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# Economic bonding, corporate governance and earnings management: Evidence from UK publicly traded family firms

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This study examines whether auditor–client economic bonding and corporate governance moderate the adverse effects of principal–principal agency problems on earnings quality in U.K.-listed family firms. We find that although earnings management is lower in family firms, there is a higher tendency of earnings management for those firms with economic bonding. However, such an impact may be moderated by good governance mechanisms where the latter may alleviate the adverse effects of the lack of auditor independence on the association between earnings management and family firms.

## KEYWORDS

agency theory, audit committee, corporate governance, earnings management, independence, non-audit services

## 1 | INTRODUCTION

Despite recent corporate scandals on the quality of the financial reporting and the independence of auditors in publicly listed firms, family firms are viewed as being more ethical (e.g., Aronoff & Ward, 1995; O'Boyle, Rutherford, & Pollack, 2010), and having lower principal–agent conflicts of interest (e.g., Ali, Chen, & Radhakrishnan, 2007; Cascino, Pugliese, Mussolino, & Sansone, 2010; Chi, Hung, Cheng, & Lieu, 2015; Prencipe & Bar-Yosef, 2011) compared to nonfamily firms. However, they may still face principal–principal problems, which reflect the divergence between large controlling family members and small shareholders (Ali et al., 2007; Ho & Kang, 2013; Prencipe, Bar-Yosef, & Dekker, 2014). Anecdotal scandalous affairs in the case of Pescanova in Spain or Parmalat in Italy show that family firms may still engage in bad accounting practices and financial fraud to hide losses and debt. Family firms may thus opportunistically manipulate earnings for their private rents, and this is likely to happen if there is a lack of available and effective external audit. Similar to nonfamily firms, they may use their close association with their external auditors to engage in unethical behavior and manipulate their financial reports.

Prior research has primarily examined the association between family firms and earnings quality (e.g., Ali et al., 2007; Anderson, Martin, & Reeb, 2017; Bardhan, Lin, & Wu, 2015; Srinidhi, He, & Firth,

2014). However, researchers have devoted limited attention to the conditions where the entrenchment effect prevails over the interest-alignment effect in determining the earnings quality in family firms (Salvato & Moores, 2010). To fill this gap, we argue that the auditor–auditee economic interaction, that is, financial dependency, affects audit quality and the content and credibility of financial reporting (Holm & Laursen, 2007; Sahnoun & Zarai, 2009). Specifically, we explore the extent to which auditor–client economic bonding and the quality of corporate governance moderate the adverse effects of principal–principal agency problems on earnings quality in U.K.-listed family firms.

Family firms are characterized by ownership concentration, family control of management and directors' positions (Ali et al., 2007; Anderson & Reeb, 2003), longer executive tenure (Tsai, Hung, Kuo, & Kuo, 2006; Zellweger, 2007), longer-term relationships with their auditors (Khalil, Cohen, & Trompeter, 2011), and the purchase of more nonaudit services compared to nonfamily firms (Dobler, 2014). Moreover, auditors are considered the closest and most trusted external advisors for family firms (Dobler, 2014; Jaffe, Lane, Dashew, & Bork, 1997; Nicholson, Shepherd, & Woods, 2009). They play a crucial role in resolving the problems of family firms, and they get involved in many family issues such as successions, compensation and employment of family members, and other future strategic choices<sup>1</sup> (Jaffe et al., 1997). As such, auditors do not just provide “traditional ‘hard’

advisory services such as accountancy and law, but also 'soft' services from psychology and counseling backgrounds such as mediation and conflict resolution" (Nicholson et al., 2009, p. 2). These are likely to increase the familiarity between the two parties (CEO and external auditor) and lead to a stronger auditor–client economic bonding, which might jeopardize auditor objectivity and probably increase the likelihood of earnings management (Krishnan & Peytcheva, 2019). Prior studies show significant differences between family and nonfamily firms across many dimensions. According to Trotman and Trotman (2010), it is expected that these differences will result in a range of accounting variations between family and nonfamily firms, including financial reporting and auditing. Hence, it becomes essential to examine the difference between family and nonfamily firms regarding the association between economic bonding and earnings management.

Using a sample of 1,765 firm-year observations for the period 2005–2013, we find evidence that although earnings management is lower in family firms relative to nonfamily firms, it is higher in family firms that exhibit an economic bonding, that is, use of non-audit services (NAS), with their external auditors. Specifically, our empirical results show that the positive effect of economic bonding on earnings management is higher for family firms than for nonfamily firms. Moreover, this effect becomes more significant in weakly governed family firms than in their nonfamily counterparts. These results suggest that the presence of good corporate governance mechanisms alleviates the negative effects of economic bonding on earnings management.

The contributions of our study to the extant literature on family firms are three-fold. First, this article responds to the call of Trotman and Trotman (2010) to explore further how audit quality would differ between family and nonfamily firms. It also provides answers to questions about the consequences of economic bonding in family firms in a common law country (Dobler, 2014). Moreover, this study complements prior research addressing both alignment and entrenchment perspectives (e.g., Villalonga & Amit, 2006). To the best of our knowledge, this is the first study that investigates the role of economic bonding and corporate governance in family firms. Our findings provide new evidence on the conditions under which the principal–principal agency problems become more severe and offset the inherent advantages of family firms in terms of alleviating principal–agent agency problems.

Second, our article contributes to the current debate on auditor independence within family firms (e.g., Dobler, 2014; Khalil et al., 2011). As such, it provides a further understanding of auditor's ability to resist the pressures that might be exercised by economically influential clients and the negotiation outcome, that is, earnings quality, of this economic relationship. We find that the positive association between the supply of a high amount of non-audit services, usually considered as one of the main concerns of regulators and standard setters, and earnings management is higher in family firms than in nonfamily firms. This also shows that an increase in NAS threatens auditor judgment due to "increasing economic dependence on the client; increasing familiarity and trust

with the client; creating complicated situations for self-revision" (EU Commission, 2000; Campa & Donnelly, 2016, p. 425).

Third, a handful of studies document the importance of corporate governance mechanisms in minimizing the economic bond (e.g., Sharma, Sharma, & Ananthanarayanan, 2011; Wu, Hsu, & Haslam, 2016). However, no research has examined that matter in the family firms' context. Moreover, notwithstanding the importance of family firms worldwide and the numerous empirical studies done on family firms, very few studies were done on external auditing issues in family firms (Carey, Simnett, & Tanewski, 2000; Kang, 2017; Trotman & Trotman, 2010). In particular, research has overlooked the extent and outcomes of nonaudit services in family firms. Khalil et al. (2011) showed that family firms in the United States have long-term relations with their auditors, signifying a fertile atmosphere for both knowledge spillovers and threats to auditor independence. Therefore, issues related to jointly provided audit and nonaudit services by auditors are expected to be predominant in family businesses and are worth examining. In addition, due to confidentiality and trust concerns, family firms tend to engage their incumbent auditors to offer nonaudit services to restrict the number of external bodies that have access to sensitive information (Dobler, 2014; Schaefer & Frishkoff, 1992; Strike, 2012). This implies that family firms are likely to purchase more nonaudit services from their incumbent auditors relative to nonfamily firms (Jaffe et al., 1997). This, in turn, could be economically beneficial to the firm but may impair auditing quality independence and efficiency. Our study fills these gaps and shows that corporate governance mechanisms can moderate the adverse effect of auditor–client economic dependence in family firms, and therefore enhance earnings quality by reducing earnings management. This confirms the role played by good governance in monitoring the economic bonding through nonaudit service fees, which has been emphasized by practitioners, researchers, and U.K. regulators (Financial Reporting Council, 2014; PWC, 2012; Sharma et al., 2011; Wu et al., 2016).

The rest of the article is organized as follows. Section 2 presents our theoretical framework and discusses our hypotheses; section 3 describes data and methodology; section 4 presents the results. Section 5 concludes the article.

## 2 | THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

### 2.1 | Agency theory: principal–principal versus principal–agent problems

Family firms have been referred to as "high trust" organizations (e.g., Jones, 1983) due to the informal agreements governed by these firms (Gomez-Mejia, Nunez-Nickel, & Gutierrez, 2001). This trust is similar to rational trust by which "emotion enters into relationship between parties ... leading to the formation of the attachments ... and entails a greater level of faith in the intentions of the other party"

(Gomez-Mejia et al., 2001, p. 82). This type of attachment may invoke solidarity, homogenization of opinion and priorities, and conformity within family members and other parties working in a business context (Breton-Miller & Miller, 2009).

Due to the emotional attachments and/or direct blood ties, both agent and principal in family firms may attach value to their relationships that go beyond the economic value created by a simple transaction (Gomez-Mejia and Nickel, 2001). Emotional ties in a relationship may “neutralize mechanisms to reduce agency costs, a situation that is less likely to occur under nonfamily” firms (Gomez-Mejia et al., 2001, p. 83). Emotions may color perceptions of the CEO skills and competencies, which may minimize the effectiveness of the control (Gomez-Mejia et al., 2001). “Family status leads to biased judgments about the appropriateness of executive decisions” (Gomez-Mejia et al., 2001, p. 84).

Family firms usually involve family members, founders, or descendants. These members are the principal owners of the business (own and control the majority of the business). They hold top management positions (CEO or CFO), and/or sit on the board of directors (Ali et al., 2007; Anderson & Reeb, 2003; Bardhan et al., 2015). Compared to nonfamily firms, family firms face different agency costs (Kang, 2017), thus leading to different incentives to manage earnings.<sup>2</sup>

Building on the agency theory, family firms benefit from an “alignment effect” and are less likely to face principal–agent conflicts of interest than nonfamily firms (e.g., Ali et al., 2007; Cascino et al., 2010; Chi et al., 2015; Jiraporn & DaDalt, 2009; Prencipe & Bar-Yosef, 2011; Srinidhi et al., 2014). Compared to nonfamily firms, family members are at the same time owners and managers, with substantial share ownership and greater involvement in the management of the firm, which results in more active monitoring (Ho & Kang, 2013; Shleifer & Vishny, 1997). Moreover, family firms see their firms as an asset to leave to descendants and to preserve the family name and positioning (Casson, 1999). They have more incentives to conserve the sustainable presence of the family and to pass the firm onto future generations relative to nonfamily firms (Kappes & Schmid, 2013). They forgo short-term objectives and engage less in opportunistic behavior that could hurt the family's reputation and wealth in the long-term. As such, they have a long-term focus, which increases their interest in protecting their reputation and image and in reporting high-quality earnings, and reduces the pressures to “make” short-term numbers and manage their earnings (e.g., Achleitner, Günther, Kaserer, & Siciliano, 2014; Ali et al., 2007).

However, families may entrench and face principal–principal agency problems, which reflect the divergence between large controlling family owners and small shareholders (Ali et al., 2007; Ho & Kang, 2013; Prencipe et al., 2014). This conflict may arise from the divergence between controlling family members, who are typically large shareholders with dominant board positions and concentrated equity holdings, and small shareholders, who are the “other owners” (Ali et al., 2007). Family owners may use their positions and privileged access to superior information to make decisions at the expense of less influential shareholders (Ali et al.,

2007; Prencipe et al., 2014). These decisions encompass “advantageous related party-transactions, excessive compensation, and special dividends” (Anderson & Reeb, 2003, 2004; Srinidhi et al., 2014, p. 2298). For small shareholders, there is a limited incentive to oversee management actions because the benefits received are less than the oversight costs (Mitra & Hossain, 2007). Several studies show that family firms have a lower quality of financial reporting than nonfamily firms (Prencipe, Markarian, & Pozza, 2008; Yang, 2010). Family firms may have incentives to expropriate wealth from other shareholders (Morck, Shleifer, & Vishny, 1988; Shleifer & Vishny, 1997). They may entrench and opportunistically manage earnings, which results in more material weaknesses in their internal control (Bardhan et al., 2015) and more financial misrepresentation (Anderson et al., 2017) compared to nonfamily firms.

While entrenchment is likely to lead to opportunistic behavior, there is a counterargument that entrenched managers focus on long-term objectives (Di Meo, Garcia Lara, & Surroca, 2017; Lail & Martin, 2017; Stein, 1989) and are less likely to manipulate firm performance (Di Meo et al., 2017) in listed firms. However, this is less clear in family firms where the influence of family members may lead the manager to prioritize family interest (Chrisman, Chua, Pearson, & Barnett, 2012), and to pursue family-centric goals. Prior research argues that family owners tend to pursue “non-economic returns (e.g., socioemotional wealth), which are indicative of principal–principal agency conflict among family and non-family shareholders” (Randolph, Wang, & Memili, 2018, p.737).

Controlling family shareholders may expropriate wealth from employees, managers, and other stakeholders, in search of non-profit objectives or for general self-interests (Kvaal, Langli, & Abdolmohammadi, 2012; Shleifer & Vishny, 1997). The entrenched family owners may opportunistically manage earnings in order to coverup their expropriation practices and their attempts to obtain private control benefits (Fan & Wong, 2002; Stockmans, Lybaert, & Voordeckers, 2013). Moreover, family owners may use downward earnings management to decrease the dividends that are paid to minority owners. In line with the latter arguments, Ali et al. (2007) and Jiraporn and DaDalt (2009) showed that earnings management facilitates family owners' entrenchment in managerial positions. In agreement with the entrenchment effect, several studies have showed that firms with concentrated family ownership have low earnings quality (Achleitner et al., 2014; Anderson & Reeb, 2004; Chi et al., 2015; Fan & Wong, 2002; Francis & Vincent, 2005; Jaggi, Leung, & Gul, 2009). Furthermore, Yeo, Tan, Ho, and Chen (2002) found a U-shaped relation between absolute discretionary accruals and family control, concluding that the family entrenchment effect outweighs the alignment effect as the level of family ownership increases beyond a certain threshold. Hence, family ownership beyond that level creates more significant incentives to manage earnings opportunistically.

When controlling owners serve on the firm's board of directors, the board may not be effective in overseeing and preventing these owners from engaging in earnings management practices (Jaggi et al., 2009; Prencipe & Bar-Yosef, 2011). Hence, controlling family owners

have the incentive and the ability to effectually control the firm's financial reporting policies and restrict the dissemination of information for self-interest drives (Fan & Wong, 2002). This is in line with the finding that family control leads to less independent financial reporting practices and intensifies the family's entrenchment effect (Anderson & Reeb, 2004; Morck & Yeung, 2003; Villalonga & Amit, 2006).

Besides, family managers may not have the same level of financial skills, competencies, and capabilities as their nonfamily counterparts because they receive their positions based on blood ties rather than merit or talent (Anderson et al., 2017; Randolph et al., 2018). This can limit their access to valuable knowledge and human capital resources causing them to act toward the interests of the controlling family (Randolph et al., 2018) and resulting in a greater financial misrepresentation (Anderson et al., 2017).

Hence, prior research exhibits mixed evidence about earnings management in family firms. In what follows, we examine the conditions under which the alignment of interests would prevail over the entrenchment effect. Specifically, we analyze the extent to which economic bonding and the quality of corporate governance affect the relationship between ownership type (family vs. non-family) and earnings management.

## 2.2 | Earnings management and economic bonding in family firms

Sociology, psychology, and business literature have studied relationship bonds within family ( McCall, 1970), within business-to-business relationships (Perry, Cavaye, & Coote, 2002), and between auditors and their clients (e.g., Bamber & Iyer, 2007; Kachelmeier & Van Landuyt, 2017). There are two types of bonding in auditor–client interaction: economic bonding and social bonding. These “types of bonding are inherent and already present when the auditor is appointed, but are further increased if lucrative consulting opportunities are evident” (Svanström, 2013, p. 340) and depending on the type of firms (family vs. nonfamily).

Social identity theory explains how people's interaction is formed “by interpersonal and intergroup associations” (Kachelmeier & Van Landuyt, 2017, p. 968). The theory “supports the prediction that auditors who develop closer social bonds with clients would be more likely to reach judgments that favor their clients ... ..The social bond can lower the propensity to question others' behavior within a self-identified group” (Kachelmeier & Van Landuyt, 2017, p. 968).

Drawing on social identity theory, prior researchers using an experimental approach found that auditors who have a strong affinity with their clients are more likely to accept aggressive reporting positions (Bamber & Iyer, 2007), less likely to reject the preferred treatment proposed by the firm (Koch & Salterio, 2017), and more likely to be lenient when evaluating accounts with measurement uncertainty such as estimating the amount of misstatement (Kachelmeier & Landuyt, 2017).

Prior research suggests that auditors' incentives to retain clients purchasing more profitable nonaudit services may threaten audit quality, as they impact the willingness of an auditor to report irregularities. Indeed, the audit function is subject to constant negotiations in which auditors try to perform a fair evaluation of auditees'-related risks, whereas auditees seek unqualified audit reports (Gibbins, Salterio, & Webb, 2001). The negotiation process leads to a joint decision that may encompass making concessions by both auditors and clients (Sahnoun & Zarai, 2009). Family firms are characterized by having longer CEO tenure (Tsai et al., 2006; Zellweger, 2007) and lower likelihood of auditor resignation (Khalil et al., 2011) compared to nonfamily firms. The crucial role that auditors play in resolving the problems of family firms and their involvement in many family issues, such as successions, compensation, and employment of family members, and other future strategic choices (Jaffe et al., 1997), may increase the familiarity between the two parties (CEO and external auditor), which might, in turn, jeopardize auditor objectivity and increase the likelihood of earnings management (Krishnan & Peytcheva, 2019). As such, compared to nonfamily firms, the economic bonding between the auditor and the family firm client may increase the self-interest threats and the financial dependence on the latter, which may compromise auditor independence, objectivity, and professional skepticism.

“Auditors and clients develop knowledge based on trust from repeated interaction .... however, frequent interaction could affect the auditor independency” (Svanström, 2013, p. 340). Given the longer tenure of CEOs (Tsai et al., 2006; Zellweger, 2007) and their incumbent auditors (Khalil et al., 2011) in many family firms, the auditor–client recurrent interactions are likely to be higher in family firms. These interactions might lead to social bonding and/or emotional attachments, which may reduce the monitoring effectiveness and jeopardize auditor objectivity.

A disagreement between the auditor and the client over accounting policies, for example, may lead to an arrangement in favor of the family firm due to the fact, *inter alia*, family firms' CEOs have a better understanding of their business activities and are likely to have considerable negotiation experience with auditors (Trotman & Trotman, 2010). “Family firms' boards are more likely to be less independent, and there may be increased of related party transactions” (Trotman & Trotman, 2010, p. 3). Therefore, the auditor–family firm relationship has specific unique characteristics that may affect the earnings quality. While bonding is a risk in any audit assignment, there is a reason to believe that auditor–client bonding increases in family firms.

Prior literature shows that an auditor–client economic bonding is positively associated with financial fraud (e.g., Markelevich & Rosner, 2013) as well as earnings management, suggesting that auditors may tolerate more earnings management for larger clients (e.g., Ferguson, Seow, & Young, 2004; Frankel, Johnson, & Nelson, 2002; Kanagaretnam, Lim, & Lobo, 2010; Larcker & Richardson, 2004; Sharma et al., 2011).<sup>3</sup> Lately, in the United Kingdom, Campa and Donnelly (2016) document a positive association between earnings management and auditor–client economic dependence surrogated by the magnitude of NAS fees, specifically for firms that pay audit fees

below the expected levels. Building on the principal–principal agency problem, the “entrenchment effect” of family firms can be amplified by the lack of availability and effectiveness of external auditors, used as external monitors. In other words, family firms will be able to manage their earnings if the external auditors accommodate them and exercise a lenient monitoring role. Accordingly, we expect that family firms with higher economic bonding with their auditors are more likely to manage earnings than nonfamily firms. Hence:

**Hypothesis 1. (H1):** *Compared to nonfamily firms, earnings management is higher in family firms with higher auditor–client economic bonding.*

### 2.3 | Corporate governance, earnings management, and economic bonding in family firms

Anderson & Reeb (2003, p. 1314) argue that “if families seek to entrench themselves and extract private benefits from the firm, the lack of strong external monitors and discipline agents potentially permits them to pursue this path.” A strong corporate governance framework in family firms may mitigate the negative effect of agency problems. Anderson and Reeb (2004) examine the influence of corporate governance in family firms and find that strong boards surrogated by independent directors improve family firm performance. Likewise, Srinidhi et al. (2014) indicate that well-governed family firms tend to have higher earnings quality than weakly governed family firms. Chi et al. (2015) also document that family firms with effective corporate governance constrain earnings management in emergent markets. Thus, the effectiveness of corporate governance can potentially moderate agency problems by reducing family owners' entrenchment and expropriation, thus leading to lower earnings management.

In addition to commonly used governance practices, such as board independence and CEO duality, U.K. regulators provide the audit committee with the responsibility to review and monitor the NAS paid to the auditor and to evaluate the external auditor's independence and objectivity as well as the effectiveness of the audit process (Financial Reporting Council, 2014; Wu et al., 2016). They

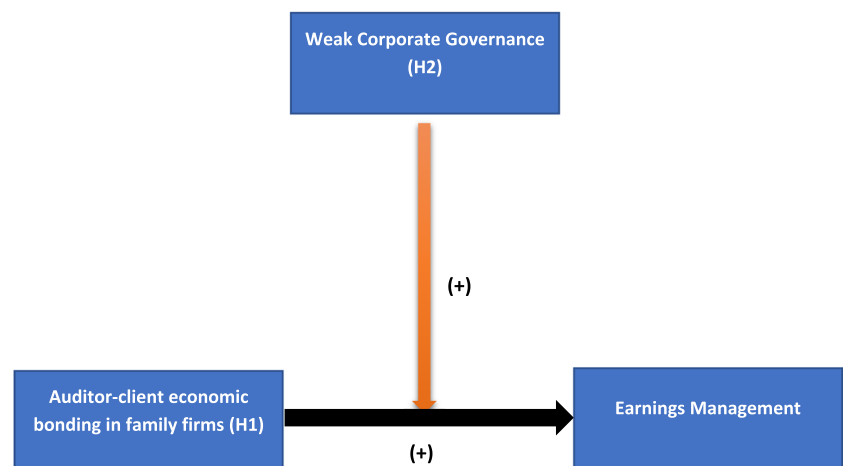
require the audit committee to make recommendations on the appointment, reappointment, and removal of the external auditors (Financial Reporting Council, 2014). An effective audit committee may thus lessen the auditor–client economic bond (Sharma et al., 2011; Wu et al., 2016). For example, Sharma et al. (2011) document that an effective audit committee moderates the impact of the potential auditor–client economic bonding on earnings management in New Zealand. Particularly, they show that the positive association between economic bonding and earnings management is more pronounced when the audit committee does not meet best practices. In the United Kingdom, Wu et al. (2016) find that the effect of auditor-provided NAS on auditor reporting decisions is mediated by the audit committee characteristics. Specifically, the interaction terms between auditor-provided NAS fees and the percentages of independent directors and financial experts on the audit committee are positively related to the likelihood of a going-concern modification.

Hence, a strong corporate governance framework potentially lessens auditor–client economic bonding and moderates agency problems by minimizing the “entrenchment effect” in family firms. As a result of the entrenchment effect, family members may have substantial influence and control over the process of directors' nomination and election, “which could make the ‘independent’ directors beholden to the family” (Srinidhi et al., 2014, p. 2305). This potential threat can be intensified by the presence of weak corporate governance mechanisms such as the lack of audit committee financial expertise in family firms compared to nonfamily firms (Krishnan & Peytcheva, 2019). Due to the principal–principal agency problems, family firms with weak corporate governance may have a less than optimal response to internal threats and vulnerabilities caused by the influence of the controlling family members. This, in turn, is likely to increase the effect of economic bonding on earnings management. Hence:

**Hypothesis 2 (H2):** *Compared to family firms with good governance, earnings management is higher in badly governed family firms with auditor–client economic bonding.*

Figure 1 presents a summary of the hypothesized relationship among the independent, moderator, and dependent variables. The

**FIGURE 1** A summary of hypotheses relationship among the independent, moderator, and dependent variables [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1111/jfam.12186)]



independent variable is the auditor–client economic bonding in family firms, while the moderator variable is the corporate governance mechanisms.

### 3 | DATA AND METHODOLOGY

#### 3.1 | Sample selection and data sources

We follow a multistage data collection process to determine our studied sample. Our sample consists of all FTSE 350 firms listed on the London Stock Exchange between the years 2005 and 2013. We exclude 999 firm-years in financial, insurance, and utilities industries (Industry Classification Benchmark 8000 & 7000), as their accruals and estimates are different from firms in other industries (Sharma et al., 2011;

Stubben, 2010). We further eliminate 70 firm-years from industries consisting of less than six firms (Katmon & Al Farooque, 2015) to minimize the possibility of biased estimates and because at least five firms per industry are required to estimate accruals (Dechow, Sloan, & Sweeney, 1995; Sharma et al., 2011). Finally, 279 firm-years are eliminated due to missing corporate governance and financial data. We manually collect corporate governance and family ownership data from annual reports. Financial data (including nonaudit service fees) are obtained from the DataStream database. For the economic bonding variables, we obtain revenues received by the Big4 UK audit firms from FAME database. We account for outliers by winsorizing *DISCREV*, *CLIENTIMP1*, *MOWN*, *M/BRATIO*, and *CFO* at the bottom and top 1%. The final sample consists of 1,756 firm-year observations. Panel A in Table 1 presents the sample selection procedures.

**TABLE 1** Panel A: Sample Selection Procedures

	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total Sample	
Total firms in FTSE 350 at year end	352	352	353	358	355	356	356	354	354	3190	
Companies in financial & insurance industries (Industry Classification Benchmark 8000)	-101	-108	-104	-113	-112	-116	-113	-116	-116	-999	
Companies in utilities industry (Industry Classification Benchmark 7000)	-13	-12	-11	-10	-9	-9	-8	-7	-7	-86	
Industries having less than 6 firms	-7	-10	-9	-13	-11	-4	-5	-5	-6	-70	
Companies with missing corporate governance and financial values	-78	-37	-36	-27	-7	-28	-20	-22	-24	-279	
<b>Total sample</b>	<b>153</b>	<b>185</b>	<b>193</b>	<b>195</b>	<b>216</b>	<b>199</b>	<b>210</b>	<b>204</b>	<b>201</b>	<b>1756</b>	
<b>Panel B: Distribution of Sample Firms by Industry and Year</b>											
Industry Classification Benchmark code	Industry	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total Sample
1	Oil and Gas	12	13	14	15	17	14	17	14	14	130
1000	Basic materials	14	15	15	20	18	17	29	26	20	174
2000	Industrials	50	64	69	64	68	60	62	60	60	557
3000	Consumer goods	18	24	24	23	26	24	23	24	25	211
4000	Health care	6	6	6	6	9	8	8	9	9	67
5000	Consumer services	44	53	55	56	60	59	52	50	53	482
6000	Telecommunications	0	3	3	3	4	3	7	8	8	39
9000	Technology	9	7	7	8	14	14	12	13	12	96
<b>Total sample</b>		<b>153</b>	<b>185</b>	<b>193</b>	<b>195</b>	<b>216</b>	<b>199</b>	<b>210</b>	<b>204</b>	<b>201</b>	<b>1756</b>
<b>Panel C: Distribution of Family Firms by Industry and Year</b>											
Industry Classification Benchmark code	Industry	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total Sample
0001	Oil and Gas	6	8	7	8	8	5	7	7	5	61
1000	Basic materials	6	6	8	9	9	7	15	15	9	84
2000	Industrials	3	4	8	6	7	7	6	6	4	51
3000	Consumer goods	3	3	3	3	5	6	6	7	7	43
4000	Health care	1	1	1	2	2	2	2	2	2	15
5000	Consumer services	14	14	15	16	16	18	15	14	14	136
6000	Telecommunications	0	0	0	0	0	0	1	1	0	2
9000	Technology	2	1	1	1	2	3	3	3	2	18
<b>Total sample</b>		<b>35</b>	<b>37</b>	<b>43</b>	<b>45</b>	<b>49</b>	<b>48</b>	<b>55</b>	<b>55</b>	<b>43</b>	<b>410</b>

Panel B in Table 1 illustrates the distribution of sample firms by industry and year, respectively. It reports that industrials, consumer services, and consumer goods represent the highest proportions of our sample with 31.72%, 27.45%, and 12.02%, respectively. Panel C presents the distribution of family firms by industry and year.

To test our two hypotheses, we used the following regression models:

$$\begin{aligned} DISCREV = & \alpha + \beta_1 FAMILYFIRM + \beta_2 CLIENTIMP1 \\ & + \beta_3 CLIENTIMP1 * FAMILYFIRM + \beta_4 WEAKCG \\ & + \beta_5 BODMEET + \beta_6 BODSIZE + \beta_7 SIZE + \beta_8 LEVERAGE \\ & + \beta_9 BLOCK + \beta_{10} MOWN + \beta_{11} LOSSDUMMY + \beta_{12} CFO \\ & + \beta_{13} M/BRATIO + \beta_{14} CRISISDUMMY + \beta_{15} BEAT + \beta_{16} BENCH \\ & + \beta_{17} JUSTMISS + \beta_{18} LNAF + \beta_{19} TOTALACC + \beta_{20} FINACQ + \epsilon \end{aligned} \quad (1)$$

$$\begin{aligned} DISCREV = & \alpha + \beta_1 FAMILYFIRM + \beta_2 CLIENTIMP1 + \beta_3 CLIENTIMP1 * FAMILYFIRM \\ & + \beta_4 CLIENTIMP1 * WEAKCG + \beta_5 WEAKCG * FAMILYFIRM \\ & + \beta_6 WEAKCG * CLIENTIMP1 * FAMILYFIRM + \beta_7 WEAKCG \\ & + \beta_8 BODMEET + \beta_9 BODSIZE + \beta_{10} SIZE + \beta_{11} LEVERAGE + \beta_{12} BLOCK \\ & + \beta_{13} MOWN + \beta_{14} LOSSDUMMY + \beta_{15} CFO + \beta_{16} M/BRATIO \\ & + \beta_{17} CRISISDUMMY + \beta_{18} BEAT + \beta_{19} BENCH + \beta_{20} JUSTMISS \\ & + \beta_{21} LNAF + \beta_{22} TOTALACC + \beta_{23} FINACQ + \epsilon \end{aligned} \quad (2)$$

Where *DISCREV* is discretionary revenues. There is no universally agreed-upon measure of earnings management. The most commonly used measures are discretionary accruals; however, these measures are subject to criticism that they might provide noisy and biased estimates (e.g., Hribar & Collins, 2002). As such, this study adopts the discretionary revenue model developed by Stubben (2010) to capture the highest possible level of earnings management. Discretionary revenue models are found to be better specified, less biased, and more powerful than accrual models (Stubben, 2010). Moreover, discretionary revenue models “are more likely than accrual models to detect a combination of revenue and expense manipulation” (Stubben, 2010, p. 695). Most importantly, using discretionary revenues to proxy for earnings management allows us to address a wide-ranging concern of the UK Financial Reporting Review Panel about misleading revenue recognition practices during our sample period (see, for example FRRP, 2013). These concerns were also confirmed after revenue recognition irregularities were identified in several U.K. public listed firms between the years 2005 and 2013 (e.g., iSOFT, Autonomy, Quindell, Tesco). As such, we calculate *DISCREV*, that is, discretionary revenues, as the absolute value of the error term in the following Stubben (2010) model<sup>4</sup>:

$$\Delta AR_{i,t} = \alpha_0 + \beta_1 \Delta R1_{-3,t} + \beta_2 \Delta R4_{i,t} + \epsilon_{i,t} \quad (3)$$

where  $\Delta AR_{i,t}$  represents the annual change in accounts receivable,  $\Delta R1_{-3,t}$  represents the change in revenues in the first three quarters, and  $\Delta R4_{i,t}$  represents the change in revenues in the fourth quarter; each is scaled by lagged total assets. The error term in Equation 3 is estimated separately for each firm-year group, including at least six firms with the same two-digit Industry Classification Benchmark code.

In line with prior research, *FAMILYFIRM* is a dummy variable with a value of 1 if a firm is considered a family firm, zero otherwise (e.g., Ho & Kang, 2013; Poutziouris, Savva, & Hadjielias, 2015). Following Anderson and Reeb (2003) and Poutziouris et al. (2015), we define family firms using fractional family ownership, family management, or family board representation. As such, we employ an indicator variable (*FAMILYFIRM*) with a value of one when founding families or descendants hold at least 10%<sup>5</sup> of the firm's equity, when family members hold CEO position or occupy board seats.<sup>6</sup>

*CLIENTIMP1* is the proportion of the nonaudit fees paid by a firm to the sum of total national revenues earned by the auditor. Several studies have used the ratio of total fees paid by a client firm (both audit and nonaudit) to the total revenues earned by the auditor as a measure for client importance (e.g., Chung & Kallapur, 2003; Larcker & Richardson, 2004). However, we compute client importance based on nonaudit fees “because the quasi-rents could be greater for non-audit services than for audit services” (Chung & Kallapur, 2003; Larcker & Richardson, 2004, p. 632). Moreover, although auditor revenues at the city office level “would better capture the potential economic importance to the auditor” than those at the national level, we use the latter as the former “cannot be constructed from contemporaneous publicly available UK data” (Holland & Lane, 2012, p. 120).

We use *GOODCG* as a proxy for the quality of corporate governance. *GOODCG* is a dummy variable equal to one if a firm has a good governance structure, zero otherwise. The strength of corporate governance mechanisms could be surrogated by individual variables or a composite score aggregating several variables (Srinidhi et al., 2014; Zaman, Hudaib, & Haniffa, 2011). The employment of a composite score reduces the errors in the measurements inherent to the use of individual variables, such as nonduality CEO-chairman or the proportion of nonexecutive directors (Srinidhi et al., 2014). In addition, using individual variables could provide a misleading picture of a complex phenomenon (Brennan, Guillamon Saorin, & Pierce, 2009). Thus, following prior literature (Srinidhi et al., 2014; Zaman et al., 2011), we opted to use a composite score to measure the effectiveness of corporate governance. The corporate governance score encompasses board of directors' characteristics and audit committee attributes. Specifically, it includes CEO nonduality, audit committee effectiveness and nonexecutive directors on the board. CEO nonduality is an indicator variable with a value of one if the positions of the CEO and the chairman of the board are separated, zero otherwise. Based on the Financial Reporting Council (2014), effective audit committees should comprise at least three independent directors, meet at least three times a year, and include at least one member with relevant financial experience. As such, audit committee effectiveness is an indicator variable with a value of one if a company satisfies all of the mentioned conditions, zero otherwise. According to the UK Corporate Governance Code, “at least half the board, excluding the chairman, should comprise non-executive directors determined by the board to be independent.” Therefore, we take the number of nonexecutive directors on the board as a percentage of board size and created an indicator variable equal to one for firms with a percentage higher than the

median, zero otherwise. The governance index is the product of the three binary indicators: CEO nonduality, audit committee effectiveness, and nonexecutive directors on the board. Thus, a firm with a good governance structure (having an index of one) is presumed to have an independent CEO, an effective audit committee, and a high percentage of nonexecutive directors on the board. *WEAKCG* is the inverse of *GOODCG*.

In line with prior research, we include firm characteristics variables that are found to significantly affect earnings management (e.g., Bédard, Chtourou, & Courteau, 2004; Katmon & Al Farooque, 2015). We include board meetings (*BODMEET*) and board size (*BODSIZE*) because the financial reporting oversight process is more likely to be enhanced in the presence of small-sized boards (Jensen, 1993) that meet more frequently (Carcello, Hermanson, Neal, & Riley, 2002). We also include firm size (*SIZE*) because large firms are associated with higher political costs, and therefore are more likely to be involved in aggressive earnings management to reduce these costs (Warfield, Wild, & Wild, 1995). We include *LEVERAGE* because highly leveraged firms will have incentives to increase income through manipulating revenues to avoid debt covenant violations. We add the percentage ownership of block-holders (*BLOCK*) because concentrated ownership is likely to be associated with lower earnings management (Jensen & Meckling, 1976). We also control for the percentage of total shares held by executive directors to total number of shares (*MOWN*) because managerial ownership is associated with lower agency costs (Al Okaily, Dixon, & Salama, 2018; Jensen & Meckling, 1976) and is expected to align manager and shareholder incentives through constraining management's opportunistic behaviors. Our control variables also include cash flows from operating activities scaled by lagged total assets (*CFO*) because firms with low cash flows are more likely to be involved in accelerated revenue recognition practices to hide poor performance (Leuz, Nanda, & Wysocki, 2003). We control for growth (*M/BRATIO*) as managers of rapidly growing firms are more likely to manipulate earnings upward (Matsumoto, 2002). We include *LOSSDUMMY* because managers of firms with slightly negative earnings are more likely to exercise discretion to report positive earnings (Burgstahler & Dichev, 1997). We control for the crisis period by including a *CRISISDUMMY* equal to one for each of the years 2008 and 2009, zero otherwise. We include *BEAT*, *BENCH*, and *JUSTMISS* to control for the incentives to manipulate earnings (Gunny, 2010). We include *TOTALACC* given the fact that "discretionary accrual models do not completely extract nondiscretionary accruals that are correlated with firm performance" (Frankel et al., 2002 p. 85). Audit fees (*LNAF*) are also added to the control variables to account for the audit efforts (Sharma et al., 2011). Finally, we include *FINACQ* because rapidly growing firms may demand more audit and nonaudit services (Frankel et al., 2002).<sup>7</sup>

#### 4 | EMPIRICAL RESULTS

Table 2 presents the descriptive statistics for the entire sample as well as the subsamples of family versus nonfamily firms. It shows that family firms account for 23.35% of the studied sample,

410 out of 1,756 firms. The average absolute value of discretionary revenues is 2.5% and significantly differs between the family and nonfamily subsamples. The average audit fees in our sample are about £2.37 mil. and are significantly lower in family firms relative to nonfamily firms (£1.42 vs. £2.67 mil) (at the 1% level). Economic bonding, that is, nonaudit and total fees per client to total auditor revenues, are equal to 0.1% on average, and significantly differ between the subsamples. The weak corporate governance index is equal to 0.67 on average, indicating that 67% of our studied firms have low board independence, dependent leadership, and ineffective audit committee. The subcomponent analysis of our corporate governance index shows that 60.3% of our studied sample has low board independence, 20.5% have ineffective audit committees, and 3.7% have dependent leadership structure. Family firms have less effective audit committees and less independent leadership than nonfamily firms ( $p = 0.01$ ).

Interestingly, our weak corporate governance index in family firms is significantly higher than that in nonfamily firms (72.2% vs. 65.5%). Moreover, audit committees are found to be more effective in nonfamily firms than in family firms (81.4% vs. 73.4%), and there is a higher percentage of CEO duality cases in family firms than in nonfamily firms (6.8% vs. 2.7%). Almost 40% of our sample firms include more than 66.7% (median) of nonexecutive directors on their boards. Around 80% of our sample firms have audit committees that include at least three independent directors, meet at least three times a year, and include at least one member with relevant financial experience. The CEO is serving as chairman of the board in 3.7% of the cases.

In terms of control variables, the board of directors comprises nine members on average and meets around nine times a year. The average managerial ownership reaches 3.8%, and block-holder ownership is equal to 25.3% on average. Family firms have a lower number of board meetings, a higher percentage of managerial ownership, and a higher percentage of block-holdings ( $p = 0.01$ ).

The average firm has total assets of £6.20 mil., 18.6% leverage, 13.7% cash flow from operating activities as a percentage of lagged total assets, and a market-to-book ratio of 3.21. Also, 14.4% of the sample firms have losses, and 23.4% of our studied sample is within the years 2008–2009. Family firms are statistically significantly smaller, with lower leverage, higher cash flow from operations, and higher market-to-book ratio (at the 5% level or more).

Table 3 presents the Pearson correlation matrix. It shows that there is a positive and significant association between the absolute value of *DISCREV*, that is, earnings management, and our corporate governance index (*WEAKCG*). There is a negative and significant correlation between *FAMILYFIRM* on the one hand and *CLIENTIMP1* and *BODMEET* on the other. This indicates that in comparison with nonfamily firms, family firms have less economic bonding with their auditors and fewer board meetings. Moreover, the positive and significant correlation between *FAMILYFIRM* and *WEAKCG* indicates that family firms have weaker governance structures than nonfamily firms. Finally, correlation coefficients among variables are reasonable and do not indicate multicollinearity problems. We also analyze the

**TABLE 2** Descriptive Statistics

	Full Sample (N = 1,756)		Nonfamily firms (N = 1,346)		Family firms (N = 410)		T-test Difference <sup>#</sup>
	M	SD	M	SD	M	SD	
<i>DISCREV</i>	0.025	0.036	0.024	0.036	0.029	0.039	-2.44***
<i>NAF (in mil)</i>	1.633	5.372	1.732	5.916	1.309	2.932	1.40
<i>AF (in mil)</i>	2.374	7.251	2.666	8.124	1.416	2.719	3.10***
<i>CLIENTIMP1x 1000</i>	0.527	0.579	0.543	0.583	0.474	0.561	2.14**
<i>WEAKCG</i>	0.671	0.470	0.655	0.475	0.722	0.449	-2.52***
<i>BODMEET</i>	8.695	2.902	8.937	2.838	7.902	2.973	6.39***
<i>BODSIZE</i>	9.195	2.398	9.156	2.293	9.324	2.712	-1.25
<i>TOTALASSETS (in mil)</i>	6.203	17.400	6.832	18.790	4.136	11.211	2.76***
<i>LEVERAGE</i>	0.186	0.163	0.196	0.161	0.156	0.164	4.35***
<i>BLOCK</i>	0.253	0.177	0.230	0.158	0.330	0.212	-10.33***
<i>MOWN</i>	0.038	0.129	0.012	0.044	0.123	0.236	-16.38***
<i>CFO</i>	0.137	0.134	0.126	0.087	0.174	0.223	-6.34***
<i>M/BRATIO</i>	3.213	20.922	2.624	19.224	5.147	25.654	-2.14**
<i>LOSSDUMMY</i>	0.144	0.351	0.143	0.350	0.146	0.354	-0.19
<i>CRISISDUMMY</i>	0.234	0.424	0.236	0.424	0.229	0.421	0.26
<i>BEAT</i>	0.900	0.300	0.904	0.294	0.888	0.316	0.97
<i>BENCH</i>	0.043	0.203	0.044	0.205	0.042	0.200	0.206
<i>JUSTMISS</i>	0.022	0.147	0.019	0.138	0.032	0.175	-1.49
<i>LNAF</i>	13.703	1.289	13.817	1.292	13.327	1.207	6.82***
<i>TOTALACC</i>	-301751	1373278	-325027	1437428	-225338	1135748	-1.29
<i>FINACQ</i>	0.807	0.395	0.814	0.389	0.783	0.413	1.41

\*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ .

<sup>#</sup>T-test difference between nonfamily and family firms.

Note. All variables are defined in Appendix A.

VIF values of the explanatory variables. The highest value is 3.31, which is fairly small and below the cut-off value of 10.

We test our hypotheses using a fixed effect panel data analysis. We first conducted the Breusch-Pagan LM test to determine whether the normal ordinary least squares (OLS) or random effect model is more appropriate for our data. The result supports the use of panel data regression. Then we decided to use the fixed effect model after the result of the Hausman test revealed that the null hypothesis of no significant difference between the fixed and random effect models is rejected. We also run our models using standard errors clustered by firm and year to account for possible heteroscedasticity and serial correlation (Petersen, 2009) and the results remain qualitatively similar.

Table 4 presents the regression results for our hypotheses. Model 1 presents the linear effects of our studied variables on earnings management. It shows that the coefficient of the family firm dummy variable is negative and statistically significant at the 10% level ( $t = -1.71$ ,  $p = 0.10$ ). This suggests that family firms are less likely to engage in earnings management than nonfamily firms, which is in line with the alignment of interest perspective. Moreover, Model 1 shows that earnings management is positively associated with economic bonding

at the 1% level ( $t = 3.47$ ,  $p = 0.01$ ). Model 2 examines the interaction effect between family firms and economic bonding on earnings management. The results in Model 2 confirm our findings in Model 1 and further indicate that earnings management is higher in family firms with higher auditor-client economic bonding ( $t = 2.24$ ,  $p = 0.05$ ), which supports our H1.

Model 3 shows a positive and significant coefficient of the interaction term *WEAKCG\*CLIENTIMP1\*FAMILYFIRM* at the 5% level ( $t = 2.12$ ,  $p = 0.05$ ), which is in line with H2.<sup>8</sup>

Models 4 and 5 in Table 4 are similar to Model 1, but they include the regressions run separately for firms with weak governance structures (Model 4) and good governance structures (Model 5). Good versus weakly governed firms are based on the variables *GOODCG* and *WEAKCG* defined in Section 3. The results are robust and consistent with those in our main Models 2 and 3. Model 4 (weak governance) shows a positive and significant coefficient of the interaction term *CLIENTIMP1\*FAMILYFIRM* ( $t = 2.23$ ,  $p = 0.05$ ), whereas Model 5 (good governance) shows that there is no significant association between the interaction term *CLIENTIMP1\*FAMILYFIRM* and *DISCREV*. The results in Models 4 and 5 thus support H2.

**TABLE 3** Pearson Correlation Coefficients Among Variables\*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
DISCREV (1)	1																			
FAMILYFIRM (2)	0.058	1																		
CLIENTIMP1 (3)	0.0021	-0.051	1																	
WEAKCG (4)	0.101	0.060	-0.171	1																
BODMEET (5)	-0.002	-0.151	0.004	0.035	1															
BODSIZE (6)	-0.012	0.030	0.423	-0.141	-0.084	1														
SIZE (7)	-0.165	-0.114	0.563	-0.308	-0.041	0.553	1													
LEV (8)	-0.119	-0.103	0.079	-0.033	0.018	0.073	0.222	1												
BLOCK (9)	0.101	0.240	-0.132	-0.030	-0.038	-0.060	-0.207	-0.050	1											
MOWN (10)	0.092	0.419	-0.060	0.119	-0.105	-0.103	-0.173	-0.138	-0.033	1										
CFO (11)	0.085	0.130	-0.087	0.055	-0.091	-0.044	-0.263	-0.148	0.057	0.156	1									
M/BRATIO (12)	0.040	0.030	0.018	0.032	-0.021	0.005	-0.103	-0.056	-0.011	0.014	0.213	1								
LOSSDUMMY (13)	0.063	0.004	-0.005	-0.004	0.057	0.001	-0.025	0.010	0.106	0.031	-0.120	-0.022	1							
CRISDUMMY (14)	0.025	-0.006	0.024	-0.013	0.051	0.012	-0.007	0.052	0.090	0.004	0.004	-0.089	-0.038	1						
BEAT (15)	-0.081	-0.023	-0.035	0.030	-0.062	-0.020	-0.092	-0.105	-0.094	0.009	0.190	0.102	-0.102	-0.153	1					
BENCH (16)	0.027	-0.005	-0.003	0.030	0.031	-0.045	0.051	0.075	-0.001	-0.028	-0.075	-0.045	0.049	0.048	-0.452	1				
JUSTMISS (17)	0.017	0.036	0.009	-0.010	0.036	0.039	0.030	0.035	0.043	0.013	-0.076	-0.061	0.004	0.072	-0.298	-0.032	1			
LNAF (18)	-0.084	-0.161	0.647	-0.322	-0.073	0.495	0.737	0.083	-0.179	-0.155	-0.137	-0.035	-0.031	0.023	-0.040	0.014	0.026	1		
TOTALACC (19)	0.053	0.031	-0.219	0.126	-0.029	-0.267	-0.413	-0.031	0.083	0.044	-0.029	0.024	-0.043	-0.015	0.132	-0.020	0.001	-0.290	1	
FINACQ (20)	0.040	-0.034	0.162	-0.011	0.000	0.105	0.111	0.057	-0.097	-0.008	-0.078	-0.058	-0.047	0.011	-0.013	-0.009	0.025	0.208	-0.056	1

\*Bolded coefficients are statistically significant at  $P < 0.10$ .

Note. All variables are defined in Appendix A.

**TABLE 4** Regression Results of Family Firms and Economic Bonding on Earnings Management Conditional on Corporate Governance Quality

	Model 1	Model 2	Model 3	Model 4 WEAKCG	Model 5 GOODCG
CONSTANT	0.221*** (5.50)	0.223*** (5.55)	0.214*** (5.31)	0.204*** (3.97)	0.206** (2.52)
FAMILYFIRM	-0.014* (-1.71)	-0.019** (-2.19)	-0.019** (-2.17)	-0.017 (-1.52)	-0.028* (-1.65)
CLIENTIMP1	8.422*** (3.47)	5.757** (2.13)	11.080*** (2.96)	4.036 (1.02)	5.098 (1.28)
CLIENTIMP1*FAMILYFIRM		13.050** (2.24)	-4.273 (-0.42)	17.800** (2.23)	6.893 (0.60)
CLIENTIMP1*WEAKCG			-8.051** (-2.01)		
WEAKCG*FAMILYFIRM			-14.330 (-1.11)		
WEAKCG*CLIENTIMP1*FAMILYFIRM			21.730** (2.12)		
WEAKCG	0.005** (2.14)	0.005** (2.04)	0.007** (2.33)		
BODMEET	0.001 (1.10)	0.001 (1.19)	0.001 (1.25)	0.001 (0.85)	0.000 (0.71)
BODSIZE	0.001 (1.35)	0.001 (1.33)	0.001 (1.50)	0.001 (1.39)	0.000 (0.35)
SIZE	-0.014*** (-5.21)	-0.014*** (-5.19)	-0.014*** (-5.03)	-0.016*** (-4.24)	-0.011** (-2.21)
LEVERAGE	0.007 (0.67)	0.008 (0.78)	0.009 (0.81)	0.007 (0.51)	0.039** (1.98)
BLOCK	0.006 (0.79)	0.006 (0.75)	0.004 (0.59)	0.006 (0.61)	-0.004 (-0.32)
MOWN	0.049*** (3.28)	0.051*** (3.42)	0.046*** (3.06)	0.036* (1.65)	0.067*** (2.60)
CFO	0.026 (1.93)	0.024* (1.78)	0.024* (1.80)	0.018 (1.02)	0.051** (2.04)
M/BRATIO	0.000 (0.12)	0.000 (0.18)	0.000 (0.07)	0.000 (0.33)	0.000 (0.18)
LOSSDUMMY	-0.000 (-0.15)	-0.000 (-0.00)	-0.000 (-0.11)	-0.001 (-0.16)	0.001 (0.19)
CRISISDUMMY	-0.000 (-0.08)	-0.000 (-0.08)	-0.000 (-0.14)	-0.002 (-0.99)	0.004 (1.29)
BEAT	-0.013*** (-3.76)	-0.013*** (-3.81)	-0.012*** (-3.66)	-0.016*** (-3.33)	-0.016*** (-2.82)
BENCH	-0.002 (-0.40)	-0.002 (-0.52)	-0.002 (-0.48)	-0.008 (-1.33)	-0.005 (-0.69)
JUSTMISS	-0.008 (-1.33)	-0.008 (-1.31)	-0.008 (-1.36)	-0.006 (-0.81)	-0.012 (-1.29)
LNAF	-0.000 (-0.24)	-0.001 (-0.29)	-0.001 (-0.30)	0.002 (0.87)	-0.002 (-0.74)
TOTALACC	0.000 (0.49)	0.000 (0.33)	0.000 (0.13)	0.000 (0.49)	0.000 (0.33)
FINACQ	0.002 (0.89)	0.002 (0.92)	0.002 (0.89)	0.004 (1.26)	0.001 (0.34)
Firm & Year fixed effect	Yes	Yes	Yes	Yes	Yes
N	1756	1756	1756	1178	578
R <sup>2</sup>	0.071	0.074	0.076	0.061	0.097
F-Statistic	5.81	5.78	5.61	3.01	2.15
Prob (F-Statistic)	0.0000	0.0000	0.0000	0.0000	0.0036

\*\*\*p &lt; 0.01, \*\*p &lt; 0.05, \*p &lt; 0.10.

Note. All variables are defined in Appendix A. T-statistics are between parentheses.

## 4.1 | Robustness Tests

### 4.1.1 | Alternative measures of corporate governance index

Our empirical tests measured good corporate governance as a dummy variable calculated based on an index calculated by multiplying three components: audit committee effectiveness (ACE), CEO nonduality, and nonexecutive directors. However, some family firms may have an average corporate governance level that might affect their behavior. Also, different governance components may differentially impact family firms in using their association with external auditors. Table 5 presents additional tests to check the robustness of our results based on various measures of corporate governance index.

Models 6 and 7 are similar to Models 1 and 2, respectively. However, both models refer to a continuous, rather than a binary, corporate governance index, *CGCONT*. *CGCONT* is the summation of the three governance components: ACE, CEO nonduality, and nonexecutive directors. The higher the corporate governance index the better the governance structure of a firm. The results in Model 7 are consistent with our previous findings in Table 4 and confirm that family firms are negatively associated with earnings management. However, the presence of high economic bonding between family firms and their auditors moderates this negative relationship and leads to higher earnings management. Model 8 also confirms the results in Model 3 and indicates that high auditor–client economic bonding is associated with earnings management in family firms with weak corporate governance structures.

To test the impact of each of the three components of our corporate governance index, we further examine in Models 9, 10, and 11 the interaction effect of each one of these components with family firms and economic bonding on earnings management. All models show consistent results with those presented in Models 2 and 3 in Table 4, where the corporate governance index is used, which supports our hypotheses.

### 4.1.2 | Endogeneity

Similar to other comparative studies in the corporate governance literature, our results may suffer from endogeneity problems. Corporate governance research commonly uses instrumental variables (IV) regressions to adjust for endogeneity problems (Larcker & Rusticus, 2010). However, the literature suffers from a lack of convenient instruments (Chhaochharia & Laeven, 2009), because “instrumental variables are weak predictors of the endogenous variables and the instrumental variables are themselves partially endogenous” (Larcker, Richardson, & Tuna, 2007, p. 1003). Alternatively, Larcker and Rusticus (2010) state that the endogeneity problem can be mitigated by incorporating “additional control variables or fixed effects.” Accordingly, and following Setia-Atmaja, Haman, and Tanewski (2011), we accounted for the possible unobserved heterogeneity in

our main model by using fixed effect panel data (Coles, Lemmon, & Felix Meschke, 2012; Dittmann, Maug, & Schneider, 2010) and by including a set of relevant and comprehensive control variables. We further account for any possible endogeneity by conducting two additional tests. First, we regress the lagged values of our independent variables on the dependent variable and the untabulated results are consistent with those reported in our article. Second, we conduct the Durbin–Wu–Hausman test to decide whether the OLS or the IV estimator is the appropriate estimation technique for our data (Baum, 2006).<sup>9</sup> The result was insignificant and favored the use of an OLS regression.

Finally, to mitigate “the possibility that the results are driven by systematic differences in firm characteristics between family and nonfamily firms” (Srinidhi et al., 2014, p. 2312), we match (without replacement) each of the 410 family firm-years with a control sample of propensity-score-matched nonfamily firm-year.<sup>10</sup> Table 6 presents univariate two-sample mean tests for the independent variables used in the logit model to estimate the propensity score in family versus matched non-family firms. The results reveal that the samples are well balanced and none of the variables is significantly different between the family group and the nonfamily group. The results from the logistic regression used for estimating the propensity score (Table 7) show that *SIZE* and *LEVERAGE* are negatively associated with *FAMILYFIRM* and statistically significant at the 1% and 5% levels, respectively. These findings indicate that in comparison with nonfamily firms, family firms are associated with lower total assets and leverage, which is consistent with the Pearson correlation coefficients in Table 3 and the descriptive statistics in Table 2. Consistent with expectations, untabulated results show that the auditor–client economic bonding effect on earnings management is more significant in family firms than in nonfamily firms. This finding is justified by the close relationship between auditors and family firms where the formers are involved in resolving family problems and in advising on many family issues such as successions, compensation and employment of family members, and other future strategic choices (Jaffe et al., 1997).

### 4.1.3 | Our results in the case of family firms only

As an additional analysis, we conduct regression tests on the subsample of family firms alone.<sup>11</sup> The results presented in Model 12 (Panel A of Table 8) show that the coefficient of *CLIENTIMP1* is positive and significant at the 5% level ( $t\text{-stat} = 2.36, p = 0.05$ ). This is consistent with our main results and indicates that auditor–client economic bonding in family firms is associated with higher earnings management. Similarly, the results presented in Model 13 (Panel A of Table 8) show that the coefficient of the interaction variable *WEAKCG\*CLIENTIMP1* is positive and significant at the 5% level ( $t = 2.28, p = 0.05$ ). This again confirms our main findings that weak governance structures in family firms are associated with higher earnings management.

**TABLE 5** Regression Results of Family Firms and Economic Bonding on Earnings Management Conditional on Different Governance Measures

	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
CONSTANT	0.213+ (5.34)	0.215*** (5.39)	0.206*** (5.11)	0.233*** (5.87)	0.216*** (5.36)	0.222*** (5.56)
FAMILYFIRM	-0.015* (-1.78)	-0.019*** (-2.21)	-0.023* (-1.80)	-0.019** (-2.19)	-0.018** (-2.08)	-0.018** (-2.06)
CLIENTIMP1	7.741*** (3.20)	5.322** (1.98)	3.379 (0.50)	5.979** (2.22)	5.913** (2.20)	6.138** (2.30)
CLIENTIMP1*FAMILYFIRM		11.970** (2.05)	35.200*** (2.64)	8.508 (0.99)	9.450 (1.44)	7.272 (1.23)
CLIENTIMP1*CGCONT			0.905 (0.33)			
FAMILYFIRM*CGCONT			0.002 (0.51)			
CGCONT*CLIENTIMP1*FAMILYFIRM			-12.430** (-2.11)			
CGCONT	-0.006*** (-3.88)	-0.006*** (-3.73)	-0.005** (-2.46)			
NEDSLOW				0.005 (1.45)		
CLIENTIMP1*NEDSLOW				-3.602 (-0.91)		
FAMILYFIRM*NEDSLOW				0.004 (0.49)		
NEDSLOW*CLIENTIMP1*FAMILYFIRM				7.592** (2.19)		
ACELOW					0.005 (1.57)	
CLIENTIMP1*ACELOW					1.474 (0.33)	
FAMILYFIRM*ACELOW					-0.003 (-0.50)	
ACELOW*CLIENTIMP1*FAMILYFIRM					5.915** (1.94)	
CEODUALITY						0.022** (1.93)
CLIENTIMP1*CEODUALITY						7.343 (0.50)
FAMILYFIRM*CEODUALITY						-0.036 (-1.33)
CEODUALITY*CLIENTIMP1*FAMILYFIRM						82.650*** (3.52)
BODMEET	0.000 (1.17)	0.000 (1.24)	0.001 (1.46)	0.000 (1.16)	0.001 (1.41)	0.001 (1.37)
BODSIZE	0.001 (1.36)	0.001 (1.34)	0.001 (1.41)	0.001 (1.45)	0.001 (1.41)	0.001* (1.79)
SIZE	-0.012*** (-4.49)	-0.012*** (-4.50)	-0.012*** (-4.33)	-0.014*** (-5.33)	-0.013*** (-4.76)	-0.014*** (-5.10)
LEVERAGE	0.007 (0.64)	0.008 (0.74)	0.009 (0.80)	0.009 (0.83)	0.008 (0.75)	0.010 (0.97)
BLOCK	0.007 (0.89)	0.006 (0.85)	0.006 (0.88)	0.006 (0.78)	0.005 (0.73)	0.007 (0.93)
MOWN	0.047*** (3.14)	0.049*** (3.27)	0.046*** (3.05)	0.048*** (3.12)	0.050*** (3.31)	0.051*** (3.44)
CFO	0.026* (1.91)	0.024* (1.77)	0.024* (1.78)	0.026* (1.90)	0.024* (1.75)	0.026* (1.90)
M/BRATIO	0.000 (0.15)	0.000 (0.20)	0.000 (0.10)	0.000 (0.29)	0.000 (0.12)	0.000 (0.37)
LOSSDUMMY	-0.001 (-0.24)	-0.000 (-0.10)	-0.000 (-0.09)	-0.000 (-0.03)	-0.000 (-0.02)	0.001 (0.23)
CRISISDUMMY	0.000 (0.00)	-0.000 (-0.01)	-0.000 (-0.06)	-0.000 (-0.21)	0.000 (0.07)	-0.000 (-0.05)
BEAT	-0.013*** (-3.78)	-0.013*** (-3.82)	-0.013*** (-3.75)	-0.013*** (-3.68)	-0.013*** (-3.83)	-0.013*** (-3.91)
BENCH	-0.002 (-0.49)	-0.003 (-0.59)	-0.002 (-0.53)	-0.002 (-0.42)	-0.002 (-0.55)	-0.003 (-0.62)
JUSTMISS	-0.007 (-1.29)	-0.007 (-1.28)	-0.007 (-1.27)	-0.008 (-1.31)	-0.008 (-1.32)	-0.008 (-1.34)

(Continues)

**TABLE 5** (Continued)

	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
LNAF	-0.001 (-0.27)	-0.001 (-0.31)	-0.001 (-0.30)	-0.001 (-0.31)	-0.001 (-0.34)	-0.000 (-0.25)
TOTALACC	0.000 (0.54)	0.000 (0.39)	0.000 (0.39)	0.000 (0.31)	0.000 (0.31)	0.000 (0.46)
FINACQ	0.002 (0.84)	0.002 (0.87)	0.002 (0.92)	0.002 (0.92)	0.002 (1.00)	0.002 (0.97)
Firm & Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
N	1756	1756	1756	1756	1756	1756
R <sup>2</sup>	0.078	0.081	0.084	0.075	0.077	0.095
F-Statistic	6.40	6.30	5.75	5.04	5.22	6.56
Prob (F-Statistic)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

\*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.10.

Note. All variables are defined in Appendix A. T-statistics are between parentheses.

**TABLE 6** Univariate differences in Mean after Family Propensity Score Matching

Variable	Family n = 410	Nonfamily n = 410	Difference	t value for Mean Difference
Propensity Score	0.34196	0.34195	0.00	0.00
LEVERAGE	0.1566	0.15024	0.01	0.55
ROA	11.239	10.054	1.19	1.07
SIZE	14.03	14.104	-0.07	-0.72
DISCREV	0.02937	0.02902	0.00	0.12

Note. Propensity score estimated and matched using the closest propensity score in the same industry.

**TABLE 7** Logistic Regression for Estimating Propensity Score

Dependent: FAMILYFIRM	Coefficient	z-value
CONSTANT	2.554***	3.77
LEVERAGE	-0.936**	-2.29
ROA	0.003	0.60
SIZE	-0.304***	-6.48
Industry	Included	
LR Chi-square	247***	
N	1756	

\*\*\*p < 0.01, \*\*p < 0.05.

Note. All variables are defined in Appendix A.

#### 4.1.4 | Alternative measure of client importance

Following prior studies that used the ratio of total audit and nonaudit fees to the total revenues earned by the auditor as proxy for client importance (e.g., Antle, Gordon, Narayanamoorthy, & Zhou, 2006; Chung & Kallapur, 2003; Frankel et al., 2002) and given that audit fees and nonaudit fees are jointly determined (Antle et al., 2006; Craswell, 1999; Whisenant, Sankaraguruswamy, & Raghunandan, 2003) and that they create similar incentive effects (Frankel et al., 2002), we examine the sensitivity of results to the choice of total audit and nonaudit fees as a numerator. Untabulated results are consistent and qualitatively similar to those obtained from the original models.

#### 4.1.5 | Family firms and alternative measures of earnings management

We further used Kothari, Leone, & Wasley (2005) and Dechow and Dichev (2002) models as alternative measures for earnings management. Untabulated results show that there is a positive and significant association between *WEAKCG\*CLIENTIMP1\*FAMILYFIRM* and the Kothari et al. (2005) earnings management metric. A

**TABLE 8** Regression Results of Economic Bonding and Corporate Governance on Earnings Management Using Family Firms Only and Signed Discretionary Revenues

	Panel A		Panel B	
	Family Firms Only		Signed Discretionary Revenues	
	Model 12	Model 13	Model 14	Model 15
CONSTANT	0.227** (2.36)	0.214** (2.36)	0.121*** (2.62)	-0.188*** (-4.30)
FAMILYFIRM			-0.010 (-1.01)	0.016 (1.65)
CLIENTIMP1	14.910** (2.36)	14.640** (2.29)	7.671* (1.66)	-9.567 (-1.48)
CLIENTIMP1*FAMILYFIRM			-6.817 (-0.49)	0.270 (0.03)
WEAKCG*CLIENTIMP1		0.001** (2.28)	-7.540 (-1.49)	4.534 (1.14)
WEAKCG*FAMILYFIRM			-15.400 (-0.93)	3.435 (0.26)
WEAKCG*CLIENTIMP1*FAMILYFIRM			27.730** (1.97)	-7.611 (-0.74)
WEAKCG	0.012** (2.08)	0.012** (2.09)	0.008** (2.20)	-0.005 (-1.63)
BODMEET	-0.000 (-0.35)	-0.000 (-0.32)	0.000 (0.10)	-0.001 (-1.65)
BODSIZE	0.002 (1.26)	0.002 (1.24)	0.001 (0.80)	-0.001 (-1.09)
SIZE	-0.015*** (-2.73)	-0.015*** (-2.74)	-0.007** (-2.06)	0.012*** (4.28)
LEVERAGE	0.000 (0.01)	0.000 (0.00)	0.019 (1.41)	0.003 (0.25)
BLOCK	-0.010 (-0.64)	-0.010 (-0.67)	-0.011 (-1.17)	0.001 (0.06)
MOWN	0.026 (1.24)	0.026 (1.24)	0.019 (1.08)	-0.018 (-0.97)
CFO	0.057(2.16)	0.057** (2.16)	-0.000 (-0.00)	-0.035** (-2.42)
M/BRATIO	0.001(0.77)	0.001 (0.74)	0.000 (0.50)	0.000 (0.12)
LOSSDUMMY	-0.003 (-0.55)	-0.003 (-0.54)	-0.004 (-1.17)	-0.002 (-0.93)
CRISISDUMMY	0.007 (1.45)	0.007 (1.45)	0.000 (0.12)	0.002 (0.91)
BEAT	-0.016** (-2.01)	-0.016** (-2.01)	-0.012*** (-2.90)	0.010*** (2.68)
BENCH	-0.015 (-1.29)	-0.015 (-1.28)	-0.004 (-0.76)	0.004 (0.76)
JUSTMISS	0.001 (0.10)	0.001 (0.11)	-0.009 (-1.23)	0.007 (1.12)
LNAF	-0.000 (-0.02)	0.000 (0.00)	-0.000 (-0.05)	0.000 (0.07)
TOTALACC	-0.000 (-0.14)	-0.000 (-0.14)	0.000 (0.63)	0.000 (0.20)
FINACQ	-0.002 (-0.46)	-0.002 (-0.45)	0.003 (0.89)	0.001 (0.58)
Firm and Year fixed effect	Yes	Yes	Yes	Yes
N	410	410	824	932
R <sup>2</sup>	0.153	0.153	0.094	0.112
F-Statistic	3.11	2.95	2.40	3.51
Prob (F-Statistic)	0.0000	0.0000	0.0003	0.0000

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

Note. All variables are defined in Appendix A. T-statistics are between parentheses.

positive and significant association is also found between the interactive variable  $NEDSLOW*CLIENTIMP1*FAMILYFIRM$  and both alternative measures of earnings management. These findings support our second hypothesis and confirm that earnings management is higher in badly governed family firms with economic bonding. Moreover, we examine the impact of family board representation and its interaction with corporate governance on earnings quality (using the three earnings management proxies). The results are robust and consistent with those from our main models, suggesting that in the presence of high governance quality, family involvement in boards leads

to fewer earnings management and, therefore, higher earnings quality.

#### 4.1.6 | The entrenchment effect of family ownership

We show in our main results that agency costs are different in family firms compared to nonfamily firms, leading to different incentives to manage earnings. However, one might argue that holding 10% of the equity will not give a family member a casting

vote and will not enable the family to control or subvert the reported earnings of the company. As such, we further examined the entrenchment effect of family ownership and its interaction with corporate governance on earnings quality. We introduced two ownership categories, namely:  $FOWN < 50\%$  and  $FOWN > 50\%$ , aiming to capture evidence on the effect of low and high family ownership on earnings management.

Untabulated results show that *DISCREV* is negatively associated with both low and high family ownership. However, the association with *DISCREV* becomes positive and statistically significant for firms having higher family ownership levels and high economic bonding. Interestingly, the results also support our second hypothesis and indicate that auditor–client economic bonding is more likely to foster earnings management in firms with weak governance structures and high family ownership.

#### 4.1.7 | Our results in the case of signed discretionary revenue

Using the absolute values of discretionary revenues to measure earnings management “can bias tests in favor of rejecting the null hypothesis of no earnings management” (Hribar & Nichols, 2007, p.1018). As such, we examined the impact of weakly governed family and nonfamily firms on earnings management using signed discretionary revenues instead of absolute values. The results of positive and negative discretionary revenues are presented in Panel B of Table 8, Models 14 and 15, respectively. While Model 15 shows no significant coefficients for the variables of interest, Model 14 reveals positive coefficients for *CLIENTIMP1* and *WEAKCG\*CLIENTIMP1\*FAMILYFIRM* significant at 10% and 5% levels, respectively. These findings support H2 and indicate that family firms with higher auditor–client economic bonding and weak governance are more likely to engage in income-increasing discretionary revenues.

## 5 | CONCLUSION AND POTENTIAL IMPLICATIONS

Our study examines the implications of the different types of agency problems on earnings management in family firms. While family firms benefit from an alignment of interest, thus resolving the principal–agent conflict interest, our results show the conditions under which family firms may engage in unethical behavior and where the principal–principal agency problems lead to earnings management. Specifically, we find that although earnings management is lower in family firms, there is a higher tendency of earnings management for those firms with economic bonding. This suggests that auditor–client economic bonding may jeopardize auditor judgment and threaten the earnings quality of family firms. However, such an impact may be moderated by good governance mechanisms where the latter may alleviate the adverse effects of economic bonding on earnings management.

Our findings can be useful to practitioners and regulators. In the United Kingdom, family firms represent 75% of all firms (Poutziouris, 2011); they have higher profitability and considerably less debt than the population of listed firms in the U.K. markets (Scholes, Noke, Wright, & O’Neil, 2011). Moreover, U.K. family firms benefit from a regulatory environment that is arguably more flexible than that in the United States. From a governance perspective, the U.K. environment relies on the provisions to “comply or explain,” in which publicly held companies must comply with various principles and provisions or provide reasons for noncompliance (Financial Reporting Council, 2014; Zaman et al., 2011). From an accounting perspective, it follows a *principle-based approach*, which gives managers more discretion to choose accounting estimates and practices that satisfy the substance of the standard rather than its form (Agoglia, Doupnik, & Tsakumis, 2011), as it is the case in the U.S. rule-based approach. The flexibility and the use of many estimates may, however, open room to managers to manipulate their financial reports (Okamoto, 2011), and our study provides further insights to regulators and practitioners on the role of external auditors in alleviating the potential risk related to earnings management in family firms. It shows evidence on the need to strengthen the independence of auditors vis-à-vis family businesses, which usually have CEOs with long tenure. Given the potential financial dependency in the association between auditors and their clients, it becomes important to ensure the quality of audit reports to reduce the exposure to costly litigations (Johnstone, Sutton, & Warfield, 2001).

Our results also provide support to the recent recommendations in the Financial Reporting Council (2014) and show evidence on the role of good governance, for example, the effectiveness of the audit committee, in defining the use of nonaudit services in a way that does not compromise auditor independence. We find that the entrenchment effect of family firms coupled with weak corporate governance mechanisms and auditor–client economic bonding will lead to higher earnings management.

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## ENDNOTES

- <sup>1</sup> Auditors are the first who discover problems related to “managing the complex boundaries between the family and the business” and offer advice on addressing them (Jaffe et al., 1997, p. 42).
- <sup>2</sup> Family's incentives to protect their private benefits of control might be one of the reasons that may give rise to manipulated financial statements in family firms (Dobler, 2014).
- <sup>3</sup> Prior research argues that the economic dependence on auditors for nonaudit services may result in additional resources and knowledge spillover (Knechel, Sharma, & Sharma, 2012). However, Ferguson et al. (2004, p. 833) use a U.K. sample and find a positive association between firm size and two of the employed opportunistic accounting measures. They argue that “it is more difficult for auditors to challenge management's assertions when clients are large due to the greater economic benefits associated with these clients.” Given that our sample is focused on larger-size U.K.-listed companies, we expect the knowledge spillover effect to be lower, as the use of extensive nonaudit services by larger firms may lead to a conflict of interest and “may cause auditors to compromise their independence and report favorably to retain valuable clients” (Reynolds & Francis, 2000, p. 375).
- <sup>4</sup> We use the absolute values of discretionary revenues to measure the combined effect and magnitude of income-decreasing and income-increasing earnings manipulation exercises (Becker, DeFond, Jiambalvo, & Subramanyam, 1998; Reynolds & Francis, 2000).
- <sup>5</sup> While prior studies document that 5% is the minimum family ownership rule in delimiting between family and nonfamily firms (e.g., Anderson et al., 2017), we choose stricter definition of family ownership concentration by using 10% threshold, consistent with Poutziouris et al. (2015). Ten percent ownership threshold represents ownership concentration in family firms and has been widely used by previous studies (Peng & Jiang, 2010; Poutziouris et al., 2015). To make sure that family members have the casting vote, in the robustness analysis, we retested our model for family ownership holding more than 50% of the equity.
- <sup>6</sup> According to Anderson and Reeb (2003), when family members have the control, either active control by assuming the CEO position or passive control through holding a board position, the family firms have potential advantage to extract private rent benefits from the firms at the costs of nonfamily firms.
- <sup>7</sup> We did not add *BIG4* as a control variable as all our firms are audited by one of the Big 4.
- <sup>8</sup> The results show a negative and significant coefficient (at 5%) for *CLIENTIMP1\*WEAKCG*. However, the incremental effect of *FAMILYFIRM* is positive and significant at the 5% level.
- <sup>9</sup> Baum (2006, p. 212) denotes that the Durbin–Wu–Hausman test is “a test of the consequence of using different estimation methods on the same equation.” Failing to reject the null hypothesis indicates the use of the OLS instead of the IV estimation techniques (Baum, 2006).
- <sup>10</sup> Following Srinidhi et al. (2014), we model family control using the following logit regression:

$$\text{FAMILYFIRM} = \beta_0 + \beta_1\text{LEVERAGE} + \beta_2\text{ROA} + \beta_3\text{SIZE} + \text{Industry effects} + \varepsilon.$$

The logit model is considered the “most often used approach for estimating propensity scores” (Eshleman & Guo, 2014, p. 202). “We match every family firm with the nonfamily firm that has the closest propensity score in the same industry year” (Srinidhi et al., 2014, p. 2315). The results are robust to the inclusion of year fixed effects in the above logit model.

- <sup>11</sup> It has been argued that separate regression tests on two groups may provide better results than those based on full samples with interaction variables when the association between the dependent and independent variables is predicted to be contingent on a moderator variable (Jaggi et al., 2009).

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## APPENDIX A

### VARIABLE DEFINITION

- DISCREV** = The absolute value of the residuals in Equation (3).
- FAMILYFIRM** = Indicator variable with a value of one if a firm is considered a family firm, zero otherwise.
- NAF** = Total non-audit fees paid by a firm.
- AF** = Total audit fees paid by a firm.
- CLIENTIMP1** = Proportion of the nonaudit fees paid by a firm to the sum of total national revenues earned by the auditor.

**NEDSHIGH** = Indicator variable with a value of one if the percentage of nonexecutive directors on the board is greater than the median, zero otherwise.

**NEDSLOW** = The inverse of **NEDSHIGH**.

**ACEHIGH** = Indicator variable with a value of one if an audit committee comprise at least three independent directors, meet at least three times a year, and include at least one member with relevant financial experience.

**ACELOW** = The inverse of **ACEHIGH**.

**CEONONDUAL** = Indicator variable with a value of one if the positions of the CEO and the chairman of the board are separated, zero otherwise.

**CEODUALITY** = The inverse of **CEONONDUAL**.

**GOODCG** = Indicator variable with a value of one if the product of **NEDSHIGH**, **ACEHIGH** and **CEONONDUAL** is equal to one; zero otherwise.

**WEAKCG** = Indicator variable with a value of one if the product of **NEDSLOW**, **ACELOW** and **CEODUALITY** is equal to one; zero otherwise.

**BODMEET** = Number of board meetings held in a given year.

**BODSIZE** = Number of directors on the board.

**SIZE** = Natural logarithm of total assets at year end.

**LEVERAGE** = Total long-term debt to total assets.

**BLOCK** = Percentage ownership of block-holders who hold at least 5% or more of outstanding common shares and are unaffiliated with management.

**MOWN** = Percentage of total shares held by executive directors to total number of shares.

**CFO** = Cash flow from operating activities scaled by lagged total assets.

**M/BRATIO** = Market-to-book ratio.

**LOSSDUMMY** = Indicator variable with a value of one if a firm incurred losses in either one or both of the previous two years; zero otherwise.

**CRISIDUMMY** = Indicator variable with a value of one for each of the years 2008 and 2009; zero otherwise.

**BEAT** = Indicator variable with a value of one if (a) **BENCH** is not equal to one, and (b) the change in net income over total assets between  $t$  and  $t - 1$  is more than or equal to 0.01, or (c) net income over total assets is more than or equal to 0.01, zero otherwise.

**BENCH** = Indicator variable with a value of one if (a) the change in net income over total assets between  $t$  and  $t-1$  is more than or equal to 0 but less than 0.01, or (b) net income over total assets is more than or equal to 0 but less than 0.01, zero otherwise.

**JUSTMISS** = Indicator variable with a value of one if (a) **BEAT** or **BENCH** is not equal to one, and (b) the change in net income over total assets between  $t$  and  $t-1$  is more than or equal to  $-0.01$  but less than zero, or (c) net income over total assets is more than or equal to  $-0.01$  but less than zero, zero otherwise.

**LNAF** = Natural logarithm of audit fees.

**TOTALACC** = Total accruals.

**FINACQ** = Indicator variable with a value of one if the firm acquired another company or issued securities, zero otherwise.

**ROA** = Return on assets.