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The moderating effect of COVID on the relation between profitability and a Big4 auditor on earnings management

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Abstract

This study explores the moderating effect of the COVID pandemic on the relation between profitability and the use of a Big4 auditor on earnings management. To investigate this, the research focuses on estimating discretionary accruals, which serve as a proxy for earnings management, using the Jones model modified by Dechow et al. (1995) and the Kothari et al. models (2005). A comprehensive dataset comprising 14,254 firm-year observations from SEC registrants during the period of 2015-2020 is employed for analysis. The findings of the study reveal a significant and negative effect of both profitability and the use of a Big4 auditor on earnings management. Moreover, these effects were found to be even stronger in the context of the COVID-19 crisis. Specifically, higher profitability is associated with a decrease in earnings management practices. Similarly, companies that engaged a Big4 auditor during the pandemic exhibited lower levels of earnings management.

Table of Contents

1. Introduction	2
2. Literature review and hypothesis development.....	5
2.1 Earnings Management	5
2.2 Earnings Management during crisis and pandemics	6
2.3 Hypothesis development.....	8
3. Data & Research Method	10
3.1 Data.....	10
3.2 Research Method	10
4. Results	14
4.1 Descriptive statistics	14
4.2 Correlation Analysis	15
4.3 Regression Results.....	16
4.3.1 <i>The effect of profitability on earnings management during COVID</i>	16
4.3.2 <i>The effect of Big4 auditor on earnings management during COVID</i>	18
4.3.3 <i>Robustness check</i>	20
5. Discussion	21
6. References	22
Appendix	25

1. Introduction

The outbreak of the COVID-19 virus and the subsequent pandemic resulted in firms around the world being affected by government actions taken to restrain the rapid spread of the virus and rising number of infected cases. According to the PwC 2021 Global Crisis Survey (PwC, 2021), more than 70% of businesses were negatively impacted by the COVID-19 crisis. The restrictions imposed by governments, such as lockdowns, along with increased uncertainty and demand and supply shocks, have had a negative impact on firms' performance (Ozili & Arun, 2023). Lockdowns prevented most firms from remaining fully operational, resulting in declining revenues, and expected future cash flows. Consequently, firms may be more likely to engage in earnings manipulation practices to mitigate the unfavourable effects of the pandemic on their financial performance and propagate a confident image of the firm (Dechow et al., 1996; Healy & Wahlen, 1999; Francis et al., 2013; Filip & Raffournier, 2014; Persakis & Iatridis, 2015).

While there is consensus on the use of earnings management in challenging times, the purpose of this behaviour remains controversial. Some studies argue that companies have incentives to increase earnings management (Persakis & Iatridis, 2015; Lisboa & Kacharava, 2018; Šušak, 2020; Lassoued and Khanchel, 2021), while others show that they have more incentives to decrease the level of earnings management (Filip & Raffournier, 2014; Cimini, 2015; Ali et al., 2022). An increase in earnings management during economic downturns is primarily driven by the higher likelihood of not meeting targets. This can negatively impact managers' bonuses, loan repayment, and stock prices (Trueman & Titman, 1988; Healy & Wahlen, 1999; Dichev & Skinner, 2002; Xie et al., 2003), providing an incentive to inflate earnings. Conversely, a decrease in earnings management during downturns can be attributed to increased scrutiny from stakeholders, including auditors (Filip & Raffournier, 2014; Ali et al., 2022). Companies face greater demands for conservative earnings and higher quality financial reporting, leading to reduced engagement in earnings management practices during times of crises (Francis et al., 2008). Nonetheless, if a company engages in earnings management to mislead investors or other stakeholders, this can be considered unethical or even fraudulent (Dechow et al., 1996; Klein, 2002).

Previous research also investigated the impact of the 2008 economic crisis on earnings management. Cimini (2015) finds that earnings management decreased following the onset of the financial crisis, which was attributed to increased conditional conservatism and heightened scrutiny by auditors. The same is found by Filip and Raffournier (2014) who find a significant decrease in income smoothing and an improvement of accruals quality in the crisis period. Other studies find that during the financial crisis earnings management was more used than periods before the crisis (Francis et al., 2013; Persakis & Iatridis, 2015)

Research has also been conducted to understand the impact of the COVID-19 pandemic on earnings management. One study by Šušak (2020) examines the effect of the pandemic on earnings management among companies listed on the Croatian stock exchange. The findings reveal a higher intensity of earnings management practices, particularly using negative discretionary accruals, which involved deliberately reducing reported income and shifting

earnings into future periods. Another study by Lassoued and Khanchel (2021) explores earnings management practices in the context of the pandemic, focusing on European level. They observe that earnings management is more frequently utilized, with a greater emphasis on increasing income accruals. This suggests that during economic difficulties and crises, firms tend to employ more earnings management practices to mitigate the adverse effects on their economic and operational performance. Ali et al. (2022) found that earnings management was used in a lesser extend during the COVID-19 pandemic.

The effects of the COVID-19 pandemic on earnings management have been a subject of interest and research. However, the existing literature on this topic has yielded inconsistent and sometimes contradictory findings, making it challenging to draw clear conclusions. This study aims to address the gaps and limitations in previous research by examining the influence of the pandemic on profitability and the use of a Big4 accountant as determinants of earnings management. These two determinants are found to be explanations in prior research in whether there is an increasing or decreasing use of earnings management (Healy & Wahlen, 1999; Filip & Raffournier, 2014). Higher scrutiny of a well-known auditor should decrease earnings management and as in general profitability drops during crisis, earnings management should go up. Although, how does this relate during the crisis, when there was a general expectation that companies would exhibit poorer performance?

The study focuses on examining earnings management through the perspective of accruals. Initially, Jones model, modified by Dechow et al. (1995) and the Kothari et al. models (2005) were employed to estimate discretionary accruals, which serve as a proxy for earnings management. Subsequently, an empirical model was constructed to investigate the moderating effect that the COVID-19 crisis has on two determinants, profitability, and the use of a Big4 accountant, of earnings management. By examining 14,254 firm-year observations from SEC registrants during the years 2015-2020, the results indicate that during the pandemic, profitability has an even stronger negative effect on the use of earnings management practices. This means that higher profitability leads to a lower degree of earnings management. The same reinforcing negative effect was found among companies that utilized a Big4 auditor during the pandemic.

By providing a more nuanced and comprehensive analysis, this study aims to contribute to the existing knowledge base on earnings management during the COVID-19 pandemic. More specifically, the findings of this research expand our understanding of the impact of profitability and the use of a Big4 accountant as determinants of earnings management during the COVID-19 pandemic.

The findings of this study have important implications for various stakeholders. For investors, these findings provide valuable insights into firms' behaviour and the impact of the pandemic on their financial reporting practices. By understanding the association between profitability and earnings management during the pandemic, investors can make more informed investment decisions and assess the credibility of financial statements, and how these statements be impacted by economic crisis like the recent pandemic.

Moreover, the results underscore the importance of selecting reputable audit firms and allocating adequate resources for audit procedures. Collaborating with reputable auditors can enhance the credibility and reliability of financial statements, as these firms are more likely to adhere to rigorous auditing standards (Francis & Wang, 2008). This, in turn, reduces information asymmetry and fosters investor confidence in financial reporting.

The rest of the paper is organized as follows. First, a review of the literature and the hypothesis development. Second, the sample and research design are presented. Third, the discussion of the results and additional analysis. The final is a summary of the findings and the implications for further research and practice.

2. Literature review and hypothesis development

2.1 Earnings Management

Over the course of several decades, extensive attention has been given to earnings management in academic literature, resulting in a substantial body of empirical research exploring earnings management practices, causes, implications, and its behaviour in times of crisis (Dechow et al., 1995; Filip & Raffournier, 2014, Ali et al., 2022; Healy & Wahlen, 1999). Earnings management refers to the use of accounting techniques to manipulate financial statements in order to present a more favourable picture of a company's financial performance (Klein, 2002). According to Healy & Wahlen (1999) the definition of earnings management is: “the use of managers judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on the reported accounting numbers.”

Earnings management encompasses various techniques, some of which involve manipulating revenue recognition, expenses, accruals, or transaction timing. Manipulation of revenue recognition involves premature recognition or deferral of revenue to inflate or smooth income (Trueman & Titman, 1988). Companies may book sales before they are finalized or recognize revenue from long-term contracts in earlier periods. Expense manipulation involves deferring or accelerating expenses to improve profitability. Techniques may include capitalizing expenses as assets, manipulating depreciation or amortization schedules, delaying the recognition of expenses, or misclassifying expenses as non-operating items. Income smoothing techniques are used to reduce earnings volatility and create more stable financial performance. Companies may adjust accruals or discretionary expenses to achieve smoother earnings growth (Trueman & Titman, 1988).

This manipulation of revenue or expenses is not only possible by accounting techniques, but also through operational management, known as activity-based manipulation (Roychowdhury, 2006). Financial executives interviewed by Bruns & Merchant (1990) and Graham, Harvey & Rajgopal (2005) indicated a greater involvement in real activity earnings management than accrual-based manipulation. This can be attributed to accrual manipulation being more vulnerable and easily detected by auditors or regulators compared to operational management intervention. Additionally, according to DeGeorge (1999), outside stakeholders use certain thresholds as benchmarks for evaluating and rewarding executives. If the realized year-end income falls below the desired threshold, real activities cannot be manipulated anymore (Roychowdhury, 2006). Roychowdhury (2006) suggests three main possibilities of earnings management based on real activity manipulation: manipulating sales through timing or credit terms, reducing discretionary expenditures, and substantially increasing production to report lower costs of goods sold.

Dye (1988), states that there is both an internal and an external demand for the use of earnings management. The internal demand is related to the agency theory. Dechow et al. (1996) argue that compensation plans can incentivize managers to act in the best interests of shareholders while Healy and Wahlen (1999) and Xie et al. (2003) have a contrary view. If managers'

incentives are tied to the financial performance of their companies, they may have an interest in manipulating earnings to create the appearance of better performance. In many organizations, managers receive compensation based on the company's earnings relative to a predetermined benchmark, which includes direct components like salary and bonuses, as well as indirect factors such as prestige, future promotions, and job security. This combination of managerial discretion over reported earnings and the impact of these earnings on their compensation creates a potential agency problem.

Healy and Wahlen (1999) define, next to incentive contracts, two external demands for earnings management: 1) to impact stock prices and investors' financial decisions about a company; and 2) to influence contractual incentives such as debt agreements. Investors rely on earnings as a crucial source of information about a firm's value, which influences their investment decisions and, consequently, the market price (Healy & Whalen, 1999). The efficiency of the market depends on the accuracy and reliability of the information flow. When earnings management leads to misleading information, it becomes challenging for the market to accurately value securities. As a result, earnings management can be seen as an agency cost, as it obscures the true performance of the company and hinders shareholders' ability to make well-informed decisions (Xie et al., 2003). In the case of earnings management targeted towards banks or other loan providers, creditors use earnings to assess a firm's ability to repay loans, which determines the interest expenses reported in the firm's income statement and the capital available for investments (Healy & Whalen, 1999).

The existing theoretical literature posits that firms are likely to engage in various earnings manipulation practices, such as big bath accounting, income smoothing, and fair value accounting, during challenging periods (Lassoued & Khanchel, 2021). It is anticipated that these practices serve as mechanisms to mitigate the negative impacts of crises on firms' economic and operational performance. Specifically, they are expected to help alleviate issues such as reduced profitability, increased earnings volatility (Healy & Wahlen, 1999), violations of debt covenants (Dichev & Skinner, 2002), and declining stock prices (Healy & Wahlen, 1999). Empirical evidence from previous studies supports these theoretical assertions and provides support for the association between economic downturns and earnings management.

2.2 Earnings Management during crisis and pandemics

Based on the previous mentioned research, it is implied that periods characterized by economic downturns, are expected to be associated with a higher level of earnings management (Healy & Wahlen, 1999). But how does this relate to the financial crisis in 2008 and the recently experienced COVID crisis?

Filip and Raffournier (2014) examine the extent of earnings management practices in 16 European countries during the 2008 financial crisis. They find a significant reduction in the use of earnings management during the crisis. Another outcome from this study is the significant positive relation between the growth rate of national GDP and earnings management. They also find that corporate governance and law enforcement do not have significant effect on the accrual metrics. They attribute the finding of decrease in earnings

management to the intensified monitoring activities of auditors, often represented by Big4 auditing firms. This contributed to the enhanced quality of financial reporting and subsequently reduced the prevalence of earnings management. A similar conclusion of a decrease in accrual-accounting and thereby a lesser extensive use of earnings management is drawn by Cimini (2015) who researches the extent of earnings management in the EU during the financial crisis.

A contrasting finding is found by Francis et al. (2013). They find that during the economic crisis earnings management was more present, but for companies using an increase in conditional conservatism the use of earnings management is lower in comparison with companies using a less conservative approach. Persakis and Iatridis (2015) find, for their sample consisting of companies all over the world, that in an attempt to cope with recession, managers have an incentive to choose more aggressive conservatism, lower the earnings predictability and book more accruals. By increasing the accruals, a lower earnings quality is established during the financial crisis.

Just like in the 2008 crisis and the general understanding of the use of earnings management and the circumstances under which earnings management is employed, these contradictory thoughts and findings also manifest in the context of the recent COVID-19 crisis. For instance, Ali et al. (2022) find that firms based in G12 countries at the time of the COVID-19 pandemic perform earnings management less extensively compared to the time before the pandemic. The explanation is that firms during crises and recession periods are subject to higher monitoring from different stakeholders, and so receive more demands for conservative earnings and higher earnings management quality in financial reports and are thus more likely to engage in less earnings management practices during times of crises (Ali et al., 2022).

A study was also conducted by Šušak (2020), who investigates the effect of the COVID-19 pandemic on earnings management among companies listed on the Croatian stock exchange. In contrast to the outcome of Ali et al. (2022), he finds that there is a higher intensity of the use of earnings management practices due to changed regulations, and in particular the fact that they made more use of negative discretionary accruals. This implies that by using accruals, companies are reducing their income and shifting earnings into the future. This could be explained by managing earnings downward to justify their bad past practices or to avoid any "political sanctions" such as higher taxes, stricter regulations, withdrawal of incentives or receiving a stimulus package or bailout funds (Ozili & Arun, 2020).

Another study that examines earnings management practices in the context of the pandemic is the study of Lassoued and Khanchel (2021). They examine the impact of the pandemic on earnings management, but this time at the European level which include 15 European countries from which eight are included in the G12. Like Šušak (2020), they observe that earnings management was more frequently utilized, but that the earnings management practices were driven more by increasing income accruals. This implies that during times of economic difficulty and crises, firms are found to use more earnings management practices to mitigate the adverse effects of crises on their economic and operating performance (Lassoued & Khanchel, 2021).

There seems to be a contradiction emerging that leads to different findings. This study aims to delve deeper into this issue by examining two important determinants that influence earnings management, namely the profitability of a company, often proxied by the return on assets (ROA), and the use of a Big 4 accounting firm. Previous research has revealed that these two determinants play a significant role in determining the level of earnings management. (Persakis & Iatridis, 2016; Šušak, 2020; Lassoued & Khanchel, 2021; Ali et al., 2022). Next to these empirical findings, these two determinants are also explanations of why a firm make use earnings management practices in times of economic downturn.

2.3 Hypothesis development

The literature indicates that companies have their motives for adopting a more intensive approach to earnings management. Various studies present arguments that can all be traced back to one important performance indicator, namely the profitability of a company (Trueman & Titman, 1988; Healy & Wahlen, 1999; Dichev & Skinner, 2002; Xie et al., 2003). This indicator is crucial for many entities to assess whether expectations should be adjusted, including stock prices and debt securities. This reasoning is natural and logical: if something does not generate profit, one would not invest in it.

During economic downturns, which are typically characterized by lower performance, earnings management can help mitigate this decline in performance (Healy & Wahlen, 1999; Francis et al., 2013). Consequently, in times of crisis, companies with lower profitability may be more inclined to intensify their use of earnings management. When a company's profitability is low, investors may be disappointed with the financial results, potentially leading them to sell their shares in the company. This can result in a reduction in the company's share price.

The findings of both Šušak (2020) and Ali et al. (2022) are contrary to the statement of increase earnings management due to lower performance in turbulent times. They find that profitability measured in ROA is negatively associated with earnings management during the crisis. One could explain by the following. Companies with higher profitability are less likely to actively engage in earnings management during times of crisis. This is because their financial performance is already seen as favourable by investors, and there is less shock or dissatisfaction with the results. Therefore, the higher a company's profitability, the lower the need for employing earnings management techniques. Additionally, during a crisis, the market is more tolerant of poorer performance (Filip & Raffournier, 2014).

Based on this rationale, it can be hypothesized that the impact of a firm's profitability on earnings management during the COVID-19 pandemic would exhibit a strengthened negative effect. In other words, companies with higher profitability in times of COVID would have less motivation to resort to earnings management practices compared to those with lower profitability. Next to this following the statement of Filip and Raffournier (2014) that the market is more tolerant to poorer performance is also known by managers, they have less incentive to manage the earnings. Consequently, companies with higher profitability would employ earnings management to a lesser extent than companies with lower profitability. The above can be applicable in both times of crisis and non-crisis periods. Following prior research that

profitability has a negative association with earnings management and the above-mentioned reasoning, the following hypothesis is proposed.

Hypothesis 1: The COVID-period strengthens the negative effect of a firm profitability on earnings management.

One primary argument is that during periods of economic crises, firms face heightened scrutiny from auditors, creditors, and other stakeholders, thereby limiting managers' discretion in manipulating earnings (Filip & Raffournier, 2014). Additionally, the risk of litigation is likely to increase during economic downturns, particularly when stock prices experience sharp declines. In response to this heightened litigation risk, managers are expected to reduce earnings management activities. Consequently, contraction periods are anticipated to exhibit reduced levels of earnings management, leading to a more conservative reporting of earnings, characterized by timeliness and reliability (Francis et al., 2013).

Next to the firms' incentives to use less earnings management in times of crisis, this can also hold for auditing firms. Auditing serves as a valuable monitoring mechanism employed by firms to mitigate agency costs with debt holders and stockholders (Becker et al., 1998). The significance of auditing stems, in part, from its ability to mitigate the misrepresentation of accounting information. Although auditing plays a crucial role in controlling managerial discretion, its effectiveness is anticipated to differ based on the quality of the auditing firm (Becker et al., 1998).

Auditors of higher quality are anticipated to exhibit greater reluctance in endorsing questionable accounting practices and are more inclined to identify and disclose errors and irregularities. A widely utilized measure for assessing audit quality is the classification of auditors into Big4 and non-Big4 categories. Big4 auditors, with their extensive client portfolios, face more substantial reputational risks in the event of a loss (Becker et al., 1998). Consequently, they possess a comparatively stronger incentive to maintain independence in comparison to non-Big4 firms, which typically have a smaller client base (Becker et al., 1998). Additionally, investors have more confidence in the reliability of earnings reported by Big4 clients due to their higher likelihood of receiving going-concern warnings compared to non-Big4 auditors in similar client circumstances (Francis & Wang, 2008).

Empirical evidence suggests that companies audited by Big4 auditors demonstrate higher earnings quality (Francis & Wang, 2008). This can be attributed to the fact that Big 4 clients exhibit smaller abnormal accruals, indicating that Big4 auditors impose constraints on aggressive earnings management, thereby enhancing the credibility of reported earnings. Considering these factors, with emphasize on the increased scrutiny of auditors during times of crisis (Fillip & Raffournier, 2014), and the elevated litigation risk at the company itself (Francis et al. (2013), as well as at the auditor (Becker et al., 1998) the following hypothesis is proposed.

Hypothesis 2: The COVID-period strengthens the negative effect of a Big4 auditor on earnings management.

3. Data & Research Method

3.1 Data

The study uses data from companies listed as SEC registrant. The use of SEC registrants can primarily be attributed to the fact that data for audit fees was only available for these entities. The original focus was on G10 countries, but due to the significant emphasis and particularly the substantial number of observations in the USA, it was decided to include SEC registrants in the analysis. Firms that operate in the field of banking or investing will be excluded, as these businesses have different regulations to fulfil (Ali et al., 2022; Lassoued & Khanchel, 2021) and next to these regulations the companies often show high leverage which is normal in this sector, but for non-financial firms this could indicate distress (Fama & French, 1992). The study will collect financial data from company annual reports and financial statements for the years 2015 up to and including 2020. As the COVID crisis started in 2020, several other studies will be followed that obtained data five years before a crisis started (Filip & Raffournier, 2014; Persakis & Iatridis, 2015; Lassoued & Khanchel, 2021).

Data was collected from several sources. Data related to firm specifics were collected by Compustat, which included all data from the active companies in the G10. Data related to the audit fees were collected from Audit Analytics platform. Hence, the initial sample (already excluding companies in the field of financial services) consists of 92,042 firm-years observations. After excluding data that is incomplete, the sample is further reduced to 56,456 firm-year observations. As data related to the audit fees is only available for SEC registrants, the number of firm-year observations was further reduced to 14,254 firm year observations, consisting of 3,476 firms. Table 1 on shows the distribution of firm year observations across the countries.

Table 1: Firm year distribution across countries

Country	Companies	(%)
Belgium	26	0,18
Canada	216	1,49
France	28	0,19
Germany	12	0,08
Italy	11	0,08
Japan	48	0,33
Netherlands	54	0,37
Sweden	13	0,09
Switzerland	20	0,14
United Kingdom	121	0,83
United States	13.964	96,22
Total	14.513	100,00

3.2 Research Method

To assess the manipulation of earnings, discretionary accruals are employed, which represent the component of accruals that is subject to managerial discretion and can be influenced by opportunistic behaviour. Firstly, the total accruals (TACC) are calculated by taking the difference between net income before extraordinary items and operating cash flows (OCFs).

Subsequently, the non-discretionary component is estimated using a specific model. Finally, the discretionary accruals are derived.

To ensure the robustness of the findings, two different metrics of discretionary accruals are determined. The first model used is the well-known Jones model, modified by Dechow et al. (1995). Dechow et al. (1995) argue that managers can manipulate earnings through revenue recognition practices. For instance, firms may choose to offer more favourable payment terms to customers, thereby increasing sales. As a result, normal accruals, as predicted by the Jones model, would increase while discretionary accruals would decrease, assuming all other factors remain constant. However, empirical evidence suggests that the Jones model may not accurately capture the actual direction of earnings management. To address this limitation, Dechow et al. (1995) adjusts the revenues in the Jones model by incorporating changes in receivables during periods when earnings management is expected.

$$TACC_{it} = \alpha_{1i} \frac{1}{TA_{it-1}} + \alpha_{2i}(\Delta REV_{it} - \Delta REC_{it}) + \alpha_{3i}PPE_{it} + \varepsilon_{it} \quad (1)$$

In equation (1), $TACC_{it}$ represents the total accruals scaled by the lagged total assets. A_{it-1} denotes the lagged total assets, ΔREV_{it} represents the annual change in revenues scaled by the lagged total assets, ΔREC_{it} represents the account receivables scaled by the lagged total assets, PPE_{it} represents the gross property, plant, and equipment scaled by the lagged total assets, and ε_{it} represents the error term.

Generally, higher (lower) values of accruals quality proxies indicate lower (higher) accruals quality because a smaller proportion of the variation in current accruals can be explained by the realization of operating cash flows. Consequently, lower (higher) accruals quality implies a higher (lower) level of earnings quality.

Kothari et al. (2005) emphasized the need to adapt the Jones model, as modified by Dechow et al. (1995), to incorporate performance considerations and to enhance the specificity of the model. Specifically, they suggested incorporating the influence of performance on earnings management by including the profitability of $t - 1$ in the model. By doing so, it becomes possible to partially control for the mechanical reversibility of the accruals.

$$TACC_{it} = \alpha_{1i} \frac{1}{TA_{it-1}} + \alpha_{2i}(\Delta REV_{it} - \Delta REC_{it}) + \alpha_{3i}PPE_{it} + \alpha_{4i}ROA_{it-1} + \varepsilon_{it} \quad (2)$$

In equation (2), $TACC_{it}$ represents the total accruals scaled by lagged total assets. TA_{it-1} denotes the lagged total assets, ΔREV_{it} represents the annual change in revenues scaled by lagged total assets, ΔREC_{it} denotes the account receivables scaled by lagged total assets, PPE_{it} represents the gross property, plant, and equipment scaled by lagged total assets, ROA_{it-1} denotes the lagged return on assets, and ε_{it} represents the error term.

Just like the Dechow et al. model (1995), higher (lower) values of the accruals quality proxies suggest lower (higher) quality of accruals. As a result, lower (higher) accruals quality corresponds to a lower (higher) level of earnings quality.

To maintain the assumption of uncorrelated errors, subsequent studies (Filip & Raffournier, 2014; Persakis & Iatridis, 2015; Lassoued & Khanchel, 2021; Ali et al., 2022) have utilized a cross-sectional model based on industry sectors and years. This approach helps ensure the independence of errors across observations. The estimated coefficients of the two models in cross-sectional industry regressions are derived based on two-digit SIC groups for each year. Following Lassoued and Khanchel (2021) and Ali et al. (2022) a minimum of 20 observations for each two-digit SIC group in each year is set to ensure statistical reliability. To mitigate the impact of outliers, all variables are winsorized at the 1% and 99% levels in both the discretionary accruals estimation as the regression analysis.

Using the estimated coefficients obtained in equations (1) & (2), the non-discretionary accruals (NDACC) are calculated using the same equations (1) & (2). The discretionary accruals (DAC) will be calculated as $DAC = TACC - NDACC$. The absolute values of the DAC are referred to, respectively, as EM_DECHOW, EM_KOTHARI. To examine the moderating effect the pandemic has on the determinants of profitability and the use of a Big 4 accounting firm, the following two models are estimated.

$$EM_{it} = \beta_1 COV19_{it} + \beta_2 BIG4_{it} + \beta_3 COV19 \times BIG4_{it} + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 CFO_{it} + \beta_8 AF_{it} + \beta_9 nAF_{it} + \beta_{10} GREV_{it} \quad (3)$$

$$EM_{it} = \beta_1 COV19_{it} + \beta_2 ROA_{it} + \beta_3 COV19 \times ROA_{it} + \beta_4 BIG4_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 CFO_{it} + \beta_8 AF_{it} + \beta_9 nAF_{it} + \beta_{10} GREV_{it} \quad (4)$$

EM refers to earnings management and is proxied by EM_DECHOW and EM_KOTHARI as described in the previous section for firm *i* in year *t*. It is the absolute value of estimated discretionary accruals. The first dependent variable is COV19, which takes 1 if the observation is from the year 2020 or 2021, and 0 otherwise. The variable BIG4 is a dummy variable, which takes 1 if the firm uses a Big 4 accountant. Then the variable of interest in eq. (3) is $COV19 \times BIG4$ which demonstrates is the moderating effect of the COVID pandemic on the use of a Big 4 account firm. ROA is the measurement of the profitability of a firm, which is calculated as net income divided by total assets. The variable of interest in eq. (4) is $COV19 \times ROA$, which will demonstrate the moderating effect of the COVID pandemic on the profitability of a firm.

Different control variables will be used in the analysis. The effect of debt (LEV) as a measure of the risk of violating debt contracts. Prior research suggests that managers manipulate earnings to avoid breaching debt covenants (Healy & Wahlen, 1999; Dichev & Skinner, 2002). Debt is calculated by dividing total debt by total assets. Also, firm size (SIZE) is incorporated as a control variable, as larger firms tend to have more accounting discretion and current assets, making them more capable of managing earnings, particularly when aiming to reduce political costs (Filip & Raffournier, 2014; Persakis & Iatridis, 2015; Lassoued & Khanchel, 2021; Ali et al., 2022). Firm size is measured using the logarithm of total assets. Operating cash flows (CFO)

is also controlled for due to the well-documented inverse association between CFO and accruals. Operating cash flows is calculated by dividing operating cash flows by lagged total assets (Francis & Wang, 2008).

Following prior research (Persakis & Iatridis, 2015; Ali et al., 2022) the auditing fees (AF) and non-auditing fees (nAF) are included. The explanation for including auditing fees and non-auditing fees is found in the study of Frankel et al. (2002). They find evidence that audit quality, as measured by audit fees, has a negative and significant association with accrual earnings management and non-auditing fees have a significant positive association with earnings management. This is measured as the logarithm of (non)-auditing fees divide by the logarithm of total assets. Also, the growth of revenue (GREV) is considered. This variable intends to control for differences in company performance following Ali et al. (2022).

To control for time effects and account for aggregate changes over time, year dummy variables are introduced in the main regression. Additionally, industry dummy variables are used to control for industry fixed effects. These fixed effects are used according to prior research (Filip & Raffournier, 2014; Persakis & Iatridis, 2015; Lassoued & Khanchel, 2021; Ali et al., 2022). A comprehensive description of all variables can be found in Table 2.

Table 2: Variable Descriptions

Variable	Description
EM_Jones	Discretionary accruals estimated using the cross-sectional model of Dechow et al. (1995)
EM_Kothari	Discretionary accruals estimated using the cross-sectional model of Kothari et al. (2005)
COV19	Dummy variable that takes 1 if the observation is from the year 2020
BIG4	Dummy variable that takes 1 if the firm's auditor is one of the BIG 4 accounting firms, and 0 otherwise
ROA	Net Income divided by total assets
LEV	Total debt divided by total assets
SIZE	Log of total assets
GREV	Revenue growth, calculated as difference in revenue for t and t-1 divided by t-1
CFO	Cash from operation divided by total assets
AF	Auditing fees, calculated as the log divided by the log of total assets
nAF	non-Auditing fees, calculated as the log divided by the log of total assets
<i>Additional control variables</i>	
RULE.LAW	This index measures the quality of contract enforcement, police and courts, as well as the likelihood of crime and violence. It ranges between 2.5 and 2.5, with higher values indicating stronger rule of law
DISCLOSE	The disclosure index measures the extent to which investors are protected through disclosure of ownership and financial information. The index ranges between 0 and 10, with higher values indicating more disclosure
GDP_GR	Growth rate of gross domestic product per year
SP	Dummy variable takes 1 if net profit scaled by total assets is between 0 and 0.01, and 0 otherwise
TL	Dummy variable takes 1 if net profit scaled by total assets is less than -0.20 and 0 otherwise

4. Results

4.1 Descriptive statistics

To gain an initial understanding of the data and the impact of the pandemic, see Table 3 and 4. Here, the descriptive statistics of the variables for the pre- and pandemic period are observed. The first notable observation is the average values of the proxies for earnings management, EM_Jones and EM_Kothari. The averages for the pre-pandemic period are 0.136 and 0.132, respectively, while during the pandemic, they are 0.165 and 0.159. This finding is in line with prior research from Lassoued and Khanchel (2021). This suggests that there was an increase in earnings management during the pandemic, which is contrasting to the findings of previous studies conducted during crisis periods and the pandemic (Francis et al., 2013; Filip & Raffournier, 2014; Ali et al., 2022). These studies find that earnings management was used to a lesser extent during crisis periods.

One difference between these studies and the current one is the use of absolute values for discretionary accruals. By using absolute values instead of calculated values, it becomes evident whether earnings management activities are being employed, whether they involve income-increasing or income-decreasing accruals. In the case of the studies by Francis et al. (2013), Filip et al. (2014), and Ali et al. (2002), it is possible that income-decreasing accruals dominate, creating the perception that earnings management decreases during times of crises. These studies do not explicitly mention that they focus on absolute discretionary accruals. Next, a slight increase in the variable representing the use of a Big4 auditor during the COVID period can be observed, with a value of 0.756 compared to 0.743 in the pre-pandemic period. Looking at percentages of firm observations that used a Big4 auditor in the pre-pandemic period is 74.34%, while during the crisis, this percentage is 75.63%.

Another notable finding is a small incline in profitability measured by ROA during the pandemic, with values of -0.105 pre-pandemic versus -0.101 during the pandemic. This indicates that profitability in the sample was slightly better during the pandemic compared to the pre-pandemic period. The same was found by Persakis and Iatridis (2015). Other studies (Ali et al., 2022; Cimini, 2015) found contrasting findings indicating a decline in profitability.

Furthermore, it can be observed that the average leverage and size have increased. This trend is also evident in the study by Persakis and Iatridis (2015). It appears that companies have taken on more debt, as indicated by the rising average leverage. This increase in debt leads to higher assets, which in turn contributes to the increase in size, measured as the logarithm of total assets. Additionally, it is notable that cash from operations has shifted from a negative value (-0.007) in the pre-pandemic period to a positive value during the pandemic. A similar increase is also observed in the study by Persakis and Iatridis (2015). Moreover, there is an upward trend in auditing fees, suggesting an increase in auditing activities during the pandemic.

GREV represents the growth rate of revenue compared to the previous year. Here, we observe that during the pandemic period, the average revenue growth declined. This could have implications for the use of earnings management, as revenue is a significant driver of income,

if not the most significant one. A decrease in revenue can motivate companies to employ more earnings management techniques (Healy & Wahlen, 1999; Roychowdhury, 2006).

Table 3: Pre-Pandemic (2015-2019)

Statistic	N	Mean	St. Dev.	Min	Max
EM_Jones	11,579	0.136	0.280	0.001	2.279
EM_Kothari	11,579	0.132	0.258	0.001	2.048
BIG4	11,579	0.743	0.437	0	1
ROA	11,579	-0.105	0.455	-2.892	0.323
LEV	11,579	0.299	0.313	0.000	2.078
SIZE	11,579	2.989	1.117	0.072	5.342
GREV	11,579	0.073	0.276	-0.760	1.570
CFO	11,579	-0.007	0.312	-1.862	0.343
AF	11,579	0.342	0.176	-0.449	0.635
nAF	11,579	-0.037	0.435	-2.270	0.541

Table 4: Pandemic (2020)

Statistic	N	Mean	St. Dev.	Min	Max
EM_Jones	2,675	0.165	0.317	0.001	2.279
EM_Kothari	2,675	0.159	0.295	0.001	2.048
BIG4	2,675	0.756	0.429	0	1
ROA	2,675	-0.101	0.356	-2.892	0.323
LEV	2,675	0.330	0.312	0.000	2.078
SIZE	2,675	3.043	1.055	0.072	5.342
GREV	2,675	0.026	0.320	-0.760	1.570
CFO	2,675	0.003	0.253	-1.862	0.343
AF	2,675	0.354	0.151	-0.449	0.635
nAF	2,675	-0.025	0.380	-2.270	0.541

4.2 Correlation Analysis

Table 5 presents the correlation matrix of the variables included in the analysis. It is notable to say that all correlation coefficients are significant at a 1% level, except for LEV and BIG4, where there is no significance and for SIZE and LEV there is a significance at a 5% level.

Moreover, the analysis uncovers significant correlations between discretionary accruals and all the variables considered, regardless of whether they were measured using the modified Jones model or the Kothari model. Specifically, when examining the variables of interest, namely BIG4 and ROA, we observe a negative association between these variables and discretionary accruals. These findings are in line with the expectations and support the existing literature on the association between earnings management and these variables.

However, it is worth noting that one variable, nAF, exhibits a negative correlation with discretionary accruals, which contradicts the expected positive correlation suggested by Frankel et al. (2002). This unexpected finding warrants further investigation and may indicate the presence of other underlying factors influencing the association between nAF and earnings management.

Table 5: Correlation Matrix

	EM_Jones	EM_Kothari	BIG4	ROA	LEV	SIZE	GREV	CFO	AF	nAF	VIF
EM_Jones	1										
EM_Kothari	0.972	1									
BIG4	-0.241	-0.243	1								1.798
ROA	-0.531	-0.537	0.303	1							4.371
LEV	0.231	0.224	0.013	-0.302	1						1.160
SIZE	-0.365	-0.374	0.619	0.510	0.025	1					2.604
GREV	0.189	0.180	-0.047	0.041	-0.057	-0.094	1				1.024
CFO	-0.405	-0.403	0.291	0.865	-0.220	0.511	0.050	1			4.104
AF	-0.152	-0.150	0.514	0.167	0.060	0.485	-0.047	0.166	1		1.710
nAF	-0.195	-0.200	0.470	0.308	0.038	0.611	-0.036	0.300	0.573	1	1.907

In order to assess the presence of multicollinearity in the sample, the study examines the variance inflation factors (VIFs) for each of the independent variables. The reported results indicate that all VIF values are below 5, indicating the absence of significant multicollinearity.

4.3 Regression Results

4.3.1 The effect of profitability on earnings management during COVID

In this section the analysis is made on whether the effect of profitability on earnings management is stronger during the COVID pandemic, as hypothesized in H1. Table 6 presents the results of the regressions examining the moderating effect COVID plays on the profitability determinant of earnings management. Model 1 is the regression related to discretionary accruals calculated via the modified Jones model and Model 2 is the one calculated via the Kothari model. To account for firm characteristics that may influence the use of earnings management activities, the regressions include control variables such as, the use of a Big4 auditor, leverage, firm size, the growth of revenue, cashflow from operations and both the auditing and non-auditing fees. Next, also fixed effects are used, for year, industry, and country.

Overall, the results for our variable of interest COV19xROA in Models 1 and 2 demonstrate a significant strengthening effect of profitability on earnings management (EM_Jones: -0.050; EM_Kothari: -0.052. From now on, only the EM_Jones will be indicated.). It is evident that profitability has a significant negative effect on earnings management (-0.403), and this effect is further amplified during the pandemic crisis. This implies that higher profitability reduces discretionary accruals in both the pre-pandemic period as in the pandemic. The variable ROA demonstrates that this negative association between profitability and earnings management exists not only during the pandemic but also before the pandemic. From the COV19xROA variable, it can be inferred that this significant negative association is even more pronounced during the pandemic indicating that companies with higher and positive profitability are less inclined to resort to earnings management due to their already positive results.

Table 6: Results of regression – Profitability and EM

	<i>Dependent variable:</i>	
	EM_Jones	EM_Kothari
	(1)	(2)
COV19	0.036*** (0.007)	0.031*** (0.006)
COV19xROA	-0.050*** (0.013)	-0.052*** (0.012)
BIG4	-0.018*** (0.006)	-0.015*** (0.006)
ROA	-0.403*** (0.009)	-0.393*** (0.009)
LEV	0.097*** (0.007)	0.082*** (0.006)
SIZE	-0.043*** (0.003)	-0.043*** (0.003)
CFO	0.220*** (0.013)	0.239*** (0.012)
AF	-0.033** (0.015)	-0.019 (0.014)
nAF	0.035*** (0.006)	0.031*** (0.006)
GREV	0.200*** (0.007)	0.175*** (0.006)
Constant	0.189*** (0.039)	0.161*** (0.036)
Observations	14,254	14,254
R ²	0.372	0.378
Adjusted R ²	0.368	0.374
Residual Std. Error (df = 14172)	0.228	0.210
F Statistic (df = 81; 14172)	103.639***	106.251***

Note: *p<0.1; **p<0.05; ***p<0.01

These findings align with prior research that emphasizes the role of profitability in shaping firms' earnings management practices (Šušak, 2020; Ali et al., 2022). Higher profitability provides companies with greater financial stability and fewer incentives to engage in earnings management activities. The negative association between profitability and earnings management suggests that firms with stronger financial performance are less likely to manipulate their financial statements.

The COV19xROA variable provides additional evidence supporting the notion that the negative association between profitability and earnings management is more pronounced during the pandemic. This suggests that the pandemic context has heightened the impact of profitability on firms' financial reporting choices. Companies with higher profitability faced stronger incentives to maintain their financial integrity and avoid manipulation during this challenging period. Overall, these findings highlight the significance of profitability as a determinant of earnings management practices and emphasize the unique dynamics and influences introduced by the pandemic crisis. These findings provide support for H1.

Similarly, the size of a firm demonstrates a significant negative association (-0.043) with earnings management practices. Larger firms tend to exhibit lower levels of earnings management, suggesting that their financial results are less likely to be manipulated.

A notable and contrary finding, related to prior research, in both models is the fact that the COVID variable is significant with a positive effect (0.036) on earnings management. This indicates, that during the COVID period, companies performed more earnings management activities. This is contrary with the findings of Ali et al. (2022) and Lassoued and Khanchel (2021) who found that during the COVID period companies performed less earnings management activities.

Furthermore, it is important to note that the variables of leverage (0.097), cash from operations (0.220), and revenue growth (0.200) show a positive and statistically significant association with earnings management. This implies that as leverage increases, firms are more likely to engage in earnings management practices. This follows the explanation that companies with greater debt obligations may face increased financial pressure to meet debt covenants or maintain certain financial ratios (Healy & Wahlen, 1999; Dichev & Skinner, 2002). In such situations, management may be motivated to manipulate earnings to present a more favourable financial position, thereby alleviating concerns from creditors or investors. By increasing earnings through discretionary accruals or other means, companies may appear more financially stable than they actually are.

Similarly, higher cash flows from operations and revenue growth are associated with a greater tendency to manipulate earnings. The positive and significant association between these two variables suggests that companies with higher cash flows from operations are more likely to engage in earnings management practices. One possible explanation for this association is that higher cash flows provide companies with more flexibility and resources to manipulate their reported earnings. When firms have ample cash on hand, they may have greater discretion in recognizing revenues or delaying expenses, thereby influencing their financial statements to meet certain targets or expectations (Francis & Wang, 2008).

Furthermore, consistent with previous research, the findings reveal a significant negative association (-0.018) between the presence of a Big4 auditor and earnings management practices (Francis & Wang, 2008; Lassoued & Khanchel, 2021; Ali et al., 2002). Companies that engage a Big4 auditor are less likely to engage in earnings management activities, highlighting the importance of audit quality in ensuring the integrity of financial reporting.

4.3.2 The effect of Big4 auditor on earnings management during COVID

The following results pertain to the effect of using a Big4 auditor during the COVID period. Table 7 presents the findings, where once again in Model 1, discretionary accruals are measured using the modified Jones model, and in Models 2, they are measured using the Kothari model.

The findings presented in Table 7 shed light on the importance of using a Big4 auditor during the pandemic period compared to the pre-pandemic period. The results suggest that during the pre-pandemic period, the use of a Big4 auditor have a significant impact on the association under consideration, but only for the EM_Jones model (-0.011). However, in the pandemic period a greater and significant negative association is observed between the use of a Big4 auditor and earnings management (-0.034). Indicating an even stronger association between a Big4 auditor and the pandemic on earnings management.

Table 7: Results of regression – BIG4 and EM

	<i>Dependent variable:</i>	
	EM_Jones	EM_Kothari
	(1)	(2)
COV19	0.067*** (0.011)	0.065*** (0.010)
COV19xBIG4	-0.034*** (0.011)	-0.039*** (0.011)
BIG4	-0.011* (0.006)	-0.008 (0.006)
ROA	-0.410*** (0.009)	-0.401*** (0.009)
LEV	0.097*** (0.007)	0.082*** (0.006)
SIZE	-0.044*** (0.003)	-0.043*** (0.003)
CFO	0.222*** (0.013)	0.241*** (0.012)
AF	-0.034** (0.015)	-0.020 (0.014)
nAF	0.035*** (0.006)	0.031*** (0.006)
GREV	0.200*** (0.007)	0.174*** (0.006)
Constant	0.184*** (0.039)	0.155*** (0.036)
Observations	14,254	14,254
R ²	0.372	0.378
Adjusted R ²	0.368	0.374
Residual Std. Error (df = 14172)	0.228	0.210
F Statistic (df = 81; 14172)	103.542***	106.170***
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01	

These findings indicate that greater importance is attached to the presence of a Big4 auditor during times of crisis, such as the pandemic. The negative association suggests that companies utilizing a Big4 auditor during the pandemic period are perceived more favourably by investors. This could be attributed to the perception that a Big4 auditor provides a higher level of assurance and credibility to the financial statements, which becomes particularly crucial during times of uncertainty and economic turmoil. These findings provide support for H2.

In addition, the results indicate that auditing fees, only in the context of the modified Jones model, also exhibit a negative association with earnings management (-0.034). Higher auditing fees are associated with a lower likelihood of engaging in earnings management activities (Frankel et al., 2002). This finding underscores the role of audit fees as an indicator of the level of scrutiny and oversight provided by auditors, leading to a reduction in earnings management practices. Finally, the payment of higher auditing fees may serve as a deterrent to engaging in earnings management activities, as it signals a higher level of audit scrutiny.

The positive association observed between non-audit fees and earnings management (0.035) indicates that companies might employ non-audit services as a means to bolster their earnings management activities. This finding suggests that companies may engage non-audit services to manipulate their financial statements in order to achieve desired financial outcomes (Frankel et al., 2002). By utilizing non-audit services, such as consulting or advisory services, companies may have additional resources and expertise at their disposal to implement strategies that enable

them to manipulate their financial performance. This can involve practices such as income smoothing, aggressive revenue recognition, or expense deferral, which can lead to the enhancement of reported earnings.

Overall, these results highlight the changing dynamics and increased significance of a Big4 auditor's role in the evaluation and perception of companies' financial reporting practices during periods of crisis, emphasizing the importance of audit quality and assurance for investors.

4.3.3 Robustness check

For robustness purposes additional control variables are added to the model to control for, as opposed by prior research (Leuz et al., 2003, Francis et al, 2014, Ali et al. 2022). These controls include: The rule of law index (LAW), to account for the effectiveness of legal rules and their enforcement; The disclosure index (DISCLOSE) is considered as an indicator of disclosure levels in a country, as lower disclosure levels are associated with more prevalent earnings management practices (Lassoued & Khanchel, 2021). These two variables are proxies for investor protection, which is also found to determine the use of discretionary accruals (Ali et al., 2022). To capture the impact of macroeconomic conditions on earnings management, economic growth (GDP_GR) is included as a control variable (Filip & Raffournier, 2014).

Additionally, control variables based on the framework of Persakis and Iatridis (2015) and also used in the study of Ali et al. (2002) are included. These variables consist of small profits (SL), and timely loss recognition (TL). Burgstahler and Dichev (1997) and Degeorge et al. (1999) highlighted the psychological significance of negative values in motivating managers to avoid losses and reduce earnings. This psychological threshold influences managers' behaviour in managing earnings to align with stockholders' sensitivities and preferences. A comprehensive description of the additional variables can be found in Table 2.

The variables were once again regressed against EM_Jones and EM_Kothari, and the results can be found in the Appendix. Table 1 presents the results for profitability, while Table 2 shows the results for the use of a Big4 auditor. The conclusions derived from these results align with the main regressions (Table 6 and 7) regarding the variables of interest. COV19xROA (Appendix, Table 1) exhibits a significant negative effect (-0.056 and -0.055, respectively, for EM_Jones and EM_Kothari). Similarly, COV19xBIG4 (Appendix, Table 2) also demonstrates a significant negative effect (-0.036 and -0.040, respectively, for EM_Jones and EM_Kothari).

These findings confirm the robustness of the conclusions drawn in the main regressions that the pandemic had a strengthened negative effect on the association between engagement of a Big4 auditor and profitability on earnings management. This, even after accounting for additional factors such as investor protection, macroeconomic conditions, and the psychological significance of negative values.

5. Discussion

This study aims to investigate the moderating effect of the COVID-19 pandemic on two determinants of earnings management: the use of a Big4 auditor and profitability. The sample consists of 3,476 firms listed as SEC registrant during the period 2015-2020. The findings confirm expectations that firms are more likely to engage in earnings management during the pandemic. However, the results also reveal a negative association between the use of a Big4 auditor and earnings management, which is further strengthened during the pandemic. This highlights the significant role a prominent auditor can play in deterring earnings management practices during the pandemic. Additionally, the study shows that profitability, as measured by return on assets (ROA), has a negative association with earnings management. This negative association is further strengthened during the pandemic. This indicates that higher profitability is associated with lower levels of earnings management, indicating that firms with better financial performance are less inclined to manipulate their financial statements during the pandemic. Even after controlling for additional determinants of earnings management this results remain robust.

The contribution of this paper to the literature lies in providing a better understanding of the association between earnings management, profitability, and the use of a Big4 auditor during the COVID-19 pandemic. While previous research has examined the impact of global financial crises on earnings management and financial reporting quality, there is still controversy regarding the specific effects of the COVID-19 pandemic. This study adds to the limited body of research by exploring the moderating effect of the pandemic on profitability and the use of a Big4 auditor as determinants of earnings management.

The implications of these findings are significant for investors, policymakers, and authorities related to the SEC registrants. Investors can use these findings to assess firms' practices and understand how they are affected during the pandemic. Policymakers and authorities can learn for this research that firms using a Big4 auditor engage less in earnings management. They could encourage non-Big4 auditors to enhance their auditing practices, to close this gap. Next, we could also learn that firms performing less also engage in more earnings management, which could indicate other financial or non-financial malpractices. Policymakers and authorities can use this information to identify areas of increased risk and implement measures to detect and prevent such malpractices.

This study identified additional significant variables that are related to earnings management. Future research could explore these variables and the moderating effect of the pandemic to gain a deeper understanding of earnings management during crisis periods. Variables that exhibit a positive association could be particularly interesting to investigate, considering the increased prevalence of earnings management practices during the pandemic compared to the pre-pandemic period. Additionally, alternative proxies for measuring profitability could be explored to address potential concerns regarding the influence of earnings management on profitability measures. Also, one could extend future research by including more countries, as the data was mainly focused on the USA.

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Appendix

Table 1: Results of regression – Profitability and EM

	<i>Dependent variable:</i>	
	EM_Jones	EM_Kothari
	(1)	(2)
COV19	-0.010 (0.085)	-0.005 (0.079)
COV19xROA	-0.056*** (0.013)	-0.055*** (0.012)
ROA	-0.418*** (0.010)	-0.401*** (0.009)
BIG4	-0.014** (0.006)	-0.013** (0.006)
LEV	0.096*** (0.007)	0.082*** (0.006)
SIZE	-0.048*** (0.003)	-0.046*** (0.003)
AF	-0.030* (0.015)	-0.016 (0.014)
nAF	0.033*** (0.006)	0.030*** (0.006)
CFO	0.217*** (0.013)	0.237*** (0.012)
GREV	0.200*** (0.007)	0.174*** (0.006)
SP	-0.022** (0.010)	-0.019** (0.009)
TL	-0.040*** (0.008)	-0.022*** (0.007)
RULE_LAW	-0.052 (0.135)	-0.029 (0.125)
DISCLOSE	0.085 (0.081)	0.091 (0.075)
GDP_GR	-0.006 (0.014)	-0.005 (0.013)
Constant	-0.327 (0.714)	-0.448 (0.659)
Observations	14,254	14,254
R ²	0.373	0.378
Adjusted R ²	0.370	0.374
Residual Std. Error (df = 14168)	0.228	0.211
F Statistic (df = 85; 14168)	99.287***	101.372***

Note: *p<0.1; **p<0.05; ***p<0.01

Table 2: Results of regression – BIG4 and EM

	<i>Dependent variable:</i>	
	EM_Jones	EM_Kothari
	(1)	(2)
COV19	0.023 (0.086)	0.030 (0.079)
COV19xBIG4	-0.036*** (0.011)	-0.040*** (0.011)
BIG4	-0.007 (0.007)	-0.005 (0.006)
ROA	-0.426*** (0.010)	-0.409*** (0.009)
LEV	0.096*** (0.007)	0.082*** (0.006)
SIZE	-0.048*** (0.003)	-0.046*** (0.003)
CFO	0.219*** (0.013)	0.239*** (0.012)
GREV	0.199*** (0.007)	0.173*** (0.006)
AF	-0.030** (0.015)	-0.017 (0.014)
nAF	0.034*** (0.006)	0.031*** (0.006)
SP	-0.023** (0.010)	-0.019** (0.009)
TL	-0.038*** (0.008)	-0.020*** (0.007)
RULE_LAW	-0.051 (0.135)	-0.027 (0.125)
DISCLOSE	0.087 (0.081)	0.093 (0.075)
GDP_GR	-0.007 (0.014)	-0.006 (0.013)
Constant	-0.351 (0.715)	-0.473 (0.659)
Observations	14,254	14,254
R ²	0.373	0.378
Adjusted R ²	0.369	0.374
Residual Std. Error (df = 14168)	0.228	0.211
F Statistic (df = 85; 14168)	99.147***	101.267***
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01	