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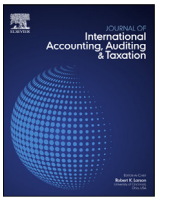
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When does audit committee busyness influence earnings management in the UK? Evidence on the role of the financial crisis and company size



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ABSTRACT

We investigate the impact of audit committee busyness on earnings management in FTSE350 companies between 2007 and 2013, a period that includes the global financial crisis and its immediate aftermath. Using a range of busyness measures and examining the impact on both accruals and real earnings management, we find that the busyness of audit committee members has a negative impact on earnings quality, which suggests that members with more board seats are less effective monitors of managers' desire to manipulate earnings. Our findings are more pronounced in FTSE250 than in FTSE100 firms. We also find that the detrimental impact of busy audit committees is more pronounced during the financial crisis and, in the case of real earnings management, is not observed afterwards. Our findings raise important questions for corporate governance regulators, who have not previously sought to address audit committee busyness and its potential impact on audit committee effectiveness. Our results also emphasize the need for researchers to appreciate the wider economic circumstances in which studies are undertaken, the lack of homogeneity between larger and smaller listed firms, and the importance of jurisdiction in governance-related studies.

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1. Introduction

The emergence of audit committees as a key component of the corporate governance architecture, allied with specific recommendations regarding their structure and composition, has encouraged academic research to better understand their governance role. Over the past two decades, researchers have provided significant empirical evidence on the use and usefulness of audit committees (Ali & Zhang, 2015; Dhaliwal et al., 2010; Ghafran & O'Sullivan, 2017; Krishnan & Visvanathan, 2008; Tanyi & Smith, 2015). Much of this work has focused on the value and relevance of audit committees' characteristics stipulated by regulation, specifically size, independence, meeting frequency, and expertise. Researchers typically seek to ascertain whether these characteristics influence specific aspects of corporate behavior and thereby enhance or reduce audit committee effectiveness (Bilal, 2018; Ghafran & O'Sullivan, 2017; Samaha et al., 2015).

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One important strand of this research has explored the impact of audit committee characteristics on earnings quality. There is relatively strong evidence that audit committee size (Kent et al., 2010; Yang & Krishnan, 2005), independence (Lo et al., 2010; Sharma & Kuang, 2014), financial expertise (He & Yang, 2014; Krishnan & Visvanathan, 2008), and meeting frequency (Kent et al., 2010; Vafeas, 2005) have a positive influence on companies' earnings quality. However, the evidence is by no means in one direction; studies in France (Piot & Janin, 2007), Spain (Garcia-Osma & Noguer, 2007), and the UK (Habbash et al., 2013) have failed to find a similar impact.

One aspect of audit committees that has received relatively less academic attention is the impact of members' busyness on their effectiveness. This is surprising since it is reasonable to expect that audit committee busyness is likely to impact effectiveness. Furthermore, there is an established literature on the impact of director busyness more generally. The available evidence presents a mixed picture, with some studies finding that busy directors are associated with negative firm performance (Ahn et al., 2010; Fich & Shivdasani, 2006; Hauser, 2018; Shivdasani & Yermack, 1999) and other studies showing that busyness has a more positive impact (Ferris et al., 2003; Field et al., 2013; Loderer & Peyer, 2002; Masulis & Mobbs, 2011). These contrasting findings reflect the two theoretical perspectives on director busyness: On the one hand, busyness is seen as detrimental to shareholder interests because the time of busy directors is spread thinly over each board seat (i.e., the busyness hypothesis). On the other hand, some argue that busy directors may be busy because of a greater demand for their higher-quality monitoring (i.e., the reputation hypothesis).

Despite the many studies investigating the impact of director busyness and the lack of consensus on its impact, only a few studies have sought to investigate further by examining the busyness of members of board sub-committees. One of the exceptions is Jiraporn et al. (2009), who find that directors with more directorships participate less as members of board sub-committees and, consequently, are perceived as being less effective monitors of management behavior. However, Jiraporn et al. (2009) evidence suggests that directors opt out of sub-committee work because they hold multiple board seats, so it does not provide direct insights on the impact of busyness on their effectiveness. Other research has attempted to explore the impact of busyness on the financial reporting process. Yang and Krishnan (2005) report a negative relationship between the average number of outside directorships and the use of earnings management in quarterly reporting by US firms. In a Belgian study, Vlaminck and Sarens (2015) find a positive association between audit committee members holding three or more outside directorships and financial reporting quality. In an Australian study, Sultana et al. (2019) find that the number of audit committee members with additional directorships has a positive impact on audit fees and a negative impact on discretionary accruals—evidence, they argue, that audit committee busyness has a positive impact on both audit quality and financial reporting quality. In the only UK-based study, Habbash et al. (2013) find that the number of outside directorships held by audit committee members has no impact on earnings management.

Investigating the impact of audit committee busyness has the potential to significantly advance our understanding of the impact of busy directors. Existing research on this topic tends to focus on busyness generally and typically examines the impact of busyness on broad measures of output such as company performance. Board sub-committee work is a key part of the current role of non-executives, especially in the UK, where most non-executives are expected to undertake significant sub-committee activities. Therefore, our efforts to understand the impact of board busyness need to go beyond looking at multiple directorships and their impact on overall performance; we should also investigate the impact of busyness on board members' sub-committee commitments. That is the objective of this study. By focusing on a specific aspect of a non-executive's role (audit committee membership) and focusing on one of the most important outputs of that role (the control of earnings management), our study focuses on the busyness of members of a key board sub-committee and the impact of such busyness on one clearly identifiable measure of that sub-committee's effectiveness. Specifically, by focusing on the impact of audit committee member busyness on financial reporting quality, measured in terms of both accrual and real earnings management, we can isolate and observe behavior that is directly relevant to audit committee members' roles and responsibilities.

With the exception of Habbash et al. (2013), we are not aware of any existing research on the relationship between audit committee busyness and financial reporting quality in the context of UK companies. Our study extends this work in terms of using a longer study period. We also strengthen the robustness of Habbash et al. (2013) work by utilizing a range of different busyness measures and examining their impact on both accruals and real earnings management. For several reasons, the UK is an interesting context in which to undertake such a study. First, as noted by Zalata and Roberts (2016), the introduction of International Accounting Standards (IAS) may permit UK companies greater flexibility and discretion in how they report profits, allowing them to move items between different sections of the income statement. Due to the greater reporting flexibility inherent in IAS, the UK after the adoption of IAS provides a useful environment in which to investigate the relationship between the busyness of audit committee members and earnings management.

Second, jurisdictions vary in how audit committee members are compensated. As Hayek (2018) explains, audit committee members in US companies are typically compensated via cash and/or equity, and the nature of compensation affects the monitoring performance of audit committee members. Specifically, studies by Archambeault et al. (2008), Campbell et al. (2015), and Keune and Johnstone (2015) report evidence that equity-based compensation is associated with a greater likelihood of restatements and more earnings management. On the other hand, Rickling and Sharma (2017) find that cash-based compensation is associated with stronger audit committee monitoring. In contrast, in the UK, successive corporate governance codes have advised companies against using equity as part of non-executive compensation; as a result, UK audit committee members are compensated exclusively in cash. This makes the UK an interesting setting in which to ascertain the

impact of audit committee busyness on earnings management, since audit committee members have no equity-based compensation influencing their monitoring of financial reporting decisions.

Third, the regulation of financial reporting is significantly less onerous in the UK than in the US, where much of the existing research on the relationship between audit committees and earnings management has been undertaken. Specifically, the UK does not have a regulator similar to the Securities and Exchange Commission (SEC); consequently, relatively few companies and individuals have been charged with inappropriate financial reporting. Furthermore, unlike the US Congress, the UK legislature rarely gets involved with financial reporting matters. This has led to a principles-based rather than a rule-based system of financial reporting. The absence of legislation-backed regulation is in stark contrast to legislation such as Sarbanes-Oxley Act (2002), whereby breaches are accompanied by criminal liability. Indeed, the principles-based notion extends to the UK's corporate governance framework, as it adopts a comply-or-explain approach rather than the prescriptive approach of other jurisdictions. In summary, differences in financial reporting standards, audit committee members' incentives, and a range of regulatory and enforcement features make the UK a particularly interesting environment in which to undertake our study.

In addition to improving our understanding of the impact of audit committee busyness on audit committee effectiveness, our study seeks to make two further contributions to the literature. First, our research examines whether the effects of audit committee busyness on earnings management are influenced by economic uncertainty. This is important, as prior research has found that business as usual stalls at such times (Mitton, 2002), and managers are more likely to engage in value-destructive behavior (Bertrand et al., 2002). At the same time, evidence suggests that the monitoring of management decreases, and investor confidence in the financial reporting process falls (Arthur et al., 2015). At such times, it is imperative that governance structures preserve firm value. In this study, we provide evidence of the effect of audit committee busyness on earnings management during the global financial crisis and compare this to the effect in the post-crisis period. This allows us to examine whether the impact of audit committee busyness on earnings management is affected by periods of economic uncertainty.

Second, mindful of recent research suggesting that the impact of governance characteristics is not uniform across all firm sizes (Ghafran & O'Sullivan, 2017), we investigate whether firm size affects the ability of busy audit committee members to constrain earnings management. Prior research has documented that the inconsistencies in findings on board busyness can be attributed to the size of firms in the samples used (Cashman et al., 2012). In their UK study, Ghafran and O'Sullivan (2017) find significant variations in the audit committee characteristics of firms within the FTSE350. They argue that firms within this sample display significant heterogeneity, with firms of different sizes placing different emphasis on audit quality. In our study, we further analyze the effect of audit committee busyness on earnings management by comparing FTSE100 and FTSE250 firms. This allows us to extrapolate how audit committee busyness affects earnings management in listed firms of different sizes.

In addition to extending our understanding of the academic literature, our study also has the potential to inform policy. Current governance recommendations in the UK and elsewhere do not concern themselves with the likely impact of audit committee busyness on the effectiveness of the committee. This study provides valuable insights on the impact of busyness on audit committee effectiveness and thus has the potential to inform future policy deliberations.

Our paper proceeds as follows. In the next section, we explain the role and regulation of audit committees in the UK, discuss existing work on audit committees and earnings management, review existing literature on audit committee busyness and earnings quality, and develop our hypotheses. Section 3 presents details of our sample and variables. In Section 4, we present our empirical analysis and discuss the academic and policy implications of our findings. Section 5 concludes the study.

2. Audit committees, member busyness, and earnings quality

2.1. Audit committees in the UK

Over the past 30 years, audit committees have become an integral part of the corporate governance architecture in the UK and elsewhere. In the UK, the governance potential of audit committees was initially identified by Cadbury (1992), who recommended that all listed companies establish "properly constituted audit committees as an important step in raising standards of corporate governance" (4.37). Key to Cadbury's (1992) appropriate test was that audit committees should include only non-executive directors; have a minimum of three members, a majority of whom should be independent non-executives; and meet no less than twice a year. In the years immediately following the Cadbury (1992) recommendations, virtually all UK-listed companies established audit committees, and in a subsequent report Cadbury (1995) showed widespread compliance with the original recommendations. In the wake of the Enron collapse in the US, Sir Robert Smith (2003) was asked to consider the effectiveness of audit committees in the UK, and his recommendations underpinned subsequent changes incorporated in the revised Combined Code (Financial Reporting Council (FRC), 2003). In particular, the revised Combined Code (FRC, 2003) made the following recommendations: Audit committees should have a minimum of three members, all members should be independent non-executives, at least one member should have recent and relevant financial expertise, and audit committees should meet at least three times per year. These recommendations have persisted in all subsequent revisions to the UK Corporate Governance Code (FRC, 2010–2018).

2.2. Audit committees and earnings management

In recent years, research on the impact of audit committees and their characteristics has developed significantly. The vast majority of this work has focused on the characteristics recommended by regulators—size, independence, expertise, and meeting frequency—to understand how prescribed audit committee characteristics affect various aspects of audit committee effectiveness. Recent reviews of this work by Ghafran and O'Sullivan (2013), Malik (2014), and Bilal (2018) broadly conclude that the prescribed audit committee characteristics have a positive impact on various aspects of the audit committee's role.

In the current study, we are especially interested in reflecting on the impact of audit committee characteristics on the quality of firms' financial reporting. Initial insights on the impact of audit committees emanated from the US, where Xie et al. (2003) report that smaller discretionary accruals are associated with firms with more financially literate and busier audit committees, while Abbott et al. (2004) report that more independent and active audit committees with greater expertise significantly reduce the likelihood of financial restatements. Vafeas (2005) finds that greater audit committee independence and more frequent meetings are associated with reduced earnings management, while Braiotta and Zhou (2008) find that larger, more independent, and busier audit committees are associated with less earnings management.

In Australian studies, Davidson et al. (2005) and Koh et al. (2007) report that more independent audit committees have a negative relationship with earnings management, while Kent et al. (2010) find that meeting frequency is positively associated with the level of financial statement disclosure. In a subsequent Australian study, Lary and Taylor (2012) find that audit committee independence and financial expertise are significantly related to lower incidences and reduced severity of financial misstatements.

In European studies, Garcia-Osma and Noguer (2007) find that audit committee independence does not impact earnings management in Spain, a finding replicated by Piot and Janin (2007) in France. A few UK studies look at the relationship between audit committee composition and earnings management. In the initial study on this issue, Peasnell et al. (2005) find that the presence of an audit committee has no impact on earnings management. Mangena and Pike (2005) find that financial experts on the audit committee encourage greater interim disclosures by UK firms. The only existing study that directly addresses the impact of audit committee characteristics on earnings management is by Habbash et al. (2013). They find that neither audit committee independence, meeting frequency, size, nor financial expertise has a statistically significant impact on firms' abnormal accruals. This is in contrast with the existing evidence from the US but broadly consistent with the results of existing Europe-based studies.

2.3. Busy directors and earnings quality

The holding of multiple directorships has emerged as an important issue because it may affect the monitoring potential of non-executive directors. On the one hand, directors holding multiple board seats may signal a reputation effect whereby the directors who are considered more effective monitors are likely to be offered more board positions. However, holding more board positions also makes those directors busier and places them under greater time pressure (Adams et al., 2010). A key objective of the academic research in this area has been to investigate which of these views predominates. In one of the most comprehensive studies of outside director busyness, Fich and Shivdasani (2006) find that firms where a majority of non-executives are busy are associated with weak corporate governance, lower market-to-book ratios, weaker profitability, and lower sensitivity of CEO turnover to firm performance. Fich and Shivdasani (2006) also find that the appointment of a busy non-executive is associated with a fall in abnormal returns in the other firms in which he/she holds a board seat, and the departure of a busy director has a positive effect on the abnormal returns of the firm he/she leaves. Jiraporn et al. (2009) investigate whether multiple board commitments impact directors' ability to fulfil their duties and find that busy directors tend to attend fewer meetings and are less likely to sit on board sub-committees.

Other studies, however, report evidence consistent with the reputation hypothesis whereby firms seem to benefit from having non-executives with multiple board seats. For example, Ferris et al. (2003) find that busy directors do not impact the financial performance of firms, but they find that the appointing firm has positive abnormal returns when it adds a busy director to the board. Gul and Leung (2004) find a positive relationship between the number of outside directorships held by non-executives and the levels of transparency and monitoring in the firm, while Harris and Shimizu (2004) report that acquiring firms with busier boards have higher abnormal accruals. In summary, therefore, theory suggests that the busyness of board members may have either a positive (reputation) or a negative (busyness) effect on firms. The available empirical evidence is mixed, with some support for both perspectives.

Since audit committees are essentially a sub-committee of the main board and typically comprise only non-executive directors, similar theoretical arguments are expected to apply. As highlighted by Tanyi and Smith (2015) and Sultana et al. (2019), the reputation hypothesis argues that sitting on more boards and audit committees may signal greater expertise and therefore serve to improve the reputation of audit committee members. Because busy audit committee members gain more experience and knowledge, they are expected to become more effective in their oversight of management and be associated with improved financial reporting quality. There is some empirical support for this argument. Yang and Krishnan (2005) report that US companies whose audit committee members sit on more outside boards have less quarterly discretionary accruals. In their study of Belgian listed firms, Vlaminck and Sarens (2015) find that audit committee members with three or more outside board seats are associated with higher-quality financial disclosures. In an Australian study, Sultana et al. (2019) find that audit committees with more members holding additional directorships have a positive impact

on audit fees and a negative impact on the use of discretionary accruals. This evidence is consistent with the idea that busier members enhance financial reporting quality.

On the other hand, the busyness hypothesis argues that serving on multiple boards and audit committees and the associated workload compromises audit committee members' ability to adequately monitor managers' inclination to manage earnings. For example, Sharma and Iselin (2012) find that the average number of directorships held by audit committee members is positively associated with financial misstatements. Similarly, Tanyi and Smith (2015) find that the number of other financial expertise positions held by audit committee members who are financial experts has a negative impact on financial reporting quality. Carrera et al. (2017) find that audit committee members with financial expertise who sit on multiple audit committees have a negative impact on earnings quality. Similarly, Dhaliwal et al. (2010) document that accounting-expert audit committee members with fewer directorships are associated with less earnings management.

In reporting their UK evidence, Song and Windram (2004) argue that FRRP[1] actions are more likely to be directed at companies whose audit committee members have more directorships. While the findings are statistically insignificant, they note that "it is likely that as outside directorships increase beyond a certain limit, the time constraints will have an adverse effect on directors' ability to monitor effectively" (p. 199). Other studies report that audit committee busyness has no significant impact on the quality of financial reporting. For example, Dao et al. (2013) find no link between the number of other directorships held by audit committee members and the cost of equity capital for a sample of US firms. In their UK study, Habbash et al. (2013) find no significant association between the additional directorships held by audit committee members and earnings management.

The existing theory and evidence suggest a rather mixed picture with no obvious consensus on the impact of audit committee busyness on earnings management. Furthermore, the earlier discussion of the impact of audit committee busyness on audit committee effectiveness suggests that the evidence from the UK may not necessarily be similar to that from other jurisdictions, especially the US. The recent evolution of the central role of board sub-committees in the UK corporate governance architecture, as well as the demanding responsibilities facing audit committee members, suggests that additional directorships may interfere with the audit committee's monitoring potential in the UK environment. In view of the mixed evidence, we keep an open mind and posit a neutral hypothesis in relation to the expected impact of audit committee busyness on earnings quality.

H1: The busyness of audit committee members has no impact on earnings quality.

Even though the primary objective of our research is to identify whether the busyness of audit committee members impacts earnings management, we are also interested in ascertaining whether the global financial crisis has affected that relationship. The majority of prior work on audit committee effectiveness was undertaken in relatively stable economic environments, but the financial crisis and its aftermath are an extremely useful period in which to assess the effectiveness of audit committees. As Aldamen and Duncan (2016) note, "Unexpected financial shocks provide a unique setting to examine the efficacy of corporate governance" (p. 435). Indeed, in the UK, the unexpected failure of a number of high-profile companies led to the establishment of the Cadbury Committee in 1992 and the subsequent revolution in corporate governance. Similarly, the failure of Enron in the US led directly to the implementation of Sarbanes-Oxley and other regulatory reforms. Even though the global financial crisis is seen mainly as revealing weaknesses in the governance of financial firms, it has also focused attention on governance more widely, especially in terms of the appropriateness and application of specific financial reporting issues and the consequences of high levels of financial risk (Kirkpatrick, 2009).

Unsurprisingly, research on the causes and consequences of the financial crisis has focused on banking and the broader financial sector. The following tries to capture a flavor of such work that may be of relevance to our study, given that we focus on non-financial firms. In a study of the impact of the financial crisis on the governance of Australian firms, Williams et al. (2015) find that companies responded by improving the independence of their boards and providing greater disclosure about the skills of individual outside directors. In his appraisal of the governance lessons for banks and other financial institutions after the crisis, Hopt (2013) also focuses on the lack of industry expertise amongst non-executives and the possible consequences of sacrificing expertise for the sake of independence. In a study of audit committees during the crisis, Aldamen et al. (2012) find that audit committees with greater financial expertise and more additional directorships were associated with better financial performance.

We are interested in whether the relationship between audit committee busyness and earnings management has changed since the global financial crisis. As discussed above, crises and high-profile corporate failures have almost always been followed by reflections on the adequacy of corporate governance. Therefore, we expect companies to further strengthen their governance arrangements after the crisis, and audit committees are likely to be an important part of this effort. Furthermore, as highlighted by Kirkpatrick (2009), Hopt (2013), and others, much of the post-crisis reflection has focused on the nature and quality of financial disclosures. Therefore, we expect companies to focus on the effectiveness of their audit committees, and we expect audit committees in the post-crisis period to focus on minimizing earnings management. As a result, we might expect a weaker relationship between earnings quality and the number of multiple directorships held by audit committee members. On the other hand, as discussed earlier, the financial crisis also encouraged reflections on the governance value of expertise, which may have encouraged firms to use audit committee members who hold additional directorships.

[1] In the UK, action against companies by the Financial Reporting Review Panel (FRRP) for defective financial statements is equivalent to SEC Enforcement Actions in the United States.

This could lead to busier audit committees and a potential decline in their ability to adequately monitor earnings management. So, while the crisis is expected to increase focus on the importance of audit committees and encourage companies to improve their diligence, in doing so, it might encourage the use of more experienced and busy members, which may work against earnings quality due to the busyness of such members. It is difficult to foresee which of these competing arguments will predominate. Thus, we adopt the following neutral hypothesis:

H2: There is no difference in the sensitivity of the busyness of audit committee members and earnings management during and after the financial crisis.

We also investigate whether the relationship between audit committee busyness and earnings management differs with firm size. In particular, our FTSE350 sample comprises firms from the FTSE100 and the FTSE250. Even though UK corporate governance codes apply equally to all FTSE350 firms, the FTSE100 index is a far more prestigious index, and its member firms are under significant shareholder, analyst, and media scrutiny. The intense attention to FTSE100 firms puts them under greater pressure to ensure that their corporate governance is effective and complies with current best practice. In their study of audit committees in FTSE350 companies, Ghafran and O'Sullivan (2017) find that the quality of corporate governance is much greater in FTSE100 firms than in FTSE250 firms. For example, Ghafran and O'Sullivan (2017) find that FTSE100 firms have a significantly higher proportion of independent directors. They also have audit committees that are larger, are more independent, meet more frequently, and have higher levels of financial expertise. The authors attribute these findings to the higher-quality and more transparent financial reporting of FTSE100 firms, which is due in large part to the more intense external scrutiny they face.

Given the above, we can reasonably conclude that FTSE100 firms are under particular pressure to ensure that their audit committees are effective. Thus, we can expect that firms will not use busy audit committee members in circumstances where busyness would adversely impact the committee's effectiveness. This is likely to eliminate or significantly reduce any negative impact of busyness on these firms' earnings quality. On the other hand, we would expect smaller listed companies to have lower levels of some of the relevant governance characteristics (Ghafran & O'Sullivan, 2017). Thus, the busyness of directors might adversely impact their behavior, including the monitoring of earnings management. We would also expect smaller listed companies to be exposed to significantly less external scrutiny of their governance arrangements, including the sensitivity of board busyness to earnings quality. Therefore, we would expect to see a stronger sensitivity between the holding of multiple directorships by audit committee members and earnings management in non-FTSE100 firms. This results in the following hypothesis:

H3: There is less sensitivity between audit committee busyness and earnings management in FTSE100 companies than in FTSE250 companies.

3. Sample and variables

3.1. The sample

First, we identified companies in the FTSE350 between 2007 and 2013. Focusing on the FTSE350 is important since current governance recommendations in the UK distinguish between FTSE350 firms and other listed firms. The latter are subject to less onerous governance recommendations. For example, non-FTSE350 firms must have a minimum of two audit committee members, whereas FTSE350 firms must have at least three. Our sample also allows us to segregate FTSE100 and FTSE250 firms. This allows us to investigate the audit committee busyness of FTSE100 and FTSE250 firms separately. It also allows us to test hypothesis 3 by examining how audit committee busyness affects earnings management in firms in the different sub-indices. By focusing on the period between 2007 and 2013, we capture both the years of the global financial crisis (2007–2009) and the years immediately afterwards. This allows us to capture any differences in audit committee busyness and the impact of such busyness on earnings management during the crisis and post-crisis periods. This enables us to test hypothesis 2. Like most studies in this area, we exclude all financial firms, principally insurance companies and banks, as well as firms from regulated industries as they have different regulatory environments and financial reporting conventions. To provide an unbiased measure of earnings quality, we exclude industries with less than 10 observations in any given year. This is consistent with the prior research in this area, such as Peasnell et al. (2005), Ghosh et al. (2010) and Ali and Zhang (2015).[2]

Next, we located the annual reports for our sample companies for the period 2007 to 2013. These were obtained either directly from the companies' own websites or from the filings section of *ThomsonOne Banker*. Access to annual reports is crucial for our study, as we rely on this information to source data for the majority of our variables. Much of the data on audit committee characteristics, including busyness, can only be sourced directly from the companies' annual reports. The financial data required to calculate our earnings management metrics came from *Datastream*. This resulted in a final sample of 1,125 company/year observations. Table 1 Panel A contains details of the sampling process, while Table 1 Panel B provides the industrial breakdown of sample firms.

[2] The industries excluded from the study sample because of this restriction include aerospace and defense, chemicals, forestry, general industrials, personal goods, pharmaceutical and bio-technology, technology hardware and equipment, and tobacco.

Table 1
Sample characteristics.

Panel A, Sample selection process								
Description	2007	2008	2009	2010	2011	2012	2013	Total
FTSE350 firms	350	350	350	350	350	350	350	2,450
Financial and regulated firms	75	75	75	75	82	88	88	558
Industries with fewer than 10 members	63	63	63	63	76	76	76	480
Missing audit committee and DataStream data	41	39	38	39	44	45	41	287
Final sample	171	173	174	173	148	141	145	1,125

Panel B, Industry distribution of sample firms		
Industry Name	N	Percentage
Electronic and Electrical Equipment	48	4.27
Food and Beverages Producers	94	8.36
General Retailer	164	14.58
Household Goods	40	3.56
Industrial Engineering	78	6.93
Media	69	6.13
Mining	93	8.27
Oil and Gas Producers	77	6.84
Software and Computer Services	66	5.87
Support Services	226	20.08
Travel and Leisure	170	15.11
Final Sample	1,125	100.00

3.2. Dependent variable - earnings management metrics

We measure earnings management using both the discretionary accruals (AEM) and real earnings management (REM) models. First, we employ the AEM model proposed by Francis et al. (2005), which is a modification of the original Dechow and Dichev (2002) and the McNichols (2002) models of accruals quality.[3] McNichols (2002) uses industry-level pooled cross-sectional regressions in which the dependent variable is working capital accruals and the independent variables are cash flows in the previous, current, and subsequent years, as well as the changes in revenue and PPE. Specifically, she combines the Jones (1991) and Dechow and Dichev (2002) models and suggests the following model to estimate accruals quality:

$$\Delta WC_t = b_0 + b_1 CFO_{t-1} + b_2 CFO_t + b_3 CFO_{t+1} + b_4 \Delta Rev_t + b_5 PPE_t + \varepsilon_t \quad (1)$$

(where Δ in working capital in year t (ΔWC_t) = (ΔCurrent Assets – ΔCurrent Liabilities) – ΔCash; CFO_{t-1} represents 'Cash flows from operations in year t – 1'; CFO_t represents 'Cash flows from operations in year t' and CFO_{t+1} represents 'Cash flows from operations year in year t + 1'; ΔRev_t represents 'Sales in year t – Sales in year t – 1' and PPE_t represents 'Gross property, plant and equipment in year t'. All variables shown above are scaled by lagged total assets).

Francis et al. (2005) separate McNichols' measure of earnings management into its discretionary and non-discretionary elements. Francis et al. (2005) compute the components of accruals (i.e., the discretionary and non-discretionary components) by estimating a regression of firms' innate factors that affect accruals quality.[4] To determine the discretionary components of accruals quality, we use the following regression equation where the residual from (2) is the estimate of the discretionary component of a firm's accrual quality.

$$AQ = \alpha + b1SIZE + b2LOSS + b3OPCYC + b4\sigma CFO + b5\sigma REV + \varepsilon_t \quad (2)$$

(where AQ is the accruals quality (absolute value of residuals from equation (1)); SIZE is the natural log *of total assets; LOSS is the number of years in which a loss was recorded for the last three years; OPCYC is the natural* log *of average age of inventory plus the average age of receivables (in days); σCFO is the standard deviation of cash flow from operations over the last five years (scaled by total assets); and σREV is the standard deviation of operating revenue over the last five years (scaled by total assets)).*

Second, for our REM model, we rely heavily on Roychowdhury (2006). In calculating our REM measure, we utilize sales manipulation and abnormal discretionary expenses from Roychowdhury (2006) model. Sales manipulation leads to lower levels of cash flows from operations, and such manipulation usually involves offering higher price discounts or lenient credit terms. Reducing discretionary expenses (such as R&D, advertising, and selling, general and administrative expenses) boosts current period earnings. We do not include the third component, abnormal production costs, from Roychowdhury (2006)

[3] To capture accruals quality, some prior studies have also used the Jones (1991) model or its variants. However, a criticism of the Jones model (1991) is that it measures accruals quality indirectly (Schipper & Vincent, 2003; Francis et al., 2005). This problem can be overcome by directly measuring earnings quality. Aboody et al. (2005) note that the Dechow and Dichev (2002) measure "is a relatively more direct measure of a company's information environment derived from fundamental accounting data contained in its financial statements" (p. 653). McNichols (2002) shows that adding changes in revenue and PPE to the cross-sectional Dechow and Dichev (2002) regression significantly increases its explanatory power, thereby reducing measurement error.

[4] For further details, please refer to McNichols (2002) and Francis et al. (2005).

model. We omit it for two reasons: First, measuring this variable requires firms' inventory data, and many of the firms in our sample of firms lack these data. These firms operate primarily in the services and the travel and leisure sectors, and together these sectors represent over 35 percent of our total sample. Second, Roychowdhury (2006) shows that the same activities that lead to abnormally high production costs also lead to abnormally low CFO; thus, adding these two amounts leads to double counting. This issue is also highlighted by Cheng et al. (2016), Cohen and Zarowin (2010), and Zang (2012). For these reasons, we avoid including abnormal production costs in our overall measure of REM. To estimate the abnormal level of cash flows from operation and discretionary expenses, we utilize the following cross-sectional models (Roychowdhury, 2006).

$$CFOt/At-1 = a + a1(1/At-1) + b1(St/At-1) + b2(\Delta St/At-1) + \varepsilon_t \quad (3)$$

(where CFO is cash flow from operations; A is total assets of firm I in year t; St is the sales of firm i in year t; Ait-1 is the lagged total asset of firm i, and ΔSt represents 'Sales in year t – Sales in year t – 1').

$$DISEXPt/At-1 = a + a1(1/At-1) + b1(St-1/At-1) + \varepsilon_t \quad (4)$$

(where DISEXPt is the discretionary expenses in year t, defined as the sum of R&D, advertising, and selling, general and administrative expenses. At-1 is lagged total assets. St-1 is the sales in year t-1).

The residuals from these regressions (equations (3) and (4)) are then combined to compute an aggregate measure of real earnings management. We measure earnings quality for each firm by using the absolute value[5] of the residual for both our earnings management measures (Baxter & Cotter, 2009; Carrera et al., 2017; Ding et al., 2018; Srinidhi & Gul, 2007). The high value of absolute residual for each sample company signifies low quality earnings.

3.3. Independent variables – Audit committee busyness

We utilize several variables to capture the extent of audit committee busyness. First, we use a variable representing the average number of additional board positions held by each audit committee member. This is calculated by the number of additional board seats held by audit committee members in each firm divided by the number of audit committee members. Second, we use a variable to capture the proportion of audit committee members holding at least two additional directorships. Third, we use a variable to capture the directorships of audit committee members holding audit committee positions in other firms. To calculate this variable, we identify the number of additional audit committee positions held by all audit committee members and divide it by the number of audit committee members. Fourth, to analyze the busyness of the audit committee chair, we use a separate variable to capture the number of additional directorships held by the audit committee chair.

3.4. Independent variables – Audit committee characteristics

In addition to audit committee busyness, we use several variables to proxy for other audit committee characteristics. Current regulations governing disclosures in the UK make explicit recommendations about four audit committee characteristics (size, independence, meeting frequency, and expertise), and firms must disclose details of their compliance with these recommendations in the annual report (FRC, 2003; 2006; 2008 and FRC, 2010–2018).[6] We use these disclosures to construct our additional audit committee variables. Specifically, we use dummy variables indicating whether the audit committee contains three or more members, whether at least three meetings were held during the year, and whether the audit committee comprises only independent directors. To capture audit committee expertise, we use a variable reflecting the proportion of the audit committee members who are accounting experts. This is a narrower definition than the existing recommendation that at least one member have recent and relevant financial experience. We use it because the narrower definition can better capture specific audit-related expertise; consequently, it is more likely to capture the impact of expertise on the audit committee's potential to monitor and restrict executives' use of earnings management (Dhaliwal et al., 2010). We also use a variable that captures the length of time audit committee members have served on the audit committee, since more experienced audit committee members are expected to be more effective monitors of the financial reporting process (Sultana et al., 2019). Finally, we use a variable representing the proportion of firm equity owned by audit committee members. This variable controls for the likelihood that audit committee members with some equity ownership are more effective monitors of financial reporting quality (Vafeas, 2005).

[5] Earnings management can be used to increase or decrease earnings. However, this paper is not concerned with whether earnings are being negatively or positively manipulated. Any manipulation in earnings has an adverse effect on earnings quality; hence we use only the absolute value calculated.

[6] We utilize the Financial Reporting Council (FRC)'s Combined Code for 2006 and 2008 in the construction of our variables because our study period runs from 2007 to 2013 inclusive. However, the variables relating to recommended best practice for audit committees have not changed since the FRC's Combined Code (2003), which prompted the recommendations of the Smith Report (2003).

3.5. Independent variables – Control variables

In addition to our audit committee variables, we include several control variables. We include a variable to identify audits undertaken by one of the Big Four audit firms, since larger auditors are expected to be more effective in constraining earnings management (Dhaliwal et al., 2010). We also include a variable to represent the amount of audit fees paid to the auditor, since this amount is often used to capture the extent of the audit on the assumption that a more expensive audit is more likely to reduce the potential for earnings management (O'Sullivan, 2000; Ghafran & O'Sullivan, 2017). We also include the percentage of independent directors, as higher levels of board independence are expected to reduce earnings management (Habib & Bhuiyan, 2016). We include total assets to represent firm size, since larger firms are more likely to exploit accounting policies to reduce political costs (Warfield et al., 1995). We also include a measure of company leverage, since prior research identifies higher debt as an incentive to manage earnings (DeFond & Jiambalvo, 1994). We include financial loss, as studies have shown that loss-making firms are linked to financial misreporting (Beasley, 1996) and accruals earnings management (Carrera et al., 2017; Dhaliwal et al., 2010). We include return on assets as a measure of company performance, since there is some evidence of a strong association between firms with unusual performance and real earnings management (Ali & Zhang, 2015; Cheng et al., 2016).

We use the following models to test the hypotheses:

$$\begin{aligned} EM\,(AEM) = {} & \alpha_0 + \alpha_1\, AC\ Busyness + \alpha_2\, AC\ Size\ Dummy + \alpha_3\, AC\ Independence\ Dummy + \alpha_4\, AC\ Meetings\ Dummy \\ & + \alpha_5\, AC\,\%\, Accounting\ Expertise + \alpha_6\, Log\ AC\ Tenure + \alpha_7\,\%\, AC\ Share\ Ownership + \alpha_8\, Log\ Audit\ Fee \\ & + \alpha_9\,\%\, Independent\ Directors + \alpha_{10}\, Big4 + \alpha_{11}\, Log\ Total\ Assets + \alpha_{112}\, Leverage + \alpha_{13}\, Loss + \varepsilon_{it} \end{aligned} \tag{5}$$

$$\begin{aligned} EM\,(REM) = {} & \alpha_0 + \alpha_1\, AC\ Busyness + \alpha_2\, AC\ Size\ Dummy + \alpha_3\, AC\ Independence\ Dummy + \alpha_4\, AC\ Meetings\ Dummy \\ & + \alpha_5\, AC\,\%\, Accounting\ Expertise + \alpha_6\, Log\ AC\ Tenure + \alpha_7\,\%\, AC\ Share\ Ownership + \alpha_8\, Log\ Audit\ Fee \\ & + \alpha_9\,\%\, Independent\ Directors + \alpha_{10}\, Big4 + \alpha_{11}\, Log\ Total\ Assets + \alpha_{12}\, Leverage + \alpha_{13}\, ROA + \varepsilon_{it} \end{aligned} \tag{6}$$

where the dependent variable EM represents both the AEM and REM activities. The primary independent variables of interest are various dimensions of audit committee busyness: average AC directorships, % AC 2plus directorships, average AC positions, and AC chair directorships. We also include several other audit committee characteristics such as dummies for audit committee size, independence, and meeting frequency; a measure of accounting expertise; and the proportion of firm equity held by audit committee members. In addition, we include other control variables such as the audit fee, the percentage of independent directors, the presence of a Big 4 auditor, log of total assets, leverage, return on assets, and loss. Table 2 contains definitions of all our variables.

4. Empirical analysis

4.1. Description of data

Table 3 contains descriptive statistics for all variables. The mean absolute value of AEM for the sample is 0.04. This value is consistent with the US-based studies of Ghosh et al. (2010) and Doyle et al. (2007), which document mean values of 0.05 and 0.07, respectively. The mean value of REM stands at 0.27, which also appears to be in line with prior work (Ding et al., 2018). The average number of other directorships held by audit committee members is 0.67. However, this variable ranges from audit committees whose members hold no other directorships to audit committees whose members hold an average of three other board seats. 16.83 percent of audit committee members hold two or more additional board seats. The average number of other directorships linked to other audit committee seats is 0.36, with a range of between 0 and 2. The average number of other directorships held by audit committee chairs is 0.97, with a range of between 0 and 5.

In terms of other audit committee characteristics, audit committee members in our sample own, on average, 0.25 percent of their firm's equity, ranging from no ownership to a maximum ownership of 39.17 percent.[7] In relation to the current disclosure variables, 92 percent of audit committees have at least three members; in 88 percent of audit committees, all members are non-executive directors, while 95 percent of audit committees meet at least three times per year.[8] Just over 35 percent of audit committee members have accounting expertise. These figures show widespread compliance with the best practice recommendations from successive UK Corporate Governance Codes.[9] We find that 51.35 percent of board members are independent non-executive directors, while 96 percent of all audits are undertaken by a Big 4 audit firm. Of the remaining variables, com-

[7] The UK Corporate Governance Code regards significant shareholding as a factor impairing the independence of non-executive directors.

[8] The UK Corporate Governance Code recommends that audit committees be fully independent. The UK's comply-or-explain approach to corporate governance offers companies flexibility: they can either comply with the recommendations of the corporate governance codes or explain their non-compliance. This approach leads to less formal enforcement in the UK, effectively delegating monitoring to investors, market participants, and public opinion.

[9] The audit committees in our sample have an average of 3.33 members, and their size ranges from a minimum of 2 to a maximum of 8 members. On average, 94.73 percent of audit committee members are independent non-executives. Audit committees in our sample meet, on average, 3.86 times per year, with a median of 4 meetings. The number of meetings ranges from a minimum of 1 to a maximum of 12. On average, 78.18 percent of audit committee members are financial experts.

Table 2
Variable definitions.

Earnings Management (AEM)	A measure of earnings management that uses discretionary accruals calculated with the Francis et al. (2005) model
Earnings Management (REM)	A measure of earnings management that uses real earnings management activities calculated with the Roychowdhury (2006) model[1]
AC Average Directorships	The average number of additional directorships held by audit committee members
% AC 2plus Directorships	The percentage of audit committee members with at least two additional directorships
Average AC Positions	The average number of additional audit committee positions held by audit committee members
AC Chair Directorships	The number of additional directorships held by the audit committee chair
AC Size Dummy	Dummy variable (=1 if there are 3 or more members on audit the committee; =0 otherwise)
AC Independence Dummy	Dummy variable (=1 if all members of audit committee are independent non-executive directors; =0 otherwise)
AC Meetings Dummy	Dummy variable (=1 if the number of audit committee meetings is 3 or more; =0 otherwise)
AC % Accounting Expertise	The percentage of audit committee members who are accounting experts[2]
Log AC Tenure	Log of the total tenure of audit committee members
% AC Share Ownership	The percentage of company share ownership held by audit committee members
Log Audit Fee	Log of the audit fee
% Independent Directors	The percentage of the board represented by independent non-executive directors
Big 4	Dummy variable (=1 if audited by PricewaterhouseCoopers, KPMG, Deloitte and Touche, or Ernst & Young; =0 otherwise)
Log Total Assets	Log of total assets
Leverage	Debt to equity ratio (Long term debt divided by total assets)
ROA	Return on assets (Pre-tax profit divided by total assets)
Loss	Dummy variable (=1 if the firm incurred a financial loss in the last financial year; =0 otherwise)

1. Following Cohen and Zarowin (2010), we utilize sales manipulation and abnormal discretionary expenses as a measure of real earnings management and do not include the abnormal production cost for the following two reasons. First, the measurement of this variable requires a firm's inventory data, and a large number of firms in our sample lack inventory data. These are firms primarily operating in the Services (20.08) and Travel & leisure (15.11) sectors, and these two sectors represent over 35 percent of our total sample. Secondly, in Roychowdhury (2006), it appears that the same activities that lead to abnormally high production costs also lead to abnormally low CFO; thus, adding these two amounts leads to double counting. This problem is also highlighted by Cohen and Zarowin (2010), Zang (2012), and Cheng et al. (2016). Following these studies, we avoid including abnormal production cost in our overall measure of REM.
2. An audit committee member is deemed as an accounting expert if the member is a certified public accountant, auditor, chief financial officer, financial controller, or accounting officer.

Table 3
Descriptive statistics for the firm characteristics and univariate comparisons among FTSE100 and FTSE250 firms.

Variables	Mean	Median	St. dev.	Minimum	Maximum	Mean		Median	
						FTSE100 (n = 406)	FTSE250 (n = 719)	FTSE100 (n = 406)	FTSE250 (n = 719)
Earnings Management (AEM)	0.04	0.03	0.04	0.00	0.27	0.04	0.04	0.03	0.03
Earnings Management (REM)	0.29	0.19	0.39	0.00	4.74	0.25	0.32***	0.17	0.21**
AC Average Directorships	0.67	0.67	0.54	0.00	3.00	0.65	0.68	0.67	0.67
% AC 2plus Directorships	16.83	0.00	21.71	0.00	100.00	15.56	17.55	0.00	0.00
Average AC Positions	0.36	0.25	0.40	0.00	2.00	0.31	0.39***	0.25	0.33***
AC Chair Directorships	0.97	1.00	1.03	0.00	5.00	0.96	0.98	1.00	1.00
AC Size Dummy	0.92	1.00	0.27	0.00	1.00	0.97***	0.89	1.00	1.00
AC Independence Dummy	0.88	1.00	0.32	0.00	1.00	0.95***	0.85	1.00	1.00
AC Meetings Dummy	0.95	1.00	0.23	0.00	1.00	0.99***	0.92	1.00	1.00
AC % Accounting Expertise	35.02	33.33	21.00	0.00	100.00	33.30	35.98**	33.33	33.33
Log AC Tenure	2.19	2.22	0.26	0.60	2.88	2.23***	2.16	2.24**	2.20
% Share Ownership	0.25	0.01	2.35	0.00	39.17	0.07	0.35**	0.00	0.02***
Log Audit Fee	5.86	5.82	0.54	4.53	7.67	6.28***	5.62	6.26***	5.60
% Independent Directors	51.35	50.00	12.71	0.00	92.00	57.00***	48.16	55.56***	50.00
Big 4	0.96	1.00	0.20	0.00	1.00	0.98	0.95	1.00	1.00
Log Total Assets	9.12	9.05	0.67	7.49	11.43	9.65***	8.82	9.53***	8.77
Leverage	19.10	17.27	16.43	0.00	80.67	19.82	18.69	18.89***	15.31
ROA	9.65	8.36	10.88	−83.57	118.56	8.80	10.13**	8.02	8.58
Loss	0.08	0.00	0.28	0.00	1.00	0.09	0.08	0.00	0.00

Notes: Comparisons use the parametric *t*-test (means) and the non-parametric Wilcoxon test (medians). The t values are highlighted. ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Variable definitions are in Table 2.

panies in our sample have leverage levels of 19.1 percent on average. They generate an average ROA of 9.65 percent, and 8 percent of our sample companies incur financial losses.

Since one of our research objectives is to compare the impact of audit committee busyness on earnings management for FTSE100 and FTSE250 firms, Table 3 also includes univariate comparisons between these two sub-samples. Our earnings management comparisons highlight a significant difference, with FTSE250 companies exhibiting greater REM than FTSE100 companies. There is no such difference in the case of AEM. In terms of our busyness variables, audit committee members in FTSE250 companies hold more outside audit committee positions than their FTSE100 counterparts. In terms of other audit committee characteristics, a greater proportion of FTSE100 companies satisfy current minimum recommendations with respect to audit committee size, independence, and meeting frequency. FTSE250 companies have a higher proportion of accounting expertise on their audit committees, but their members have shorter tenure than those of FTSE100 firms. Similarly, the proportion of independent non-executive directors on the main board is significantly higher for FTSE100 companies. Overall, this evidence paints the following picture: FTSE100 companies have more independent boards, are more likely to satisfy audit committee recommendations, and have members with longer tenure. In contrast, FTSE250 companies have audit committee members with more audit committee positions and a higher level of accounting expertise.

4.2. Regression analysis

In designing our empirical tests, we follow most existing studies in utilizing ordinary least squares (OLS) regressions. However, since many firms appear in our sample up to seven times (i.e., between 2007 and 2013 inclusive), we are conscious of what Petersen (2009) describes as the "unobserved firm effect," whereby the residuals of a given firm may be correlated across years and result in biased standard errors that underestimate the true standard errors. To overcome this, we follow Petersen (2009) advice and use clustered standard errors. Specifically, in all regressions we cluster at the firm level, which results in 237 clusters each representing an individual firm. Of course, time effects are also possible, but as Petersen (2009) and Kezdi (2004) point out, clustered standard errors are unlikely to be appropriate when the number of clusters is relatively small (seven years in this case). Instead, as Petersen (2009) suggests, in addition to clustering by firm, we also use time dummies in all our regressions to control for time effects. In all regressions, we include the three dummy variables representing the recommended best practices on audit committee composition in the UK (i.e., size, meetings, and independence), as well as the proportion of accounting experts. We also include the overall tenure and ownership of audit committee members. In all regressions, we also include the log of the audit fee, the log of total assets, and measures of leverage and financial performance. Since existing research has highlighted the importance of controlling for industry when analyzing earnings quality, we do so in all the regressions.

Table 4 Panels A and B present the results of OLS regressions where the dependent variable is our measure of AEM in Table 4 Panel A and our measure of REM in Table 4 Panel B. In regression (1) of Table 4 Panels A and B, the average number of additional directorships held by audit committee members has a positive and statistically significant impact on the extent of earnings management. In regression (2), we substitute the average number of additional directorships with a variable representing the proportion of audit committee members with two or more additional directorships. Similar to our findings in regression (1), the proportion of audit committee members holding two or more additional directorships exerts a positive and statistically significant impact on both forms of earnings management. In regression (3), we examine separately the impact of directorships held by audit committee members involving audit committee positions. The findings in both instances show that this variable exerts a positive and statistically significant impact on earnings management, although the strength of the impact is stronger in the case of the REM regression. Finally, in regression (4) we regress separately the additional directorships held by audit committee chairs. For both our measures of earnings management, this variable has a positive and statistically significant impact, although the statistical significance of the impact is much stronger in the case of AEM. Taken together, this evidence supports the view that audit committees with busier audit committee members may not adequately monitor the extent of earnings management in their companies. The findings provide strong evidence that the holding of additional directorships by audit committee members has a positive impact on the use of earnings management and hence a negative influence on earnings quality. Thus, H1 is rejected.

In terms of the impact of other audit committee variables, we find some differences between the two measures of earnings management. With respect to AEM, we find consistent evidence across all four regressions that totally independent audit committees and a minimum number of audit committee meetings have a negative impact on the levels of earnings management. We also find that the ownership levels of audit committee members have a negative impact on AEM. In contrast, none of these audit committee characteristics have a statistically significant impact on the levels of REM. This is interesting in that it suggests that recommended best practices regarding audit committee independence and meeting frequency, as well as the potential incentivizing impact of audit committee share ownership, appear to impact AEM but not REM. Also note that the proportion of accounting expertise on the audit committee seems to have no impact on either form of earnings management.

Next, we turn our attention to the remaining control variables. In the accruals regressions, we find that financial loss has a negative impact. This finding suggests that loss-making firms are less likely to utilize AEM, possibly due to the additional scrutiny loss-making companies are subject to. In the REM regressions, several our control variables have a positive impact. The level of audit fee has a positive impact, suggesting that more extensive audits may be associated with greater use of REM. This is interesting since it may suggest that more intensive audits encourage firms to focus on REM rather than AEM because

Table 4
The impact of audit committee busyness.

Panel A, OLS regressions showing the impact of audit committee busyness on Discretionary Accruals Earnings Management

Variables	Regression (1)		Regression (2)		Regression (3)		Regression (4)	
	Coefficient	T Value	Coefficient	T Value	Coefficient	T Value	Coefficient	T Value
AC Average Directorships	0.0090	2.98***						
% AC 2plus Directorships			0.0002	2.81***				
Average AC Positions					0.0078	2.10**		
AC Chair Directorships							0.0026	1.93**
AC Size Dummy	0.0049	1.00	0.0057	1.16	0.0055	1.09	0.0045	0.90
AC Independence Dummy	-0.0113	−2.35***	-0.0106	−2.21**	-0.0115	−2.35***	-0.0109	−2.23**
AC Meetings Dummy	-0.0141	−2.10**	-0.0145	−2.13**	-0.0137	−2.02**	-0.0132	−1.94**
AC % Accounting Expertise	0.0001	0.85	0.0001	0.96	0.0001	1.06	0.0001	1.25
Log AC Tenure	0.0040	0.72	0.0033	0.59	0.0028	0.51	0.0025	0.46
% AC Share Ownership	-0.0013	−4.28***	-0.0013	−4.44***	-0.0013	−4.36***	-0.0012	−4.07***
Log Audit Fee	0.0047	1.14	0.0052	1.26	0.0049	1.19	0.0049	1.17
% Independent Directors	-0.0002	−1.74*	-0.0002	−1.60	-0.0002	−1.57	-0.0002	−1.53
Big 4	-0.0083	−1.15	-0.0077	−1.05	-0.0066	−0.89	-0.0063	−0.86
Log Total Assets	-0.0063	−1.56	-0.0065	−1.61	-0.0058	−1.45	-0.0061	−1.50
Leverage	0.0000	0.23	-0.0000	−0.05	-0.0000	0.00	0.0000	0.01
Loss	-0.0103	−2.77***	-0.0107	−2.88***	-0.0111	−2.93***	-0.0100	−2.69***
Industry Dummy	Included		Included		Included		Included	
Year Dummy	Included		Included		Included		Included	
Constant	0.1020	4.74***	0.1030	4.76***	0.0993	4.62***	0.0993	4.62***
F Test	7.80***		7.68***		7.67***		7.75***	
(Adjusted) R2	0.15		0.15		0.15		0.15	

Panel B OLS regressions showing the impact of audit committee busyness on Real Earnings Management

Variables	Regression (1)		Regression (2)		Regression (3)		Regression (4)	
	Coefficient	T Value	Coefficient	T Value	Coefficient	T Value	Coefficient	T Value
AC Average Directorships	0.0541	2.83***						
% AC 2plus Directorships			0.0011	2.77***				
Average AC Positions					0.0549	2.61***		
AC Chair Directorships							0.0221	1.71*
AC Size Dummy	0.0512	1.75*	0.0549	1.89**	0.0470	1.61	0.0503	1.76*
AC Independence Dummy	-0.0051	−0.11	-0.0002	−0.00	-0.0073	−0.15	-0.0013	−0.03
AC Meetings Dummy	-0.0950	−1.52	-0.0967	−1.54	-0.1051	−1.61	-0.0970	−1.54
AC % Accounting Expertise	0.0004	0.78	0.0005	0.88	0.0004	0.74	0.0004	0.85
Log AC Tenure	0.0179	0.49	0.0126	0.35	0.0206	0.55	-0.0043	−0.12
% AC Share Ownership	-0.0033	−0.98	-0.0035	−1.03	-0.0036	−1.04	-0.0027	−0.82
Log Audit Fee	0.0765	2.36***	0.0795	2.45***	0.0750	2.29**	0.0760	2.40***
% Independent Directors	-0.0008	−0.80	-0.0008	−0.80	-0.0008	−0.79	-0.0008	−0.74
Big 4	0.0929	2.70***	0.0974	2.88***	0.1218	3.95***	0.1033	3.01***
Log Total Assets	-0.0910	−3.00***	-0.0907	−2.99***	-0.0873	−2.81***	-0.0849	−2.88***
Leverage	-0.0015	−2.51***	-0.0016	−2.68***	-0.0013	−2.23**	-0.0016	−2.77***
ROA	0.0026	2.38***	0.0027	2.42***	0.0032	2.70***	0.0027	2.38***
Industry Dummy	Included		Included		Included		Included	
Year Dummy	Included		Included		Included		Included	
Constant	0.4945	3.13***	0.4923	3.12***	0.4493	2.80***	0.4948	3.13***
F Test	12.34***		12.13***		12.32***		12.39***	
(Adjusted) R2	0.37		0.37		0.37		0.37	

Notes: T statistics and coefficients are reported for each regression model. ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Definitions of variables are given in Table 2.

REM may be more difficult for external auditors to detect. We also find that the use of Big 4 auditors is associated with greater use of REM, which again suggests that firms may seek to avoid auditor scrutiny by focusing on REM rather than AEM in the presence of the higher-quality auditing expected of Big 4 auditors. Company performance as measured by ROA has a positive impact on REM, while both company size and leverage have a negative impact.

As mentioned in section 3.1 above, we deliberately focus on a time period (i.e., 2007–2013) that straddles the most recent financial crisis and the years immediately afterwards. We do so to facilitate a crisis–post-crisis comparison. We therefore segregate our sample between the crisis period (2007–2009) and the post-crisis period (2011–2013), and we present the results of this comparison in Table 5. We then undertake a separate analysis of the impact of audit committee member busyness on earnings management in both the crisis and the post-crisis periods (Table 6 Panels A and B). The levels of both AEM and REM are significantly lower in the post-crisis period, with a particularly pronounced reduction in the levels of REM. The univariate comparisons in Table 5 illustrate some significant changes in the post-crisis period. In general, audit committee

Table 5
Univariate comparison of audit committee and other characteristics for the Crisis (2007–2009) and Post-Crisis (2011–2013) periods.

Variables	Crisis (518)	Post Crisis (434)	Crisis (518)	Post Crisis (434)
	Mean	Mean	Median	Median
Earnings Management (AEM)	0.05***	0.04	0.03***	0.02
Earnings Management (REM)	0.34***	0.23	0.21***	0.16
AC Average Directorships	0.72***	0.59	0.67*	0.50
% AC 2plus Directorships	18.50***	14.07	0.00***	0.00
Average AC Positions	0.34	0.35	0.25	0.25
AC Chair Directorships	1.04**	0.88	1.00	1.00
AC Size Dummy	0.88	0.96***	1.00	1.00
AC Independence Dummy	0.83	0.96***	1.00	1.00
AC Meetings Dummy	0.93	0.97**	1.00	1.00
AC % Accounting Expertise	35.69*	33.39	33.33	33.33
Log AC Tenure	2.17	2.20	2.20	2.23
% AC Share Ownership	0.31	0.15	0.02***	0.01
Log Audit Fee	5.80	5.95***	5.78	5.87***
% Independent Directors	47.16	57.03***	50.00	57.14***
Big 4	0.95	0.97	1.00	1.00
Log Total Assets	8.99	9.31***	8.91	9.23***
Leverage	20.49**	18.06	17.93	17.39
ROA	9.69	9.52	8.32	8.52
Loss	0.06	0.09	0.00	0.00

Notes: Comparisons use the parametric *t*-test (means) and the non-parametric Wilcoxon test (medians). T values are highlighted. ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Definitions of variables are given in Table 2.

members hold significantly more other directorships in the crisis period: Four out of the five measures of audit committee busyness are statistically greater in the crisis period.[10] The one exception is the number of additional audit committee positions held, which does not differ over the two periods. In the other variables, noticeable differences occur around the aspects of audit committees that are part of recommended best practice. The minimum size, full independence, and minimum meeting recommendations all show higher levels of adherence in the post-crisis period.

Table 6 Panels A and B present the results of OLS regressions investigating the impact of audit committee busyness on AEM and REM, respectively, for the crisis and post-crisis periods. For the crisis period (2007–2009), the regressions in Table 6 show that the average number of additional directorships held by audit committee members has a positive and statistically significant impact on the levels of both AEM and REM during the financial crisis. However, in the post-crisis period, the statistical significance declines in the case of AEM and disappears in the case of REM. This suggests that the negative impact of audit committee busyness is largely concentrated in the crisis period. When we investigate the impact of two or more additional directorships, we find that it is positive and statistically significant in the crisis and post-crisis periods in the case of AEM but is not statistically significant in the case of REM after the crisis. Table 6 shows that the holding of additional audit committee positions has a positive impact on AEM only in the post-crisis period, and it does not impact REM in either of the two time periods. Finally, when we focus on the impact of additional directorships held by the audit committee chair, we find that the chair's holding of additional directorships has an impact on AEM only in the post-crisis period; the opposite is true for REM, which has an impact only in the crisis period.

The findings in Table 6 illustrate important differences in the impact of our range of audit committee busyness variables during and after the financial crisis. They also highlight differences in impact between the two types of earnings management. The differences identified in the regressions in Table 6 should also be considered in the context of the descriptive statistics in Table 5. Table 5 shows overall reductions in the levels of both types of earnings management after the financial crisis. It also shows post-crisis reductions in the busyness of audit committee members generally, as well as reductions in the holding of two or more additional directorships by audit committee members.

The findings on our audit committee variables also need to be viewed in the context of Table 5, which shows increased levels of compliance with UK corporate governance recommendations regarding size, independence, and meeting frequency. The regression results presented in Table 6 Panel A show the consistent and negative impact of both audit committee independence and share ownership across both time periods. In Table 6 Panel B, audit committee size compliance has a positive impact on the use of REM during the crisis, but this effect disappears in the post-crisis period. Similarly, the negative impact of share ownership is present only in the crisis period. In terms of the control variables, higher audit fees have a positive impact on AEM, but only in the crisis period. The negative impact of company size is also statistically significant only in the crisis period. The negative impact of loss is consistently negative and statistically significant throughout the study period. In the REM regressions, the impacts of the control variables are sensitive to the periods with the presence of Big 4 auditors. ROA has a positive impact in the crisis period only, and the negative impact of company size and leverage are also statistically significant only in the crisis period.

[10] The UK corporate Governance Code (2010) requires non-executive directors to disclose their other significant time commitments at the time of appointment. This may have had some impact on audit committee members' holding of additional directorships.

Table 6
The impact of audit committee busyness during the Crisis (2007–2009) and Post-Crisis (2011–2013) periods.

Panel A OLS regressions showing the impact of audit committee busyness on Discretionary Accruals Earnings Management during the Crisis (2007–2009) and Post-Crisis (2011–2013) periods

Variables	Regression (1)		Regression (2)		Regression (3)		Regression 4	
	Crisis	Post Crisis	Crisis	Post Crisis	Crisis	Post Crisis	Crisis	Post Crisis
AC Average Directorships	0.0096	0.0078						
	2.21**	1.81*						
% AC 2plus Directorships			0.0002	0.0002				
			1.96**	2.18**				
Average AC Positions					0.0015	0.0125		
					0.31	2.12**		
AC Chair Directorships							0.0012	0.0044
							0.61	2.11**
AC Size Dummy	0.0058	0.0044	0.0061	0.0050	0.0048	0.0048	0.0044	0.0057
	0.89	0.62	0.93	0.72	0.70	0.68	0.64	0.84
AC Independence Dummy	-0.0123	-0.0323	-0.0119	-0.0304	-0.0138	-0.0316	-0.0121	-0.0320
	−1.94**	−2.51***	−1.90*	−2.40**	−2.15**	−2.43**	−1.89*	−2.37**
AC Meetings Dummy	-0.0199	-0.0128	-0.0199	-0.0141	-0.0147	-0.0127	-0.0189	-0.0141
	−2.02**	−1.10	−2.02**	−1.21	−1.59	−1.09	−1.89*	−1.22
AC % Accounting Expertise	0.0000	0.0002	0.0000	0.0002	0.0001	0.0002	0.0000	0.0002
	0.08	1.64	0.02	1.77*	0.70	1.67*	0.32	1.70*
Log AC Tenure	-0.0016	0.0126	-0.0022	0.0127	-0.0058	0.0130	-0.0029	0.0118
	−0.18	1.61	−0.25	1.60	−0.67	1.67*	−0.33	1.51
% AC Share Ownership	-0.0013	-0.0038	-0.0013	-0.0038	-0.0013	-0.0037	-0.0013	-0.0039
	−2.81***	−2.66***	−2.89***	−2.69***	−2.71***	−2.60***	−2.60***	−2.59***
Log Audit Fee	0.0180	-0.0008	0.183	-0.0002	0.0174	0.0011	0.0184	-0.0001
	2.98***	−0.13	2.99***	−0.03	2.83***	−0.19	3.01***	−0.02
% Independent Directors	-0.0001	-0.0003	-0.0001	-0.0003	0.0000	-0.0003	0.0000	-0.0003
	−0.29	−1.81*	0.19	−1.88*	0.06	−1.89*	0.10	−2.02**
Big 4	-0.0087	-0.0163	-0.0079	-0.0159	-0.0081	-0.0204	-0.0053	-0.0161
	−0.93	−1.08	−0.84	−1.05	−0.81	−1.15	−0.56	−1.07
Log Total Assets	-0.0182	-0.0026	-0.0181	-0.0030	-0.0157	-0.0018	-0.0174	-0.0033
	−3.15***	−0.45	−3.12***	−0.51	−2.66***	−0.31	−3.08***	−0.57
Leverage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.00	0.17	0.11	0.04	0.23	0.03	0.16	0.01
Loss	-0.0143	-0.0181	-0.0151	-0.0183	-0.0143	-0.0175	-0.0146	-0.0177
	−2.47***	−3.88***	−2.59***	−3.92***	−2.49***	−3.66***	−2.51***	−3.83***
Industry Dummy	Included		Included		Included		Included	
Year Dummy	Included		Included		Included		Included	
Constant	0.1567	0.0967	0.1567	0.0971	0.1453	0.0939	0.1525	0.1020
	5.09***	2.91***	5.05***	2.90***	4.57***	2.77***	4.94***	3.04***
F Test	4.83***	5.24***	4.79***	5.15***	4.99***	4.82***	4.85***	5.05***
(Adjusted) R2	0.19	0.20	0.19	0.20	0.18	0.20	0.18	0.20

Panel B OLS regressions showing the impact of audit committee busyness on Real Earnings Management during the Crisis (2007–2009) and Post-Crisis (2011–2013) periods

Variables	Regression (1)		Regression (2)		Regression (3)		Regression (4)	
	Crisis	Post Crisis	Crisis	Post Crisis	Crisis	Post Crisis	Crisis	Post Crisis
AC Average Directorships	0.0625	-0.0089						
	2.33**	−0.41						
% AC 2plus Directorships			0.0013	-0.0005				
			2.25**	−0.96				
Average AC Positions					0.0408	0.0049		
					1.39	0.18		
AC Chair Directorships							0.0387	-0.0072
							1.99**	−0.68
AC Size Dummy	0.0811	0.0498	0.0830	0.0536	0.0844	0.0448	0.0694	0.0516
	2.24**	1.17	2.32**	1.32	2.25**	1.08	1.96**	1.27
AC Independence Dummy	0.0209	0.0295	0.0327	0.0269	0.0335	0.0219	0.0291	0.0279
	0.45	0.91	0.51	0.83	0.50	0.64	0.45	0.85
AC Meetings Dummy	-0.0660	-0.0097	-0.0679	-0.0079	-0.0797	-0.0129	-0.0654	-0.0075
	−0.78	−0.23	−0.80	−0.19	−0.88	−0.32	−0.73	0.18
AC % Accounting Expertise	0.0010	-0.0007	0.0010	-0.0007	0.0010	-0.0008	0.0012	-0.0008
	1.49	−0.96	1.64	−0.99	1.59	−1.04	1.87*	−1.08
Log AC Tenure	0.0501	-0.0323	0.0470	-0.0331	0.0591	-0.0379	0.0407	-0.0333
	1.21	−0.64	1.13	−0.66	1.42	−0.75	1.01	−0.66
% AC Share Ownership	-0.0040	-0.0046	-0.0041	-0.0047	-0.0047	-0.0045	-0.0026	-0.0046

Table 6 (*continued*)

Panel B OLS regressions showing the impact of audit committee busyness on Real Earnings Management during the Crisis (2007–2009) and Post-Crisis (2011–2013) periods

Variables	Regression (1)		Regression (2)		Regression (3)		Regression (4)	
	Crisis	Post Crisis	Crisis	Post Crisis	Crisis	Post Crisis	Crisis	Post Crisis
	−2.06**	−1.13	−2.13**	−1.14	−2.37**	−1.07	−1.27	−1.12
Log Audit Fee	0.0567	0.0760	0.0589	0.0765	0.0626	0.0757	0.0490	0.0764
	1.28	1.81*	1.33	1.84*	1.39	1.78*	1.14	1.82*
% Independent Directors	-0.0010	0.0000	-0.0009	0.0001	-0.0012	0.0000	-0.0066	0.0000
	−0.57	0.02	−0.52	0.10	−0.69	0.04	−0.38	0.09
Big 4	0.0852	0.0615	0.0910	0.0610	0.0972	0.1098	0.0913	0.0614
	2.03**	0.86	2.22**	0.85	2.34**	1.88*	2.17**	0.86
Log Total Assets	-0.1165	-0.0692	-0.1152	-0.0705	-0.1203	-0.0687	-0.1041	-0.0687
	−2.52***	−1.78*	−2.50***	−1.84*	−2.54***	−1.74*	−2.40**	−1.77*
Leverage	-0.0015	-0.0010	-0.0016	-0.0010	-0.0014	-0.0007	-0.0016	-0.0010
	−2.04**	−1.05	−2.18**	−1.03	−1.80*	−0.74	−2.23**	−1.07
ROA	0.0041	0.0015	0.0042	0.0015	0.0043	0.0023	0.0043	0.0015
	2.51***	0.98	2.56***	0.97	2.57***	1.45	2.56***	0.97
Industry Dummy	Included		Included		Included		Included	
Year Dummy	Included		Included		Included		Included	
Constant	0.6193	0.3856	0.6067	0.3885	0.6284	0.3369	0.5502	0.3783
	2.35**	1.75*	2.33**	1.77*	2.36**	1.48	2.19**	1.71*
F Test	15.56***	4.62***	15.71***	4.63***	15.32***	4.62***	15.12***	4.74***
(Adjusted) R2	0.60	0.21	0.60	0.22	0.61	0.21	0.61	0.22

Notes: T statistics and coefficients are reported for each regression model. ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Definitions of variables are given in Table 2.

To test our final hypothesis, we undertake a separate regression analysis to investigate whether the busyness of audit committee members has a differential impact on earnings management depending on whether their firms are FTSE100 or FTSE250 firms. We present the AEM regression results in Table 7 Panel A and the REM regression results in Table 7 Panel B. For the FTSE100 firms, none of our additional directorship variables influence the extent of AEM or REM earnings management. In the FTSE250 regressions, all the additional directorship variables exert a positive and statistically significant influence on both the AEM and REM regressions. This evidence suggests that when audit committee members of FTSE250 companies hold additional directorships, it has a detrimental impact on their ability to effectively monitor earnings management in their firms. The positive impact of busyness on earnings management in the case of FTSE250 firms also applies to audit committee chairs as well as to the holding of additional audit committee positions. The regressions also illustrate that the negative impact of audit committee member ownership on AEM, which we detected earlier, is confined to FTSE250 firms. Taken together, the findings presented in Table 7 are consistent with H3 in that there is less sensitivity between audit committee busyness and earnings management in FTSE100 companies than in FTSE250 companies.

4.3. Discussion of results

Our first hypothesis focused on the impact of audit committee busyness on earnings management in general and was motivated by several existing studies that seemed to provide conflicting evidence, with the only previous UK-based study failing to find a significant impact either way. Our findings provide very strong and broadly consistent evidence that audit committee member busyness does have a negative impact on earnings quality, and this applies equally to both AEM and REM. Furthermore, our research approach allows us to test the impact of a range of busyness measures. Regardless of the measure used, our findings are consistent. Therefore, in the context of UK-listed firms at least, the holding of additional directorships by audit committee members does impair audit committee effectiveness. This highlights the importance of not generalizing results across different jurisdictions and governance environments, as our findings differ from those of several US and Australian studies.

Our study then investigates the relationship between audit committee busyness and earnings management during and after the global financial crisis. This analysis reveals that the impact of audit committee busyness on AEM differs between our different measures of busyness during and after the financial crisis. Specifically, while the average number of additional directorships held does have a positive impact during the crisis and afterwards, the impact is less statistically significant after the crisis. However, for the remaining three measures of busyness, the statistical significance of the positive impact on earnings management is stronger in the post-crisis regressions. In the case of REM, while all four measures of audit committee busyness exert a positive and statistically significant impact on the level of earnings management during the crisis, none of the variables are statistically significant in the post-crisis regressions. This is an interesting finding since it suggests that post-crisis, audit committees have been more effective in monitoring the impact of multiple directorships on REM but less successful in monitoring its impact on AEM. One potential explanation is the significant reduction in the use of REM

Table 7
The impact of audit committee busyness for FTSE100 and FTSE250 companies.

Panel A OLS regressions showing the impact of audit committee busyness on Discretionary Accruals Earnings Management for FTSE100 and FTSE250 companies

Variables	Regression (1)		Regression (2)		Regression (3)		Regression (4)	
	FTSE100	FTSE250	FTSE100	FTSE250	FTSE100	FTSE250	FTSE100	FTSE250
AC Average Directorships	0.0010	0.0119						
	0.19	3.26***						
% AC 2plus Directorships			0.0001	0.0002				
			0.69	2.74***				
Average AC Positions					-0.0015	0.0090		
					−0.22	2.15**		
AC Chair Directorships							0.0009	0.0035
							0.39	1.98**
AC Size Dummy	-0.0040	0.0032	-0.0030	0.0039	-0.0071	0.0026	-0.0040	0.0025
	−0.26	0.61	−0.20	0.75	−0.42	0.48	−0.26	0.47
AC Independence Dummy	-0.0015	-0.0158	-0.0013	-0.0150	-0.0015	-0.0162	-0.0005	-0.0159
	−0.17	−2.92***	−0.14	−2.78***	−0.17	−2.90***	−0.05	−2.86***
AC Meetings Dummy	-0.0241	-0.0146	-0.0246	-0.0149	-0.0223	-0.0122	-0.0138	-0.0151
	−1.11	−2.04**	−1.13	−2.07**	−1.01	−1.76*	−0.58	−2.11**
AC % Accounting Expertise	0.0001	0.0000	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001
	1.40	0.42	1.38	0.56	1.43	1.09	1.47	0.88
Log AC Tenure	0.0039	0.0068	0.0043	0.0050	0.0015	0.0045	0.0040	0.0041
	0.53	0.86	0.58	0.64	0.20	0.57	0.53	0.54
% AC Share Ownership	-0.0004	-0.0014	-0.0003	-0.0014	-0.0002	-0.0013	-0.0001	-0.0014
	−0.30	−3.69***	−0.27	−3.76***	−0.18	−3.50***	−0.06	−3.59***
Log Audit Fee	0.0005	0.0119	0.0006	0.0128	-0.0016	0.0126	0.0001	0.0123
	0.07	2.14**	0.08	2.30**	−0.21	2.22**	0.02	2.18**
% Independent Directors	-0.0004	0.0000	-0.0004	0.0000	-0.0004	0.0000	-0.0004	0.0000
	−2.30**	0.36	−2.25**	0.11	−2.28**	0.13	−2.33**	0.14
Big 4	0.0063	-0.0097	0.0054	-0.0084	-0.0016	-0.0065	0.0062	-0.0066
	0.30	−1.31	0.26	−1.12	−0.06	−0.80	0.29	−0.89
Log Total Assets	-0.0088	-0.0027	-0.0088	-0.0035	-0.0063	-0.0025	-0.0081	-0.0033
	−1.15	−0.44	−1.15	−0.57	−0.82	−0.39	−1.04	−0.53
Leverage	-0.0001	0.0000	-0.0001	0.0000	-0.0001	0.0000	-0.0001	0.0000
	−0.58	0.03	−0.59	0.11	−0.65	0.19	−0.71	0.06
Loss	-0.0138	-0.0121	-0.0137	-0.0127	-0.0116	-0.0123	-0.0132	-0.0120
	−2.19**	−2.52***	−2.18**	−2.67***	−1.80*	−2.68***	−2.09**	−2.58***
Industry Dummy	Included		Included		Included		Included	
Year Dummy	Included		Included		Included		Included	
Constant	0.1673	0.0213	0.1656	0.0276	0.1728	0.0170	0.1521	0.0294
	3.37***	0.54	3.34***	0.68	3.32***	0.42	2.96***	0.73
F Test	5.69***	6.74***	5.14***	6.62***	5.90***	6.26***	6.71***	6.76***
(Adjusted) R2	0.13	0.20	0.13	0.19	0.13	0.19	0.13	0.19

Panel B OLS regressions showing the impact of audit committee busyness on Real Earnings Management for FTSE100 and FTSE250 companies

Variables	Regression (1)		Regression (2)		Regression (3)		Regression (4)	
	FTSE100	FTSE250	FTSE100	FTSE250	FTSE100	FTSE250	FTSE100	FTSE250
AC Average Directorships	0.0175	0.0757						
	0.68	2.90***						
% AC 2plus Directorships			0.0004	0.0015				
			0.74	2.87***				
Average AC Positions					0.0277	0.0693		
					077	2.66***		
AC Chair Directorships							0.0002	0.0302
							0.02	1.65*
AC Size Dummy	0.0852	0.0308	0.0890	0.0350	0.0829	0.0349	0.0867	0.0272
	2.41**	0.81	2.44**	0.93	2.32**	0.93	2.35**	0.73
AC Independence Dummy	0.0737	-0.0327	0.0749	-0.0257	0.0769	-0.0305	0.0724	-0.0300
	1.04	−0.53	1.05	−0.42	1.08	−0.49	1.00	−0.49
AC Meetings Dummy	0.0344	-0.1106	0.0361	-0.1147	0.0287	-0.1198	0.0690	-0.1162
	0.61	−1.62	0.65	−1.67*	0.54	−1.67*	1.12	−1.70*
AC % Accounting Expertise	-0.0006	0.0005	-0.0006	0.0006	-0.0007	0.0005	-0.0008	0.0008
	−0.97	0.69	−1.00	0.75	−1.12	0.66	−1.44	0.97
Log AC Tenure	-0.0377	0.0540	-0.0376	0.0428	-0.0274	0.0507	-0.0667	0.0385
	−0.60	1.16	−0.60	0.92	−0.43	1.05	−1.12	0.83

Table 7 (*continued*)

Panel B OLS regressions showing the impact of audit committee busyness on Real Earnings Management for FTSE100 and FTSE250 companies

Variables	Regression (1)		Regression (2)		Regression (3)		Regression (4)	
	FTSE100	FTSE250	FTSE100	FTSE250	FTSE100	FTSE250	FTSE100	FTSE250
% AC Share Ownership	0.0062	-0.0047	0.0061	-0.0048	0.0066	-0.0048	0.0069	-0.0043
	0.91	−1.26	0.88	−1.28	0.95	−1.26	0.97	−1.18
Log Audit Fee	0.0263	0.1290	0.0270	0.1344	0.0451	0.1235	0.0214	0.1286
	0.69	2.47***	0.71	2.56***	1.14	2.38**	0.59	2.54***
% Independent Directors	-0.0014	-0.0010	-0.0014	-0.0009	-0.0013	-0.0010	-0.0012	-0.0008
	−1.18	−0.60	−1.17	−0.57	−1.08	−0.65	−1.00	−0.47
Big 4	-0.0024	0.1301	-0.0030	0.1377	0.1103	0.1441	0.0001	0.1449
	−0.02	3.58***	−0.03	3.90***	1.84*	3.75***	0.00	3.97***
Log Total Assets	-0.0336	-0.0938	-0.0333	-0.0970	-0.0532	-0.0895	-0.0263	-0.0938
	−0.97	−1.89*	−0.96	−1.94*	−1.48	−1.79*	−0.79	−1.91*
Leverage	-0.0023	-0.0015	-0.0023	-0.0016	-0.0019	-0.0014	-0.0024	-0.0015
	−1.57	−1.89*	−1.57	−2.03**	−1.37	−1.82*	−1.66*	−1.98**
ROA	0.0051	0.0024	0.0051	0.0025	0.0060	0.0025	0.0051	0.0025
	2.85***	1.50	2.92***	1.51	3.12***	1.51	2.83***	1.52
Industry Dummy	Included		Included		Included		Included	
Year Dummy	Included		Included		Included		Included	
Constant	0.3565	0.1315	0.3481	0.1642	0.2660	0.1412	0.3635	0.1611
	1.50	0.40	1.46	0.50	1.18	0.42	1.53	0.49
F Test	6.10***	10.18***	6.16***	10.20***	6.05***	10.13***	6.55***	10.24***
(Adjusted) R2	0.33	0.41	0.33	0.40	0.34	0.41	0.35	0.40

Note: T statistics and coefficients are reported for each regression model. ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Definitions of variables are given in Table 2.

post-crisis. However, the observed difference may also be due to the difference between the two earnings management approaches. AEM represents accounting choices made at the end of the financial period, whereas REM is an earnings-manipulation strategy undertaken throughout the financial year. As Zang (2012) notes, REM is "a purposeful action to alter reported earnings in a particular direction, which is achieved by changing the timing and structure of an operation, investment and financing transactions" (p. 676). This difference may mean that REM is more easily detected by effective audit committees as it represents a more drawn-out manipulation, while AEM may be less noticeable and therefore more difficult to detect. In this context, the holding of additional directorships appears to further exacerbate the difficulty of detecting AEM.

The third part of our analysis examines whether the relationship between audit committee busyness and earnings management differs for FTSE100 versus FTSE250 firms. We expect that FTSE100 firms are both highly governed (as illustrated in the univariate comparisons in Table 3) and subject to extensive governance and financial scrutiny. Our findings confirm our hypothesis in that we find little or no sensitivity between audit committee members holding additional directorships and either form of earnings management in FTSE100 firms. In contrast, in the case of FTSE250 firms, we find that all our measures of audit committee busyness have a positive and statistically significant impact on both AEM and REM. These findings highlight the contrasting impacts of audit committee busyness on audit committee effectiveness in the largest versus the mid-tier of UK-listed firms. These findings also reinforce the emerging notion that not all listed firms utilize governance in the same way, and a greater variation of governance characteristics in smaller listed firms has implications for the effectiveness of their governance. It may also remind us that governance in smaller firms may not be exclusively about monitoring but may also involve issues of resource dependency. Smaller listed firms may not focus solely on monitoring managerial behavior; they may also prioritize the contacts and networks such directorships bring, expecting that these networks will benefit the companies in ways other than monitoring activities.

Our results raise an important issue in relation to the co-existence of AEM and REM in the UK. Our finding that audit committee busyness has a positive impact on both AEM and REM may seem inconsistent with existing evidence that portrays the two forms of EM as substitutes. However, some recent work has emphasized that firms often use AEM and REM simultaneously, and the nature of each type of earnings management facilitates this (Abernathy et al., 2014; Zang, 2012). Specifically, REM is a longer-term manipulation strategy whereby managers seek to manipulate the firm's real activities throughout the financial period rather than just focusing on the end-of-year financial information through AEM. Our findings are consistent with the notion that managers of firms whose audit committee members are busy take advantage of that busyness to embark on both REM and AEM. In this sense, we document UK evidence that REM and AEM serve as earnings management complements. Perhaps managers engage in AEM at the end of the financial year if REM did not quite achieve the desired degree of earnings management.

Our analysis leaves us with a relatively complex picture of the impact of audit committee busyness on both AEM and REM in UK-listed firms. First, we find that audit committee busyness has a positive impact on both types of earnings management. Next, our analysis reveals that the global financial crisis had a significant impact on the sensitivity of this relationship, and

we highlight a very strong relationship between busyness and earnings management in FTSE250 firms. An interesting question, therefore, is which of these two factors has the most important impact on the busyness–earnings management sensitivity. To understand this, we undertake the following untabulated analysis. First, we run separate regressions using the whole sample to ascertain the impact of the additional directorships held by FTSE100 audit committee members. In these regressions, our busyness variable is the average number of additional directorships held by audit committee members. We find that while additional directorships overall have a positive impact on AEM, those held by FTSE100 audit committees have a negative and significant impact. A similar analysis of REM again shows that the holding of additional directorships generally has a positive impact, but for FTSE100 firms, the impact is not statistically significant. These findings reassure us that our results are driven by the holding of additional directorships by audit committee members in FTSE250 firms.

We undertake a similar combined analysis for the crisis/post-crisis period. In these regressions we find that post-crisis busyness has a negative impact (10%) on AEM, while overall busyness has a significant and positive impact (1%). In the case of REM, we find that post-crisis busyness has a very significant and negative impact. These findings emphasize the importance of post-crisis busyness in reducing the levels of REM in sample companies. These findings also emphasize the importance of busyness in facilitating greater levels of earnings management during the financial crisis.

We also perform a difference-in-difference analysis in which we include interaction variables between the crisis and additional directorships as well as non-FTSE100 firms and additional directorships in the same regression, but with separate regressions for each of the two earnings management approaches. In these regressions, we focus on our first measure of audit committee busyness – the average number of additional directorships held by audit committee members – as our busyness measure. In the AEM regression, both the crisis and the FTSE250 interactive variables have a significant and positive impact. In the REM regression, however, only the crisis interactive variable is positive and statistically significant. This result suggests that the crisis period was driving the levels of REM.[11]

We believe our study makes a significant contribution to our understanding of how audit committee busyness impacts audit committee effectiveness. We also realize that, as with any study of the impact of corporate governance characteristics on firm behavior/outcomes, our findings may be influenced by issues of reverse causality. While we believe that it is appropriate to investigate the impact of audit committee busyness on earnings management, we fully appreciate the possibility that earnings management may also affect audit committee characteristics. In order to try and address this possibility we have sought to identify an appropriate instrumental variable in which to examine this issue but, despite testing a large number of potential variables, we failed to identify one that would be appropriate. In this sense we have looked very closely at the discussion of the potential challenges to identifying and applying appropriate instrumental variables presented in Atanasov and Black (2016). Specifically, we are unable to locate an instrumental variable that satisfies the relatively onerous requirements for selection identified by Atanasov and Black (2016). However, we do acknowledge that this is a limitation of our study.

5. Conclusions

Over the past two decades, major irregularities have raised concerns about the reliability and credibility of financial disclosures. These developments have encouraged regulators to seek ways of improving the integrity and quality of the financial reporting process. In response, audit committees have become a central element in attempts at reforming corporate governance in general and the quality of financial reporting in particular. One aspect of audit committees that has escaped much regulatory attention is the busyness of their members, specifically the extent to which they hold directorships in other companies and the potential for this to impact their effectiveness. This is important since busy audit committee members may be unable to adequately monitor the quality of financial disclosures made by their executive colleagues. This study examines this issue in the context of UK-listed companies. We investigate whether the holding of other board positions by audit committee members impacts the extent of earnings management using both AEM and REM. We further investigate whether the sensitivity of audit committee member busyness and the extent of earnings management changed in response the financial crisis and whether our results are different for FTSE100 versus FTSE250 firms.

Our findings provide consistent evidence that audit committee busyness does impact audit committee effectiveness: When audit committee members hold additional board positions, firms engage in more earnings management. This is the case regardless of how we measure audit committee busyness as well as whether we use AEM or REM measures. When we separate the financial crisis period and its aftermath, we find that audit committee busyness had a detrimental impact on earnings management during the financial crisis. However, even after the crisis, we find that audit committee busyness continues to facilitate greater levels of AEM. However, this is not the case for REM, as we find that the impact of busy audit committees no longer exists post-crisis. Finally, when we segregate our sample in terms of firm size, we find that the positive impact of audit committee busyness on earnings management is confined largely to FTSE250 rather than FTSE100 firms.

Our findings are important both from an academic and a public policy perspective. The finding of a positive impact of audit committee member busyness on earnings management adds significantly to our knowledge of the role of different audit committee attributes in financial reporting. It also broadens existing academic enquiry beyond investigations related to the four regulated aspects of audit committee composition. In addition, our study sheds light on the impact of audit com-

[11] All the untabulated results discussed here are available from the authors upon request.

mittee busyness on audit committee effectiveness in the under-researched context of UK firms. Our findings also extend existing work on non-executive busyness by focusing on the busyness of a specific board sub-committee and investigating its impact on the sub-committee's main responsibility, thereby linking busyness with a precise output. In terms of public policy, our study provides evidence on an aspect of audit committees that has not yet been the subject of governance recommendations. Our findings should alert policymakers to the potential impact of non-executives' busyness on their sub-committee effectiveness. Policymakers who devise future governance recommendations need to reflect on whether stronger guidance on non-executive busyness is warranted.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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