

Ghaleb, Belal Ali Abdulraheem; Qaderi, Sumaia Ayeshe; Ahmad Almashaqbeh;
Qasem, Ameen

Article

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Cogent Business & Management

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Suggested Citation: Ghaleb, Belal Ali Abdulraheem; Qaderi, Sumaia Ayeshe; Ahmad Almashaqbeh; Qasem, Ameen (2021) : Corporate social responsibility, board gender diversity and real earnings management: The case of Jordan, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 8, Iss. 1, pp. 1-19,
<https://doi.org/10.1080/23311975.2021.1883222>

This Version is available at:

<https://hdl.handle.net/10419/270221>

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To cite this article: Belal Ali Abdulraheem Ghaleb, Sumaia Ayesh Qaderi, Ahmad Almashaqbeh & Ameen Qasem | (2021) Corporate social responsibility, board gender diversity and real earnings management: The case of Jordan, Cogent Business & Management, 8:1, 1883222, DOI: [10.1080/23311975.2021.1883222](https://doi.org/10.1080/23311975.2021.1883222)

To link to this article: <https://doi.org/10.1080/23311975.2021.1883222>



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Received: 11 December 2020
Accepted: 25 January 2021

*Corresponding author: Belal Ali Abdulraheem Ghaleb, Department of Accounting, Tunku Puteri Intan Safinaz School of Accountancy (TISSA), Universiti Utara Malaysia (UUM), Malaysia
Email: belalye9@gmail.com

Reviewing editor:
Collins G. Ntim, Accounting,
University of Southampton, UK

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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

Corporate social responsibility, board gender diversity and real earnings management: The case of Jordan

Belal Ali Abdulraheem Ghaleb^{1,2*}, Sumaia Ayesh Qaderi^{1,2}, Ahmad Almashaqbeh³ and Ameen Qasem^{4,5}

Abstract: This study examines the relationship between corporate social responsibility (CSR) reporting, board gender diversity (BGEND) and real earnings management (REM). It also investigates how the relationship between CSR reporting and REM differs between gender-diverse and non-diverse firms. Content analysis was used to measure CSR reporting. The ordinary least square regression is used to examine the relationships for a sample of 475 firm-year observations listed on the Amman Stock Exchange during 2011–2016. The results show that CSR reporting is significantly and negatively associated with REM in the Jordanian market. Nevertheless, BGEND is negatively and significantly related to REM. More importantly, the results show that BGEND moderates the CSR-REM relationship. Further,

ABOUT THE AUTHORS

Belal Ghaleb is an International Lecturer of Accounting at Tunku Puteri Intan Safinaz School of Accountancy (TISSA), Universiti Utara Malaysia (UUM), Malaysia & Hodeidah University, Yemen. His research interests include financial accounting and reporting, corporate governance, earnings management, CSR, and auditing.

Sumaia Qaderi is an accounting lecturer at Hodeidah University, Yemen. Currently, she is a PhD researcher at Universiti Utara Malaysia (UUM). Her research interests include integrated reporting, sustainability, CSR, audit committee and gender diversity.

Ahmad Almashaqbeh is an independent researcher. He obtained his PhD in Accounting from Universiti Utara Malaysia (UUM). His research interests include financial accounting and reporting, corporate governance, and ownership structure.

Ameen Qasem is an Assistant Professor of Accounting at Hail University, Saudi Arabia & Taiz University, Yemen. He obtained his PhD in Accounting from Universiti Utara Malaysia (UUM). His research interests include financial accounting and reporting, financial restatements, analysts' stock recommendations, political connection, corporate governance, corporate dividend, and CSR reporting.

PUBLIC INTEREST STATEMENT

This paper examines the relationship between corporate social responsibility (CSR) reporting and real earnings management (REM), in addition to how the board gender diversity affect this relationship. Inconsistent empirical results regarding the effect of CSR on earnings manipulation motivate conducting this research in Jordan. The study uses secondary data that were hand collected from the annual reports of firms in Jordan. The results show that engagement in CSR activities is associated with lower REM in the Jordanian market. Nevertheless, the presence of female directors in the corporate board helps to curb REM. Further, the relationship between CSR and REM is stronger in firms with board gender-diverse than those with non-gender diversity firms, suggesting an efficient monitoring role of female directors in Jordan. Regulators and stakeholders should be aware of the potential effect of engagement in CSR reporting and the benefits of having a gender-diverse board on financial reporting quality.

when the sample is split into board gender-diverse and non-diverse firms, the CSR-REM significant negative relationship is evident only in the former, corroborating the moderating role of the BGEND in Jordan. This study contributes to the literature on CSR, BGEND, and REM by offering evidence for the moderating role of BGEND on the CSR-REM relationship, supporting the view that females are more sensitive to ethics. Regulators and stakeholders should be aware of the potential effect of engagement in CSR reporting and the benefits of having a gender-diverse board on financial reporting quality.

Subjects: Business, Management and Accounting; Accounting; Corporate Governance; Corporate Social Responsibility & Business Ethics; Corporate Social Responsibility

Keywords: corporate social responsibility; real earnings management; board gender diversity; female directors; corporate governance; Jordan

1. Introduction

The quality and credibility of firms' financial and non-financial reporting is a fundamental issue that has gained increasing interest from researchers in recent years. This is because of the importance of the information in these reports to investors and other users. The recent worldwide corporate scandals (e.g., Enron, Satyam, Toshiba) have shaken the confidence of investors in the quality of information in the financial report. In fact, earnings management/manipulation (EM) was the cornerstone of these scandals. EM is considered as a form of information asymmetry and agency problem between managers and shareholders (Ghaleb et al., 2020). Usually, managers manage earnings to mislead investors using accrual-based EM (AEM) or/and real-based EM (REM) (Cohen et al., 2008; Li, 2019). Researchers argue that managers have recently favoured REM rather than AEM (Chi et al., 2011; Cohen et al., 2008), because it is not subject to the scrutiny of auditors and is thus less costly and less detectable than AEM. Importantly, researchers argue that REM misleads shareholders and stakeholders (Roychowdhury, 2006), is associated with greater information asymmetry (Abad et al., 2018), and imposes greater capital costs (Chi et al., 2011; Kim & Sohn, 2013); firms engaged in fraudulent activities practise REM in the period before fraud engagement (Nasir et al., 2018; Perols & Lougee, 2011). Thus, REM requires further investigation.

Corporate social responsibility (CSR) reporting can improve the quality of reported information and thereby diminish information asymmetry between agents (managers) and principals (owners and other stakeholders) (Jensen & Meckling, 1976; Mohamed et al., 2019). Several recent studies have examined the direct association between the two practices, CSR and EM (Buerthey et al., 2020; Habbash & Haddad, 2019; Kumala & Siregar, 2020; Mohamed et al., 2019), although the results remain bidirectional. Despite previous studies have examined the moderating effect of country-specific (i.e., industry differences and political and regulatory pressure) and firm-specific factors (i.e., board size, Big4 audit firms, ownership structure, and corporate governance quality) on the CSR-EM relationship, many other features such as managerial attributes and managers' social orientation are still under-examined (Ehsan et al., 2020).

In this context, board gender diversity (BGEND) is one of corporate governance mechanisms that is widely discussed in the accounting literature, especially in connection with firms' social and environmental issues (Haque, 2017; Nguyen et al., 2020). BGEND serves as an effective governance monitoring tool and is considered as one of the main drivers of sustainable growth (Orazalin & Baydauletov, 2020; Zalata et al., 2019). According to agency theory, monitoring is one of the main functions performed by corporate boards (Jensen & Meckling, 1976). Female directors are more likely than men to improve the corporate board's monitoring effectiveness over the quality of reporting practices, deterring opportunistic EM practices, increasing directors' ethical behaviour, and improving earnings quality (Arioglu, 2020; Harakeh et al., 2019; Maglio et al., 2020; Orazalin, 2019; Srinidhi et al., 2011).

Several empirical studies have reported that BGEND is more likely to be associated with firms' greater social activities and deterring managers' opportunistic behaviour (such as AEM), which ultimately results in enhancing financial and non-financial reporting quality (e.g., Fan et al., 2019; Kachouri et al., 2020; Maglio et al., 2020; Vacca et al., 2020). However, there has been limited research on the relationship between CSR reporting, BGEND and REM, and whether BGEND moderates the relationship between CSR activities and REM, particularly in emerging markets (in this case Jordan). Therefore, we examine the effects of CSR reporting on REM and investigate whether this relationship is influenced by BGEND.

We focus on Jordan, where we investigate a sample of Jordanian listed firms from 2011 to 2016, for several reasons. First, CSR reporting is attracting the attention of the regulators in Jordan. Firms are required to report information on social strategies and events such as policies for environmental protection, supplying grants towards human resources, and contributing to the community (Abu Qa'dan & Suwaidan, 2019; Suwaidan et al., 2004). Second, EM is more widespread in firms in emerging markets than in those in developed markets (Zweig, 2019). Empirical studies in Jordan reported that listed firms on the Amman Stock Exchange (ASE) are actively practising EM activities (Alhadab & Nguyen, 2018; Al-Haddad & Whittington, 2019; Almashaqbeh et al., 2019). Additionally, Enomoto et al. (2015) concluded that Jordan is one of the most active countries in practising REM.

Third, although BGEND has received attention from regulatory bodies and practitioners in many developed countries, female representation on the boards of Jordanian firms is not mentioned in the Jordanian Corporate Governance Code (JCGC) or any other regulations (Al Fadli et al., 2020; Ibrahim & Hanefah, 2016). This makes appointing female directors to board's voluntary. Fourth, as institutional settings in emerging markets differ from those in developed markets, previous empirical results from developed markets on CSR reporting, BGEND and REM may not be generalisable to these emerging markets. Thus, the Jordanian market is an appropriate context for conducting this study.

The study uses a sample of 475 firm-year observations from the Jordanian market, for the period 2011–2016, with the following findings. First, CSR activities are associated with lower REM, indicating that more socially responsible firms in Jordan are less likely to engage in REM practices. Second, BGEND is significantly and negatively associated with REM, suggesting that female directors boost the monitoring role of the board and prevent earnings manipulation, which ultimately improves financial reporting quality. Third, as anticipated, BGEND moderates the CSR-REM relationship. In sub-sample examinations, the study findings confirm the moderating role of BGEND as a negative association between CSR and REM is evidenced in firms with female directors but not in firms without female directors. One explanation of this finding may be that female directors are less likely to engage in unethical activities.

The present study has several implications. First, the results suggest that the ASE may benefit from the findings and encourage firms to actively engage in CSR activities as the level of CSR reporting is low. Moreover, readers of financial reports should be aware of the importance of engagement in CSR activities in enhancing financial reporting quality. Second, the findings show that BGEND has a significant role, directly and indirectly, in mitigating earnings manipulation through real activities. Thus, regulators in Jordan may benefit from these findings and consider gender diversity on firms' boards.

The rest of this paper is structured as follows: Section 2 reports the background of financial reporting quality, CSR activities, and BGEND in Jordan; Section 3 reviews the previous literature and explains how the research hypotheses are developed; Section 4 explains the research design; Section 5 presents and discusses the study results; and, finally, Section 6 provides the conclusion of the study.

2. Literature review and hypothesis development

2.1. Corporate social responsibility and real earnings management

Earnings management (EM) practices have received more attention in the accounting and management literature as an ethical issue (Almahrog et al., 2018). They represent an undesired practice and a latent threat which could potentially result in harmful effects on firms' long-term performance (Grougiou et al., 2014). Researchers classify EM strategies into two types: AEM and REM. As mentioned earlier, firms prefer to engage in REM rather than AEM. Thus, the current study focuses on REM. Financial reporting quality and EM are the subjects of substantial debate in the Jordanian context. Although the Jordanian regulators have responded to EM by issuing several regulations to enhance the transparency and reliability of financial information, EM practices still exist and are a source of concern for the related parties in Jordan. In this regard, several empirical studies have indicated that Jordanian listed firms, specifically non-financial firms, have been involved in EM activities (Alhadab & Nguyen, 2018; Al-Haddad & Whittington, 2019; Enomoto et al., 2015). Opportunistic EM practices here are attributed to the weakness of corporate governance and inadequate accounting legislation (Alhadab & Nguyen, 2018; Almashaqbeh et al., 2019), weak enforcement of the rule of law, less transparent financial reporting (Mitton, 2002), and low penalties in the case of violation of regulations.

Regarding social and environmental reporting practices, the Jordanian Government has paid much attention to CSR practices over the past few decades, improving the appropriate regulations (Al Fadli et al., 2020). This is because social responsibility activities assist firms to attract local and foreign investment, in turn leading to an increase in economic growth (Al Fadli et al., 2020; Ibrahim & Hanefah, 2016). To ensure the high-quality reporting, the Government has issued regulations and legislation that mandate firms to disclose more about CSR information in their annual reports. In this regard, Jordan Securities Commission (JSC) requires listed firms to disclose information about their level of compliance with international standards, including employment policies, employee numbers, employee qualifications, training programmes, and grants and donations (Jordan Securities Commission, 2004). Although the Government has attempted to improve CSR activities, limited studies have investigated CSR practices in Jordan. This may be because of its voluntary practice in Jordanian markets (Al Fadli et al., 2020). In addition, the level of CSR disclosure in listed firms is relatively low (Abu Qa'dan & Suwaidan, 2019; Al Fadli et al., 2020; Ibrahim & Hanefah, 2016; Qaderi et al., 2020).

Two opposing views explain the relationship between CSR and EM practices: the ethical perspective and managerial opportunism (Ehsan et al., 2020; Grougiou et al., 2014; S. H. Kim et al., 2019). The first perspective considers engagement in CSR activities as an indicator of ethical and moral aspects that reflect the corporate behaviour and its decision-making style (Prior et al., 2008). It suggests that engaging in social activities leads to improved stakeholder satisfaction and corporate performance and reputation (Ansong, 2017; Gras-Gil et al., 2016). Thus, managers are less likely to practice EM in firms that actively engage in CSR activities (Almahrog et al., 2018; Jensen & Meckling, 1976). Empirically, several studies have investigated the relationship between CSR and EM practice (as measured by discretionary accruals) and have reported a significant association between these variables. It was found that socially responsible firms are less likely to manage earnings (Almahrog et al., 2018; Y. Kim et al., 2012; Mohamed et al., 2019). Kumala and Siregar (2020) report a negative association between CSR and EM in firms listed on the Indonesia Stock Exchange. Scholtens and Kang (2013) predict and find an inverse relationship between CSR and EM activities in Asian firms, suggesting that those with good CSR are not motivated to engage in EM. In addition, Gras-Gil et al. (2016) find a negative impact of CSR practices on EM, suggesting that engaging in CSR improves stakeholder satisfaction and firms' reputation. S. H. Kim et al. (2019) report a negative relationship between CSR activities and REM, but not AEM, in the Chinese market. In a similar vein, Garcia-Sanchez et al. (2020) provide evidence, based on an international sample for the period 2007–2016, that firms with better CSR performance are less prone to be involved in EM strategies.

Despite most of the studies reporting a negative relationship between CSR and EM, few researchers have explained this relationship from the perspective of managerial opportunism. From this view, firms' executives and managers may use CSR to encourage support from shareholders and cover up their earnings manipulation (Grougiou et al., 2014; Jensen & Meckling, 1976; Palacios-Manzano et al., 2019). Habbash and Haddad (2019) claim that managers may engage in CSR activities to disguise EM practices and boost their interests rather than their firms'. Some studies have found empirical evidence to support the managerial opportunism hypothesis and a positive association between CSR and EM. For instance, Grougiou et al. (2014) report that US banks that engage in EM practices are also actively involved in CSR. Habbash and Haddad (2019) report that Saudi firms with more CSR activities engage in EM practices. Buerthey et al. (2020) find that CSR is positively correlated with AEM in South African firms.

Based on the previous literature it can be observed that studies have concentrated on the relationship between CSR and AEM. However, there is a lack of studies investigating this relationship with REM. We assume that firms' social responsibility commitment level will affect managers' decisions relating to REM. Higher levels of CSR activities will reduce managers' REM. Therefore, the current study proposes the following hypothesis:

H1: There is a relationship between corporate social responsibility and real earnings management.

2.2. Board gender diversity, corporate social responsibility and real earnings management

Board gender diversity (BGEND) plays a vital role in improving the quality of reporting (Dani et al., 2019; Maglio et al., 2020). The literature suggests that representation of more female directors may: enhance board effectiveness in various issues (Arioglu, 2020), improve the board's monitoring and advisory roles, increase their ethical behaviours, deter opportunistic behaviour in EM practices (Fan et al., 2019; Harakeh et al., 2019), and thereby promote the quality of reporting. According to agency theory, monitoring is one of the main functions performed by corporate boards (Jensen & Meckling, 1976). Female directors are more likely to improve the board's monitoring effectiveness over the quality of reporting practices, and therefore prevent manipulation activities. Orazalin (2019) proposes that female participation means that a board is less likely to engage in unethical practices such as EM, while Maglio et al. (2020) argue that the earnings quality of firms increases with the proportion of female directors on corporate boards.

The empirical evidence regarding the relationship between female directors and EM practices is limited (Damak, 2018; Fan et al., 2019). For instance, Orazalin (2019) finds that firms with greater BGEND are more effective in curbing AEM in the Kazakhstan market, suggesting that female directors are less likely to engage in unethical activities (i.e., EM and fraud). Harakeh et al. (2019) find that the likelihood of EM practices is lower in firms with more female directors in the UK market. However, other authors (Abdullah & Ismail, 2016; Arioglu, 2020) find no significant association between the female directors and EM practices as measured by discretionary accruals in Turkey and Malaysian markets, respectively.

Although BGEND has received much attention from regulatory bodies and practitioners in many developed countries, female representation on boards of Jordanian firms is not mentioned in JCGC or any other regulations (Al Fadli et al., 2020; Ibrahim & Hanefah, 2016). However, researchers in Jordan have reported that female directors play a significant role in enhancing CSR information (Al Fadli et al., 2019; Ibrahim & Hanefah, 2016), suggesting that they are more socially oriented (Issa & Fang, 2019), more attentive to the interests of stakeholders (Orazalin & Baydauletov, 2020), and exhibit more conservative decision-making behaviour (Harakeh et al., 2019). However, others (Abu Qa'dan & Suwaidan, 2019) have concluded that female directors do not affect CSR disclosure.

On the other hand, the corporate board of directors plays a vital monitoring role in the corporate governance system, reducing information asymmetry (Fama & Jensen, 1983; Jensen & Meckling, 1976). The corporate governance literature perceives gender diversity as a competitive advantage that is expected to enhance the effectiveness of the board. Although the majority of previous studies comprehensively try to investigate the direct relationship between CSR activities and EM (Almahrog et al., 2018; Buerter et al., 2020; Grougiou et al., 2014; Habbash & Haddad, 2019; Y. Kim et al., 2012; Kumala & Siregar, 2020; Mohmed et al., 2019), this relationship can be differentiated based on presence of female directors. Researchers argue that female directors tend to focus on solving social concerns more than male directors do (Hussain et al., 2018). Few studies have investigated the moderating effects of board diversity on the CSR-EM relationship and have focused on discretionary accruals, especially in an emerging market where EM practice is more pervasive than in developed markets (Zweig, 2019). Recent studies provide evidence of the positive effect of corporate female directors in improving CSR disclosure, suggesting that their presence is strongly related to firms' non-financial reporting and performance (Hussain et al., 2018; Kachouri et al., 2020; Nekhili et al., 2017; Vacca et al., 2020). Al-Shaer and Zaman (2016) provide evidence for a positive association between BGEND and the quality of sustainability reports. The number of female directors on the board is positively significantly related to the level of CSR reporting (Issa & Fang, 2019). Boards with female directors boost CSR performance and exhibit lower EM (Maglio et al., 2020).

Relying on agency theory and the extensive studies discussed above that emphasise the positive role of female directors in enhancing CSR activities and reducing EM, this study makes an interesting contribution by investigating the direct effect of BGEND on REM practices and its moderating effect on the relationship between CSR reporting and REM in the Jordanian market. It provides additional evidence that may explain the inconsistency in the CSR and EM results. Therefore, the study posits that BGEND effectively helps in reducing REM and the CSR-REM relationship is more pronounced with the presence of female directors. Accordingly, the following hypotheses are proposed:

H2: There is a negative relationship between board gender diversity and real earnings management.

H3: The relationship between corporate social responsibility and real earnings management is influenced by board gender diversity.

3. Research design

3.1. Sample and data collection

The initial sample of this study consists of all Jordanian firms listed on the Amman Stock Exchange (ASE) from 2011 to 2016. Financial firms (e.g., banks, insurance, and diversified financial services) were excluded because of the unique structure of their financial reporting and being subject to peculiar corporate governance laws (Al Fadli et al., 2019). Firms with missing data were also excluded. The final sample consists of 475 firm-year observations classified into two sectors: industrial and services sectors. The sample is summarised in Table 1. Annual reports are the main source of data, supplemented by the board of directors and ownership disclosures submitted separately to the ASE. Data on CSR, gender diversity, REM, and corporate governance were manually collected from the annual reports of the firms available on the ASE website. Financial variables were obtained from the Securities Depository Centre of Jordan.

3.2. Measurement of dependent variable

The dependent variable is REM, measured by the value of three REM residuals as applied by Roychowdhury (2006) and extensively used in previous studies (Chi et al., 2011; Cohen et al.,

Table 1. Sample of the study

Sample sector	Obs.	%
<u>Industry</u>	260	0.55
Chemical Industries	43	0.09
Electrical Industries	18	0.04
Engineering and Construction	36	0.08
Food and Beverages	42	0.09
Mining and Extraction Industries	59	0.12
Pharmaceutical and Medical Industries	24	0.05
Printing and Packaging	6	0.01
Textiles, Leathers and Clothing	20	0.04
Tobacco and Cigarettes	12	0.03
<u>Services</u>	215	0.45
Commercial Services	48	0.10
Educational Services	36	0.08
Health Care Services	24	0.05
Hotels and Tourism	35	0.07
Media	6	0.01
Technology and Communication	6	0.01
Transportation	42	0.09
Utilities and Energy	18	0.04
Total	475	1.00

2008; Jie et al., 2017). These REM measures are abnormal production costs (APRC), abnormal discretionary expenses (ADIE), and abnormal cash flow from operations (ACFO). APRC, ADIE, and ACFO are calculated as the difference between actual values minus the normal value for each item using the following equations: (1), (2), and (3). Although Roychowdhury (2006) measured REM through these three proxies, recent studies have measured it by the aggregate values of these three equations (e.g., Alhebri & Al-Duais, 2020; Cohen et al., 2008; Eng et al., 2019; Ghaleb et al., 2020). According to Cohen et al. (2008), a comprehensive measurement helps to capture the effect of overall REM by computing a single REM variable from all three equations. Further, Eng et al. (2019) argue that the aggregate measure of REM would better capture earnings management activity than any single measure of REM. Therefore, this study applies an aggregate measure of REM by summing the standardised residuals values of these three proxies to give a single measure of firms' overall REM using Equation (4) (Alhebri & Al-Duais, 2020; Cohen et al., 2008; Ghaleb et al., 2021).

$$\frac{CFO_t}{Ass_{t-1}} = \beta_1 \left(\frac{1}{Ass_{t-1}} \right) + \beta_2 \left(\frac{S_t}{Ass_{t-1}} \right) + \beta_3 \left(\frac{\Delta S_t}{Ass_{t-1}} \right) + \varepsilon_t \quad (1)$$

$$\frac{PRC_t}{Ass_{t-1}} = \beta_1 \left(\frac{1}{Ass_{t-1}} \right) + \beta_2 \left(\frac{S_{it}}{Ass_{t-1}} \right) + \beta_3 \left(\frac{\Delta S_t}{Ass_{t-1}} \right) + \beta_4 \left(\frac{\Delta S_{t-1}}{Ass_{t-1}} \right) + \varepsilon_t \quad (2)$$

$$\frac{DIE_t}{Ass_{t-1}} = \beta_1 \left(\frac{1}{Ass_{t-1}} \right) + \beta_2 \left(\frac{S_{t-1}}{Ass_{t-1}} \right) + \varepsilon_t \quad (3)$$

$$REM = ACFO (-1) + ADIE(-1) + APRC \quad (4)$$

Where,

CFO_t	=	Operations cash flow in period t
Ass_{t-1}	=	the lagged total assets
S_t	=	the annual sales
ΔS_t	=	the change in sales relative to the prior period
ΔS_{t-1}	=	the sales in year $t-1$ less sales in year $t-2$
PRC_t	=	the sum of the cost of goods sold ($COGS_t$) and changes in inventory (ΔINV) during the year
DIE_t	=	the total of discretionary expenses in the period t (sum of advertising expenses, R&D expenses, and SG&A)
S_{t-1}	=	the lagged total sales
$ACFO$	=	the abnormal cash flow from operations calculated as a residual from Equation (1)
$APRC$	=	the abnormal production costs calculated as a residual from Equation (2)
$ADIE$	=	the abnormal discretionary expenses calculated as a residual from Equation (3)
REM	=	the aggregate value of the standardised $ACFO$ (-1), standardised $APRC$, and standardised $ADIE$ (-1), calculated by Equation (4) to measure overall REM .

3.3. Measurement of independent and control variables

Corporate social responsibility (CSR) disclosure is the first independent variable, measured by content analysis to extract CSR data from firms' annual reports. Content analysis is a technique for gathering data and codifying both qualitative and quantitative information into pre-determined categories to assist in the presentation and communication of vital information (Krippendorff, 2018). We rely on the CSR disclosure checklist used by prior studies (Abu Qa'dan & Suwaidan, 2019; Al Fadli et al., 2020; Haniffa & Cooke, 2005; Khan et al., 2019; Qaderi et al., 2020). The CSR disclosure index contains 42 items which cover four important categories of the CSR framework: (i) community involvement (13 items), (ii) environmental (14 items), (iii) products/services to customers (9 items), and (iv) human resources (6 items). To score CSR disclosure for each firm, an unweighted method (dichotomous scoring) is applied where a value 1 is assigned if the item is disclosed in the firm's annual report and 0 otherwise. Next, the level of CSR disclosure is calculated by the ratio of actual scores to the maximum obtainable (42) by that firm. Following earlier work (i.e., Abu Qa'dan & Suwaidan, 2019; Haniffa & Cooke, 2005; Khan et al., 2019), the CSR disclosure level was computed as presented below:

$$\text{CSR disclosure score}_{i,t} = \frac{\sum_1^{42} d_{i,t}}{42}$$

Where: $d = 1$ if the item i is disclosed and 0 otherwise; and $t =$ the time (year). So that, 0 per cent \leq CSR disclosure score \leq 100 per cent.

We also used an alternative measurement for CSR to capture the higher CSR reporting level. Thus, $CSRdumm$ is a dummy variable that takes the value of 1 if the firm's CSR score is higher than the sample's median and 0 otherwise (Nekhili et al., 2017).

Board gender diversity (BGEND) is an independent and moderating variable, measured as a proportion of female directors to the total number of directors on the corporate board (Al-Shaer & Zaman, 2016; Gulzar et al., 2019; Ibrahim & Hanefah, 2016). We also use two further BGEND proxies applied by previous studies: BGEND number ($BGENDnumb$) which is the number of female directors on the board (Alazzani et al., 2019; Al-Shaer & Zaman, 2016; Issa & Fang, 2019), and a BGEND dummy variable ($BGENDdumm$) that takes the value 1 if there is a female director on the board, and 0 otherwise (Alazzani et al., 2019; Khan et al., 2019).

3.3.1. Control variables

some board and firm characteristics associated with EM are included as control variables: board independence ($BIND$) (Al-Haddad & Whittington, 2019), board expertise ($BEXP$) and ownership

Table 2. Variables Measurement

Variable	Proxy /Measurement
REM	An aggregate measure of real earnings management calculated by Equations (1)–(4)
CSRscore	An unweighted measure of CSR disclosure, 0 or 1, with total disclosure score 42.
CSRdumm	The binary variable takes the value 1 if the firm's CSR score is higher than the median of the sample, and 0 otherwise.
BGENDperc	The proportion of female directors to the number of directors on the board.
BGENDnumb	The number of female directors on the board.
BGENDdumm	The binary variable takes 1 if the firm has at least one female director and 0 otherwise.
BIND	The proportion of independent directors on the board
BEXP	The proportion of directors with financial qualifications
OWNC	The proportion of shares held by the largest shareholder
LEVE	The ratio of total liabilities divided by total assets
AFEE	The natural log of audit fees
ROA	The ratio of net income divided by total assets
MTBV	The ratio of market value divided by the book value per share
FSIZE	The natural log of total assets
FAGE	The natural log of the number of years since the establishment of the firm
INDU	The industry sector dummies
YEAR	The year dummies

concentration (OWNC) (Al-Jaifi, 2017); and firm leverage (LEVE) (Alzoubi, 2019), audit fees (AFEE) (Qaderi et al., 2020), return on assets (ROA), market to book value ratio (MTBV), firm size (FSIZE) and firm age (FAGE). The regression models also include sector type and year indicator variables to further control for any industry and year effects. Definitions and measures of the variables examined in this study are summarised in Table 2.

3.4. Empirical models

To test the hypotheses, we estimate the following two equations by employing ordinary least squares (OLS) regressions with robust standard errors. OLS regression analysis is a suitable statistical procedure for analysing the relationship between several independent variables and a single dependent variable to “assess the changes in the dependent variable in response to the changes in the independent variables” (Hair et al., 2014). Baltagi (2011) and Maigoshi (2017) suggest the use of OLS estimation where the panel data is unbalanced. Thus, the OLS model is employed in the current study. To control the possible effect of the outlier, we winsorise all variables that have extreme values (Al-Haddad & Whittington, 2019; Qaderi et al., 2020). The definitions of the variables are presented in Table 2 and the research models below.

$$\text{REM} = \beta_0 + \beta_1 \text{CSR} + \beta_2 \text{BGEND} + \beta_3 \text{BIND} + \beta_4 \text{BEXP} + \beta_5 \text{OWNC} + \beta_6 \text{LEVE} + \beta_7 \text{AFEE} + \beta_8 \text{ROA} + \beta_9 \text{MTBV} + \beta_{10} \text{FSIZE} + \beta_{11} \text{FAGE} + \text{INDU} + \text{YEAR} \quad (\text{Regression Model 1})$$

$$\text{REM} = \beta_0 + \beta_1 \text{CSR} + \beta_2 \text{BGEND} + \beta_3 \text{CSR} * \text{BGEND} + \beta_4 \text{BIND} + \beta_5 \text{BEXP} + \beta_6 \text{OWNC} + \beta_7 \text{LEVE} + \beta_8 \text{AFEE} + \beta_9 \text{ROA} + \beta_{10} \text{MTBV} + \beta_{11} \text{FSIZE} + \beta_{12} \text{FAGE} + \text{INDU} + \text{YEAR}$$

(RegressionModel2)

4. Empirical results

4.1. Descriptive statistics

Table 3 reports the descriptive statistics of the variables used in this study. The mean value of aggregate REM is almost 0.000, a value similar to those reported in recent Jordanian studies (Al-Haddad & Whittington, 2019; Almashaqbeh et al., 2019). and to those in the US and Malaysian markets, respectively (Cohen et al., 2008; Ghaleb et al., 2020). The mean CSR disclosure (CSRscore) for the study period is 0.316, indicating that, on average, Jordanian listed firms disclose almost 31.6 per cent of the CSR items in their annual reports, a rather low figure although similar to those stated by others (Abu Qa'dan & Suwaidan, 2019; Ibrahim & Hanefah, 2016). Further, the descriptive statistics indicate that 99 firms (20.84 per cent of the sample) have at least one female director in their board, similar to one report (Ibrahim & Hanefah, 2016) and higher than another (Abu Qa'dan & Suwaidan, 2019). Importantly, BGEND for each year (untabulated) is almost consistent, suggesting that firms did not increase their female representation throughout the study period. Untabulated results show also that the level of REM is significantly lower in firms with BGEND and higher CSR disclosure. Descriptive statistics related to control variables can be observed in **Table 3**.

We perform the Pearson test to check for correlation between the study's variables. **Table 4** shows that the correlation coefficient values are sufficiently low to fall within the prescribed limit. Further, the variance inflation factor (VIF) scores also reported in **Table 4** show that the values are all below the advised threshold of ten (Hair et al., 2014), suggesting that multicollinearity is not a major concern here.

4.2. Multivariate analysis

4.2.1. Corporate social responsibility, board gender diversity and real earnings management

Tables 5 and 6 present the regression results for the two research models. Model 1 is established to examine the direct relationship between CSR disclosure, BGEND and REM, whereas Model 2 examines the

Table 3. Descriptive statistics

Variable	Mean	SD	Median	Min.	Max.
REM	0.000	2.144	0.402	-18.952	6.765
CSRscore	0.316	0.116	0.310	0.071	0.667
CSRdumm	0.526	0.500	1	0	1
BGENDperc	0.031	0.065	0	0	0.333
BGENDnumb	0.253	0.554	0	0	3
BGENDdumm	0.208	0.407	0	0	1
BIND	0.406	0.243	0.400	0	0.909
BEXP	0.426	0.221	0.400	0	1
OWNC	0.608	0.222	0.645	0.056	0.987
LEVE	0.343	0.212	0.307	0.011	1.042
AFEE	9.451	0.734	9.253	6.908	11.870
ROA	0.027	0.094	0.030	-0.463	0.394
MTBV	1.279	1.050	0.982	-3.617	8.640
FSIZE	17.300	1.353	17.168	13.733	21.310
FAGE	2.981	0.665	2.996	1.099	4.369

The sample size is 475 firm-year observations. Variables definitions are summarised in **Table 2**.

Table 4. Pearson correlations for research variables

Variables	REM	CSRscore	BGENDperc	BIND	BEXP	OWNC	LEVE	AFEE	ROA	MTBV	FSIZE	FAGE	VIF
REM	1.000												
CSRscore	-0.139**	1.000											1.61
BGENDperc	-0.089*	-0.105**	1.000										1.13
BIND	-0.024	-0.071	-0.202***	1.000									1.36
BEXP	0.060	0.064	0.002	-0.032	1.000								1.06
OWNC	-0.024	-0.076*	0.019	-0.382***	0.158***	1.000							1.36
LEVE	0.172***	0.105**	-0.164***	-0.152***	-0.064	-0.057	1.000						1.49
AFEE	-0.072	0.471***	0.008	-0.257***	0.094**	0.217***	0.252***	1.000					2.68
ROA	-0.312***	0.165***	0.085*	-0.002	0.050	0.074	-0.278***	0.079*	1.000				1.31
MTBV	-0.289***	0.194***	0.023	-0.193***	0.038	0.182***	0.163***	0.197***	0.279***	1.000			1.25
FSIZE	0.000	0.537***	0.023	-0.225***	0.042	0.129***	0.331***	0.765***	0.157***	0.227***	1.000		3.00
FAGE	0.065	0.255***	-0.070	0.073	0.119**	-0.071	0.195***	0.267***	0.011	0.127***	0.209***	1.000	1.19

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Variables definitions are summarized in Table 2.

Table 5. Regressions result of the direct relationship between corporate social responsibility, board gender diversity and real earnings management

REM	Regression Model 1		Regression Model 1.1		Regression Model 1.2		Regression Model 1.3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
CSRscore	-2.334***	-2.64			-2.2792**	-2.58	-2.2973**	-2.59
CSRdumm			-0.9358***	-5.43				
BGENDperc	-3.324***	-2.75	-3.8538***	-3.29				
BGENDnumb					-0.3351**	-2.52		
BGENDdumm							-0.5384**	-2.57
BIND	-0.803**	-2.41	-0.9633***	-2.92	-0.8207**	-2.41	-0.7984**	-2.41
BEXP	1.016***	2.87	1.1061***	3.17	1.0081***	2.83	0.9155***	2.63
OWNC	0.077	0.19	-0.2211	-0.57	0.0531	0.13	0.0943	0.24
LEVE	0.879**	2.13	0.7661*	1.87	0.8827**	2.12	0.8625**	2.09
AFEE	-0.617***	-4.14	-0.6749***	-4.51	-0.6227***	-4.18	-0.6146***	-4.14
ROA	-4.594***	-4.16	-4.5667***	-4.14	-4.5298***	-4.11	-4.5520***	-4.12
MTBV	-0.640***	-5.54	-0.6372***	-5.75	-0.6395***	-5.53	-0.6370***	-5.50
FSIZE	0.395***	3.80	0.4626***	4.83	0.4024***	3.85	0.3980***	3.82
FAGE	0.329**	2.31	0.3102**	2.27	0.3307**	2.32	0.3117**	2.20
_cons	-0.794	-0.65	-1.3757	-1.21	-0.859	-0.71	-0.7654	-0.63
YEAR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
INDU	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	475	475	475	475	475	475	475	475
R-Squared	0.2645	0.295	0.295	0.262	0.262	0.265	0.265	0.265
Prob > F	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Variables definitions are summarized in Table 2.

Table 6. Regressions result of the moderating effect of board gender diversity on the relationship between corporate social responsibility and real earnings management

REM	(A) All Sample (Regression Model 2)		(B) Firms with Female Directors		(C) Firms without Female Directors	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
CSRscore	-2.4289***	-2.79	-7.7756***	-4.58	-1.1307	-1.14
BGENDperc	-3.8533***	-3.12				
CSR*BGEND	-0.1366*	-1.88				
BIND	-0.8202**	-2.45	-2.6970***	-2.95	-0.4528	-1.26
BEXP	0.9937***	2.82	-0.1418	-0.19	0.6046	1.60
OWNC	0.0676	0.17	-2.7613**	-2.63	0.9230**	2.13
LEVE	0.8190**	1.97	-2.2099*	-1.80	1.0786**	2.57
AFEE	-0.6170***	-4.19	0.1907	0.47	-0.7976***	-4.93
ROA	-4.6496***	-4.20	-12.2117***	-3.58	-3.3937***	-2.72
MTBV	-0.6413***	-5.56	-0.4620*	-1.74	-0.6063***	-4.62
FSIZE	0.3944***	3.81	0.5805*	1.84	0.3877***	3.53
FAGE	0.3275**	2.30	0.1056	0.41	0.2514	1.62
_cons	-0.6892	-0.57	-6.6598*	-1.99	0.3324	0.25
YEAR	Yes		Yes		Yes	
INDU	Yes		Yes		Yes	
Obs.	475		99		376	
R-Squared	0.2680		0.6455		0.2078	
Prob > F	0.000***		0.000***		0.000***	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Variables definitions are summarized in Table 2.

moderating effect of BGEND on the relationship between CSR disclosure and REM. Overall, as shown in Table 5, both models are significant at the 1 per cent level, suggesting their validity. The results in Table 5 model 1 show that the CSRscore coefficient is significantly negative at 1 per cent (coefficient = -2.334, t = -2.64), demonstrating that firms with higher CSR activities are less likely to engage in REM. The finding as reported in Table 5 model 1.1 remained the same with alternative measurement of CSR. These findings provide support for H1. This result is consistent with the ethical perspective: Jordanian managers in firms with higher CSR activities are less likely to engage in REM. The findings are in line with those reporting a negative CSR-EM relationship based on discretionary accruals (Almahrog et al., 2018; Garcia-Sanchez et al., 2020; Gras-Gil et al., 20162019m2012Kumala & Siregar, 2020; Mohmed et al., 2019). The current results support the moral and ethical perspective that engagement in CSR activities leads to reducing EM practices in an emerging market, Jordan. They add to the EM literature that CSR practices play a significant role in reducing not only AEM but also REM.

The results in Table 5 also show that BGENDperc coefficient is significantly negative at 1 per cent (coefficient = -3.324, t = -2.75), indicating that firms with female directors are less likely to practise REM, and supporting H2. We also regressed model 1 with BGEND alternative measurements, number of females and female dummies. The results, as reported in Table 5 models 1.2 and 1.3, remained the same, suggesting that BGEND under different measurements is negatively associated with REM. The findings are consistent with those reported in previous studies (Harakeh et al., 2019; Orazalin, 2019), suggesting that females directors on boards are more effective in performing the monitoring role. These findings are consistent with the claim that the appointment of female directors improves the monitoring function of corporate governance and ultimately firms' reporting practices (Damak, 2018; Fan et al., 2019; Orazalin, 2019).

For the control variables, the results are largely consistent with expectations. In particular, they show that BIND and AFEE are negatively and significantly associated with REM. This result is in line with previous findings (Alhadab, 2018; Talbi et al., 2015). However, BEXP is positively associated with REM. A possible explanation is that REM is less detectable (Chi et al., 2011; Cohen et al., 2008), and is subject to the managers' discretionary decisions. The results show also that OWNC is not associated with REM. Similar to the findings of previous studies, the current study reports that LEVE is positively and significantly associated with REM, suggesting that leveraged firms are involved in REM to avoid the violation of debt covenants (Anagnostopoulou & Tsekrekos, 2016). Further, the results show a significant association between FSIZE and REM, suggesting that large firms are more likely to practise REM (Abad et al., 2018). However, ROA and MTBV are negatively and significantly associated with REM, suggesting that firms with good performance and higher growth opportunities are less likely to practise REM. Finally, FAGE is found to be positively associated with REM, suggesting that older firms are engaging in real activities manipulation.

4.2.2. The moderating effect of board gender diversity on the relationship between corporate social responsibility and real earnings management

Table 6 reports the results of the interaction effect of the BGEND variables on the CSR-REM relationship. In Column A, we regressed the interaction variable (BGEND*CSR). The results show a significant negative relationship between BGEND*CSR and REM. The result is consistent with H3, that is, BGEND significantly moderates the relationship between CSR activities and REM. The findings are in line with the claim that female directors are more closely related to firms' non-financial reporting and mitigating EM practices (Hussain et al., 2018; Kachouri et al., 2020; Nekhili et al., 2017; Vacca et al., 2020). The results support the agency theory claim on the importance of female representation in enhancing the monitoring role of the board. We also used the subsampling method to test H3. We separate the sample into firms with female directors and other firms and we run model 1 after excluding the BGEND variable. The results reported in Table 6 Columns B and C show that the significant CSR-REM negative relationship is evident only in firms that have female directors on the board, supporting the main results that BGEND moderates the CSR-REM relationship.

4.3. Endogeneity tests

Although the anticipated direction of the relationship between CSR disclosure, BGEND and EM is supported by theoretical and empirical studies, we cannot ignore the inverse relationship; hence we should consider the important test for endogeneity. The endogeneity problem arises here when the dependent variable (REM) is affected by factors that simultaneously affect the independent variables (i.e., CSR and BGEND). To alleviate the possible effect of endogeneity, we apply lagged independent variables, as widely used in previous empirical studies (Al-Jaifi, 2017; Al-Qadasi & Abidin, 2018). In using this technique, we re-examine our main analysis by regressing the one-year lagged value of all independent and control variables on REM (the dependent variable). The results in Table 7 support the main findings, as the hypothesized relationships remained significant in the same direction, suggesting that reverse causality is not an issue here.

5. Conclusions

The main aim of this study was to examine the effect of CSR activities and BGEND on REM, and whether the CSR-REM relationship is influenced by BGEND in Jordan. The findings are as follows. First, CSR activities are associated with lower REM, indicating that more socially responsible firms in Jordan are less likely to engage in REM practices. Second, firms with gender diversity have fewer REM practices, suggesting that female directors boost the monitoring role of the board and prevent earnings manipulation, ultimately improving the quality of financial reporting. Third, as expected, BGEND influences the CSR-REM relationship. Subsample examinations confirm the moderating role of BGEND as the negative association between CSR disclosure and REM is evidenced in firms with female directors but not in firms without female directors. One explanation for this finding may be that female directors are less likely to engage in unethical activities.

Table 7. Regressions result of the study models using one-year lagged value

REM	Regression Model 1		Regression Model 2	
	Coef.	t-value	Coef.	t-value
CSRScore <i>t</i> -1	-2.735***	-2.71	-2.830***	-2.91
BGENDperc <i>t</i> -1	-3.971***	-3.00	-4.819***	-3.49
CSR*BGEND <i>t</i> -1			-0.232***	-2.95
BIND <i>t</i> -1	-0.733*	-1.88	-0.753**	-1.95
BEXP <i>t</i> -1	0.898*	2.29	0.872**	2.23
OWNC <i>t</i> -1	0.082	0.18	0.066	0.14
LEVE <i>t</i> -1	0.590	1.24	0.503	1.06
AFEE <i>t</i> -1	-0.563***	-2.90	-0.555***	-2.88
ROA <i>t</i> -1	-4.443***	-3.28	-4.682***	-3.46
MTBV <i>t</i> -1	-0.549***	-4.71	-0.554***	-4.72
FSIZE <i>t</i> -1	0.416***	3.11	0.407***	3.05
FAGE <i>t</i> -1	0.393**	2.47	0.388**	2.43
_cons	-1.584	-1.10	-1.398	-0.97
YEAR & INDU	Yes		Yes	
Obs.	394		394	
R-Squared	0.220		0.230	
Prob > F	0.000***		0.000***	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. *t*-1 referred to that the value of the variable is based on one-year lagged values definitions are summarized in Table 2.

The study has important practical implications. First, the results suggest that the ASE should encourage firms to actively engage in CSR activities, which are currently at a low level. Moreover, shareholders and other stakeholders should be aware of the importance of engagement in CSR activities as they lead to lower REM and thus higher reporting quality. Second, the findings show that the presence of female directors has a positive impact, directly and indirectly, on mitigating earnings manipulation through real activities. Thus, regulators might wish to consider gender diversity in future, especially as gender diversity has received little attention from them in comparison with similar emerging markets in the region.

The study was limited to non-financial firms listed on the ASE, and hence the results should be interpreted in the Jordanian context as they may not apply to markets with different features and institutional settings. In addition, the current study is based on a sample from the period 2011–2016, so future research might extend the period of study and further investigate the impact of other types and characteristics of board diversity.

Funding

The authors received no direct funding for this research.

Author details

Belal Ali Abdurraheem Ghaleb^{1,2}
 E-mail: belalye9@gmail.com
 ORCID ID: <http://orcid.org/0000-0003-3859-5372>
 Sumaia Ayesh Qaderi^{1,2}
 E-mail: sumaia.qaderi.2020@gmail.com
 ORCID ID: <http://orcid.org/0000-0002-9965-7007>
 Ahmad Almashagbeh³
 E-mail: Almashag1@yahoo.com
 ORCID ID: <http://orcid.org/0000-0001-8091-0896>
 Ameen Qasem^{4,5}
 E-mail: a.qasem@uoh.edu.sa
 ORCID ID: <http://orcid.org/0000-0003-2917-2749>

¹ Department of Accounting, Tunku Puteri Intan Safinaz School of Accountancy (TISSA), Universiti Utara Malaysia (UUM), Malaysia.

² Department of Accounting, Hodeidah University, Hodeidah, Yemen.

³ Independent Researcher in Amman, Jordan.

⁴ College of Business Administration, University of Hail, Hail, Saudi Arabia.

⁵ Faculty of Administrative Sciences, Taiz University, Taiz, Yemen.

Citation information

Cite this article as: Corporate social responsibility, board gender diversity and real earnings management: The case of Jordan, Belal Ali Abdurraheem Ghaleb, Sumaia Ayesh Qaderi, Ahmad Almashagbeh & Ameen Qasem, *Cogent Business & Management* (2021), 8: 1883222.

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