



Audit Quality and Classification Shifting: Evidence from UK and Germany

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Audit Quality and Classification Shifting: Evidence from UK and Germany

Abstract

Purpose – We examine the impact of audit quality (AQ) on Classification Shifting (CS) among non-financial firms operating in the UK and Germany.

Methodology – This paper used various audit committee variables (size, meetings, gender diversity, and financial expertise) to measure AQ and its impact on CS. We used a total of 2110 firm-year observations from 2010 to 2019.

Findings - We found that the presence of female members on the audit committee and audit committee financial expertise deter the UK and German managers from shifting core expenses and revenue items into special items to inflate core earnings. However, audit committee size is positively related to CS among German firms but has no impact on UK firms. We also document evidence that audit committee meetings restrain UK managers from engaging in CS. However, we found no impact on CS among German firms. Our results hold even after employing several tests.

Originality - Most CS studies used market-oriented economies such as the USA and UK and ignored bank-based economies such as Germany, France, and Japan. We provide a comparison among bank and market-oriented economies on whether the AQ has a similar impact on CS or not among them.

Implications - Overall, our findings provide broad support in an international setting for the board to improve its auditing practices and offer essential information to investors to assess how AQ affects the financial reporting process.

Keywords Classification Shifting, Earnings Management, Audit Quality, Corporate Governance

1. Introduction

Stakeholders take great interest in financial earnings since it empowers them to differentiate between high and low-performing firms and effectively make viable financial decisions (Salem et al., 2021b, Tan et al., 2022). However, Usman et al. (2022b) pointed out that there is an opportunity for managers to misrepresent their earnings for their gains whilst sacrificing shareholders' interests. By using earnings management (EM), Sun et al. (2010) pointed out that managers cover the actual financial performance of the firm and hide facts from stakeholders. Hence, Alzoubi (2016) highlighted that EM corrodes the faith of investors in the financial reporting quality and also obstructs the flow of capital in the financial markets. Due to the occurrence of major financial scandals including Enron (2001) and WorldCom (2002), the role of auditors in guaranteeing the issuance and conservation of high financial reporting quality (FRQ) has been a major topic of discussion (Salem et al., 2021a, Usman et al., 2022a).

There are various methods available to managers to manipulate their earnings including accrual earnings management (AEM), real earnings management (REM), and classification shifting (CS). Prior literature reported that audit quality (AQ) has an impact on the traditional EM methods i.e., AEM and REM (Li and Lin, 2005, Sitanggang et al., 2020, Kalbuana et al., 2022). Unlike AEM and REM, McVay (2006) and Malikov et al. (2018) argued that manipulating earnings using CS is more of an issue of disclosure since there is no impact on the net income. Also, Zalata and Abdelfattah (2021) pointed out that CS is unethical and less risky for the firm, making it difficult to under scrutiny by external auditors and regulators compared to other EM methods. Therefore, it would be interesting to examine the impact of AQ on CS.

Most CS studies used market-oriented economies such as the USA and UK and ignored bank-based economies such as Germany, France, and Japan (McVay, 2006, Zalata and

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3 Abdelfattah, 2021). However, previous studies have highlighted the importance of differentiating
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5 between bank-based and market-based economies (Ezeani et al., 2022, Antoniou et al., 2008). For
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7 instance, Antoniou et al. (2008) and Ezeani et al. (2021) contended that there is a higher level of
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9 investor protection and transparency among market-oriented economies. In contrast, they argued
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11 that firms operating in bank-oriented economies like Germany suffer from lower investor
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13 protection and lower transparency. Likewise, Van Tendeloo and Vanstraelen (2005) reported that
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15 the extent of earnings management is higher among firms in code-law countries such as Germany
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17 compared to common-law countries like the USA due to lower investor protection rights.
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19 Therefore, these countries, offer an interesting setting to examine the impact of AQ on CS. Also,
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21 majority of the prior studies mainly used AEM and ignored CS (Li and Lin, 2005, Mnif and Ben
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23 Hamouda, 2021).
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30 Previous studies identified various incentives for managers to mismanage earnings like
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32 misleading stakeholders, achieving personal gains or reducing losses, influencing taxes, and
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34 meeting or beating the financial analysts' expectations (Madhogarhia et al., 2009, Goel, 2016).
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36 The main predicament pointed out by agency theory is to ensure that managers work according to
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38 their shareholders' best interests. However, controversy begins when principals (owners) are not
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40 able to monitor the activities of agents (managers) (Jensen and Meckling, 1976, Fama and Jensen,
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42 1983). The agency problem relating to control and ownership segregation raised the request for an
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44 external audit. The issue of information asymmetry arises when one party has more information
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46 regarding financial transactions compared to the other party.
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51 Due to information asymmetry, it could lead to managers' engagement in EM practices as
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53 the shareholders have insufficient motives, resources, and access to relevant information to
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55 monitor the activities of the managers (Warfield et al., 1995). Hence, firms need to have a strong
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3 audit committee as they enable firms to restrain managers' opportunistic behaviour to engage in
4 EM (Komal et al., 2022, Salem et al., 2023). Also, it helps firms to reduce the issue of information
5 asymmetry, improving the overall FRQ (Bepari and Mollik, 2015). Hence, the process of auditing
6 is presumed to assist firms as a monitoring mechanism that diminishes managers' incentives to
7 misrepresent earnings. Fama (1980) argued that internal corporate governance systems, including
8 the board of directors and audit committee, are more economical strategies for controlling the
9 management staff's behaviour than other alternatives such as takeovers, mergers, and acquisitions.
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20 As mentioned above, limited studies used CS as a method to measure EM and examined
21 the impact of auditing on it. Zalata and Roberts (2016) used a small UK sample and examined
22 whether internal corporate governance has an impact on CS. They found that more meetings,
23 financial expertise, and directors with long tenures reduce CS. However, the study covered a
24 limited period from 2008 to 2010 and failed to consider other important factors like gender
25 diversity on the audit committee. Furthermore, Usman et al. (2022a) investigated the impact of
26 audit characteristics and audit fees on CS among German firms from 2010 to 2019. They reported
27 that the audit committee size, meetings, and fees negatively impact CS. However, a major
28 limitation of these studies is that they haven't considered AQ and provided a comparison between
29 market-based and bank-based economies. Also, La Porta et al. (2002) and Bao and Lewellyn
30 (2017) pointed out that the governance mechanisms' effectiveness varies due to the differences in
31 the institutional environment in a country. Furthermore, Leuz et al. (2003) mentioned that
32 variations in cultural background and legal systems among countries also influence governance
33 structures. Hence, it would be interesting to examine the impact of AQ on CS among UK (market-
34 based) and German (bank-based) firms.
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3 We used 2110 firm-year observations from 2010 to 2019 to examine whether AQ has an
4 impact on CS among German and UK firms. Similar to prior studies, we found that the presence
5 of female members and financial expertise on the audit committee deter the UK and German
6 managers from shifting core expenses into special items to inflate core earnings (Zalata et al.,
7 2018, Zalata and Abdelfattah, 2021). In line with Zalata and Roberts (2016), we found a negative
8 relationship between audit meetings and CS among UK firms, which implies that active audit
9 committees mitigate CS. However, it has no influence on CS among German firms. We found no
10 relation between audit committee size and CS among UK firms compared to Germany, where it is
11 positively associated with CS. Our result suggests that the audit committee's size increases the
12 extent of earnings manipulation (using CS) among German firms. Our results confirm that the
13 effectiveness of governance mechanisms does vary between the UK and Germany due to
14 differences in their market structure.
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31 Consequently, we contribute to the extant literature in several ways. Firstly, there is limited
32 evidence regarding the implication of AQ on CS in bank and market-based economies (Zalata and
33 Roberts, 2016, Usman et al., 2022a). Also, the UK has more rigorous requirements for the rotation
34 of audit firms and disclosure of information regarding auditors compared to Germany (Kleinman
35 et al., 2014). Therefore, our study contributes by providing a comparison between market-based
36 and bank-based economies to evaluate whether AQ has a similar impact on CS or not. Secondly,
37 Prior literature mainly used accrual and real earnings management as a proxy to measure earnings
38 management (Zang, 2012, Berrill et al., 2021, Ezeani et al., 2021, Tan et al., 2022) and ignored
39 CS (Leuz et al., 2003, Alzoubi, 2016, Salem et al., 2021b). Under the CS method, managers shift
40 core expenditures, including the cost of goods sold and selling, general and administrative
41 expenses within the income statement to improve core earnings (McVay, 2006, Zalata and Roberts,
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3 2017). Unlike AEM and REM, Fan et al. (2010) and Zalata et al. (2022a) highlighted that the
4 method of CS doesn't involve actions such as the reversal of accruals or increasing costs of real
5 business operations, making it a low-cost method to misrepresent earnings. Hence, we contribute
6 to the EM literature by using CS and comparing its extent between UK and German firms. Thirdly,
7 we find that the presence of female members and financial expertise on the audit committee is
8 inversely related to CS among German and UK firms. Hence, our findings could assist the UK and
9 German regulatory bodies in enhancing their auditing practice and improving the FRQ.
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20 Our paper consists of the following sections: section 2 reviews the institutional background
21 of the UK and Germany, section 3 covers the theoretical framework of this study, section 4 reviews
22 the previous literature and presents the study hypothesis, section 5 explains the process of data
23 collection, sample selection, and the methodology used to measure CS and AQ, section 6 describes
24 the descriptive statistics and regression results. Finally, the conclusion is presented in section 7.
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2. Institutional Background

The corporate governance structure of a bank-based country i.e., Germany varies from the model employed in the UK since it operates under a shareholder-oriented system (Antoniou et al., 2008, Ezeani et al., 2023). In the stakeholder-oriented system, there is a priority given to the rights of the investors (La Porta et al., 1997). Hence, the primary of the board is to protect the shareholders' interests by restraining managers to engage in unethical activities like EM and by ensuring a higher AQ (Ezeani et al., 2021, Usman et al., 2022a). Furthermore, Ball et al. (2000) suggested that implementing a shareholder-oriented approach leads to having a highly developed stock market that allows shareholders to be directly involved in selecting the board members. Whereas, a bank-based country like Germany is operating under a stakeholder-oriented governance system. Mintz (2006) pointed out that the German governance structure serves employees, creditors, and greater groups that are influenced by firm decisions instead of solely focusing on shareholders' interests.

As compared to Anglo-American countries, empirical studies reported that investor protection is not strong in Continental European nations like Germany (Gul et al., 2013, Hohenfels and Quick, 2020). Consequently, there is a higher risk of earnings manipulation from them. Since the litigation risk is an important element of investors' protection, the liability of auditors is limited in Germany since the German Commercial Code (HGB) capped their liability for negligent misconduct toward audit clients at four million euros for listed firms audits [Paragraph 323 (2) HGB] (Hohenfels and Quick, 2020). Furthermore, Gietzmann and Quick (1998) pointed out that there is limited scope for third parties to sue auditors since it usually requires plaintiffs to show an international violation, leading to a higher burden of proof. Additionally, the supervisory board in German firms is considered the key internal control and monitoring instrument. However, the great and shared responsibility to monitor the outcomes could lead to coordination failures and decrease

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3 the individual members' effort in detecting and constraining earnings manipulation (Tran, 2014).

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5 Hence, these potential weaknesses of the German governance might result in a lower level of AQ.

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8 The governance of audit committees in the UK has significantly developed over the last 25
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10 years. For instance, the Cadbury Committee (1992) recommended that the audit committee should
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12 be comprised of a minimum of three members and they must meet at least twice a year (Cadbury,
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14 1992). Furthermore, the next major change regarding the audit committee governance was made
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16 by Sir Robert Smith in 2003 after the Enron collapse in the US, where the changes were
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18 incorporated in the revised Combined Code (2003). One of the recommendations in the revised
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20 Combined Code (2003) is that the audit committee should meet at least three times a year (Smith,
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22 2003). In addition, one of the key recommendations made in the UK Corporate Governance Code
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24 (2010-2016) is that there should be at least one member with "recent and relevant financial
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26 experience" on the audit committee (Ghafran and O'Sullivan, 2017).

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31 In contrast with other firms in European countries, UK firms have formed audit committees
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33 comprising non-executive directors and external auditors to monitor and ensure the FRQ (Collier
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35 and Gregory, 1996). Similarly, Keegan and Degeorge (1998) indicated that 60 percent of listed
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37 firms in European countries had audit committees with the highest adoption rate in the UK firms
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39 and the lowest in Italy and Germany. This variation in the audit committee representation could
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41 be attributed to the corporate governance code in Germany having an unparalleled characteristic
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43 that differentiates it from the corporate governance code in the UK environment. Hence, it would
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45 be interesting to investigate the impact of AQ on CS between UK and German firms.
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3. Theoretical Framework

The introduction of agency theory provides a strong theoretical framework to examine the behaviour of managers and resolve the conflict of interest between the shareholders and managers (Jensen and Meckling, 1976, Healy and Wahlen, 1999). Agency theory posits that managers misrepresent earnings by using EM due to information asymmetry. Davidson et al. (2005) argued that when managers use EM approaches to influence reported accounting earnings, it is considered an agency cost. Hence, previous studies suggested that firms must implement robust governance mechanisms that restrain managers to engage in earnings misrepresentation and reduce agency costs (Jiraporn et al., 2008, Paiva et al., 2016). Therefore, agency theory proposed that the audit committee acts as a monitoring body and pursues the objective of reducing information asymmetry, guaranteeing the authenticity of disclosure (Beasley et al., 2009, Raimo et al., 2021).

The audit committee's function is to protect shareholders' interests through external auditing activity, supervising financial and non-financial reporting activities, and providing internal control (Turley and Zaman, 2004, Salem et al., 2022). Prior literature remarked that a higher quality prefers to report irregularities and errors, and is not willing to accept dubious accounting practices (DeAngelo, 1981, Bartov et al., 2000). Also, previous studies reported that high AQ is likely to detect aggressive EM and that top audit company is expected to carry out high-quality audits (Gul et al., 2009, Lin et al., 2019). To measure AQ, we used audit committee size, gender diversity, meetings, and financial expertise.

Regarding audit committee size, the agency theory posits that a larger group benefits from the skills and experience of the members improve the control and monitoring capacity of the audit committee (Cornett et al., 2009). Also, Green and Homroy (2018) claimed that gender diversity enables firms to establish a robust corporate governance structure and improved their overall

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3 performance. Hence, the resource dependence theory and agency theory postulates that the
4 presence of female members on the board improves the overall monitoring function, which
5 enhances the overall FRQ (Khazanchi, 1995, Kyaw et al., 2015). The reason is that female
6 members tend to be more ethical and socially responsible in the workplace compared to their male
7 counterparts, and are unlikely to involve in unethical activities like fraud and EM (Krishnan and
8 Parsons, 2008, Raimo et al., 2021).
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17 The audit committee that meets frequently is likely to accomplish the role of monitoring
18 effectively (Karamanou and Vafeas, 2005). According to the perspective of agency theory, active
19 audit committees that meet often are likely to detect accounting irregularities and unethical
20 practices like EM (Lipton and Lorsch, 1992). Prior literature pointed out the financial expertise of
21 individual members improves the effectiveness of the audit committee (Velte, 2018, Zalata et al.,
22 2018). From the agency theory perspective, audit functions that are undertaken by members
23 possessing financial skills should improve the transparency and credibility of governance-related
24 information disclosed to the investment community, thereby strengthening the ability of the
25 internal audit committee to monitor and control company management's activities (Fama and
26 Jensen, 1983). Hence, audit committees with financial expertise are better equipped to monitor
27 financial reporting activities and provide credible information to the market, aligning managerial
28 interests with shareholders' value maximization. Therefore, it would be interesting the examine
29 the impact of the AQ (audit committee size, gender diversity, financial expertise, and frequency
30 of meetings) on CS among UK and German firms.
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4. Literature Review

4.1 Classification Shifting

Bradshaw and Sloan (2002) pointed out that managers use CS because the nature of non-recurring items is transitory and infrequent, making it difficult for investors to detect it. There is empirical evidence that managers use CS to manipulate their earnings. McVay (2006) documented that US managers use CS and shift the core expenses to special items to inflate their core earnings. Likewise, Fan, Barua et al. (2010) found that managers boost their core earnings by shifting the recurring items in the fourth quarter compared to interim quarters. Zalata and Roberts (2017) concluded that UK firms use CS to report an increase in their core earnings. They also reported that credit rating firms do not penalise companies that engage in CS since it is difficult to detect. However, their study used a limited period from 2008 to 2010. Malikov et al. (2018) found that UK firms misclassify their revenues, shifting them from non-operating activities to operating revenue. However, most of these studies considered only market-based economies, such as the USA and the UK, and failed to focus on a bank-based economy such as Germany with weak investor protection rights and poor transparency.

Ball et al. (2000) argued that the capital market in the code-law country i.e., Germany is less active. Hence, Van Tendeloo and Vanstraelen (2005) highlighted that firms improve their liquidity by engaging in earnings management, which outweighs the litigation costs in countries like Germany. Hence, our study provides an interesting comparison between the UK and Germany to investigate whether they engage in CS or not.

4.2 Audit Quality and Classification Shifting

Agency literature suggests that the audit committee's size influences its effectiveness (Collier and Gregory, 1996, Raimo et al., 2021). Consistent with the agency theory, Lipton and Lorsch (1992) argue that the monitoring effectiveness and the control of the audit committee will increase in line with its size. Similarly, Bedard and Johnstone (2004) argue that an audit committee with more members has the relevant diversity and skills required to ensure the quality of the financial report. Also, previous literature suggests that the power, status, and effectiveness of a large audit committee are linked to its size (Kalbers and Fogarty, 1993, Xie et al., 2003, DeZoort et al., 2002b). Yang and Krishnan (2005) and Zalata and Roberts (2016) documented that the size of the audit committee influences earnings management. In contrast, studies in an Anglo-Saxon (market-based) environment suggest that a large audit committee will not mitigate managerial opportunism since it impairs its ability to reach a consensus (John and Senbet, 1998, Yang and Krishnan, 2005). John and Senbet (1998) highlighted the likelihood of significant coordination and communication issues among larger boards that are in line with the Anglo-Saxon literature. Thus, most studies in market-based economies suggest an inverse relationship between audit committee size and earnings management (John and Senbet, 1998, Yang and Krishnan, 2005, Ghosh et al., 2010).

In the German context, Albersmann and Hohenfels (2017) found no relationship between audit committee size and EM. However, (Köhler, 2005) argued for a positive relationship between audit committee size and EM due to the size of the supervisory board and its shared monitoring role with the audit committee. Hence, we expect a positive relationship with CS in Germany and a negative relationship in the UK. Therefore, we propose the following hypothesis:

H₁: Audit committee size is positively related to classification shifting among German firms and negatively related to classification shifting among UK firms.

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3 Extant literature has highlighted the impact of female directors in mitigating agency conflict (Gull
4 et al., 2018, Zalata et al., 2019a, Zalata and Abdelfattah, 2021, Ezeani et al., 2021, Ezeani et al.,
5 2022). Previous studies suggest that the differences in ethical behaviour, risk appetite,
6 overconfidence, and accountability between men and women will result in differences in
7 monitoring effectiveness (Betz et al., 1989, Gull et al., 2018, Srinidhi et al., 2011, **Zalata et al.,**
8 **2019b**). Studies are yet to establish the relationship between audit committee gender and
9 classification shifting since the mandatory female representation quota of 30% was introduced.
10 García and Herrero (2021) questioned the effectiveness of the female representation quota, arguing
11 that many female board members have been hired as ‘tokens’ to help firms to ensure compliance
12 with the regulation. They suggest that some female directors are used for secondary governance,
13 reducing their monitoring effectiveness.

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15 Studies on earnings management in market-based economies show that women's presence
16 influences the monitoring ability of audit committees and improves financial reporting quality
17 (Gull et al., 2018, Green and Homroy, 2018, **Zalata et al., 2022b**). For instance, Gull et al. (2018)
18 argue that women are more effective in monitoring due to their unique capabilities. Similarly, Betz
19 et al. (1989) suggested that women are more mindful of ethical behaviour and less likely to behave
20 opportunistically. Barber and Odean (2001) pointed out that women are unwilling to take risks.

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22 Consistent with these studies, we expect that the existence of women on the audit committee will
23 ensure high-quality information, encourage an atmosphere of openness, and limit managers'
24 opportunistic behaviour, including CS practices. Therefore, we argue that the gender diversity of
25 the audit committee is inversely related to the CS practices of UK and German firms and formulate
26 the following hypothesis.

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28 ***H₂: Gender diversity of audit committee members is negatively related to CS***

Prior studies have linked audit committee meeting frequency with its diligence since less active audit committees lack monitoring effectiveness (Menon and Williams, 2004, Beasley et al., 2000, Sharma et al., 2009). Beasley et al. (2000) reported an increase in fraudulent activities as a result of reduced meeting frequency. Similarly, Abbott et al. (2004) show a high incidence of restatement among firms with less meeting frequency. Previous literature suggests that audit committees that meet frequently effectively restrain managers from manipulating earnings (Xie et al., 2003). Also, the frequency of audit committee meetings enables audit committee members to perform their responsibility of monitoring effectively (DeZoort et al., 2002a). However, Nelson et al. (2002) pointed out that the method of CS has no impact on the bottom-line earnings, which makes it difficult for diligent audit committee members to detect it. Also, it is suggested by the Anglo-Saxon corporate governance code that the audit committee must meet only when they are required to discharge their duties. For instance, it is recommended by the Blue Ribbon Committee that the audit committee must meet up to four times a year (Smith, 2006). Also, in Germany, creditors are heavily involved in monitoring (Ezeani et al., 2021, Usman et al., 2022c), thereby raising questions about the relevance of board meetings. We argue that the number of meetings held by the UK and German audit committees allows them less time to detect CS and propose the following hypothesis:

H₃: Audit committee meetings have no impact on CS.

Previous studies reported that the financial expertise of audit committee members improves their monitoring effectiveness (Badolato et al., 2014, Ezeani et al., 2021). In line with the Blue Ribbon committee, the financial expertise of the audit committee is expected to influence its overall effectiveness. Section 407 of the Sarbanes Oxley Act (SOX) requires companies to disclose whether the audit committee members have financial expertise. Prior studies highlighted that the

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3 financial expertise of audit committee members is crucial since it helps deal with complex issues
4 like earnings management, reduces the possibility of any misstatements, and evaluates auditors'
5 judgement (DeZoort and Salterio, 2001, Komal et al., 2021). Hence, audit committee financial
6 experts are more likely to reduce weaknesses in the firm's internal control.
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10 In line with the European Directive (2006/43/EC), German firms are required to have at least one
11 member with financial expertise to ensure the FRQ. Kieback et al. (2022) reported a favorable
12 market reaction to the audit committee's financial expert appointment. Also, Li et al. (2012) argue
13 that having experts within the audit committee helps the committee to understand managerial
14 choices. Ezeani et al. (2021) argue that ACFEs mediate between external auditors and firm
15 management and employ their financial skills to limit opportunistic managerial behaviour. Thus,
16 we argue that ACFEs have sufficient skills to detect CS and, therefore, develop the following
17 hypothesis.
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30 ***H₄: Audit committee financial expertise is negatively related to CS.***

31 **5. Research Design**

32 **5.1 Data and Sample**

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35 We used German and UK firms to investigate the impact of AQ on CS since these major economies
36 have varying CG structures, i.e., stakeholder-oriented (Germany) and shareholder-oriented (UK).
37 For Germany, we used DAX, MDAX, and SDAX indexes since they represent the largest 130
38 German firms (Gamerschlag et al., 2011). For the UK, we used the Financial Times Stock
39 Exchange (FTSE) 350 index. This study covers the period from 2010 to 2019 to ensure that we
40 considered the recent corporate governance changes and reliable observations. In line with
41 previous studies, we excluded the financial, utility, and mining companies due to their unique
42 financial reporting regulations (Klein, 2002, Zalata and Roberts, 2017). Following prior studies,
43 firms with less than €/\$ 0.5 million in sales are eliminated to avoid outliers since we used sales as
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a deflator (Abernathy et al., 2014, Fan and Liu, 2017). Due to missing data and companies established after 2010, our final sample consists of 1270 UK and 840 German firm-year observations, resulting in 2110 firm-year observations as shown in Table I.

Insert Table I

5.2 Dependent Variable: Classification Shifting

Following McVay (2006) and Zalata and Roberts (2016), we examined whether UK and German firms use CS to manipulate their core earnings. In line with prior studies, we expect that managers inflate their core earnings by shifting their recurring expenses within the income statement as non-recurring items (Fan et al., 2010, Zalata et al., 2022a). We used the following equation to estimate the normal core earnings:

$$C.E_{i,n} = \alpha_0 + \alpha_1 C.E_{i,n-1} + \alpha_2 AT_{i,n} + \alpha_3 ACC_{i,n-1} + \alpha_4 ACC_{i,n} + \alpha_5 \Delta S_{i,n} + \alpha_6 N\Delta S_{i,n} + \mu_{i,n} \quad (1)$$

Where C.E represents core earnings estimated as core earnings scaled by sales. The core earnings are calculated as sales less cost of goods sold (CGS) less selling, general, and administrative expenditures and scaled by sales. Asset turnover (AT) is calculated as sales divided by average net operating assets. Hence, net operating assets are estimated as operating assets minus operating liabilities. The operating assets are calculated as total assets minus cash and cash equivalents and the operating liability is estimated as total assets less total debt less book value of common equity less preferred equity less minority interests. ACC represents the operating accruals and is estimated as the earnings before extraordinary items minus Cash flow from operating activities, scaled by sales.

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3 ΔS stands for the % change in sales and is calculated as $SALE_t$ less $SALE_{t-1}$, scaled by $SALE_{t-1}$.

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6 $N\Delta S$ is ΔS if the value is less than zero, otherwise zero (McVay, 2006, Fan et al., 2010, Zalata et
7
8 al., 2019a).

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10 We used sales as a scale in the above model since McVay (2006) highlighted that the firm's total
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12 assets be systematically misstated along with the non-recurring items (N.RI). The lag of core
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14 earnings ($CE_{i,t-1}$) is included because the nature of core earnings is persistent. The inverse
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16 association between AT and profit margin is controlled by asset turnover as it is critical for firms
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18 that have significant income-increasing N-RI since they are likely to modify their operating
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20 strategies (Zalata and Roberts, 2016). The lagged accruals ($ACC_{i,t-1}$) capture the last period
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22 accruals for earnings of the current period since Zalata and Roberts (2017) pointed out that past
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24 accruals are linked with future performance. The accruals (ACC_t) of current period curbs the
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26 extreme performance that arises from accruals management. The ΔS_t controls the impact of sales
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28 growth as it lowers fixed costs. Lastly, $N\Delta S_t$ allows different slopes in related with the increase and
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30 decrease of sales.
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37 The estimated coefficients are obtained by estimating model 1 cross-sectionally and then employed
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39 back in model 1 to estimate expected core earnings (EC.E). Following Zalata and Roberts (2017),
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41 we measured CS by using the following model:
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$$44 \quad UC.E = \alpha_0 + \alpha_1 N.RI + \alpha_2 SZ_t + \alpha_3 CFO_{S_t} + \alpha_4 LVE_t + \alpha_5 RA_t + \alpha_6 BTM_t \quad (2)$$

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46 We calculated unexpected core earnings (UC.E) as core earnings (C.E) less EC.E, divided by sales.

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48 In line with Zalata and Roberts (2017), non-recurring items (N.RI) are measured as C.E less
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50 bottom-line earnings and scaled by sales. Following Zalata and Roberts (2016) and Usman et al.
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52 (2022a), we used firm size (SZ_t), operating cash flow (CFO_{S_t}), leverage (LVE_t), return on assets (
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RA_t) and book-to-market value (BTM_t) as control variables. When the company manipulates its earnings using CS, the UC.E inflates with an increase in N-RI. Hence, we expect that there is a positive association between UC.E and N-RI. Appendix 1 presents the definitions of the study variables.

5.3 Independent Variable: Audit Quality

Following prior studies, we considered several variables to examine the impact of AQ on CS including size (AQ_SIZE), gender diversity (AQ_GD), the frequency of audit committee meetings (AQ_MEET), and audit committee financial expertise (AQ_EXP) (Raimo et al., 2021, Alhababsah and Yekini, 2021). Our paper used the following model to examine the impact of AQ on CS:

$$UC.E_t = \alpha_0 + \alpha_1 N.RI_t + \alpha_2 AQ_SIZE_t + \alpha_3 AQ_GD_t + \alpha_4 AQ_MEET_t + \alpha_5 AQ_EXP_t + \alpha_6 N.RI * AQ_SIZE_t + \alpha_7 N.RI * AQ_GD_t + \alpha_8 N.RI * AQ_MEET_t + \alpha_9 N.RI * AQ_EXP_t + \alpha_{10} SZ_t + \alpha_{11} CFOs + \alpha_{12} LVE_t + \alpha_{13} RA_t + \alpha_{14} BTM_t + \alpha_{15} GDP_t + \alpha_{16} INF_t \quad (3)$$

Following previous studies, we use the interaction term between N-RI and AQ variables to examine whether they are related to UC.E (Zalata and Roberts, 2017, Hamza and Kortas, 2019). The interaction terms will enable us to see whether ACs impact the association between UC.E and N-RI. We have used each AQ variable separately in the regression analysis to see its impact on CS. The definitions of the variables used in the model are given in Appendix 1.

5.4 Control Variables

In addition to the main variables of interest, we have controlled for the firm characteristics such as firm size (SZ), cash flow from operations (CFOs), leverage (LVE), return on assets (RA), and book-to-market value (BTM) that are proven to influence the firms' EM (Zalata and Abdelfattah, 2021, Zalata and Roberts, 2016, Usman et al., 2022c). Following previous studies, we included country-level factors such as the country's gross domestic product (GDP) and inflation level (INF)

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3 to isolate the impact of institutional factors (Owusu et al., 2022, Obenpong Kwabi et al., 2022,
4 Kwabi et al., 2023). The definitions of these variables are given in Appendix 1.
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8 **5.5 Additional Analysis and Robustness**

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10 The discretionary accruals from the modified Jones model are used as an alternative dependent
11 variable for the robust analysis. In line with Komal et al. (2021), we used the propensity score
12 matching technique (PSM) to address the sample selection bias. In the first stage of PSM, the
13 probit model is used to match the sample. In this probit model, AQ is used as a dependent variable
14 constructed as a dummy of high and lower AQ. The level of audit quality determined by the median
15 of the AQ index constructed via principal component analysis (PCA) of independent variables
16 such as audit committee size (AQ_SIZE), gender diversity (AQ_GD), the frequency of audit
17 committee meetings (AQ_MEET) and financial expertise (AQ_EXP). We have scored 1 if the AQ
18 index is above the median, and 0 otherwise. Therefore, in the probit model, we regress the AQ on
19 control variables to calculate the propensity scores of firms with high and lower AQ using nearest
20 neighbour matching. We have removed the poorest matching based on the caliper value of less
21 than 0.05 and re-run our main analysis with this reduced sample. Finally, the system GMM is used
22 to address the endogeneity issues in our model (Tan et al., 2022). The system GMM itself
23 determines the instrumental variables and provides more robust results (Ezeani et al., 2021). For
24 the validation of GMM findings, we have run the AR1, AR2, and Sargan tests.
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6. Empirical Results and Discussion:

6.1 Descriptive Statistics:

The descriptive statistics for the main variables used in this paper are reported in Table IIa and Table IIb for the UK and German firms, respectively. The mean of U.CE for both samples is 0.00% and is similar to the result reported by previous studies (McVay, 2006, Fan et al., 2010, Zalata and Roberts, 2017). This result is expected since U.CE represents the residual from the expectation model. This consistency in findings suggests that U.CE is a reliable and consistent measure of the quality of reported earnings. The mean of NR.I for German firms is 12%, which is higher by 4% compared to the UK firms (8%). Previously, Zalata and Roberts (2016) reported a 6.1% mean value of N.RI in the UK. Our result confirms that German firms engage more in CS compared to the UK firms, which may be due to differences in industry composition, cultural norms, poor transparency levels, and lower investor protection rights which are considered important factors in promoting accounting integrity reported by previous studies (Antoniou et al., 2008, Ezeani et al., 2023). The N.RI value indicates that the misclassification of recurring items is not mitigated by introducing the International Financial Reporting Standards (IFRS) in Germany (Van Tendeloo and Vanstraelen, 2005). Hence, our findings suggest that the accounting and governance standards in Germany may not effectively promote a higher level of AQ (Raimo et al., 2021, Usman et al., 2022a).

In terms of AQ, the mean values of AQ_SIZE and AQ_MEET are 4.44 and 4.81 for German firms which are slightly higher compared to UK firms (3.49 and 3.65). Similarly, Zalata

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3 and Roberts (2016) reported similar results of AQ_SIZE and AQ_MEET as 3.39 and 3.8 for UK
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5 firms. Hence, our results indicate that there are more members on the audit committee of German
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7 firms and they meet frequently compared to UK firms. This might be due to the difference in
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9 governance structure as Germany operates under a tier-two system compared to the UK (one-tier
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11 system) as it consists of the executive board (management responsibilities) and the supervisory
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13 board (monitoring responsibilities) (Fauver and Fuerst, 2006). Whereas, one board of directors
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15 comprised of executive and non-executive directors is responsible for monitoring and managing
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17 the firm (Hohenfels and Quick, 2020). Hence, the auditing process is not similar between the two
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19 countries.
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24 Hence, the mean value of AQ_GD for the UK and German firms are 28.50 and 14.52
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26 respectively, indicating that UK audit committees have more female representation compared to
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28 German firms. Likewise, the mean value (77.73) of AQ_EXP for the UK firm is higher compared
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30 to the German firm (68.59). This is in line with the notion that more female representation and the
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32 presence of financial expertise enhance the AQ and improve FRQ (Green and Homroy, 2018,
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34 Zalata et al., 2018).
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39 **Insert Table IIa and IIb**

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42 To support the above findings, we used a T-test to compare the mean values of AQ variables.
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44 Similarly, The test results show that there is a significant variation among the mean values of AQ
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46 variables obtained from the UK and German firms (Table III). It confirms that the extent of CS
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48 and governance structure is not similar. Therefore, it would be interesting to examine the impact
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50 of AQ on CS among UK and German firms.
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54 **Insert Table III**

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3 Tables IVa and IVb show the correlation between our main study variables. Gujarati (2009)
4 highlighted that Pearson coefficients must not be more than 80% to avoid the issue of
5 multicollinearity. The highest correlation reported was 0.58 between RA and CFOs in the UK sub-
6 sample. This result confirms that the correlation coefficients are less than the conventional
7 thresholds, which means there is no multicollinearity problem among the main variables. In line
8 with prior studies, our results show a positive and significant association between NR.I and UCE
9 indicate that some UK and German firms do engage in the misclassification of recurring items
10 (Zalata and Roberts, 2017, Usman et al., 2022c).
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22 **Insert Table IVa and IVb**

23 **6.2 Regression Analysis:**

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25 In line with Zalata and Roberts (2016), Zalata and Roberts (2017), and Usman et al. (2022c), a
26 positive and significant relationship is found between non-recurring items (NR.I) and unexpected
27 core earnings (UC.E) at a 1% level for both samples (Table V), confirming that both UK and
28 German firms engage in CS. This shows that the UC.E variation is related to NR.I systematically.
29 Hence, it suggests that firms operating in both market-based and bank-based economies
30 manipulate their earnings by moving their recurring items within the income statement as non-
31 recurring items (McVay, 2006, Usman et al., 2022a). This inflation of core earnings through CS
32 makes no impact on their bottom-line earnings, making it difficult for the authorities to detect it
33 (Zalata et al., 2018). Similar to Zalata and Roberts (2017), our findings demonstrate that the UK
34 and German firms are likely to see CS as a viable method to manipulate earnings, probably due to
35 the flexibility under the IFRS regarding disclosure regulations.
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3 To examine the impact of AQ on CS, the interaction variables between NR.I and AQ (size,
4 gender, meetings, expertise) are of primary interest. Table IV shows that AQ_SIZE is negatively
5 and significantly linked with CS among UK firms, confirming that large audit committees
6 effectively restrain managers to engage in unethical activities like EM and enhance AQ (Peasnell
7 et al., 2005, Zalata and Roberts, 2016). In line with agency theory, a larger audit committee is
8 likely to resolve and discover issues related to the disclosure process, since they have the necessary
9 strength of skills, diversity, and opinions capable of improving monitoring and supervision
10 functions (Bedard and Johnstone, 2004, Raimo et al., 2021). Conversely, we found that AQ_SIZE
11 is positively and significantly related to CS in Germany. Hence, Köhler (2005) pointed out that
12 the audit committees in Germany are semi-regulated, and the composition of the audit committee
13 is biased due to the formation of the German supervisory board. Hence, Karamanou and Vafeas
14 (2005) pointed out that if the committee size is too large, the monitoring might get weaker due to
15 coordination problems.
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34 Regarding audit committee gender diversity (AQ_GD), we found that AQ_GD is
35 negatively and significantly associated with CS among both UK and German firms, confirming
36 that the existence of females in the audit committees mitigates CS and improves AQ (Xu et al.,
37 2019, Zalata and Abdelfattah, 2021, Zalata et al., 2022a). Similarly, Zalata et al. (2019a) found
38 that female Chief Executive Officers (CEOs) significantly decline in CS compared to their male
39 counterparts. In line with resource dependence and agency theory, the presence of female members
40 on the audit committee promotes transparency and limits opportunistic behaviour since they tend
41 to be more risk-averse and ethical (Zalata and Abdelfattah, 2021).
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53 **Insert table V**
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Moreover, we found that audit committee meetings (AQ_MEET) are insignificantly related to UC.E in both samples, which implies that the frequency of audit committee meetings has no mitigating effect on CS. In line with hypothesis H_3 , the result confirms that manipulation of recurring items is not likely to be detected by the diligent audit committee members regardless of the number of times they meet since CS doesn't affect the net income which makes it difficult to be detected. Similarly, the findings of Jensen (1993), Vafeas (1999), and Ghosh et al. (2010) suggested that the audit committee meetings are mainly a reactionary measure to address escalating problems and an increase in the number of meetings signifies them.

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In terms of audit committee financial expertise (AQ_EXP), we found that AQ_EXP is negatively and significantly linked with CS for the UK and German firms, confirming that audit committee members with financial expertise constrain managers to make opportunistic decisions and use CS (Zalata and Roberts, 2016, Zalata et al., 2018). Our finding agrees with the perspective of agency theory that AQ_EXP increases earnings quality and improves AQ, as they have more advanced financial and accounting knowledge that enables them to detect complex earnings manipulation methods like CS (Xie et al., 2003, Chen and Komal, 2018). In line with Zalata and Roberts (2016), we found that UC.E is negatively and significantly related to firm size (F_SI), highlighting that large UK firms are less likely to engage in CS. Also, we found a positive relationship between ROA and CS among German firms, indicating that German firms with excellent performance are likely to engage in CS (Zalata and Roberts, 2017). The other control variables used in the model show a similar relationship, as reported by prior CS studies (Barua et al., 2010, Zalata and Roberts, 2016).

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Following Zalata and Roberts (2017) and Usman et al. (2022c), we divided the UK and German samples into a small sample of 1050 firm-year observations and 675 firm-year

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3 observations based on firms with recurring revenues, which is shown in Table VI, since it is
4 expected that not all companies engage in CS. Hence, McVay (2006) emphasised that managers
5 misclassify recurring items as non-recurring expenses in the year where non-recurring items are
6 recognised. Likewise, Zalata and Roberts (2017) argued that firms with non-recurring expenses
7 are likely to engage in CS. Therefore, firms with non-recurring revenues are excluded from the
8 second sample. The purpose of excluding non-recurring revenues is to narrow down those UK and
9 German firms that might have a bigger opportunity to engage in CS. In line with Zalata and Roberts
10 (2016), we found that most UK and German firms engage more in N.RI (income-decreasing)
11 earnings manipulation since the sample size is not reduced significantly (Table VI).
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25 **Insert Table VI**

26 27 **6.3 Additional Analysis & Robustness**

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30 There are various ways to manipulate earnings including AEM, REM, and CS (McVay, 2006,
31 Alzoubi, 2016, Sitanggang et al., 2020). For our main analysis, we used CS since there are limited
32 studies on it. However, Van Tendeloo and Vanstraelen (2005) pointed out that German companies
33 engage in AEM, and the introduction of IFRS has no impact on it. For additional analysis, we used
34 the modified Jones model as a proxy to measure to investigate whether AQ has a similar impact
35 among the UK and German firms or not. The reason for using the modified Jones model is that
36 previous studies recommended that the model is effective and is less likely to be affected by
37 changes in accounting standards like IFRS than other EM methods (Waweru and Prot, 2018, Salem
38 et al., 2021b)
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51 Following Kothari et al. (2005) model, we used the absolute value of discretionary accruals (DA)
52 as a proxy of accrual earnings management:
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$$DA = \left[\frac{TA_n}{TAS_{n-1}} \right] - \left[\alpha_1 \frac{1}{TAS_{n-1}} + \alpha_2 \frac{(\Delta REVES_t - \Delta RECVS_t)}{TAS_{t-1}} + \alpha_3 \frac{PP\&E_t}{TSA_{t-1}} + \mu_n \right] \quad (4)$$

TA_t stands for the total accruals and is estimated as earnings before abnormal items minus less cash flow from operations. $\Delta REVES_t$ represent the company revenues and $\Delta RECVS_t$ are the company receivables in year n. The symbol $PP\&E_n$ stands for the property, plant, and equipment and μ_n represents the residual. We used lagged total assets as a deflator to deal with the issue of heteroscedasticity.

In line with the main analysis, table VII reported that AQ_GD and AQ_EXP restrain AEM. Whereas, we found that AQ_SIZE and AQ_MEET have no significant impact on AEM. In line with prior studies, our results confirm that AQ does affect AEM (Xie et al., 2003, Peasnell et al., 2005).

Insert Table VII

For robustness, we employed a propensity score matching (PSM) for addressing sample selection bias in our model. As discussed earlier, in the first stage of PSM, we regress AQ as a dummy variable (value of 1 for AQ index higher than median value, and 0 otherwise) on control variables to calculate the propensity scores of firms with high and low AQ using nearest neighbour matching. We have removed the poorest matching based on the caliper value of less than 0.05. Table VIII provides the findings of the second stage of PSM. In line with our main results (Table V), we found consistent results that confirm there is no sample self-selection bias.

Insert Table VIII

We have also employed two-step generalised method of moments (GMM) techniques to ensure consistent estimation and enhance estimates efficiency by eliminating issues resulting from

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3 weak instruments (Salem et al., 2021a). In addition, adopting GMM regression guarantees the
4 appropriateness of resolving any endogeneity issues (Roodman 2006). Table IX presents the
5 findings of the GMM regression and confirms the validity of the main outcomes in Table V.
6
7 Therefore, we conclude that our main findings are less likely to be driven by endogeneity issues.
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10 11 12 13 **Insert Table IX**

14 15 16 **7. Summary and Conclusion**

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18 Our study investigates the impact of AQ on CS among the UK and German non-financial listed
19 companies from 2010 until 2019. We used a full sample of 1270 and 840 firm-year observations
20 and sub-samples of 1050 and 675 firm-year observations after excluding non-recurring revenue
21 items. To measure AQ, we used audit committee size, gender diversity, frequency of meetings,
22 and financial expertise. Firstly, we found evidence of UK and German firms engaging in CS to
23 inflate their core earnings. Our findings have a significant implication for regulators as investors
24 rely on accurate and transparent financial statements to make informed investment decisions. Also,
25 the manipulation of earnings could erode investor confidence and undermine the credibility of the
26 financial reporting system.
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39 Secondly, we found that CS is negatively related to the audit size among UK firms,
40 confirming that a larger audit committee declines CS. Conversely, we found no relation between
41 audit committee size and CS in Germany, indicating that the audit committee's size does not reflect
42 the quality of the audit process. Hence, the result implies that there is a need to review the Two-
43 Tier governance in Germany to ensure an effective audit committee composition. Thirdly, we
44 found that female audit committee members mitigate CS among the UK and German firms. Our
45 findings have an important policy implication for the audit committee composition since they
46 suggest that the presence of more female members improves the AQ. Lastly, we found a negative
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3 relationship between audit committee members with financial expertise and CS frequency in both
4 the UK and Germany, which implies that it is essential to have financial experts on audit
5 committees as their advanced knowledge could help to detect sophisticated issues like CS.
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7 However, the frequency of audit committee meetings has no significant impact on CS. Hence, the
8 results of this study contribute to the existing literature by highlighting the variation in the
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10 governance structure of a bank-based (Germany) and market-based (UK) country. The results are
11 relevant for firms who are seeking to enhance their governance structure and improve their FRQ.
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20 As robustness of our primary analysis, we employed the modified Jones model and a two-step
21 generalised method of moments (GMM) to investigate whether AQ has a similar impact on accrual
22 earnings management and found similar results. Our paper provides evidence of CS among the
23
24 UK and German non-financial firms and implies that there is a need to improve the level of
25 transparency in both the UK and German firms' financial reporting processes. It also highlights the
26 importance of AQ in the mitigation of CS. One of the limitations of this study is that we have used
27 CS as the main method and AEM for the additional analysis and ignored REM. Future studies
28 might consider all the EM forms to evaluate whether AQ has a similar impact or not. Also, the
29 period of our study is from 2010 to 2019. As the IFRS was implemented in 2005, future studies
30 could investigate the changes in the firms' EM behaviour in the pre and post-IFRS period.
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32 Furthermore, we haven't included financial firms such as banks and insurance companies in the
33 study sample. Therefore, the findings might not apply to financial firms and future research could
34 include both financial and non-financial firms.
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Table I: Sample selection criteria: 2010-2019

	UK	Germany
Initial sample	3500	1300
Less:		
Financial, Utility and Mining firms	2140	410
Firms with missing data	90	50
Final Firm-year observation	1270	840
Total Observations	2110	

Table IIa: Descriptive Statistics (UK)

Variables	Obs	Mean	Std.Dev.	Min	Max
U.CE	1270	0.00	0.52	-0.08	0.04
N.RI	1270	0.08	0.23	0.00	0.13
AQ_SIZE	1270	3.49	0.91	2.00	8.00
AQ_GD	1270	28.50	16.11	0.00	71.56
AQ_MEET	1270	3.65	1.38	2.00	10.00
AQ_EXP	1270	77.73	25.51	0.00	100.00
SZ	1270	13.63	2.67	10.48	17.58
CFOs	1270	0.09	0.18	0.04	1.19
LVE	1270	0.33	0.14	0.13	0.70
RA	1270	0.04	0.24	-0.05	0.29
BTM	1270	2.24	5.07	0.91	3.82
GDP	1270	0.08	0.12	-0.11	0.16
INF	1270	2.90	1.60	0.66	4.08

Note: The definitions of the variables are presented in appendix 1

Table IIb: Descriptive Statistics (Germany)

Variables	Obs	Mean	Std.Dev.	Min	Max
U.CE	840	0.00	0.34	-0.19	0.17
N.RI	840	0.12	0.31	0.00	0.21
AQ_SIZE	840	4.44	1.35	1.00	9.00
AQ_GD	840	14.52	11.36	0.00	65.56
AQ_MEET	840	4.81	1.75	1.00	12.00
AQ_EXP	840	68.59	19.16	0.00	85.79
SZ	840	15.61	2.98	12.26	18.96
CFOs	840	0.10	0.07	0.06	2.42
LVE	840	0.24	0.19	0.02	0.65
RA	840	0.06	0.05	0.02	0.37
BTM	840	1.76	3.36	0.07	2.39
GDP	840	1.32	0.08	-0.19	0.10
INF	840	1.51	0.82	0.55	2.96

Note: The definitions of the variables are presented in appendix 1

Table III: Univariate analysis

Variable	UK		Germany		t-statistics
	N	Mean	N	Mean	
U.CE	1270	0.004	840	0.001	-0.003
N.RI	1270	0.066	840	0.123	0.289***
AQ_SIZE	1270	9.497	840	14.438	4.941***
AQ_GD	1270	65.347	840	44.515	-0.832***
AQ_MEET	1270	5.546	840	7.807	-2.739***
AQ_EXP	1270	68.732	840	62.593	-0.139***

Note: Continuous variables are winsorized at 1% and 99%. Variables detail description is given in Appendix

Table IVa Pearson Correlation Matrix (UK)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) U.CE	1.00												
(2) N.RI	0.15***	1.00											
(3) AQ_SIZE	0.10	0.04**	1.00										
(4) AQ_GD	-0.12***	0.25*	-0.03	1.00									
(5) AQ_MEET	-0.04***	-0.12**	-0.29*	0.03	1.00								
(6) AQ_EXP	-0.02	0.22	-0.11*	0.11	-0.01	1.00							
(7) SZ	-0.01***	0.02	0.09**	-0.03	-0.11*	-0.02	1.00						
(8) LVE	-0.01	0.33*	-0.02*	0.01	0.05*	-0.01**	-0.03	1.00					
(9) CFOs	-0.07***	0.10*	-0.26	-0.09*	0.05*	0.02	-0.07*	-0.05*	1.00				
(10) BTM	0.05	-0.03	-0.11*	-0.02	0.24	0.11*	-0.18*	0.12*	0.14	1.00			
(11) RA	0.16	-0.12	-0.02	0.04	0.25	0.01	-0.28*	-0.09	0.58***	0.36	1.00		
(12) GDP	0.02	-0.06	-0.01*	-0.08	-0.04**	0.05	0.01	-0.06*	-0.00	0.06	0.03	1.00	
(13) INF	-0.01	-0.02	-0.21	0.01	0.24	0.01	-0.36	0.05	0.03**	0.03	0.23	-0.22	1.00

Table IVb Pearson Correlation Matrix (Germany)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) U.CE	1.00												
(2) N.RI	0.19***	1.00											
(3) AQ_SIZE	0.09***	0.05	1.00										
(4) AQ_GD	-0.04***	-0.05	-0.12*	1.00									
(5) AQ_MEET	0.03	0.02	-0.25*	0.03	1.00								
(6) AQ_EXP	-0.13***	-0.07	0.06	-0.05**	-0.01	1.00							
(7) SZ	0.07	0.36	0.14	0.01	0.05**	-0.10	1.00						
(8) LVE	-0.06	0.321	-0.01	-0.01*	0.05	-0.09*	-0.16	1.00					
(9) CFOs	-0.10*	-0.00	-0.09*	0.05*	0.12	0.23	-0.07**	-0.05*	1.00				
(10) BTM	-0.03	-0.21*	-0.02	0.04	0.11	-0.04	-0.18*	0.12**	0.04	1.00			
(11) RA	0.12*	-0.36*	0.04	0.25*	0.01*	-0.04	-0.48*	-0.09**	0.25*	0.36*	1.00		
(12) GDP	0.06*	-0.01	-0.08*	-0.04*	0.05*	0.04	0.01	-0.06*	-0.00	0.06*	0.03	1.00	
(13) INF	-0.02*	-0.21*	0.01	0.24*	0.03	-0.05	-0.36*	0.05*	0.03	0.14	0.23*	-0.08*	1.00

Table V: Main Analysis

Variables	Shareholder (UK)				Stakeholder CG (Germany)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE
N.RI	0.403*** (0.041)	0.317*** (0.038)	0.324*** (0.045)	0.352*** (0.039)	0.188*** (0.046)	0.299*** (0.063)	0.313*** (0.047)	0.192*** (0.071)
AQ_SIZE	-0.116** (0.049)	-0.124** (0.049)	-0.113** (0.050)	-0.118** (0.049)	0.078** (0.030)	0.069*** (0.026)	0.074*** (0.027)	0.078** (0.029)
AQ_GD	-0.064** (0.029)	-0.070** (0.031)	-0.067** (0.030)	-0.073** (0.030)	-0.023*** (0.009)	-0.021*** (0.008)	-0.022*** (0.008)	-0.023*** (0.009)
AQ_MEET	-0.061 (0.042)	-0.069 (0.042)	-0.061 (0.043)	-0.062 (0.043)	-0.033 (0.066)	-0.020 (0.066)	-0.019 (0.063)	-0.035 (0.064)
AQ_EXP	0.256** (0.107)	0.273** (0.109)	0.255** (0.110)	0.257** (0.109)	0.169** (0.066)	0.148** (0.057)	0.164*** (0.062)	0.170** (0.066)
AQ_SIZE * N.RI	-0.029*** (0.006)				0.013*** (0.004)			
AQ_GD * N.RI		-0.026*** (0.006)				-0.012*** (0.003)		
AQ_MEET * N.RI			-0.012 (0.020)				0.013 (0.014)	
AQ_EXP * N.RI				-0.337*** (0.063)				-0.125*** (0.016)
SZ	-0.063*** (0.022)	-0.068*** (0.023)	-0.070*** (0.023)	-0.064*** (0.022)	0.015 (0.016)	0.018 (0.017)	0.014 (0.016)	0.015 (0.016)
LVE	-0.042 (0.036)	-0.059 (0.038)	-0.066* (0.037)	-0.045 (0.039)	-0.029* (0.017)	-0.031* (0.017)	-0.027 (0.017)	-0.029* (0.017)
CFOs	-0.028* (0.016)	-0.031* (0.017)	-0.026* (0.015)	-0.028* (0.016)	-0.020** (0.009)	-0.020** (0.009)	-0.019** (0.009)	-0.019** (0.009)
BTM	0.053 (0.039)	0.062 (0.039)	0.052* (0.039)	0.056 (0.039)	-0.037 (0.072)	-0.023 (0.070)	-0.021 (0.068)	-0.040 (0.067)
RA	0.051 (0.037)	0.046 (0.037)	0.057 (0.037)	0.050 (0.037)	0.028*** (0.018)	0.025*** (0.019)	0.029*** (0.018)	0.026*** (0.019)
GDP	0.272** (0.116)	0.291** (0.117)	0.261** (0.119)	0.275** (0.118)	0.197* (0.071)	0.174* (0.062)	0.190* (0.067)	0.197* (0.071)
INF	-0.009 (0.009)	-0.010 (0.009)	-0.007 (0.010)	-0.009 (0.009)	-0.007 (0.006)	-0.009 (0.006)	-0.006 (0.011)	-0.004 (0.006)
Constant	-0.559*** (0.145)	-0.581*** (0.148)	-0.591*** (0.148)	-0.561*** (0.147)	0.136*** (0.045)	0.127*** (0.045)	0.121*** (0.046)	0.137*** (0.046)
Observations	1270	1270	1270	1270	840	840	840	840
R-squared	0.408	0.386	0.382	0.396	0.261	0.269	0.282	0.261
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Continuous variables are winsorized at 1% and 99%. Variables detail description is given in Appendix 1.

Table VI. Additional analysis using positive NRI

Variables	UK				Germany			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE
N.RI	0.269*** (0.027)	0.244*** (0.029)	0.231*** (0.032)	0.271*** (0.030)	0.085* (0.043)	0.107*** (0.033)	0.078** (0.037)	0.092*** (0.019)
AQ_SIZE	-0.083** (0.035)	-0.089** (0.036)	-0.081** (0.036)	-0.084** (0.035)	-0.089* (0.050)	-0.105* (0.055)	-0.109** (0.054)	-0.109* (0.055)
AQ_GD	-0.027** (0.012)	-0.029** (0.013)	-0.028** (0.013)	-0.030** (0.012)	-0.018* (0.011)	-0.020* (0.012)	-0.022* (0.011)	-0.022* (0.011)
AQ_MEET	-0.020 (0.032)	-0.023 (0.033)	-0.021 (0.034)	-0.023 (0.035)	-0.018 (0.037)	-0.011 (0.035)	-0.013 (0.039)	-0.017 (0.034)
AQ_EXP	0.233** (0.097)	0.245** (0.099)	0.232** (0.100)	0.234** (0.099)	0.141** (0.055)	0.123** (0.048)	0.137*** (0.052)	0.142** (0.055)
AQ_SIZE*N.RI	-0.024*** (0.005)				0.015*** (0.002)			
AQ_GD*N.RI		-0.022*** (0.006)				-0.013*** (0.001)		
AQ_MEET*N.RI			-0.010 (0.017)				0.110 (0.153)	
AQ_EXP*N.RI				-0.241*** (0.045)				-0.188** (0.089)
SZ	-0.054*** (0.019)	-0.077*** (0.028)	-0.064*** (0.019)	-0.069** (0.029)	-0.001 (0.002)	0.001 (0.002)	-0.003 (0.004)	-0.002 (0.002)
LVE	-0.031** (0.012)	-0.045*** (0.016)	-0.035** (0.014)	-0.040** (0.016)	-0.003 (0.035)	0.044 (0.029)	-0.038 (0.032)	-0.038 (0.027)
CFOs	-0.017 (0.010)	-0.021 (0.013)	-0.021* (0.011)	-0.019 (0.014)	-0.003 (0.052)	0.012 (0.041)	-0.062 (0.047)	0.098** (0.039)
BTM	-0.025 (0.020)	-0.045 (0.023)	-0.055 (0.030)	-0.038* (0.032)	0.009 (0.003)	0.005 (0.002)	0.006 (0.003)	0.003 (0.002)
RA	0.072 (0.024)	0.108* (0.025)	0.059 (0.022)	0.091* (0.025)	0.244*** (0.078)	0.070*** (0.053)	0.056*** (0.060)	0.160*** (0.047)
GDP	0.125*** (0.032)	0.118*** (0.033)	0.166*** (0.029)	0.123*** (0.033)	0.003** (0.001)	0.001 (0.001)	0.003*** (0.001)	-0.001 (0.001)
INF	-0.003 (0.008)	-0.005 (0.009)	-0.009 (0.008)	-0.004 (0.009)	-0.007 (0.007)	-0.003 (0.005)	-0.009 (0.006)	-0.004 (0.005)
Constant	0.156*** (0.020)	0.137*** (0.022)	0.171*** (0.020)	0.132*** (0.022)	0.102*** (0.037)	0.098*** (0.028)	0.100*** (0.034)	0.092*** (0.025)
Observations	1050	1050	1050	1050	675	675	675	675
R-squared	0.456	0.425	0.408	0.435	0.246	0.221	0.266	0.233
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Continuous variables are winsorized at 1% and 99%. Variables detail description is given in Appendix 1.

Table VII: Robust results using accrual as an alternative dependent variable

Variables	UK	Germany
	DA	DA
AQ_SIZE	0.030	-0.106
	(0.005)	(0.059)
AQ_GD	-0.028***	-0.025***
	(0.009)	(0.015)
AQ_MEET	-0.020	0.019
	(0.015)	(0.039)
AQ_EXP	-0.247***	-0.153**
	(0.032)	(0.060)
SZ	-0.038***	-0.003
	(0.012)	(0.006)
LVE	0.848***	-0.005
	(0.255)	(0.065)
CFOs	0.818***	-0.004
	(0.233)	(0.072)
BTM	0.110	0.007***
	(0.243)	(0.002)
RA	-0.024***	0.126***
	(0.006)	(0.040)
GDP	0.050	0.023
	(0.074)	(0.018)
INF	-0.126	-0.005
	(0.239)	(0.025)
Constant	0.751***	0.579***
	(0.241)	(0.036)
Observations	1270	840
R-squared	0.218	0.214
Industry	Yes	Yes
Year	Yes	Yes

Notes: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Continuous variables are winsorized at 1% and 99%. Variables detail description is given in Appendix 1.

Table VIII: Robust analysis after Propensity Score Matching (PSM)

Variables	Shareholder (UK)				Stakeholder CG (Germany)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE
N.RI	0.410** (0.193)	0.459** (0.194)	0.410** (0.193)	0.389** (0.196)	0.175*** (0.062)	0.178*** (0.063)	0.175*** (0.062)	0.184*** (0.062)
AQ_SIZE	-0.105** (0.044)	-0.118** (0.047)	-0.090** (0.040)	-0.091** (0.038)	0.064** (0.025)	0.063*** (0.024)	0.066*** (0.024)	0.062** (0.023)
AQ_GD	-0.053** (0.024)	-0.056** (0.025)	-0.052** (0.023)	-0.049** (0.020)	-0.024*** (0.006)	-0.019*** (0.007)	-0.024*** (0.006)	-0.020*** (0.006)
AQ_MEET	-0.020 (0.034)	-0.018 (0.035)	-0.020 (0.034)	-0.018 (0.033)	-0.255 (0.224)	-0.243 (0.221)	-0.255 (0.224)	-0.269 (0.205)
AQ_EXP	0.188** (0.084)	0.168*** (0.063)	0.179*** (0.063)	0.175*** (0.063)	0.111*** (0.041)	0.109** (0.042)	0.111*** (0.041)	0.088* (0.045)
AQ_SIZE * N.RI	-0.021*** (0.007)				-0.017*** (0.003)			
AQ_GD * N.RI		-0.020*** (0.004)				-0.013*** (0.004)		
AQ_MEET * N.RI			-0.014 (0.011)				0.016 (0.011)	
AQ_EXP * N.RI				-0.319*** (0.006)				-0.092*** (0.008)
SZ	-0.050** (0.021)	-0.051** (0.022)	-0.048** (0.022)	-0.047** (0.021)	0.010 (0.011)	0.011 (0.011)	0.011 (0.011)	0.013 (0.011)
LVE	-0.016* (0.009)	-0.015* (0.009)	-0.012 (0.009)	-0.018* (0.009)	-0.091*** (0.007)	-0.093*** (0.008)	-0.091*** (0.007)	-0.089*** (0.007)
CFOs	-0.016*** (0.003)	-0.018*** (0.003)	-0.017*** (0.003)	-0.021*** (0.003)	-0.019*** (0.004)	-0.018*** (0.004)	-0.020*** (0.004)	-0.019*** (0.004)
BTM	0.053 (0.039)	0.062 (0.039)	0.052* (0.039)	0.056 (0.039)	-0.037 (0.072)	-0.023 (0.070)	-0.021 (0.068)	-0.040 (0.067)
RA	0.030 (0.031)	0.035 (0.031)	-0.029 (0.031)	-0.030 (0.031)	0.021*** (0.003)	0.020*** (0.003)	0.020*** (0.003)	0.021*** (0.004)
GDP	0.123*** (0.022)	0.124*** (0.022)	0.123*** (0.022)	0.123*** (0.021)	0.024** (0.011)	0.024** (0.012)	0.024** (0.012)	0.024** (0.011)
INF	-0.005 (0.003)	-0.007* (0.004)	-0.005 (0.003)	-0.004 (0.003)	-0.006 (0.008)	-0.007 (0.008)	-0.002 (0.008)	-0.006 (0.008)
Constant	-0.341*** (0.088)	-0.372*** (0.095)	-0.413*** (0.103)	-0.369*** (0.098)	0.145*** (0.048)	0.128*** (0.045)	0.133*** (0.050)	0.146*** (0.049)
Observations	1031	1031	1031	1031	705	705	705	705
R-squared	0.354	0.361	0.370	0.357	0.330	0.319	0.354	0.304
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Continuous variables are winsorized at 1% and 99%. Variables detail description is given in Appendix 1.

Table IX. Robust results with system GMM

VARIABLES	Shareholder (UK)				Stakeholder CG (Germany)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE	U.CE
Lag1 (U.CE)	0.501*** (0.141)	0.514*** (0.141)	0.506*** (0.141)	0.507*** (0.141)	0.316*** (0.079)	0.322*** (0.067)	0.438*** (0.046)	0.440*** (0.045)
N.RI	0.466*** (0.041)	0.447*** (0.039)	0.463*** (0.046)	0.456*** (0.038)	0.246*** (0.043)	0.287** (0.115)	0.254*** (0.068)	0.248** (0.105)
AQ-SIZE	-0.125** (0.063)	-0.129** (0.062)	-0.131** (0.061)	-0.121** (0.059)	-0.085** (0.033)	-0.078*** (0.032)	-0.082*** (0.030)	-0.081** (0.030)
AQ_GD	-0.106*** (0.004)	-0.103*** (0.004)	-0.093*** (0.005)	-0.089*** (0.005)	-0.050*** (0.015)	-0.046*** (0.014)	-0.047*** (0.017)	-0.043*** (0.016)
AQ_MEET	-0.009 (0.008)	-0.011 (0.009)	-0.017 (0.015)	-0.019 (0.018)	-0.005 (0.006)	-0.007 (0.020)	-0.006 (0.008)	-0.004 (0.013)
AQ-EXP	-0.296*** (0.064)	-0.267*** (0.065)	-0.281*** (0.064)	-0.272*** (0.066)	-0.228*** (0.049)	-0.208*** (0.050)	-0.222*** (0.051)	-0.207*** (0.050)
AQ_SIZE * N.RI	-0.032*** (0.008)				-0.024*** (0.006)			
AQ_GD * N.RI		-0.026*** (0.004)				-0.020*** (0.003)		
AQ_MEET * N.RI			0.017 (0.014)				0.013 (0.016)	
AQ_EXP * N.RI				-0.367*** (0.054)				-0.283*** (0.042)
SZ	0.057** (0.024)	0.052** (0.025)	0.048** (0.024)	0.045* (0.026)	0.032*** (0.011)	0.033*** (0.011)	0.032*** (0.011)	0.031*** (0.011)
LVE	0.010 (0.184)	0.013 (0.184)	0.019 (0.183)	0.013 (0.184)	-0.031 (0.023)	-0.034 (0.025)	-0.034 (0.025)	-0.033 (0.024)
CFOs	-0.023*** (0.008)	-0.021*** (0.006)	-0.028*** (0.007)	0.019*** (0.004)	-0.020*** (0.007)	-0.018*** (0.005)	-0.019*** (0.005)	-0.013*** (0.003)
BTM	0.002** (0.001)	0.003*** (0.001)	0.001 (0.001)	0.002 (0.001)	0.029 (0.021)	0.036 (0.022)	0.037* (0.022)	0.035 (0.022)
RA	0.130*** (0.007)	0.134*** (0.007)	0.083*** (0.009)	0.134*** (0.008)	0.174*** (0.060)	0.173*** (0.060)	0.178*** (0.060)	0.177*** (0.060)
GDP	0.134 (0.214)	0.138 (0.215)	0.140 (0.216)	0.137 (0.215)	0.023 (0.018)	0.027 (0.019)	0.025 (0.019)	0.026 (0.018)
INF	-0.002 (0.026)	-0.003 (0.027)	-0.013 (0.023)	-0.007 (0.026)	-0.007 (0.006)	-0.009 (0.006)	-0.006 (0.011)	-0.004 (0.006)
Constant	-0.327*** (0.119)	-0.332*** (0.123)	-0.359*** (0.105)	-0.338*** (0.119)	-0.074* (0.044)	-0.307*** (0.101)	-0.219 (0.201)	-0.203 (0.142)
Observations	1270	1270	1270	1270	840	840	840	840
Sargan (%)	24.62	22.17	23.66	18.92	37.12	38.54	29.73	37.33
AR1	0.193	0.192	0.192	0.101	0.138	0.142	0.132	0.137
AR2	0.279	0.278	0.269	0.256	0.225	0.243	0.254	0.226

Notes: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Continuous variables are winsorized at 1% and 99%. Variables detail description is given in Appendix 1.

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3 **Appendix I: Measurement of Main Variables**
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Variables	Definition	Measurement
U.CE	Un-expected core earnings	Reported core earnings less expected core earnings.
N.RI	Non-recurring items	Core earnings less bottom-line earnings, scaled by sales
AQ_SIZE	Audit committee size	The number of audit committee members.
AQ_GD	Audit committee gender diversity	The proportion of female members on the audit committee
AQ_MEET	Audit committee meetings	Frequency of audit committee meetings held in a year
AQ_EXP	Audit committee financial expertise	The proportion of audit committee members with financial expertise.
SZ	Firm size	Natural logarithm of total assets
CFOs	Cash flow from operations	Cash flow from operations scaled by lagged total assets.
LVE	Leverage	Total liabilities/total assets.
RA	Return on Assets	Net income/total assets.
BTM	Book to Market Value	Total assets/market capitalization.
GDP	Gross Domestic Product	Annual growth in gross domestic product
INF	Inflation	Annual inflation rate

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