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Does the covid-19 pandemic create an incentive for firms to manage earnings? The role of board independence and corporate social responsibility

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A B S T R A C T

It is argued that managers took advantage of Covid-19 pandemic lockdowns and remote auditing and used earnings management (EM) practices extensively. Furthermore, the Covid-19 pandemic created new unsearched crisis-related incentives. This study, therefore, tests whether Covid-19 created a new incentive for managers to manipulate earnings. It also examines the association between corporate social responsibility (CSR) and board independence and EM during Covid-19. A data set of 384 firm-year observations from 2018 to 2021 of non-financial firms listed on the Amman Stock Exchange (ASE) was investigated. Results indicate that Jordanian firms engaged in EM during Covid-19 considerably more than when compared to pre-Covid-19, suggesting that Covid-19 created a new incentive for managers to manipulate earnings. Furthermore, Jordanian firms used income-increasing EM much more when compared to income-decreasing EM. However, when taking Covid-19 into account, no significant association was found between board independence and EM. In addition, the ability of CSR to constrain EM decreased. This adds to the current debate in the literature that even well-established monitoring mechanisms like board independence and CSR are unable to constrain EM practices in a unique business environment caused by Covid-19.

1. Introduction

It is no secret that the world has witnessed many instances of high-profile company failures, starting with the biggest fraud in corporate American history, "Enron", and continuing with WorldCom and Lehman Brothers, with a non-ending terminal point. Due to these accounting scandals, stakeholders lost confidence in the firm's financial reporting (Magrath and Weld, 2002). Indeed, management may adopt accounting techniques, mainly real and accruals earnings management (EM), when providing financial statements to give a positive image of the firm's performance to play the wind in their favour and alter users' decisions. In "the numbers game" speech Arthur Levitt expressed his concerns that too many managers engage in EM and let the fear of not meeting internal and external expectations beat good business practices and that the accounting number will eventually reflect management's desires rather than the company's performance. Thus, the quality of financial statements has always been a focal point among investors and stockholders.

Although the world has witnessed many catastrophes from the late twentieth century to the early twenty-first century, sadly, the Covid-19 pandemic has had the most significant effect on the world's financial situation since the great depression. Indeed, according to the World Trade Organisation, global GDP has fallen by 32% (He et al., 2020). The continuing Covid-19 pandemic has not only caused emotional and cognitive abnormalities in people (Sun et al., 2021), but has also made changes in the global stock market, which was the primary victim of the Covid-19 pandemic. Such scandals had a global impact that resulted partially from accounting manipulation, increasing people's awareness and raising the requirement for effective monitoring devices to minimise the use of EM and prevent such scandals from recurring (Ebrahim, 2007). Some

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of the well-known monitoring devices are good corporate governance mechanisms (CG) and corporate social responsibility (CSR). This combination is believed to overcome issues of the agency problem, prevent the use of EM, ensure that management decisions are made to benefit the entity and ensure transparency in financial statements (Bushman and Smith, 2003).

In spite of this, several researchers found different managerial incentives behind the use of EM. According to Healy and Wahlen (1999), managers will engage in EM practices for three main sets of incentives: contractual incentives, regulatory and tax incentives and capital market incentives. However, this study argues that Covid-19 created a new incentive to use EM by forming a suitable environment for managers to manipulate earnings. Therefore, it contributes to the literature by filling the research gap related to the implications of the Covid-19 pandemic on EM in general and in a developing country specifically (i.e., Jordanian context). In addition, it investigates new crisis-related managerial incentives.

The remainder of this study proceeds as follows: Section 2 reviews the literature and outlines the hypotheses. Section 3 sets out the methodology employed in this study. Section 4 shows descriptive statistics and discusses the results of both the univariate analysis and multivariate analysis. Finally, Section 5 concludes this study by presenting its main implications, limitations and suggestions for future studies.

2. Literature Review and Hypotheses Development

2.1 Covid-19 and Earnings Management

During the Covid-19 pandemic, there is no expectation of extraordinary financial performance (Ozili, 2021); however, some firms may try to engage in EM practices to turn minor losses into paper earnings to present themselves as successful and profitable firms. Logically, a firm's incentive to engage in income-increasing EM is going to be high; with the intention of meeting their benchmark or a certain target, attracting investors, concealing bad financial performances and avoiding reporting losses to comply with the concept that profitable firms are expected to remain profitable. Accordingly, Lassoued and Khanchel (2021) investigated the impact of Covid-19 on European firms' EM practices and found that firms managed more earnings during the pandemic than they did before it. Furthermore, they found that firms engaged more in income-increasing EM. Additionally, Xiao and Xi (2021) investigated the relationship between Covid-19 and Chinese listed firms' EM practices, they found that firms are more likely to use accruals EM during Covid-19 and are less likely to engage in real EM.

On the contrary, using income-decreasing EM may sound more attractive for some firms with the aspiration of decreasing abnormal earnings to avoid political costs, cutting down taxes and/or creating accounting slacks to reserve them in a cookie jar for later periods when earnings forecasts are not favourable. Accordingly, Aljawaheri et al., (2021) found that firms engaged in income-decreasing EM to reduce the fluctuations in their earnings over a time series, suggesting that the firm's management used the big bath technique to blame poor performance results on Covid-19.

A clear debate exists, about whether management had the incentive in the first place to engage in EM during the pandemic or not. In addition, even though the behaviour of managing earnings varies according to changes in circumstances, this study predicts that in the Covid-19 situation, along with the global lockdowns and the absence of full monitoring, firms' management are going to behave myopically and be keen to remain competitive to indicate that the firm is not doing badly compared to its competitors. Hence, the following hypothesis was developed:

H_1: *The magnitude of EM increased during the Covid-19 pandemic period.*

2.2 Board Independence and EM

Jensen and Meckling (1976) pointed out that even though good corporate governance (CG) cannot eliminate EM, it can definitely help in reducing its use. There is no universal CG code; however, the most common requirement of all CG codes for listed firms is to have a high proportion of their directors to be independent. Board independence plays a key role in monitoring and limiting EM practices (Azzam, 2020). In accordance with that, Fama and Jensen (1983) argue that the board of directors performs its monitoring duties more effectively in the presence of independent board members. Over the past decades, a myriad of studies have investigated the impact of CG on EM, such as Amran et al. (2016), Idris et al. (2018), Azeez et al. (2019), Saona et al. (2020) and Azzam (2020); they found that the higher the proportion of independent directors on a board, the more effective it is in constraining EM practices.

Conversely, Shah et al. (2009) investigated the relationship between the quality of CG and EM from a sample derived from the Pakistan Stock Exchange. They found that the quality of CG is positively correlated with EM, suggesting that as the quality of CG increases, EM also increases. Accordingly, Alareeni (2018) investigated whether various CG characteristics affected EM among firms listed on Bahrain Bourse; it was found that board independence is positively correlated with EM, suggesting that the larger the number of independent directors, the higher the level of EM practices. The same study clarified that the busyness of independent directors affected their ability to constrain EM practices.

In a Jordanian context, Azzam et al. (2021) examined the extent of both accruals and real EM prior to and after the implementation of Jordanian CG in 2009, which imposed a minimum of one-third of independent members on the board.

They found that listed firms' tendencies to use both types of EM decreased significantly after the implementation of Jordanian CG. In accordance with previous EM literature, the following hypotheses were developed:

H_2: *There is a negative association between board independence and EM.*

H_{2a}: *The negative association between board independence and EM increased during the Covid-19 pandemic period.*

2.3 Corporate Social Responsibility and EM

EM is viewed as a problem of ethics (Martinez, 2013) and CSR is viewed as an ethical solution to constrain EM. A firm is said to be socially responsible if it does not comply with only the bare minimum requirements of the law to be good, it has to take actions beyond that (Davis, 1960; McWilliams and Siegel, 2001). There is an ongoing debate on the relationship between CSR and EM in developing countries.

Two competing views may explain this relationship. The first is based on the stakeholder theory and the myopia avoidance hypothesis. Firms have an incentive to reveal their philanthropic and ethical behaviour when they run their business with integrity, claiming that "being socially responsible" for the firm is "being transparent" in its financial statements by disclosing reliable and relevant information. Supporting this point of view, Cho and Chun (2015), Gras-Gil et al. (2016), Alsaadi et al. (2017), Almahrog et al. (2018), Liu and Lee (2019) and Gonçalves et al. (2021) found a negative relationship between CSR and EM, suggesting that the firm that makes an effort in implementing CSR is less likely to engage in EM and that managers from socially responsible companies show more ethical behaviour in order to comply with stakeholders' ethical expectations. In other words, the firms that are more likely to engage in CSR are less likely to provide inaccurate or misleading financial statements.

The second point of view is based on the agency theory. Agency theory supporters believe that managers place their personal interests above shareholders' interests when making decisions and use CSR to serve their egoism, personal agendas and personal interest (Jensen, 2002). "Whose money has our executive stolen to pay for this social good? Surely not the customers' money, for they can always buy a cheaper product from a less socially aware manufacturer" (Nunan, 1988, p.5). Indeed, Friedman (1970) and Nunan (1988) argue that CSR is an "immoral idea", pointing out that shareholders' rights are being violated. They consider the management's engagement in CSR as stealing' because managers use business resources or "shareholder's money" to address non-business "social" issues. In addition, Prior et al. (2008) claim that managers are more likely to engage in CSR activities to divert stakeholders' attention from monitoring their opportunistic behaviour, hence, hedging their position.

Accordingly, Muttakin et al. (2017), Jordaan et al. (2018), Buertey et al. (2019), Habbash and Haddad (2019) and Amake and Akogo (2021) found a positive relationship between CSR and EM. This indicates that management uses CSR as a mask to deceive stakeholders of the real value of the firm and its real performance. In addition, when firms are underperforming, managers are more likely to contribute towards charitable ventures as leverage for their income-increasing choices. Here, there is a clear debate about the association between CSR and EM; the current study follows the perspective that CSR reduces the use of EM, thus the following hypotheses were developed:

H_3: *There is a negative association between CSR and EM.*

H_{3a}: *The negative association between CSR and EM increased during the Covid-19 pandemic period.*

3. Research Design

This study uses non-financial listed firms on the ASE. Despite the fact that Covid-19 is expected to have an impact on all firms with no exception, financial firms are excluded because reporting policies and EM estimation differ substantially between financial and nonfinancial firms. Listed firms on the ASE from 2018 to 2021 yield potentially (737) firm-year observations, as shown in Table 1. Of these, 255 observations are excluded because they are financial firms and another 98 observations are excluded due to missing data. The final sample therefore includes 384 firm-year observations. The selected period enables the current study to compare EM practices pre- and during the Covid-19 era.

Table 1
Sample selection criteria for listed firms on the ASE from 2018 to 2021

Description	Number of Observations
Firm Listed in Stock Market	737
Less: Financial Firm	(255)
Missing Data	(98)
Final Sample	384

The dependent variable in this study is EM, which is measured by accruals EM. The discretionary part of total accruals is used in the current study as a measure of accruals EM. Non-discretionary accruals (NDA) are isolated from discretionary accruals (DA) using the cross-sectional version of the modified Jones model (MJM), which was developed by Dechow, Sloan and Sweeney (1995), as it is employed extensively in the literature. The MJM adjusts the original model by including

the change in receivables when estimating discretionary accruals (DA). Following the MJM, firms' DA is estimated for each year and industry as follows:

$$\frac{TAC_{it}}{TA_{it-1}} = a_1\left(\frac{1}{TA_{it-1}}\right) + a_2\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{TA_{it-1}}\right) + a_3\left(\frac{PPE_{it}}{TA_{it-1}}\right) + \varepsilon_{it} \quad (1)$$

where:

TAC_{it} = total accruals for firm *i* in year *t;*
TA_{it-1} = total assets at the beginning of the year for firm *i* in year *t;*
ΔREV_{it} = change in revenues from the current year and previous year for firm *i* in year *t;*
ΔREC_{it} = change in receivables from the current year and previous year for firm *i* in year *t;*
PPE_{it} = gross property, plant and equipment for firm *i* in year *t;*
ε_{it} = error term; and
a_1- a_3 = firm specific parameters.

This study also uses the "Performance Matched Discretionary Accruals Model" (PMDAM), which was developed by Kothari, Leone and Wasley (2005), to strengthen DA estimations by including ROA in the MJM. While previous studies have estimated total accruals using two methods (i.e., balance sheet and cash flow), balance sheet remains the dominant method. This study, therefore, estimates total accruals as follows:

$$TAC_{it} = \left(\frac{\Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta DCL_{it} - DEP_{it}}{TA_{it-1}}\right) \quad (2)$$

where:

TAC_{it} = total accruals for firm *i* in year *t*;
ΔCA_{it} = change in current assets for firm *i* in year *t*;
ΔCL_{it} = change in current liabilities for firm *i* in year *t*;
$\Delta CASH_{it}$ = change in cash and cash equivalents for firm *i* in year *t*;
ΔDCL_{it} = change in debt included in current liabilities for firm *i* in year *t*;
DEP_{it} = depreciation and amortisation expense for firm *i* in year *t*; and
TA_{it-1} = total assets at the beginning of the year for firm *i* in year *t.*

This study measures ***Covid-19*** using a dummy variable, which takes the value of 1 if the year is 2021 or 2020 and zero if the year is 2019 or 2018. ***Board independence*** (INDP) is measured by percentage of independent directors to the total number of directors on the board. ***CSR*** is measured using an aggregated score of twelve variables. This study also controls for several variables that may have an impact on EM. The variables are ***Firm Size*** (SIZE), measured by total assets at the end of a firm's year, ***Leverage*** (LEV), measured as the ratio of total debt to total equity, ***Loss*** (LOSS), measured using a dummy variable which takes the value of 1 if the firm incurred negative earnings and the value of zero if the firm incurred positive earnings and ***External Auditor*** (EX.AUD), measured using a dummy variable which takes the value of 1 if the firm was audited by one of the big 4 and the value of zero otherwise. H_1 is tested using univariate analysis by comparing the mean (T-Test) and median (Z-Test) pre- and during the Covid-19 pandemic. H_2 and H_3 will be tested through the following regression model:

$$ABSDA_{it} = \beta_0 + \beta_1 COVID-19_{it} + \beta_2 CSR_{it} + \beta_3 INDEP._{it} + \beta_4 SIZE_{it} + \beta_5 LEV._{it} + \beta_6 LOSS_{it} + \beta_7 EX.AUD_{it} + \varepsilon_{it} \quad (3)$$

H_{2a} and H_{3a} will be tested through the following regression model:

$$Positive\ DA_{it} = \beta_0 + \beta_1 COVID-19_{it} + \beta_2 CSR_{it} + \beta_3 CSR_{it} * COVID-19 + \beta_4 INDEP._{it} + \beta_5 INDEP._{it} * COVID-19 + \beta_6 SIZE_{it} + \beta_7 LEV._{it} + \beta_8 LOSS_{it} + \beta_9 EX.AUD_{it} + \varepsilon_{it} \quad (4)$$

4. Results and Discussion

Table 2 provides detailed statistics for dependent, independent and control variables for the entire study period (2018–2021). It shows that the mean value of the absolute value of discretionary accruals (ABSDA) is 0.137, with a median of 0.089; this illustrates that the ABSDA in Jordanian firms is relatively high, especially when compared with previous studies in both developed and developing countries. For instance, the mean ABSDA in Jordan is nearly 3 times higher than that in 8 European countries (Belgium, France, Germany, Italy, Netherlands, Spain, Sweden and the United Kingdom) as shown in Awuye and Aubert (2022), where the mean ABSDA was 0.044 with a median of 0.031. Even when compared to some developing countries, the results for Jordan are high. The ABSDA mean is nearly 2 times higher in Jordan than in Saudi Arabia, as shown in Habbash and Haddad (2019), where the mean of discretionary accruals is 0.08 with a median of 0.06.

Table 2
Descriptive statistics for dependent, independent and control variables

Variables	*Min*	*Max*	*Mean*	*Median*	*SD*
ABSDA	.00002	1.9770	0.1369	0.0893	0.23143
CSR	0.0000	0.5833	0.1907	0.1666	0.16941
INDP	0.0000	1.0000	0.3805	0.4000	0.24023
SIZE (million)	0.0500	1,400	88.400	30.000	216.000
LEV	0.0000	3.217	0.5365	0.2200	0.41528
LOSS	0.0000	1.0000	0.3932	0.0000	0.48910
EX.AUD	0.0000	1.0000	0.3463	0.0000	0.47642

Note: Table 2 presents the descriptive statistics for dependent, independent and control variables using a sample that comprises 384 firm-year observations of listed firms on the ASE from 2018 to 2021. *ABSDA* is the absolute value of discretionary accruals. *CSR* is measured using an aggregated score of twelve variables. *INDP* is measured by percentage of independent directors to the total number of directors on the board. *SIZE* is measured by total assets at the end of a firm's year. *LEV* is measured as the ratio of total debt to total equity. *LOSS* is measured using a dummy variable, which takes the value of 1 if the firm incurred negative earnings and the value of zero if the firm incurred positive earnings. *EX.AUD* is measured using a dummy variable, which takes the value of 1 if the firm was audited by one of the big 4 and the value of zero otherwise.

Regarding independent variables, the statistics show that the mean values of CSR and INDP are 19% and 38%, respectively. On the one hand, it was anticipated for EM to be high, but on the other hand, it was unexpected for both CSR and INDP minimum amounts to be 0. Even when managers are aware of the importance of CSR, they chose not to disclose their philanthropic deeds and/or did not do any good deeds. Furthermore, with the allegedly good Jordanian CGC, which specifically instructed corporations to have at least one-third of the board being independent, the independence ratio for some firms was zero. Table 2 also reports descriptive statistics for control variables. The mean value recorded for firm size (SIZE), measured by total assets, is 88 million JD which in turn indicates that the majority of firms listed on the ASE are small. The table also reports the mean values for leverage (LEV), losses (LOSS) and external auditor (EX.AUD) as 53%, 39% and 34%, respectively.

4.1 Univariate Analysis

To test H_1, T-tests (mean difference) and Wilcoxon-Z tests (median difference) are used to examine the ABSDA, income-increasing EM (Positive DA) and income-decreasing EM (Negative DA) between the pre-Covid-19 era (i.e., 2018 and 2019 with 192 firm-year observations) and the during Covid-19 era (i.e., 2020 and 2021 with 192 firm-year observations). Also, the ABSDA, as a proxy for EM, is estimated using two models: the modified Jones model (MJM) developed by Dechow, Sloan and Sweeney (1995) and the performance-matched discretionary accruals model (PMDAM) developed by Kothari, Leone and Wasley (2005). The rationale behind using two models to estimate EM is to get robust results.

Table 3
Univariate analysis of EM pre- and during Covid-19

Panel A: EM estimated using the MJM

Description	*Pre-Covid-19 (2018+2019)*		*During Covid-19 (2020+2021)*		*T-test*	*Wilcoxon-Z-test*
Variables	*Mean*	*Median*	*Mean*	*Median*	*T-value*	*Z-value*
ABSDA	0.099	0.080	0.174	0.102	3.527***	4.630***
Positive DA	0.098	0.071	0.217	0.112	3.358***	5.308***
Negative DA	-0.100	-0.087	-0.115	-0.092	-1.368	-1.537

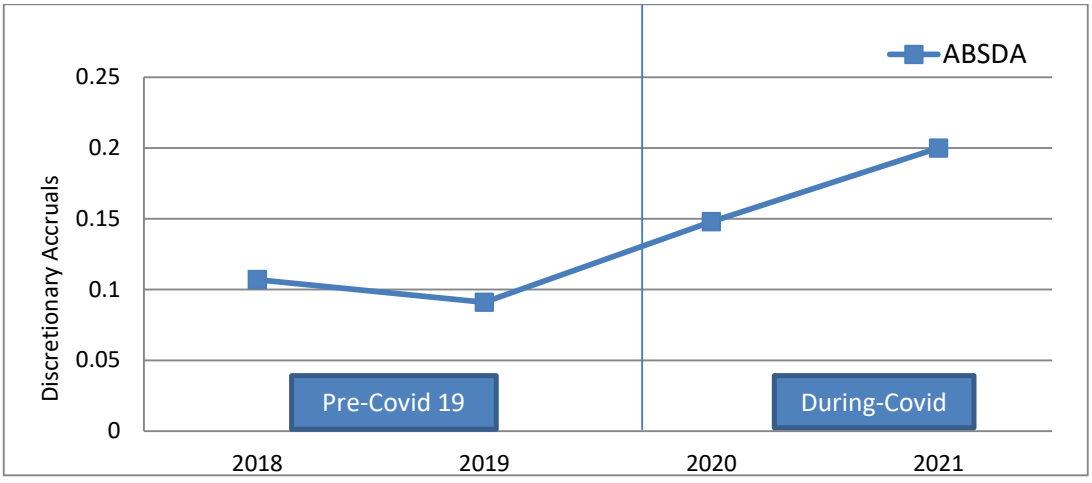
Panel B
EM estimated using the PMDAM

Variables	*Mean*	*Median*	*Mean*	*Median*	*T-value*	*Z-value*
ABSDA	0.093	0.075	0.169	0.102	3.504***	5.628***
Positive DA	0.093	0.068	0.213	0.114	3.462***	5.882***
Negative DA	-0.101	-0.083	-0.107	-0.088	-0.687	-1.571

Note: The table shows the difference in EM level between pre-Covid-19 (i.e., 192 firm-year observations) and during Covid-19 (i.e., 192 firm-year observations). The T-test (mean difference) and Wilcoxon-Z test (median difference) are used to compare the mean and median between the two groups of firms. **ABSDA:** The absolute value of discretionary accruals**. Positive DA:** The positive value of discretionary accruals. **Negative DA**: The negative value of discretionary accruals. In Panel A, all EM values are estimated using the MJM. In Panel B, all EM values are estimated using the PMDAM. The symbols (*), (**) and (***) denote significance at 10%, 5% and 1%, respectively, in two-tailed test.

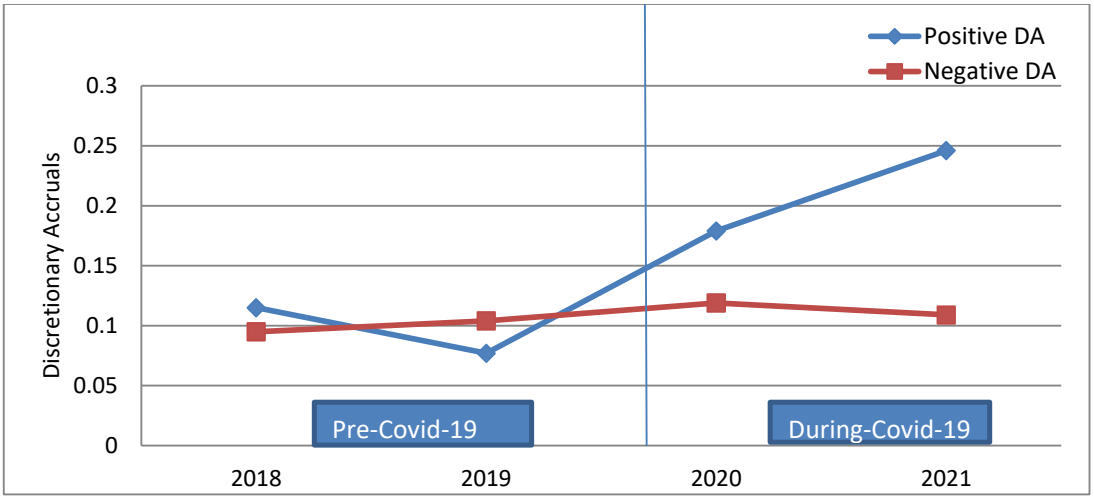
Table 3 reveals that the mean and median of ABSDA during Covid-19 were 17.4% and 10.2%, respectively, while the mean and median of ABSDA pre-Covid-19 were 9.9% and 8% as shown in Panel A. Panel B of Table 3 reports similar results to those presented in Panel A using the PMDAM. These results imply that EM increased significantly during Covid-19 ($p<0.01$). Table 3 also shows a significant difference in the mean value in the recorded Positive DA between the two groups of firms ($p<0.01$). In particular, the mean value recorded for Positive DA for firms pre-Covid-19 is 9.8% compared to 21.7% for during Covid-19 (as indicated in Panel A of Table 3). Panel B reports similar results. In addition, Table 3 shows an insignificant difference in the recorded Negative DA between the two groups of firms. In spite of this, the results display a higher mean for during Covid-19 (mean is -11.5% in Panel A and -10.7% in Panel B) compared to firms pre-Covid-19 (mean is 10% in Panel A and 10.1% in Panel B). To summarise, the findings indicate that all types of EM — ABSDA, Positive DA and Negative DA — are higher during Covid-19 compared with pre-Covid-19. Univariate analysis in Table 3 and Fig. 2 showed that the Negative DA means barely changed between pre-Covid-19 and during Covid-19, which indicates

that the lion's share of the change in ABSDA is caused by income-increasing EM (Positive DA). This result indicates that managers seized the opportunity of pandemic lockdowns, low monitoring and remote auditing to use EM extensively, suggesting that the Covid-19 pandemic ended up creating a new incentive by hosting a suitable environment for EM. Furthermore, firms engaged more in Positive DA compared to Negative DA for the purpose of reporting paper profits in order to conceal their bad performance, indicating that the firm is not doing badly compared to competitors and to attract investors. Thus, the results suggest that hypothesis ***H1*** is supported.



Notes: ABSDA is the absolute value of discretionary accruals estimated using the MJM. The pre-Covid-19 period includes the years 2018 and 2019 with 192 firm-year observations. The during Covid-19 period includes the years 2020 and 2021 with 192 firm-year observations.

Fig. 1. The trend of ABSDA for the pre- and during-Covid-19



Notes: Positive DA is the positive value of discretionary accruals estimated using the MJM. Negative DA is the negative value of discretionary accruals estimated using the MJM. The pre-Covid-19 period includes the years 2018 and 2019 with 192 firm-year observations. The during Covid-19 period includes the years 2020 and 2021 with 192 firm-year observations. This figure ignores the sign of Negative DA to compare the trend between Positive DA and Negative DA.

Fig. 2. The trend of Positive DA and Negative DA for pre- and during Covid-19

4.2 Multivariate Analysis

Table 4 reports the findings of two separate models for the entire period (2018 to 2021). The first model calculates ABSDA using the MJM (1995), while the second model calculates ABSDA using the PMDAM (2005). It shows that the association between Covid-19 and EM is positive and significant ($p<0.10$), which is consistent with previous findings in the univariate analysis in Table 3. This study proposes that as the proportion of independent directors on the board increases, it is more likely that they are associated with limiting the opportunistic behaviour of management, thus constraining the use of EM activities. The results of Models 1 and 2 do not support this proposition and show a negative but insignificant association between board independence (INDP) and ABSDA, suggesting that firms with a high percentage of independent directors on their boards are not associated with a decreased level of EM activities. This result is inconsistent with previous research in several different contexts such as Amran et al. (2016), Idris et al. (2018), Azeez et al. (2019), Saona et al. (2020) and

Azzam (2020). A possible justification for this difference with previous research is that the vast majority of previous studies have been conducted before the appearance of Covid-19. As a result, H_2 is rejected.

Table 4
Results on the association between CSR, INDP, Covid-19 and ABSDA

Variables	*Model 1*	*Model 2*
Intercept	0.5340 (7.13)***	0.5098 (6.88)***
Covid-19	0.0394 (1.88)*	0.0406 (1.95)*
CSR	-1.4035 (-5.70)***	-1.3753 (-5.65)***
INDP	-0.2241 (-1.56)	-0.229 (-1.60)
SIZE	-6.75e-10 (-5.44)***	-5.02e-10 (-4.09)***
LEV	-0.0002 (-0.49)	-0.0002 (-0.52)
LOSS	-0.0014 (-0.04)	-0.0002 (-0.01)
EX.AUD	-0.0097 (-0.11)	-0.0077 (-0.09)
No. of observations	384	384
Adjusted R^2	0.2252	0.1954
F-value	11.67	9.75
P-value	0.000	0.000

Notes: This table presents the results of fixed effect model of the association between covid-19, indp, csr and em using a sample that comprises 384 firm-year observations of listed firms on the ase from 2018 to 2021. in model 1, absda is estimated using the mjm. in model 2, absda is estimated using the pmdam.
the symbols (*) and (**) denote significance at 5% and 1%, respectively, in two-tailed test. all variables were defined previously in table 2.

This study also proposes that CSR could reduce EM. Firms that make an effort in implementing CSR are less likely to engage in EM and managers from socially responsible firms show more ethical behaviours in order to comply with stakeholders' ethical expectations. The results of Models 1 and 2 in Table 4 support this proposition and show a negative but highly significant association between CSR and ABSDA, with a coefficient of -140.35% ($p<0.01$) in Model 1 and a coefficient of -137.53% ($p<0.01$) in Model 2. These results suggest that firms which comply with the myopia avoidance hypothesis feel the urge to frequently engage in CSR. In addition, it is necessary for those firms to be transparent in their financial statement in order to provide their stakeholders with the real picture, as much as it is a must to payback their environment and community. This result is consistent with previous research in several contexts such as Cho and Chun (2016), Gras-Gil et al. (2016), Alsaadi et al. (2017), Almahrog et al. (2018), Liu and Lee (2019) and Gonçalves et al. (2021). This finding provides more evidence from a new context of the negative correlation between CSR and EM. Therefore, H_3 is accepted.

Adding two more variables, *CSR*Covid-19* and *INDP*Covid-19*, allows the current study to reflect the associations between these variables during the pandemic and test hypotheses H_{2a} and H_{3a}. The results presented in Table 5 show a positive but insignificant association between *INDP*Covid-19* and *ABSDA*, suggesting that Covid-19 jeopardised the board's ability to monitor the managers' opportunistic behaviour. Even though this finding was not significant, it is both interesting and alarming at the same time to note that independent directors not only failed to constrain EM practices during Covid-19, but had the opposite effect.

This can be caused by many reasons; firstly, the unrealistic presence of independent members on the board due to Covid lockdowns; secondly, independent directors were not actually independent, but instead were a shadow to appear as a clean-cut board to satisfy the requirements of the Jordanian CGC; and finally, unlike executives, independent directors have inadequate expertise and skills to understand financial reporting details. However, this result is consistent with the findings of Hashim and Devi (2008), Shah et al. (2009), Alareeni (2018), Haddad and Whittington (2019) and Zgarni and Fedhila (2021).

Results in Table 5 also show an insignificant negative association between *CSR*Covid-19* and *ABSDA*, indicating that the negative association between CSR and ABSDA had a massive decrease during the pandemic, especially when compared to previously reported results in Models 1 and 2 in Table 4. This decrease is justified by the fact that the pandemic lockdowns disturbed the firms' activities, which was reflected in their philanthropic activities. However, the results of Table 5 do not support H_{2a} and H_{3a}; hence, they are both rejected.

This study uses the absolute value of discretionary accruals as a proxy for EM, which captures both Positive DA (income-increasing EM) and Negative DA (income-decreasing EM). Therefore, instead of simply assessing the extent of ABSDA, positive discretionary accruals (Positive DA) are also identified and examined in this analysis. Negative DA (income-decreasing EM) are ignored here simply because the previously reported results of univariate analysis in Table 3 show that Negative DA means were barely changed; thus, a regression analysis would be pointless and time consuming. Therefore, the regression analysis will be applied to Positive DA, since it has the lion's share of the ABSDA.

Table 5
Results on the associations between CSR, INDP and ABSDA during Covid-19

Variables	*Model 1*	*Model 2*	*Model 3*	*Model 4*
Intercept	0.5289 (7.04)***	0.5041 (6.79)***	0.5414 (6.82)***	0.5208 (6.63)***
Covid-19	0.0628 (1.99)*	0.0656 (2.10)**	0.0299 (0.74)	0.0260 (0.65)
CSR	-1.3589 (-5.43)***	-1.3275 (-5.37)***	-1.4176 (-5.63)***	-1.3970 (-5.61)***
INDP	-0.2378 (-1.65)*	-0.2442 (-1.71)*	-0.2361 (-1.57)	-0.2479 (-1.67)*
*CSR*Covid-19*	-0.1237 (-0.99)	-0.1324 (-1.07)	-	-
*INDP*Covid-19*	-	-	.02389 (0.27)	0.0368 (0.43)
SIZE	-7.05e-10 (-5.52)***	-5.34e-10 (-4.23)***	-6.77e-10 (-5.44)***	-5.04e-10 (-4.10)***
LEV	-0.0002 (-0.56)	-0.0002 (-0.60)	-0.0002 (-0.46)	-0.0002 (-0.47)
LOSS	-0.0025 (-0.08)	-0.0014 (-0.04)	-0.0007 (-0.02)	0.0008 (0.03)
EX.AUD	0.0038 (0.04)	0.0066 (0.08)	-0.0096 (-0.11)	-0.0078 (-0.09)
No. of observations	384	384	384	384
Adjusted R^2	0.2279	0.1987	0.2254	0.1959
F-Value	10.33	8.68	10.18	8.53
P-Value	0.000	0.000	0.000	0.000

Notes: This table presents the results of fixed effect model of the association between INDP and CSR and EM during the pandemic using a sample that comprises 384 firm-year observations of listed firms on the ASE from 2018 to 2021. In models 1 and 3, ABSDA is estimated using the MJM. In models 2 and 4, ABSDA is estimated using the PMDAM.

The symbols (*) and (**) denote significance at 5% and 1%, respectively, in two-tailed test.

Table 6 shows the results for the association between Positive DA, CSR, INDP, Covid-19 and other control variables, using a sample of 214 firm-year observations that are attributed to the Positive DA; 170 observations were excluded from the original observations that were associated with Negative DA. The first model calculates positive EM using the MJM (1995), while the second model calculates ABSDA using the PMDAM (2005).

Table 6
Results of the association between CSR, INDP, Covid-19 and Positive DA

Variables	*Model 1*	*Model 2*
Intercept	0.9344 (7.82)***	0.9092 (7.87)***
Covid-19	0.0068 (0.21)	0.0179 (0.56)
CSR	-1.8453 (-5.29)***	-1.7423 (-5.16)***
INDP	-0.6235 (-2.78)***	-0.6313 (-2.91)***
SIZE	-2.04e-09 (-7.45)***	-2.04e-09 (-7.70)***
LEV	0.0009 (0.01)	0.0012 (0.01)
LOSS	0.0297 (0.57)	0.0117 (0.23)
EX.AUD	-0.2518 (-1.85)*	-0.2311 (-1.75)*
No. of observations	214	214
Adjusted R^2	0.4552	0.4654
F-Value	15.40	16.04
P-Value	0.0000	0.0000

Notes: This table presents the results of fixed effect model of the association between CSR, INDP, Covid-19 and positive EM using a sample that comprises 214 firm-year observations of listed firms on the ASE from 2018 to 2021. In model 1, Positive DA is estimated using the MJM. In model 2, Positive DA is estimated using the PMDAM.

The symbols (*) and (**) denote significance at 5% and 1%, respectively, in two-tailed test.

All variables were defined previously in Table 2.

The findings show that the intercept's coefficients in both models are positive and significant ($p<0.01$); the F-value falls within the range of 15.4 to 16.04. However, the fitness of the regression (Adjusted R^2) increased from previous regression analysis performed on the ABSDA; it ranges from 45.52% to 46.54%. Table 6 reports that the association between CSR

and Positive DA is negative and highly significant under both of the models ($p<0.01$), which is significantly greater compared to CSR association to ABSDA. Table 6 also shows results for INDP association with Positive DA. The findings were both negatively associated and highly significant under both of the models. This result is consistent with the findings of Wang (2014), Chen and Zhang (2014) and Azzam (2020), who found that board independence suppresses positive DA more than negative DA. As for the control variables, firm size and external auditors were found to be negatively associated with Positive DA ($p<0.01$ and $p<0.10$, respectively).

Table 7 shows the results for the interaction between CSR and INDP and Covid-19. The intercept coefficients in both models are positive and significant ($p<0.01$); the F-value falls within the range of 13.45 to 14.14 and the adjusted R^2ranges from 45.67% to 46.86%. The results, however, are similar to the regression analysis for ABSDA reported in Table 5. Specifically, CSR and INDP do not play a pivotal role in limiting positive EM practices during Covid-19 pandemic.

Table 7
Results on the association between CSR, INDP and Positive DA during Covid-19

Variables	***Model 1***	***Model 2***	***Model 3***	***Model 4***
Intercept	0.9413 (7.83)***	0.9151 (7.86)***	0.9084 (7.39)***	0.8848 (7.44)***
Covid-19	-0.0134 (-0.28)	0.0008 (0.02)	0.0606 (0.89)	0.0683 (1.04)
CSR	-1.8902 (-5.28)***	-1.7803 (-5.14)***	-1.7521 (-4.82)***	-1.6549 (-4.70)***
INDP	-0.6150 (-2.73)***	-0.6241 (-2.86)***	-0.5807 (-2.53)**	-0.5911 (-2.66)***
*CSR*Covid-19*	0.1183 (0.60)	0.0999 (0.52)	-	-
*INDP*Covid-19*	-	-	-0.1255 (-0.91)	-.1178 (-0.88)
SIZE	-2.01e-09 (-7.25)***	-2.02e-09 (-7.51)***	-2.07e-09 (-7.50)***	-2.07e-09 (-7.74)***
LEV	0.0069 (0.07)	0.0063 (0.07)	-0.0071 (-0.07)	-0.0063 (-0.07)
LOSS	0.0285 (0.55)	0.0107 (0.21)	0.0237 (0.45)	0.0061 (0.12)
EX.AUD	-0.2668 (-1.92)*	-0.2437 (-1.81)*	-0.2573 (-1.89)*	-0.2363 (-1.79)*
No. of observations	214	214	214	214
Adjusted R^2	0.4567	0.4665	0.4587	0.4686
F-Value	13.45	13.99	13.56	14.11
P-Value	0.0000	0.0000	0.0000	0.0000

Notes: This table presents the results of fixed effect model of the association between INDP and CSR and Positive DA during the pandemic using a sample that comprises 214 firm-year observations of listed firms on the ASE from 2018 to 2021. In models 1 and 3, Positive DA is estimated using the MJM. In models 2 and 4, Positive DA is estimated using the PMDAM.

The symbols (*) and (**) denote significance at 5% and 1%, respectively, in two-tailed test.

All variables were defined previously in Table 2.

5. Conclusion

Previous studies argue that managers have many incentives to use EM. We believe in crises-related incentives; managers took advantage of the Covid-19 pandemic lockdowns and remote auditing and used EM practices extensively. Therefore, the aim of this study was to assess whether Covid-19 created a new incentive for managers to manipulate earnings and examine the association between INDP, CSR and EM during the Covid-19 pandemic in Jordanian firms. Using a sample of 384 firm-year observations of non-financial firms listed on ASE from 2018 to 2021, this study found that Covid-19 did create an incentive for managers to extend the use of EM practices; specifically, they used Positive DA much more than Negative DA. The results also show that CSR is negatively correlated to EM; hence, it plays a role in constraining EM. However, when taking Covid-19 into consideration, CSR's ability to restrain the opportunistic behaviour of the management decreased. In addition, Covid-19 jeopardised the board's ability to monitor managers' opportunistic behaviours.

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