSEG	1.023	1.099	0.437	1.141	1.099	0.442	0.910	0.693	0.401
GSEG	1.105	1.099	0.539	1.213	1.386	0.521	1.003	1.099	0.536
ROA	-0.035	0.037	0.387	0.038	0.048	0.123	-0.105	0.016	0.517
LAGACCRUAL	-0.052	-0.042	0.193	-0.051	-0.042	0.080	-0.053	-0.043	0.259
LAGARL	91.820	80.000	59.201	75.568	68.000	67.704	107.265	95.000	44.636
BUSY	0.478	0.000	0.500	0.427	0.000	0.495	0.527	1.000	0.499
MSHARE	0.056	0.004	0.183	0.009	0.003	0.044	0.101	0.006	0.244
MA	0.388	0.000	0.487	0.483	0.000	0.500	0.298	0.000	0.458

This table describes the firm-level variables used for all analyses for audit opinion analysis (Panel A) and ARL analysis (Panel B). The sample period is 2007–2011. OPINION is a dummy variable that equals 1 if the client receives a qualified audit opinion, and 0 otherwise. ARL is the time lag between the date of signing the audit report and the corresponding fiscal year end. POST is an indicator variable equal to 1 for fiscal years ending after the public disclosure year (i.e. 2008) of the individual inspection report. TREAT is an indicator variable equal to 1 for firm-years in the treatment sample (i.e. clients not listed in AIM, with major auditors whose individual inspection reports are publicly available), and 0 for firms in the benchmark control sample (i.e. clients either listed in AIM or with non-major auditors whose individual inspection reports are not publicly available). SIZE is the natural log of total assets in thousands of British pounds. LOSS is a dummy variable that equals 1 if the client reports a net loss in the current year, and 0 otherwise. DISTRESS is a financial condition index based on [Zmijewski \(1984\)](#). LEVERAGE is the ratio of long-term debt to total assets. ROA is the ratio of net income to total assets. CFO is the cash flow from operations scaled by total assets. BM is the book value of equity scaled by market value of equity. AUDITOR is a dummy variable that equals 1 if the client's auditors are major auditors under the FRC inspection regime, and 0 otherwise. Major auditors are Deloitte, E&Y, KPMG, PWC, Baker Tilly, BDO, Crowe Clark, Grant Thornton, Mazars and PKF. BUSY is a dummy variable that equals 1 for fiscal year ending 31 December, and 0 otherwise. MSHARE is the proportion of audit fees from a client of an audit firm's total audit fees for a specific year. SALES_GROWTH is the sales increase (or decrease) from year $t-1$ to year t scaled by lagged sales. LITIGIOUS is a dummy variable that equals 1 if SIC is 2833–2836, 3570–3577, 3600–3674, 5200–5961, or 7370–7374 (biotechnology, computers, electronics or retail), and 0 otherwise. AUDITFEES is the natural log of audit fees in thousands of British pounds. BSEG is the natural log of 1 plus the number of business segments. GSEG is the natural log of 1 plus the number of geographical segments. LAGACCRUAL is the one-year lag value of total accruals. Total accruals are calculated as the difference between net income before extraordinary items and cash flow from operations. LAGARL is the one-year lag value of ARL. MA is a dummy variable that equals 1 if the client has a merger or acquisition in a specific year, and 0 otherwise. INVREC is the ratio of the sum of inventories and receivables to total assets. CASHSHORTINV is cash and short-term investments. BIG4 is a dummy variable that equals 1 if the client uses a Big 4 audit firm, and 0 otherwise. All continuous variables are winsorised at the 1st and 99th percentiles.

Table 5
Correlation of firm-level variables.

Panel A: Auditor opinion analysis (n = 2661)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 OPINION	1.000														
2 POST	0.058	1.000													
3 POST*TREAT	-0.033	0.509	1.000												
4 SIZE	-0.164	0.030	0.477	1.000											
5 LOSS	0.220	0.015	-0.158	-0.388	1.000										
6 DISTRESS	0.191	-0.023	-0.069	0.454	0.454	1.000									
7 LEVERAGE	-0.036	-0.039	0.138	0.349	-0.060	0.468	1.000								
8 ROA	-0.257	0.007	0.153	0.389	-0.594	-0.795	0.011	1.000							
9 CFO	-0.264	0.035	0.189	0.415	-0.510	-0.608	0.027	0.774	1.000						
10 BM	0.001	0.056	-0.030	0.096	0.058	-0.160	-0.074	0.103	0.097	1.000					
11 AUDITOR	-0.088	0.022	0.223	0.417	-0.183	-0.096	0.088	0.162	0.190	-0.021	1.000				
12 BUSY	0.027	-0.010	-0.047	-0.021	0.025	0.049	-0.033	-0.063	-0.070	0.002	0.019	1.000			
13 MSHARE	0.097	0.003	-0.157	-0.253	0.111	0.056	-0.069	-0.084	-0.069	0.049	-0.688	-0.068	1.000		
14 SALES_GROWTH	0.020	-0.125	-0.111	-0.093	0.100	0.014	-0.021	-0.041	-0.085	-0.066	-0.033	0.039	0.000	1.000	
15 LITIGIOUS	-0.000	0.006	-0.024	-0.122	0.049	-0.000	-0.062	-0.054	-0.049	-0.085	-0.025	-0.051	0.003	0.003	1.000

(continued on next page)

Table 5 (continued)

Panel B: ARL analysis (n = 2317)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 ARL	1.000																
2 POST	-0.043	1.000															
3 POST*TREAT	-0.299	0.545	1.000														
4 SIZE	-0.479	0.022	0.459	1.000													
5 LOSS	0.352	0.023	-0.149	0.000	1.000												
6 LEVERAGE	-0.123	-0.042	0.135	0.360	-0.053	1.000											
7 BM	0.039	0.063	-0.033	0.090	0.084	-0.070	1.000										
8 AUDITFEES	-0.449	-0.007	0.435	0.878	-0.297	0.311	-0.010	1.000									
9 AUDITOR	-0.333	0.014	0.218	0.405	-0.176	0.090	-0.021	0.412	1.000								
10 OPINION	0.173	0.070	-0.027	-0.164	0.201	-0.039	0.022	-0.118	-0.103	1.000							
11 BSEG	-0.165	0.033	0.164	0.312	-0.162	0.123	-0.029	0.369	0.110	-0.041	1.000						
12 GSEG	-0.160	0.042	0.152	0.186	-0.155	-0.020	-0.013	0.294	0.089	-0.065	0.196	1.000					
13 LAGACCRUAL	-0.038	-0.082	-0.025	0.069	-0.128	0.016	0.070	0.035	0.020	-0.040	0.038	0.073	1.000				
14 LAGARL	0.741	-0.025	-0.317	-0.498	0.329	-0.129	0.018	-0.458	-0.358	0.177	-0.172	-0.180	-0.135	1.000			
15 BUSY	0.092	-0.007	-0.070	-0.053	0.057	-0.039	-0.016	-0.008	0.033	0.038	0.004	0.085	-0.053	0.100	1.000		
16 MSHARE	0.252	-0.001	-0.163	-0.261	0.121	-0.082	0.071	-0.252	-0.705	0.090	-0.050	-0.083	-0.030	0.274	-0.050	1.000	
17 MA	-0.118	-0.088	0.058	0.306	-0.128	0.110	-0.052	0.333	0.113	-0.057	0.200	0.121	0.020	-0.139	0.016	-0.067	1.000

Panels A and B present pairwise correlation coefficients between firm-level variables for auditor opinion analysis and ARL analysis, respectively. The sample period is 2007–2011. OPINION is a dummy variable that equals 1 if the client receives a qualified audit opinion, and 0 otherwise. ARL is the time lag between the date of signing the audit report and the corresponding fiscal year end. POST is an indicator variable equal to 1 for fiscal years ending after the public disclosure year (i.e. 2008) of the individual inspection report. TREAT is an indicator variable equal to 1 for firm-years in the treatment sample (i.e. clients not listed in AIM, with major auditors whose individual inspection reports are publicly available), and zero for firms in the benchmark control sample (i.e. clients either listed in AIM or with non-major auditors whose individual inspection reports are not publicly available). SIZE is the natural log of total assets in thousands of British pounds. LOSS is a dummy variable that equals 1 if the client reports a net loss in the current year, and 0 otherwise. DISTRESS is a financial condition index based on Zmijewski (1984). LEVERAGE is the ratio of long-term debt to total assets. ROA is the ratio of net income to total assets. CFO is the cash flow from operations scaled by total assets. BM is the book value of equity scaled by market value of equity. AUDITOR is a dummy variable that equals 1 if the client's auditors are major auditors under FRC inspection regime, and 0 otherwise. Major auditors are Deloitte, E&Y, KPMG, PWC, Baker Tilly, BDO, Crowe Clark, Grant Thornton, Mazars and PKF. BUSY is a dummy variable that equals 1 for fiscal year ending 31 December, and 0 otherwise. MSHARE is the proportion of audit fees from a client of an audit firm's total audit fees for a specific year. SALES GROWTH is sales increase (or decrease) from year $t-1$ to year t scaled by lagged sales. LITIGIOUS is a dummy variable that equals 1 if SIC is 2833–2836, 3570–3577, 3600–3674, 5200–5961, or 7370–7374 (biotechnology, computers, electronics or retailing), and 0 otherwise. AUDITFEES is the natural log of audit fees in thousands of British pounds. BSEG is the natural log of 1 plus the number of business segments. GSEG is the natural log of 1 plus the number of geographical segments. LAGACCRUAL is the one-year lag value of total accruals. Total accruals are calculated as the difference between net income before extraordinary items and cash flow from operations. LAGARL is the one-year lag value of ARL. MA is a dummy variable that equals 1 if the client has a merger or acquisition in a specific year, and 0 otherwise. INVREC is the ratio of the sum of inventories and receivables to total assets. CASHSHORTINV is cash and short-term investments. BIG4 is a dummy variable that equals 1 if the client uses a Big 4 audit firm, and 0 otherwise. All continuous variables are winsorised at the 1st and 99th percentiles.

Table 6
Impact of FRC disclosure on reporting decisions.

Independent variables	(1)	(2)
<i>POST</i>	0.001 (0.00)	0.001 (0.00)
<i>POST*TREAT</i>	0.355** (2.42)	0.355** (2.00)
<i>SIZE</i>	-0.107*** (-3.02)	-0.107** (-2.21)
<i>LOSS</i>	0.486*** (4.34)	0.486*** (3.75)
<i>DISTRESS</i>	0.030 (0.60)	0.030 (0.52)
<i>LEVERAGE</i>	-0.377 (-0.84)	-0.377 (-0.77)
<i>ROA</i>	0.047 (0.15)	0.047 (0.14)
<i>CFO</i>	-1.098*** (-3.95)	-1.098*** (-3.01)
<i>BM</i>	0.063 (1.46)	0.063 (1.24)
<i>AUDITOR</i>	0.227 (1.32)	0.227 (0.92)
<i>BUSY</i>	0.037 (0.41)	0.037 (0.30)
<i>MSHARE</i>	0.850** (3.44)	0.850** (2.39)
<i>SALES_GROWTH</i>	-0.000 (-0.01)	-0.000 (-0.01)
<i>LITIGIOUS</i>	-0.023 (-0.20)	-0.023 (-0.13)
<i>INTERCEPT</i>	-1.275*** (-2.83)	-1.275** (-2.13)
<i>Industry FE</i>	YES	YES
<i>Year FE</i>	YES	YES
<i>N</i>	2661	2661
<i>Pseudo R²</i>	0.202	0.202

This table reports the coefficient estimates from probit regression analyses, showing the average effect of FRC disclosure on the likelihood of issuing a qualified audit opinion. The sample period is 2007–2011 (calendar years). *OPINION* is a dummy variable that equals 1 if the client receives a qualified audit opinion, and 0 otherwise. *POST* is an indicator variable equal to 1 for fiscal years ending after the public disclosure year (i.e. 2008) of the individual inspection report. *TREAT* is an indicator variable equal to 1 for firm-years in the treatment sample (i.e. clients not listed in AIM, with major auditors whose individual inspection reports are publicly available), and 0 for firms in the benchmark control sample (i.e. clients either listed in AIM or with non-major auditors whose individual inspection reports are not publicly available). See Appendix Table A1 for definitions of all other variables. All continuous variables are winsorised at the 1st and 99th percentiles. In Model 1, t-statistics are reported in italics based on heteroskedasticity-corrected standard errors. In Model 2, t-statistics are based on client clusters and heteroskedasticity-corrected standard errors. ***, ** and * denote significance at the 1 %, 5 % and 10 % levels, respectively (two-tailed test).

Model 2 repeats the analysis of baseline Model 1 but uses client clusters and heteroskedasticity-corrected standard errors.⁷ The results are line with those of Model 1, indicating that major auditors were more likely to issue their clients with qualified audit opinions under the FRC disclosure regime.

The robustness of the main findings (not tabulated) was assessed through a series of additional tests using baseline Model 1. On the whole, these were robust to alternative research design choices.

First, alongside the FRC's disclosure of individual inspection reports, the UK government made concurrent efforts to strengthen regulation of the audit profession. The Companies Act 2006 required engagement partners to sign audit reports for financial years ending in April 2009 onwards (PricewaterhouseCoopers, 2010). Previous research provides evidence that this signature requirement may affect auditors' incentives and audit quality. In order to alleviate its impact on our sample, firm-year observations for 2009 were dropped, and the results produced were in line with the baseline Model 1. *POST* was insignificant, while *POST*TREAT* was highly significant and positive. These results indicate that the effect on auditors' reporting decisions was attributable mainly to the FRC's disclosure rather than the signature requirement.

In addition to the requirement for engagement partners' signatures, other concurrent events in the UK and EU may have impacted on the auditing profession. These included the mandatory adoption of IFRS across the EU in 2005, publication of the EU Directive on Statutory Audit in 2006, and the introduction of the UK's Corporate Governance Code in 2012. However, selecting a sample period of 2007–2011 reduced the likelihood that these regulations would drive the results of this study.

Next, auditor switches during the sample period might confound empirical analysis of the impact on auditors' reporting behaviour. Therefore, regression analysis was conducted only on firm-years with no auditor changes, which produced no qualitative changes to the results: *POST* was insignificant, while *POST*TREAT* was still positive and significant. This indicates that auditor switches are unlikely to have driven the results of the baseline model.

Third, previous opinion decisions may affect reporting decisions for the current year. Specifically, an auditor may be "tough or more conservative" toward clients who received a qualified audit opinion in the previous year. To address this issue, firm-years with a qualified audit opinion in the last available year were excluded and the analysis re-run. The results were again in line with the baseline model, indicating that the previous year's audit opinion did not drive the main results.

Finally, further testing was carried out to establish whether additional control variables might affect the results, including the proportion of receivables and inventory in total assets (*RECINVENT*), Big 4 indicator (*BIG4*) and cash and short-term investments

⁷ The model was robust to other clustering approaches (e.g. industry and auditor).

Table 7
Heterogeneity tests on auditor opinion.

Independent variables	Big 4	Non-Big 4
POST	0.404 (1.39)	-0.123 (-0.58)
POST*TREAT	0.115 (0.45)	0.517** (2.24)
SIZE	0.056 (0.88)	-0.199*** (-3.41)
LOSS	0.095 (0.43)	0.651*** (4.18)
DISTRESS	0.239** (2.25)	-0.036 (-0.83)
LEVERAG	-2.063** (-2.46)	0.559 (1.20)
ROA	-0.637 (-0.84)	-0.084 (-0.30)
CFO	-0.961 (-1.38)	-0.769*** (-2.58)
BM	0.120 (1.51)	0.038 (0.76)
AUDITOR	-	0.204 (1.05)
BUSY	0.082 (0.55)	0.010 (0.08)
MSHARE	-13.87* (-1.91)	0.801*** (3.02)
SALES_GROWTH	0.162 (1.27)	-0.008 (-0.19)
LITIGIOUS	-0.192 (-0.95)	0.052 (0.32)
INTERCEPT	-1.926** (-1.97)	-1.005* (-1.78)
Industry FE	YES	YES
Year FE	YES	YES
N	1,145	1129
Pseudo R ²	0.281	0.211

This table reports the coefficient estimates from further heterogeneity tests of audit opinion analysis. It distinguishes between companies with or without a Big 4 audit firm. OPINION is a dummy variable that equals 1 if the client receives a qualified audit opinion, and 0 otherwise. POST is an indicator variable equal to 1 for fiscal years ending after the public disclosure year (i.e. 2008) of the individual inspection report. TREAT is an indicator variable equal to 1 for firm-years in the treatment sample (i.e. clients not listed in AIM, with major auditors whose individual inspection reports are publicly available), and 0 for firms in the benchmark control sample (i.e. clients either listed in AIM or with non-major auditors whose individual inspection reports are not publicly available). The sample period is 2007–2011 (calendar years). BIG4 is a dummy variable that equals 1 if the client uses a Big 4 audit firm, and 0 otherwise. See Appendix Table A1 for definitions of all other variables. All continuous variables are winsorised at the 1st and 99th percentiles. T-statistics are reported in italics based on heteroskedasticity-corrected standard errors. ***, ** and * denote significance at the 1 %, 5 % and 10 % levels, respectively (two-tailed test).

(CASHANDSHORINV). The results were qualitatively similar to those for the baseline model. In general, following the FRC's disclosure of individual inspection reports, auditors were more likely to issue their clients with qualified audit opinions, and this finding is robust to a series of research design choices.

5.2. Heterogeneity tests

Tests were also conducted to establish whether the impact of FRC disclosure differed between Big 4 and non-Big 4 audit firms, as FRC disclosures may affect auditors' reputation and litigation costs. Large audit firms may incur greater costs than smaller audit firms because their larger resources may be targeted in shareholders' litigation claims (DeFond and Zhang, 2014). Therefore, large audit firms have stronger incentives to reduce reputational losses and obtain favourable inspection reports, and may devote more inputs and expertise and be more "tough or conservative" on reporting decisions. Therefore, clients of large auditors may be more likely to receive qualified audit opinions.

Conversely, large auditors have gained longstanding reputations in the auditing profession, so additional disclosures by the FRC may not significantly change their position or reputation in the short term. Accordingly, small auditors may have greater concerns than large auditors about reputational damage and litigation following FRC disclosures. Therefore, the heterogeneous impact of disclosures is an open empirical question.

The sample of clients was split between Big 4 and non-Big 4 audit firms. As shown in Table 7, POST is insignificant for both Big 4 auditors and non-Big 4 auditors, while POST*TREAT is positive and significant only for non-Big 4 auditors ($\beta_2 = 0.517$; $t = 2.24$). These results suggest that the impact on auditors' reporting decisions was more concentrated among small audit firms, indicating that they had greater reputational or litigation concerns about FRC disclosure.

5.3. FRC disclosure and audit efficiency

To explore the implications of FRC disclosure for audit efficiency, ARL, measured as the natural logarithm of the number of days between the fiscal year end and audit report signing date, was regressed on an indicator of the implementation of FRC disclosure. The results of OLS regression are presented in Table 8. The coefficient for POST is negative and significant at the one per cent level, suggesting that ARL was on average 6.32 days shorter in the pre-disclosure period than in the post-disclosure period. More interestingly, a positive and significant coefficient is found for the interaction term between POST and TREAT. Specifically, audit firms

Table 8
Impact of FRC disclosure on audit report lag.

Independent variables	(1)	(2)
POST	-6.316*** (-3.02)	-6.316*** (-3.02)
POST*TREAT	4.900** (2.50)	4.900** (2.50)
SIZE	-1.599 (-0.66)	-1.599 (-0.66)
LOSS	5.105*** (2.77)	5.105*** (2.77)
LEVERAGE	-1.614 (-0.16)	-1.614 (-0.16)
BM	1.510* (1.68)	1.510* (1.68)
AUDITFEES	2.010 (1.33)	2.010 (1.33)
AUDITOR	-5.677 (-0.76)	-5.677 (-0.76)
OPINION	2.855 (0.89)	2.855 (0.89)
BSEG	-0.925 (-0.50)	-0.925 (-0.50)
GSEG	1.018 (0.44)	1.018 (0.44)
ROA	-17.080*** (-3.56)	-17.080*** (-3.56)
LAGACCRUAL	12.449** (2.39)	12.449** (2.39)
LAGARL	0.027 (0.58)	0.027 (0.58)
BUSY	8.428 (0.93)	8.428 (0.93)
MSHARE	5.034 (0.65)	5.034 (0.65)
MA	1.313 (1.16)	1.313 (1.16)
INTERCEPT	94.136*** (4.00)	94.136*** (4.00)
Year FE	YES	YES
Firm FE	YES	YES
N	2317	2317
Adjusted R ²	0.063	0.063

This table reports the coefficient estimates from tests of ARL, showing the average effect of FRC disclosure on audit report lag. The sample period is 2007–2011 (calendar years). ARL is the time lag between the date of signing the audit report and the corresponding fiscal year end. POST is an indicator variable equal to 1 for fiscal years ending after the public disclosure year (i.e. 2008) of the individual inspection report. TREAT is an indicator variable equal to 1 for firm-years in the treatment sample (i.e. clients not listed in AIM, with major auditors whose individual inspection reports are publicly available), and 0 for firms in the benchmark control sample (i.e. clients either listed in AIM or with non-major auditors whose individual inspection reports are not publicly available). See Appendix Table A1 for definitions of all other variables. All continuous variables are winsorised at the 1st and 99th percentiles. In Model 1, t-statistics are reported in italics based on heteroskedasticity-corrected standard errors. In Model 2, t-statistics are based on client clusters and heteroskedasticity-corrected standard errors. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively (two-tailed test).

under FRC inspection took, on average, 4.9 days longer than other audit firms to sign their clients' audit reports. Model 2 repeats the analysis of Model 1 but uses client clusters and heteroskedasticity-corrected standard errors.

These results may indicate that, owing to reputational concerns, audit firms in the treatment sample became more cautious in auditing their clients, and may have employed more substantial audit procedures to avoid significant audit risks, leading to increased delay in their audit reports. Efficiency may have increased owing to the enhanced corporate governance and disclosure quality associated with FRC disclosure, for example resulting from advanced audit techniques, expansion of audit industry, and improvements to auditors' competence, while the positive impact of increased audit time and inputs exceeded the increased efficiency, resulting in a positive and significant coefficient for POST*TREAT. Firms in the control group, although not under the FRC disclosure regime, probably experienced a spillover effect from audit firms' increased efficiency in conducting audits of treatment firms. This resulted in a negative impact on ARL for firms in the control group, which surpassed the positive impact of the treatment group, resulting in a negative and significant coefficient for POST.

Similarly, with regard to auditor opinion analysis, heterogeneity tests (untabulated) were performed for Big 4 and non-Big 4 audit firms separately. For the Big 4 sample, both POST and POST*TREAT were insignificant, and for the non-Big 4 sample, POST was still positive and significant ($\beta_2 = -7.241$; $t = -2.32$), while POST*TREAT was still positive but insignificant in this case ($\beta_2 = 5.939$; $t = 1.40$). The insignificant result for the interaction variable may be due to the significant reduction in observations, which may reduce the analytical power.⁸ Moreover, compared with the baseline Model 1 in Table 8, the coefficients for the non-Big 4 sample were much larger, which may also indicate that the impact was more concentrated among clients with small auditors.

Additional robustness tests were conducted, taking account of concurrent events in the UK, auditor switches, the impact of previous auditor opinions, and the inclusion of alternative client-level control variables.⁹ In general, the untabulated findings reveal that the main inferences did not change qualitatively.¹⁰

⁸ For the non-Big 4 sample, the number of observations dropped from 2,317 (total sample) to only 896 observations.

⁹ Specifically, CFO, CASHSHORTINV and BIG4 were used as alternative firm-level controls.

¹⁰ The only exceptions were tests for auditor switches and previous auditor opinions, where the coefficients of POST*TREAT were still positive, but were insignificant in both cases. However, this result should be treated with caution because there was a significant decrease in the number of firm-year observations in these two tests, which may reduce their analytical power.

6. Conclusion

This study examined the consequences arising from the FRC's disclosure of individual inspection reports. Based on a large sample of UK-listed clients, a significant increase is found in the likelihood of issuing a qualified audit opinion in the period after a disclosure, probably arising from auditors being "tough or conservative" on important reporting issues and devoting more inputs and expertise to reporting decisions, thus enhancing corporate governance. This significant impact on reporting decisions is more concentrated among clients with small audit firms. Possible reasons are that small auditors may have greater incentives to establish their reputation among clients than large auditors who have already secured a dominant position and reputation in the audit market. This study also finds a significant increase in the time taken for auditors to sign audit reports. One explanation for this is that auditors may become more cautious in auditing their clients, so may employ more substantial audit procedures to avoid significant audit risk. Overall, this study provides evidence that the FRC disclosure regime has changed auditors' reporting behaviours and has contributed to tightening governance mechanisms through auditors' oversight.

The study is subject to some limitations. It focuses only on auditors' reactions and does not explore the responses of other market participants (e.g. investors or shareholders). For example, [Shahzad et al. \(2018\)](#) examine investors' perceptions of audit quality during the financial crisis, and find evidence of an increase in the information content of earnings announcements during the crisis period. Also, it is unknown whether the results for the UK can be applied to other institutional settings. In general, this study provides a starting point for further research on the impact of FRC disclosure and corporate governance in general, and offers potentially useful insights for policy makers and national audit firm regulators.

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Declarations of interest

None.

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Appendix A

Table A1

Variable definitions (Worldscope item numbers in square parentheses).

Dependent variables	
<i>OPINION</i>	Dummy variable that equals 1 if the client receives a qualified audit opinion [WS07546], and 0 otherwise
<i>ARL</i>	Time lag between the date of signing the audit report and the corresponding fiscal year end
Variables of interest	
<i>POST</i>	Indicator variable equal to 1 for fiscal years ending after the public disclosure year (i.e. 2008) of the individual inspection report
<i>TREAT</i>	Indicator variable equal to 1 for firm-years in the treatment sample (i.e. clients not listed in AIM, with major auditors whose individual inspection reports are publicly available), and 0 for firms in the benchmark control sample (i.e. clients either listed in AIM or with non-major auditors whose individual inspection reports are not publicly available)
Firm-specific controls	
<i>SIZE</i>	Natural log of total assets in thousands of British pounds [WS02999]
<i>LOSS</i>	Dummy variable that equals 1 if the client reports a net loss [WS01651] in the current year, and 0 otherwise
<i>DISTRESS</i>	Financial condition index based on Zmijewski (1984)
<i>LEVERAGE</i>	Ratio of long-term debt [WS03251] to total assets [WS02999]
<i>ROA</i>	Ratio of net income [WC01651] to total assets [WS02999]
<i>CFO</i>	Cash flow from operations [WC04860] scaled by total assets [WC02999]
<i>BM</i>	Book value of equity [WC03501] scaled by market value of equity [WC08001]
<i>AUDITOR</i>	Dummy variable that equals 1 if the client's auditors are major auditors under FRC inspection regime, and 0 otherwise. Major auditors are Deloitte, E&Y, KPMG, PWC, Baker Tilly, BDO, Crowe Clark, Grant Thornton, Mazars and PKF.
<i>BUSY</i>	Dummy variable that equals 1 for fiscal year ending 31 December [WS05350], and 0 otherwise
<i>MSHARE</i>	Proportion of audit fees [WS01801] from a client of an audit firm's total audit fees for a specific year
<i>SALES_GROWTH</i>	Sales increase (or decrease) from year t-1 to year t scaled by lagged sales [WC01001]
<i>LITIGIOUS</i>	Dummy variable that equals 1 if SIC [WS07021, WS07022, WS07023] is 2833–2836, 3570–3577, 3600–3674, 5200–5961, or 7370–7374 (biotechnology, computers, electronics or retailing), and 0 otherwise.
<i>AUDITFEES</i>	Natural log of audit fees in thousands of British pounds [WS01801]
<i>BSEG</i>	Natural log of 1 plus the number of business segments [WS19501, WS19511, WS19521, WS19531, WS19541, WS19551, WS19561, WS19571, WS19581, WS19591]

(continued on next page)

Table A1 (continued)

Dependent variables	
<i>GSEG</i>	Natural log of 1 plus the number of geographical segments [WS19601, WS19611, WS19621, WS19631, WS19641, WS19651, WS19661, WS19671, WS19681, WS19691]
<i>LAGACCRUAL</i>	The one-year lag value of total accruals. Total accruals are calculated as the difference between net income before extraordinary items [WC01551] and cash flow from operations [WC04860].
<i>LAGARL</i>	The one-year lag value of ARL
<i>MA</i>	Dummy variable that equals 1 if the client has a merger or acquisition in a specific year, and 0 otherwise
<i>INVREC</i>	Ratio of the sum of inventories [WS02101] and receivables [WS02051] to total assets [WS02999]
<i>CASHSHORTINV</i>	Cash and short-term investments [WC02001]
<i>BIG4</i>	Dummy variable that equals 1 if the client uses a Big 4 audit firm, and 0 otherwise
<i>DEBT</i>	Natural log of long-term debt [WC03251]

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