

THE EFFECT OF AUDIT COMMITTEE CHARACTERISTICS ON FINANCIAL REPORTING QUALITY: THE MODERATING ROLE OF AUDIT QUALITY IN THE NETHERLANDS

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Abstract

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The purposes of this study are to shed light, on the one hand, on the effect of audit committee characteristics, namely independent members in audit committee, a financial expert in audit committee, frequency of meetings and audit committee size on financial reporting quality proxied by real earnings management. On the other hand, it aims to investigate the moderating role of audit quality in the relationship between audit committee characteristics and financial reporting quality. The objective is to contribute to the new evidence on the role of audit committee characteristics towards the financial reporting quality with audit quality as a moderator, particularly the appointment of Big 4 company. This study uses the ordinary least squares (OLS) regression to achieve the research purpose by evaluating the data collected from 90 public listed companies from 2010 to 2019 in the Dutch context. The results state that audit committee characteristics have a statistically significant relationship with real earnings management. However, the effect of audit committee meetings on abnormal operating cash flow and discretionary expenses is not significant. There is also evidence that audit quality positively moderates the audit committee and real earnings management links. Lastly, the findings of this study will help professional accountancy bodies and governments to highlight the relevance of earnings management in safeguarding trustworthy financial information, owners' wealth and to enhance audit committee characteristics in improving audit quality, especially after the enforcement of the Dutch Corporate Governance Code in 2016.

Keywords: Audit Committee, Independent Member, Presence of a Financial Expert, Frequency of Meetings, Audit Committee Size, Financial Reporting Quality, Real Earnings Management, Audit Quality

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1. INTRODUCTION

Corporate governance practice is starting to include the use of tools to monitor top management, in order to safeguard owners' wealth and attract more foreign investments. Previous researches have indicated that the monitoring role of audit committee is an important key in corporate governance, helping to control and monitor managers' practice (Afify, 2009). Besides, audit committee can enhance the quality of financial reporting and decrease audit risk, thereby improving the quality of reported earnings (Abernathy, Beyer, Masli, & Stefaniak, 2015). Hence, audit committee plays a crucial role in overseeing and monitoring a company's management, with the aim of safeguarding the interests of the owners (Kallamu & Saat, 2015). Moreover, the primary role and responsibility of audit committee is to make recommendations on the appointment and change of external auditor; it covers wider areas including the monitoring of managers and review of the company's internal control system (DeZoort, Hermanson, Archambeault, & Reed, 2002). Accurately, the quality of the financial report is a key element to shareholders and investors, providing them with financial information about a company. Hence, we shed light on the need for providing reliable, timely, and relevant information for efficient markets. The absence of this information spurs on market manipulation. This indicates that information should not have any bias and material error, and ought not to be misleading. Nevertheless, the information needs to truly present the business activity and cautiously represent estimates and uncertainties, using proper disclosure (Okoye & Ofoegbu, 2006). Cohen, Krishnamoorthy, and Wright (2017) state that a strong financial reporting process includes diligence by preparing and monitoring parties, such as the audit committee (AC) and auditors, providing accurate and transparent financial reports and associated disclosures.

Due to the financial fraud cases highlighted above, fraudulent financial reporting, usually beginning with earnings management, increases the most aggressive generally accepted accounting principles. Yet, earnings management might be favorable to influence stockholders' motivations and expand the information value of earnings. There are two categories of earnings management procedures, precisely real earnings management (REM) as well as accruals earnings management (Roychowdhury, 2006; Cupertino, Martinez, & da Costa, 2015). Numerous researchers have used many proxies for the purpose of measuring the quality of financial reporting. Given the likelihood that REM is hardly ever detected, and since the passage of the Sarbanes-Oxley Act when managers moved away from accrual-based towards REM, we have chosen to adopt it.

This study aims at seeking to address the effect of audit committee characteristics on financial reporting quality (FRQ). To further account for the links mentioned, this paper extends previous research to draw attention to the moderating effect of audit quality on the relation between AC and FRQ in the Dutch context. Indeed, despite the widespread acknowledgement of the importance of audit quality, a gap exists in the empirical body of literature that examines the moderating effect of this factor. It will help corporations improve the audit quality, and avoid financial reporting

problems. Audit quality is deemed to be an important governance feature that is likely to moderate the relation between AC characteristics and FRQ. Hence, audit quality plays a crucial role in resolving problems generated by conflicts of interest between firms and their shareholders.

This paper makes several contributions to the existing literature. As a matter of fact, to the best of our knowledge, the Dutch context has not been explored yet, especially after the long-awaited new Dutch Corporate Governance Code was issued in 2016. The Netherlands is a civil law country that has general rules of civil laws relating to the governance of corporations. The general rules on financial reporting can be found in Book 2 of the Dutch Civil Code, which sets out the duties, and powers of the various corporate bodies, as well as rules on representation, conflicts of interest and the liability of management board members. The Dutch Civil Code also contains rules regarding financial reporting and disclosure. Compliance with the rules in the Dutch Civil Code can, if necessary, be forced through the court, while the Financial Supervision Act (FSA) contains additional rules applicable to listed companies regarding the supervision of business conduct. A specially designated body, the Authority for the Financial Markets (AFM), carries out supervision of compliance with these rules. Alongside these statutory rules, there is a system of self-regulation consisting of codes of conduct containing principles and best-practice provisions drawn up by the sector itself. The first Dutch Civil Code holds rules regarding financial reporting and disclosure for listed companies, which was adopted in 2003, and came into effect in 2004. It was amended in 2008 so as to get more transparency, accountability, fairness and responsibility. In addition, more attention was paid to risk management, the supervisory duties of the supervisory board, and the level and structure of remuneration. This code has become a model to many other civil law countries that are developing codes. Continuing developments, globalization and overlaps with legislation pushed the Corporate Governance Monitoring Committee to issue a new code in 2016 at the request of the National Federation of Christian Trade Unions in the Netherlands. This code, also, provides guidance for effective cooperation and management. The merit of this code as an instrument of self-regulation is that it focuses more on the behavior of management board members, supervisory board members and shareholders.

The remainder of this study is being organized as per following order: Section 2 reviews the literature and provides hypotheses development, Section 3 describes the research procedures, such as data collection and analysis method, Section 4 presents the results from the statistical analyses, discusses the results and explain the theoretical implications and practical value of this study, Section 5 provides a conclusion, and outlines the limitation and future studies of this research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

In recent years, AC is the most prominent feature to supervise the FRQ to ensure the compliance of the company with the regulations and laws, and review the clarity and completeness of disclosures in

the financial statements. The AC ought to review the significant financial reporting issues and judgements made in connection with the preparation of the company's financial statements, interim reports, preliminary announcements and related formal statements. The AC has also a particular role, acting independently from the executive, to ensure that the interests of shareholders are properly protected in relation to financial reporting and internal control. The AC should guarantee that there are a proper system and allocation of responsibilities for the day-to-day monitoring of financial controls (Smith, 2003). Further, the AC ought to review related information presented with the financial statements, including the operating and financial review, and corporate-governance statements relating to audit and risk management. According to the Dutch Corporate Governance Code (Corporate Governance Code Monitoring Committee, 2016), the main role and responsibilities of the AC are to monitor the integrity of the financial statements of the company; to review the company's internal financial control system, to approve the remuneration and terms of engagement of the external auditor following appointment by the shareholders in general meeting and to monitor the external auditor's independence, objectivity and effectiveness.

Akeju and Babatunde (2017) evince that financial reporting quality encompasses both financial information and non-financial information useful for decision making included in the financial reports (p. 3749). Indeed, financial figures are of great interest, but non-financial information may also distinguish a company and encourage capital providers to invest in it. *De facto*, specific financial and non-financial elements in the financial reports are used to measure the financial statement quality according to the specific attributes approach. These financial statements measure the impact of presenting specific information in the annual report on the decisions made by the users. Moreover, financial reports are considered a useful method of communicating financial information to users. Hence, auditors are obligated to audit financial reporting owing to the imbalance in the information provided and agency disagreements between outside consumers and managers' interests. This can enhance the financial reporting that increases the investors' confidence in the firm's performance and in the traded securities that reflect the company image (Johl, Kaur, & Cooper, 2015).

In this study, we develop, on the one hand, the relationship between audit committee characteristics, namely the independent members in audit committee, the presence of a financial expert in audit committee, the frequency of meetings and audit committee size and FRQ. On the other hand, we discuss the moderating effect of audit quality on the above relationships.

2.1. The relationship between audit committee characteristics and financial reporting quality via REM

This study investigates the direct association between AC characteristics and FRQ via earnings management. These characteristics are member independence, presence of a financial expert, frequency of meetings and size committee.

2.1.1. Member independence in AC and FRQ

Member independence in audit committee is an important element that has attracted significant interest. Kallamu and Saat (2015) evince that the independence of the AC from managers will allow the committee to take an independent view of the financial reporting process of the company and ensure that the committee is not dominated by managers, leading to higher audit quality. In addition, Nekhili, Hussainey, Cheffi, Chtioui, and Tchakoute-Tchuigoua (2016) state that AC chaired by independent directors is positively linked with high-quality financial reporting and a lower occurrence of fraudulent reporting. Yeh, Chung, and Liu (2011) indicate that the independence of AC increases its strength, and decreases the agency problem and the opportunity for expropriation by insiders. Independence makes the committee more objective in monitoring the transparency of financial reporting; a committee unbiased toward the executive thereby decreases the agency problem between executives and other shareholders. Moreover, Kamarudin, Wan Ismail, and Ibrahim (2009) find that AC independence is correlated negatively with AC independence and earning management. This reveals that AC independence has a positive influence on discretionary accruals and restatement. It indicates that a higher ratio of AC independence is correlated with a higher level of abnormal accruals and the likelihood that firms restate earnings. Amin, Lukviarman, Suhardjanto, and Setiany (2018) indicate that AC independence has a negative relationship with discretionary accruals and get a similar result with Hasan, Kassim, and Hamid (2020). Therefore, independence of the AC is arguably a key factor in enhancing their role in preventing misstatements in the financial statements. The following hypothesis will be examined:

H1: Member independence in audit committee is negatively associated with real earnings management.

2.1.2. Presence of a financial expert in AC and FRQ

Hasan et al. (2020) advocate that the resource dependence theory clarifies that the AC's role is to afford resources in the form of expertise and experience in order for corporations to gain a competitive advantage in FRQ. These specialists are projected to mitigate the agency problem to manipulate earnings reports which stand up to the ability of managers. The presence of a financial expert in AC has been considered as strength. It is a factor that lowers earnings management and helps high-quality earnings reporting (Mardessi & Fourati, 2020). Besides, DeFond, Hann, and Hu (2005) claim that the presence of a financial expert is deemed essential to an AC's effectiveness because the committee needs to perform a wide range of duties that require a high level of financial sophistication. Jun Lin, Xiao, and Tang (2008) argue that the audit committee's main task is to supervise corporate financial reporting and auditing processes, therefore, its members should have the capability to understand the issues being examined or discussed. However, Katmon and Al Farooque (2017) evince an insignificant relationship between AC financial expertise and discretionary accruals. According to Kusnadi, Leong, Suwardy, and Wang (2016), mixed

expertise with accounting, finance, and/or supervisory is better than single expertise in the AC. They uncover that while FRQ is positively and significantly associated with the presence of an accounting expert in AC, it is not associated only with the presence of a financial or supervisory expert in AC. On the other hand, Carrera, Sohail, and Carmona (2017) examine the relationship between AC and FRQ in the US and find that an increasing proportion of AC members with financial accounting expertise decrease the FRQ. Moreover, Ghafran and O'Sullivan (2017) highlight the potential value of AC expertise in smaller firms as opposed to larger listed firms, suggesting that the value of expertise to audit quality depends on the specific financial reporting challenges firms face. Al-Shaer, Salama, and Toms (2017) also find that AC quality tends to increase quality rather than volume of environmental accounting disclosures, that an accounting expert causes improvement and that it applies to smaller firms. Consequently, having a financial expert in the AC evinces that the internal audit program and financial information might be monitored with good intentions, it is required for monitors to have sophistication in financial matters to detect financial problems. Thus, the following hypothesis is proposed:

H2: The presence of a financial expert in audit committee is negatively associated with real earnings management.

2.1.3. Frequency of meetings in AC and FRQ

According to Xie, Davidson, and DaDalt (2003), the number of AC meetings reflects their monitoring effectiveness, and the literature uses frequency of meetings as a proxy to measure audit committee activity. ACs that meet more frequently are better informed about the company circumstances (Al-Matari, 2013), and provide a more effective oversight and monitoring mechanism of financial activities, which includes the preparation and reporting of company financial information. Beasley, Carcello, Hermanson, and Neal (2009) claim that members of the AC are committed to meaningful and substantive meetings which still in turn lead to better monitoring and improve the financial reporting process.

Previous literature contends that the frequency of AC meetings decreases the degree of a financial restatement. Indeed, Habbash (2015) state that the meetings that are more frequent decrease discretionary accruals and increase FRQ. This states that the committee is more efficient and committed to producing quality performance. Currently, Shahkaraiah and Amiri (2017) scrutinize AC quality and FRQ in India, which reveals that AC meetings have a negative significant impact on FRQ. As such, the following hypothesis is developed:

H3: The frequency of meetings in audit committee is positively associated with real earnings management.

2.1.4. Audit committee size and FRQ

Herdjiono and Sari (2017) state that the effectiveness of AC is to some extent dependent on the characteristics of the committee, such as its size. To be effective in controlling and monitoring managers' behavior, Vicknair, Hickman, and Carnes (1993) indicate that the AC must have enough

members to carry out its responsibilities, with sufficient resources (Kalbers & Fogarty, 1993).

Relating to the resource dependence theory, AC size has been considered as a significant factor that increases FRQ. Indeed, larger ACs are more likely to behave as authoritative bodies exercising effective monitoring functions. Dhaliwal, Naiker, and Navissi (2010) evince that AC size increases the FRQ thanks to the diversity of skills and experiences they share amongst themselves. More recently, Setiany, Hartoko, Suhardjanto, and Honggowati (2017) scrutinize AC characteristics and voluntary financial disclosure in Indonesia, which shows that AC size has a positive significant influence on financial reporting. Mohammed, Ahmed, and Ji (2017) find a positive significant association between AC size and accounting conservatism. By contrast, other scholars (Hasan et al., 2020) showed an insignificant relationship between AC size and FRQ. Based on the above, the following hypothesis is:

H4: AC size is negatively associated with real earnings management.

While prior research advocated the direct association between AC characteristics and FRQ, few studies have highlighted the presence of other variables, mainly audit quality, moderating the links mentioned.

2.2. The moderating effect of audit quality

The various audit quality definitions show the difficulties in measuring audit quality (AQ). Indeed, any proxy measure would not be perfect for two main reasons. On the one hand, quality is a user and context relative concept. Auditors, auditees, financial statement users and regulators may have various incentives and different expectations for AQ. Hence, they may focus on different aspects of the AQ construct. Consequently, there is no general consensus among researchers on how to define or measure AQ because it is a multidimensional latent construct (Tepalagul & Lin, 2015). On the other hand, in most cases, the source of data for AQ proxies is only the publicly available information. Rajgopal, Srinivasan, and Zheng (2019) define several proxies of audit quality mainly, the appointment of Big 4 company, industry specialist auditors, audit fees, audit tenure, etc. Among these proxies, the appointment of Big 4 company will be used for audit quality in the current research to strengthen the relationship between AC and FRQ. Indeed, larger auditors are believed to have the stronger motivation and better competencies to deliver high-quality audit (DeAngelo, 1981). Besides, the appointment of Big 4 company allows firms to detect larger losses earlier, thus reducing the amount of tampering with earnings. The fact that a company is audited by a Big 4 company, mirrors its concerted effort to produce high financial reporting quality, consequently gives stockholders proprietary and confidential information, and in turn lessens the range of accounting misrepresentations.

Although there has been abundant literature focusing on audit quality, there are a few studies assessing its moderating effect on the relationship between AC characteristics and FRQ (Hasan et al., 2020; Kim, Jeong, Kang, & Lee, 2017; Arismajayanti & Jati, 2017). Specifically, according to recent accounting literature, Jiraporn, Chintrakarn, Tong, and Treepongkaruna (2018) evince that board

independence can be replaced with external audit quality. These authors prove that companies having a larger percentage of independent directors on the board have a lesser chance of employing Big 4 companies. In this vein, Ejeagbasi, Nweze, Ezeh, and Nze (2015) and Akhalumeh, Agweda, and Ogunkuade (2017) pointed out that AC independence and board independence are positively and significantly associated with Big 4 companies. Then, audit quality is considered one of the greatest effective governance mechanisms because it protects users against the opportunistic and fraudulent actions of managers. Therefore, the appointment of Big 4 company reinforces the relationship between the independence of AC and FRQ.

The proponents of the institutional theory have argued that a company's AC whose members have specific industry skills is linked to higher FRQ. Cohen et al. (2017) find that if managers and AC of such corporations work on the same board within a similar industry, this association might increase the committee's expertise and afterward expand its general skill to act as effective monitors. Moreover, Kim et al. (2017) evince that AC financial accounting experts enhance audit quality. This means that the proportion of financial accounting experts is increased in AC, which brings about an additional increase in the effort to improve external monitoring. Consequently, the appointment of Big 4 company strengthens the relationship between the presence of a financial expert in AC and FRQ.

See, Pitchay, Ganesan, Haron, and Hendayani (2020) state that the ACs which meet up more frequently and regularly are likely to be aware of the current auditing issues and will be more diligent when performing their duties. Higher the level of AC meetings implied that the AC members are more active and participative in AC meetings and hence contribute to the better quality of financial reporting (Mbobo & Umoren, 2016). The frequency of meetings in the AC has a positive relationship with audit quality (Asiriwa, Aronmwan, Uwuigbe, & Uwuigbe, 2018). The frequency of AC meetings coupled with a better audit quality and industry specialization audit firms lead to better earnings management (Abbott, Daugherty, Parker, & Peters, 2016). Strong AC meetings are an indicator of audit quality monitoring in association with the increased chances of appointing Big 4 company that will result in providing higher audit quality (Hoitash, Hoitash, & Bedard, 2009). So, the appointment of Big 4 company strengthens the relationship between the frequency of AC meetings and FRQ.

In agency theory, the AC size will determine the efficiency and effectiveness of the monitoring on the board and the management team that will

improve the quality of reporting and audit. According to Talpur, Lizam, and Zabri (2018), AC has a significant role in influencing the level of voluntary corporate-governance disclosure that will impact financial reporting and audit quality. The size of AC is a crucial factor for the effective performance of the committee. Additionally, Arismajayanti and Jati (2017) evince that a manager who acts as a shareholder at the same time can increase the value of the company, so as a shareholder, his share of wealth will also increase. As a result, Moses (2016) recommends that the AC size must be large enough and include more members with accounting and finance knowledge to allow more profit to the shareholders. Thus, the appointment of Big 4 company strengthens the relationship between AC size and FRQ.

Based on the above studies, the following hypotheses are proposed:

H5: The audit quality moderates the positive effect of the relationship between AC characteristics and FRQ via REM.

H5a: The appointment of Big 4 company moderates the positive effect of the relationship between AC independence and FRQ via REM.

H5b: The appointment of Big 4 company moderates the positive effect of the relationship between the presence of a financial expert in the AC and FRQ via REM.

H5c: The appointment of Big 4 company moderates the positive effect of the relationship between AC meetings and FRQ via REM.

H5d: The appointment of Big 4 company moderates the positive effect of the relationship between AC size and FRQ via REM.

3. RESEARCH DESIGN

3.1. Sample selection and data collection

Our sample includes all companies listed in the Amsterdam stock exchange in AEX all share index between 2010 and 2019. The sample consists of 90 listed companies. The data and firm characteristics were extracted from the financial statements of listed companies available either on their websites or on DATASTREAM database. Financial institutions were excluded from the sample because of their different accounting implications and unique industry characteristics and regulations. Small and medium-sized companies with insufficient accounting data for the given time period of eight years were eliminated from the sample. The final sample includes 900 firm-year observations.

Table 1. Sample by sector

<i>Sector</i>	<i>Effective</i>	<i>Valid percentage</i>	<i>Observations</i>
Agriculture	7	7.78%	70
Mining	6	6.67%	60
Construction	8	8.89%	80
Manufacturing	32	35.56%	320
Utilities	5	5.55%	50
Wholesales trade	6	6.67%	60
Retail trade	4	4.44%	40
Services	22	24.44%	220
Sample by sector	90	100.00%	900
Final sample			900

3.2. Econometric specification

To test empirically the relation between AC characteristics and FRQ via REM, we use ordinary least squares (OLS) regression. To examine the moderating effect of audit quality, we introduce

$$REM = \beta_0 + \beta_1 ACIND + \beta_2 ACFINEXPERT + \beta_3 ACMEETINGS + \beta_4 ACSIZE + \beta_5 LEV + \beta_6 SIZE + \beta_7 MKT-CAP + \beta_8 LOSS + \beta_9 BIG4 * ACINDEP + \beta_{10} BIG4 * ACFINEXPERT + \beta_{11} BIG4 * ACMEET + \beta_{12} BIG4 * ACSIZE + \beta_{13} \sum_{xi} Industry_{it} + \beta_{14} \sum_{yi} Year_{it} + \varepsilon_{it} \quad (1)$$

Drawn on previous studies (Roychowdhury, 2006; Cohen & Zarowin, 2010; Bozzolan, Fabrizi, Mallin, & Michelon, 2015), we employ REM measures as a proxy for FRQ. We measure REM by the sum of abnormal production costs and abnormal discretionary expenses (multiplied by minus 1). The higher the value is, the more likely the firm is to be engaged in REM activities. We use the abnormal levels of cash flow from the operation, the abnormal level of production costs, and the abnormal level of

an interaction term between audit quality and AC characteristics.

In the first stage, we implement a global measure of real activities' manipulation, controlling for industry and year specifications. The relevant model looks as follows:

discretionary expenses to capture the extent of REM activity. The empirical results are based on both the aggregate REM measure and the individual REM proxies (*CFO*, *PROD* and *DEXP*).

In a second stage, we proceed with testing the moderating effect of audit quality on the relationships between audit committee characteristics and every proxy of REM through application of the following models:

$$CFO = \beta_0 + \beta_1 ACIND + \beta_2 ACFINEXPERT + \beta_3 ACMEETINGS + \beta_4 ACSIZE + \beta_5 LEV + \beta_6 SIZE + \beta_7 MKT-CAP + \beta_8 LOSS + \beta_9 BIG4 * ACINDEP + \beta_{10} BIG4 * ACFINEXPERT + \beta_{11} BIG4 * ACMEET + \beta_{12} BIG4 * ACSIZE + \beta_{13} \sum_{xi} Industry_{it} + \beta_{14} \sum_{yi} Year_{it} + \varepsilon_{it} \quad (2)$$

$$PROD = \beta_0 + \beta_1 ACIND + \beta_2 ACFINEXPERT + \beta_3 ACMEETINGS + \beta_4 ACSIZE + \beta_5 LEV + \beta_6 SIZE + \beta_7 MKT-CAP + \beta_8 LOSS + \beta_9 BIG4 * ACINDEP + \beta_{10} BIG4 * ACFINEXPERT + \beta_{11} BIG4 * ACMEET + \beta_{12} BIG4 * ACSIZE + \beta_{13} \sum_{xi} Industry_{it} + \beta_{14} \sum_{yi} Year_{it} + \varepsilon_{it} \quad (3)$$

$$DEXP = \beta_0 + \beta_1 ACIND + \beta_2 ACFINEXPERT + \beta_3 ACMEETINGS + \beta_4 ACSIZE + \beta_5 LEV + \beta_6 SIZE + \beta_7 MKT-CAP + \beta_8 LOSS + \beta_9 BIG4 * ACINDEP + \beta_{10} BIG4 * ACFINEXPERT + \beta_{11} BIG4 * ACMEET + \beta_{12} BIG4 * ACSIZE + \beta_{13} \sum_{xi} Industry_{it} + \beta_{14} \sum_{yi} Year_{it} + \varepsilon_{it} \quad (4)$$

where, *BIG4*ACINDEP* is the interaction term between audit quality and AC independence. We use a dummy variable to proxy for audit quality (BIG 4). This variable takes the value of 1 if the firm is audited by a BIG 4 company and 0 otherwise. *BIG4*ACFINEXPERT* is the interaction term between audit quality and the presence of a financial expert in AC. *BIG4*ACMEET* is the interaction term between audit quality and the number of meetings in AC.

*BIG4*ACSIZE* is the interaction term between audit quality and the size of AC.

Table 2 defines our independent variables about the characteristics of AC. We adopt four measures for AC, specifically, AC members' independence, the presence of a financial expert in AC, the number of meetings of AC and the size of AC.

We also include a set of control variables in our regression models that may affect FRQ.

Table 2. Definitions and measurement of variables

Acronym	Definition	Type	Measurement scale	Source of data
REM	Real earnings management	Dependent	Real earnings management is the sum of CFO - PROD + DEXP, where CFO is the level of abnormal cash flows from operations, PROD is the level of abnormal production costs, and DEXP is the level of abnormal discretionary expenses (Roychowdhury, 2006)	Calculated measure
CFO	Abnormal cash flows from operations	Dependent	Abnormal cash flows from operations, measured as the difference between actual and predicted cash flow from operations. We multiply the residuals by -1 so that higher values indicate income-increasing REM	Calculated using data from DataStream database
PROD	Abnormal production cost	Dependent	Abnormal production cost, measured as the difference between actual and predicted production cost, where production costs are measured as the sum of the cost of goods sold and change in inventory	Calculated using data from DataStream database
DEXP	Abnormal discretionary expenses	Dependent	Abnormal discretionary expenses are measured as the difference between actual and predicted discretionary expenses. We multiply the residuals by -1 so that higher values indicate income-increasing REM	Calculated using data from DataStream database
ACIND	Audit Committee independence	Independent	The proportion of independent audit committee members	Annual reports
FINEXPERT	Financial expertise	Independent	Number of financial experts in the audit committee	Annual reports
ACMEET	AC meetings	Independent	The number of audit committee meetings held in 1 year	Annual reports
ACSIZE	AC size	Independent	The number of audit committee members	Annual reports
Audit quality	Appointment of Big 4	Moderator	1 if the firm is audited by a Big 4 company and 0 otherwise	Annual reports
LEV	Leverage	Control var.	Total debt over total assets	DataStream
SIZE	Firm's size	Control var.	The natural log of total assets	DataStream
MKT-CAP	MKT-CAP	Control var.	Natural log of market capitalization	DataStream
LOSS	Loss	Control var.	An indicator variable that equals 1 if the firm's net income before extraordinary items is negative, and 0 otherwise	DataStream

4. FINDINGS AND DISCUSSION

4.1. Descriptive statistics

Table 3 presents descriptive statistics and t-values of our dependent and independent variables. The reported t-statistics show that the mean values of *CFO*, *PROD* and *DEXP* are -0.008; 0.682 and 0.923, respectively. These results show that AC independence has a mean of 79%. It seems that many companies comply with the best practice of the Dutch Corporate Governance Code requiring that the AC members should be independent. The minimum number of financial experts is 2 and

the maximum is 5. On average, there is one member of the AC with a financial expert, which indicates that all selected companies meet the requirement of the Dutch Code on Corporate Governance regarding the minimum number of financial expert members to serve on the AC. Moreover, the mean of AC meetings accounts approximately for 6 meetings. The legal requirement of at least 6 meetings a year is then applied. While some of the AC meet only once per year, others meet on a monthly basis and even more, as the maximum of AC meetings is 16. The minimum number of AC members is 3 and the maximum is 9.

Table 3. Descriptive statistics

	<i>Obs.</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Std. deviation</i>
<i>CFO</i>	900	-0.192	0.174	-0.008	0.060
<i>PROD</i>	900	-0.786	0.612	0.682	0.852
<i>DEXP</i>	900	-0.829	0.708	0.923	0.212
<i>ACIND</i>	900	0	5	0.790	0.625
<i>ACFINEXPERT</i>	900	2	5	1.30	0.731
<i>ACMEET</i>	900	1	16	5.85	1.720
<i>ACSIZE</i>	900	3	9	3.430	0.965
<i>AUDITQUALITY</i>	900	0	1	0.76	0.430
<i>LEV</i>	900	0	0.959	0.257	0.176
<i>SIZE</i>	900	1.97	19.931	14.215	2.752
<i>MKT-CAP</i>	900	-21.480	47.600	2.045	3.471
<i>LOSS</i>	900	0	1	0.290	0.452

Notes: *CFO* = Abnormal cash flows from operations, measured as the difference between actual and predicted cash flow from operations. We multiply the residuals by -1 so that higher values indicate income-increasing REM; *PROD* = Abnormal production cost, measured as the difference between actual and predicted production cost, where production costs are measured as the sum of the cost of goods sold and change in inventory; *DEXP* = Abnormal discretionary expenses, measured as the difference between actual and predicted discretionary expenses. We multiply the residuals by -1 so that higher values indicate income-increasing REM; *REM* = *CFO* - *PROD* + *DEXP*. *ACIND* = Percentage of independent directors on AC; *ACFINEXPERT* = Number of the presence of a financial expert in the AC; *ACMEET* = The number of AC meetings held in 1 year; *ACSIZE* = The number of AC members; *AUDITQUALITY* = 1 if the firm is audited by a Big 4 company and 0 otherwise; *LEV* = Firm leverage measured as total debt over total assets; *SIZE* = The natural log of total assets; *MKT-CAP* = Natural log of Market capitalization; *LOSS* = 1 if the firm's net income before extraordinary items is negative, and 0 otherwise.

4.2. Correlation matrix

Table 4 reports the Pearson's correlation coefficients among the variables used in our empirical regressions. We find *CFO* and *PROD* are significantly and negatively correlated, while *CFO* is significantly and positively correlated with *DEXP*. We also notice a positive and significant correlation between *CFO* and *PROD* with audit quality. Conversely, we find a negative and significant correlation between *DEXP*

and audit quality. As correlations among the independent variables are generally low, there is no problem arising from multicollinearity between the independent variables used in our regression models. We also compute the Variation Inflation Factor (VIFs) to test for the multicollinearity problem. VIF values range between 1.025 and 1.440 below the level of 10 (Neter, Kutner, Nachtsheim, & Wasserman, 1996), which confirms the absence of the multicollinearity problem.

Table 4. Correlation matrix

<i>Variables</i>	<i>CFO</i>	<i>PROD</i>	<i>DEXP</i>	<i>ACIND</i>	<i>FIN EXP</i>	<i>AC MEET</i>	<i>AC SIZE</i>	<i>AUDIT QUAL</i>	<i>LEV</i>	<i>SIZE</i>	<i>MKT-CAP</i>	<i>LOSS</i>
<i>CFO</i>	1											
<i>PROD</i>	-0.502**	1										
<i>DEXP</i>	0.005**	-0.022**	1									
<i>ACIND</i>	0.074*	0.080*	-0.004	1								
<i>FINEXPERT</i>	-0.050	0.006	0.032	-0.086*	1							
<i>ACMEET</i>	0.120**	0.133**	0.017	0.109**	0.000	1						
<i>ACSIZE</i>	0.213**	0.283**	-0.013	0.121**	0.175**	0.162**	1					
<i>AUDITQUAL</i>	0.111**	0.102**	-0.026**	0.225**	-0.142**	-0.109**	0.021	1				
<i>LEV</i>	-0.046	-0.044	0.004	0.035	-0.030	-0.107**	0.044	-0.046	1			
<i>SIZE</i>	0.471**	0.599**	-0.030	0.181**	0.069	0.199**	0.227**	0.104**	0.067	1		
<i>MKT-CAP</i>	0.885**	0.538**	0.008	0.102**	0.030	0.165**	0.193**	0.086*	0.021	0.534**	1	
<i>LOSS</i>	-0.114**	-0.032	-0.039	-0.084*	-0.011	-0.061	-0.080*	-0.064	0.128**	-0.260**	-0.156**	1
<i>VIF</i>				1.060	1.049	1.081	1.113	1.112	1.025	1.119	1.440	1.090

Notes: This table presents Pearson's correlation analysis between FRQ via REM (*CFO*, *PROD*, *DEXP*) and AC characteristics. The sample consists of 900 observations. Variable definitions are provided in Table 2. **, * denote statistical significance at the 1 and 5% level.

4.3. Multivariate analysis

Table 5 shows the results of the effect of AC characteristics on FRQ using three alternative proxies for REM: *CFO*, *PROD* and *DEXP*. The evaluation of explanatory power (R^2) suggests that the model is capable of explaining 75.4%; 66.1%, 27.6% and 34.5% of the variation in *CFO*, *PROD*, *DEXP* and REM, respectively, and these are significant at the 1% level.

We find a negative and statistically significant relation between AC independence and *CFO* at the 1% level as shown in Column 1 of Table 5. This finding supports our first hypothesis (*H1*) AC independence plays an essential role in constraining sales manipulation, thus contributing to a higher FRQ. We find that the negative relation remains unchanged when we use the *PROD* measure as reported in Column 2 of Table 5. It shows that a fully independent committee constrains REM, which casts doubt on the necessity of mandating all AC members to be independent, similarly to what the Sarbanes-Oxley Act does in the US. These findings are in line with those of Barka and Legendre (2017), who prove that AC independence is a better incentive to deter earnings management. As for *DEXP* and REM measures, the results in Column 3 do not support the preceding ones. These conclusions are consistent with a previous study by Mardessi and Fourati (2020) who fail to find any statistical impact of AC independence; nor do they state any relationship between the activeness of AC members and FRQ as measured by restatements.

In addition, the results reveal that the presence of a financial expert in the AC is negatively significant with all the measures of REM, which supports *H2*. This outcome confirms the findings of Carrera et al. (2017), which, in turn, leads to boost the importance of having a person with a financial background as a member of the AC in constraining the earnings management and reduce the probability of restatements. Moreover, the presence of a financial expert in AC can be more professional in monitoring the process of preparing financial statements by management and can reduce opportunistic earnings.

Regarding *H3*, Table 5 shows that the frequency of AC meetings is positively associated with *PROD* measure of REM and significant at 5% level, as reported in Column 2 of Table 5. This finding highlights that the number of more frequent and regular meetings is likely to make auditors more aware of the current auditing status and issues and more diligent when performing their duties. These results corroborate the conclusions of Habbash (2015) and Abbott et al. (2016). However, the empirical result shows that the frequency of meetings in AC does not reduce earnings management measured by abnormal *CFO*, abnormal *DEXP* and the aggregate REM as reported in Columns 1, 3 and 4 of Table 5. It can be explained by the smaller number of AC meetings per year in Dutch corporations (6 meetings per year, see Table 3). These outcomes are consistent with the findings of Shahkaraiah and Amiri (2017), Mardjono and Chen (2020).

As shown in Table 5, we find a positive and statistically significant relation between AC size and all proxies of REM at 1% and 5%. This result evinces that AC size improves the FRQ thanks to the

diversity of skills and experiences they share amongst themselves. Moreover, a large number of audit committees can participate in the corporate governance process and use more financial control and reporting as a whole. This result supports hypothesis 4 and is in line with the mainstream conclusion of Manaf (2019), Amin et al. (2018), and Setiyan et al. (2017).

With respect to the moderating effect, our result gives proof that the direct relationships between AC characteristics and REM are significant. Significant effects are also noted for all interaction terms between AC and REM. According to the literature (Hasan et al., 2020; See et al., 2020; Asiriwa et al. 2018), the appointment of Big 4 company strengthens the relationship between AC independence and REM. This result reveals that the presence of Big 4 company is responsible for mitigating the agency problem between the organization and the shareholders of the company by monitoring the overall financial reporting and auditing process. When independent directors take over in the AC, they serve a governance role and this will improve audit quality, FRQ and REM (Gao, Omer, & Shelley, 2019). Hence, *H5a* is supported.

Relating to the presence of a financial expert in AC, the results reveal that the appointment of Big 4 company moderates the positive effect of the relationship between the presence of a financial expert in the AC and FRQ via the three individual measures of REM, as reported in Column 1, 2 and 3 of Table 5. This finding means that AC with an expert in accounting and finance can therefore reduce opportunistic earnings management, which is similar to the results of Hasan et al. (2020). However, when we use the aggregate measure of the REM, *H5b* moderates negatively the relation between the presence of a financial expert in AC and FRQ.

With regards to the frequency of AC meetings, Table 5 shows that the appointment of Big 4 company moderates positively and statistically significant the relationship between AC meetings and FRQ via *DEXP* measure of the REM. Indeed, a large number of meetings in AC will contribute to the corporate governance process and to the control of financial reports as a whole. This claim is in accordance with the results of previous research such as of Hasan et al., (2020), Zuhroh (2020) and See et al. (2020). Conversely, concerning the *CFO*, *PROD* and REM measures, as reported in Columns 1, 2 and 4 in Table 5, we do not find a significant association in the appointment of Big 4 company between the relation of AC meetings and REM in the Netherlands. This means that each proxy of REM could have some positions.

Lastly, our findings prove that the appointment of Big 4 moderates positively and significantly the relation between AC size and *PROD* measure at the 5% level. This result means that an important size in AC would continuously keep a good track of the management, internal auditor and its business operation. This is consistent with the conclusions drawn by scholars such as Mardjono and Chen (2020), Zuhroh (2020) and Hasan et al., (2020). However, the appointment of Big 4 company negatively moderates this relationship between AC size and *CFO*, *DEXP* and the aggregate measures of REM, as reported in Columns 1, 3 and 4. The reasoning behind this finding lies in the small AC

size in the Dutch context according to the descriptive statistics (see Table 3).

Among the control variables, the path coefficients of *LEV* show that leverage is negatively associated with *PROD* and *DEXP* measures at the 5% and 10% significance levels, respectively. This finding indicates that highly levered firms bear a lower *REM* and is similar to findings reported in prior studies (Hasan et al., 2020; See et al., 2020; Mardessi & Fourati, 2020). There is also a positive and significant relation between *LEV* and *CFO* and the aggregate *REM* measures, which suggests that firms with high leverage engage in more earnings management. Regarding firm size, the variable *SIZE* is positively related to the *REM* at 1% and 5% significance levels. These conclusions indicate that larger firms that are subject to more scrutiny by

the authorities and regulators are more likely to engage in *REM*, which supports the findings of Orazalin and Akhmetzhanov (2019). In addition, market capitalization is related positively and is statistically significant at 1% level with *CFO* and *PROD* measures, as reported in Columns 1 and 2 in Table 5. This finding confirms that publicly traded companies are under pressure of analyst forecasts and try to meet them by increasing *REM*. Conversely, market capitalization is negatively related to *DEXP* and the aggregate *REM* measures, conforming to the mainstream conclusions of Habib and Bhuiyan (2016). Finally, the variable *LOSS* is negatively related to *PROD* measure and is statistically significant at 5% level. So, the Dutch corporations having experienced loss are more likely to manipulate earnings.

Table 5. Regression results for REM measures

Variables	Abnormal CFO		Abnormal PROD		Abnormal DEXP		Results of REM	
	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
Cons	0.612	0.000***	0.312	0.000***	0.227	0.000***	0.212	0.000***
ACIND	-0.035	0.001***	-0.084	0.002***	-0.046	0.312	-0.056	0.217
ACFINEXPERT	-0.029	0.053**	-0.097	0.017**	-0.176	0.009***	-0.021	0.075*
ACMEET	0.014	0.260	0.089	0.010**	-0.039	0.494	-0.016	0.781
ACSIZE	0.054	0.001***	0.133	0.002***	0.180	0.012**	0.053	0.055**
AQBIG4*ACIND	0.020	0.100*	0.095	0.003***	-0.159	0.003***	-0.125	0.020**
AQBIG4*ACFINEXPERT	0.065	0.002***	0.023	0.089*	0.404	0.000**	-0.221	0.017**
AQBIG4*ACMEET	-0.014	0.495	0.036	0.521	0.024	0.080	0.141	0.133
AQBIG4*ACSIZE	-0.076	0.007***	0.200	0.010**	-0.362	0.005***	-0.126	0.019**
LEV	0.026	0.003***	-0.056	0.020**	-0.072	0.072*	0.037	0.000***
SIZE	0.074	0.000***	0.206	0.000***	0.120	0.014**	0.036	0.045**
MKT-CAP	0.937	0.000***	0.662	0.000***	-0.118	0.010**	-0.140	0.002***
LOSS	0.009	0.342	-0.057	0.025**	0.011	0.795	-0.036	0.381
Industry fixed effect	Yes		Yes		Yes		Yes	
Year fixed effect	Yes		Yes		Yes		Yes	
Observations	884		878		891		879	
Prob > F	0.000		0.000		0.000		0.000	
R-squared	0.754		0.661		0.276		0.345	
Adjusted R-squared	0.753		0.654		0.254		0.321	

Notes: Variable definitions are provided in Table 2. ***, **, * denote statistical significance at the 1, 5 and 10% levels, respectively.

5. CONCLUSION

The purpose of this study is to investigate the effect of audit committee characteristics on *FRQ* proxied by real earnings management, having an important emphasis on the moderating role of audit quality in the links above. Based on a sample of 90 Netherlands listed firms over a 2010-2019 period, we find that AC characteristics, namely member independence in AC, the presence of a financial expert in AC, the frequency of meetings and the size of AC, are significantly associated with *FRQ*, enhancing overall financial statements. With regards to the Dutch context, our findings are interesting. In the Netherlands, examining the relationships between audit quality, AC and *REM*, fills up the gap in related literature, thus strengthening the understanding of agency theory. Our overall results indicate that the appointment of Big 4 company as a measure of audit quality could act as a moderator for the relationships between the AC characteristics and financial reporting quality. Moreover, member independence in AC, the existence of a financial expert in AC and the size of AC positively moderate AC characteristics - *REM* links. The regression results indicate that member independence in AC is negatively and significantly associated with *FRQ* in abnormal operating cash flow and abnormal production costs for Dutch

companies. Additionally, the regression results highlight the importance of a financial expert in the AC to increase *FRQ*. Besides, the frequency of meetings is positively associated only with *PROD* measure at 5% level, showing that a high number of meetings necessarily means better detection of irregularities within the financial reports. Finally, the regression results reveal that AC size is positively and significantly associated with *FRQ* via *REM*. Nonetheless, the frequency of meetings is not associated with *CFO* and *DEXP* measures of *REM*. Hence, the AC constitutes an important mechanism in corporate governance that improves *FRQ*.

The results of the study could be useful to regulators in other authorities in improving the effectiveness of their AC, overall corporate governance practices and owner confidence in the company. Therefore, the findings have implications for regulators, policymakers and standard setters seeking to improve the credibility of financial reporting. Furthermore, the findings can also provide a benchmark for studies in countries with similar economic and institutional structures. In addition, the consideration of audit quality as a moderator variable, responds to the lack of empirical evidence highlighting a better explanation of the relationship between AC characteristics and *REM*.

Finally, some limitations need to be considered. First, our results may not be generalized to more developed countries because it is important to take into consideration the Dutch institutional setting. Second, we emphasise earnings management and use CFO, PROD and DEXP to measure earnings management practices. Therefore, it would be relevant to extend the study to shed more light on earnings quality measures such as conservatism, earnings persistence and earnings predictability in future research. The last limitation of our study is restricted to one country.

For that reason, future research could explore earnings management practices across companies from other countries. Moreover, for further researchers, it is recommended to add research samples adding other variables such as audit fees, and the reputation of the public accounting firm that is suspected to affect audit quality or use intervening variables in research, as well as different analytical methods to obtain more accurate research results.

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