

COVID-19 Pandemic and Earnings Management: The Moderating Role of Internal and External Corporate Governance Mechanisms in Indonesia

Widowati Dian Permatasari¹, Dany Adi Saputra²

¹ Department of Accounting, Faculty of Economics and Business, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

² Department of Accounting, Vocational School, Universitas Sebelas Maret, Surakarta, Indonesia

widowati.permatasari@ums.ac.id

ABSTRACT

This research has two objectives. First, it analyzes the impact of the COVID-19 pandemic on the corporate's earnings management practices because only a few studies have analyzed this issue. Second, this study investigates the moderating effect of internal and external corporate governance mechanisms on the relationships between the COVID-19 pandemic and earnings management. The proxy of earnings management employed discretionary accruals from the modified Jones model, which is adjusted to the company's financial performance. The governance variables used in this study were the number of commissioners, the ratio of independent commissioners, and auditor quality (Big 4 or non-Big 4). The research sample was all manufacturing companies in Indonesia recorded in 2019 and 2020. This research has found that earnings management practices declined during the COVID-19 pandemic. Moreover, corporate governance mechanisms, namely the number of commissioners and the quality of the company's external auditors, moderate the relationship between the COVID-19 pandemic and earnings management practices.

Keywords: COVID-19 pandemic, earnings management, corporate governance, board of commissioners, external auditors

INTRODUCTION

The COVID-19 pandemic emerged in Indonesia when the first case was announced in early March 2020. This pandemic is caused by the SARS-CoV-2 corona virus which was initially identified in China and then quickly spreads worldwide, including in Indonesia. The COVID-19 pandemic results in a health sector crisis and impacts a country's economy. Social distancing, work-from-home, and lockdown regulations clearly limit human activities and reduce human mobility which are the primary driving forces of a country's economy. The BPS data report the real impacts of this pandemic, such as 2.07% of the contraction (decrease) of Indonesia's economic growth in 2020; this number is higher than that in 2019.

The impact of the COVID-19 pandemic is found not only at the national level but also at the company level. The company's obligation to comply with social restrictions and regional quarantine regulations reduces its production activities. In addition, government regulations impact various company stakeholders. Uncertainty in future conditions reduces the investors' interest in investing their money in a company. They tend to withdraw from the stock market and show negative

sentiments. In line with the behavior of shareholders, corporate consumers prefer to save their expenses to anticipate the impact of the unknown pandemic. In a crisis condition, such as the COVID-19 pandemic, many companies' performance will significantly decline. The company management has incentives to maintain the sustainability of its business and relationship with stakeholders. These incentives are realized by issuing various policies; one of which is the practice of earning management.

Previous literature shows multiple results of the effect of a crisis on corporate earning management practices. During the Asian financial crisis, the management of service companies in Singapore reduced earning management practices (Chia et al., 2007), and managers of transportation companies in seven Asian countries were engaged in a less aggressive discretionary accrual strategy (Rusmin et al., 2013). Studies in European Union countries have revealed that earning management practices decline significantly during the debt crisis (Kousenidis et al., 2013) and after the financial crisis (Cimini, 2015; Filip & Raffournier, 2014).

In contrast, Trombetta and Imperatore (2014) state that earning management decreases when the crisis intensity is low but increases when an acute crisis occurs. In addition, Persakis and Latridis (2015) investigate global companies and have proven that the quality of corporate earnings decreases while earning management improves during the global financial crisis. Eng et al. (2019) assert that in the post-crisis period, earning management of American family firms is greater than that of Chinese family firms.

The crisis due to the COVID-19 pandemic is different from other crises as reported in previous literature. The COVID-19 pandemic affects all aspects of life as well as brings negative impacts to all industrial sectors and all countries. In addition, since such a crisis rarely occurs, how long this crisis will last is uncertainly known. Therefore, this different crisis context is interesting to analyze the company's earning management practices.

Institutional theory directs researchers to predict changes in accounting practices (e.g., earning management practices) to respond to pressure from the external environment that experiences a crisis. Meanwhile, to respond to exogenous shocks in the business environment, a company might adopt some conservative practices (Lassoued & Khanchel, 2021). Several studies have analyzed the effect of the pandemic on earning management practices. However, in general, these studies were conducted in developed countries and have discovered mixed results. Liu and Sun (2022) have discovered that during the pandemic, companies in the US tend to lower their earning management. In contrast, companies in China (Xiao & Xi, 2021), the UK (Hsu & Yang, 2022), and 15 European countries (Lassoued & Khanchel, 2021) engaged in greater earning management activities during the pandemic. These mixed results encourage this current research to investigate companies in Indonesia that are different from those in other countries, as reported by previous studies.

The research context in Indonesia allows several alternatives to earning management practices in a crisis. On the one hand, governance systems, law

enforcement, and protection for weak investors in Indonesia can allow management to take advantage of a crisis moment and maximize their gains without significant consequences. On the other hand, the shareholder structure in Indonesia is generally more concentrated than that in other countries (Siregar & Utama, 2008). In Indonesia, the shareholder structure is concentrated and dominated by family companies (Kussudyarsana, 2019). Therefore, the supervision of the company's management activities is more stringent than that of companies with a dispersed shareholder structure. Such supervision should be more stringent when a crisis occurs because shareholders do not want to suffer any losses. These two views make the research setting in Indonesia interesting to analyze.

Many studies have examined corporate governance during a crisis, including during the COVID-19 pandemic (Koutoupis et al., 2021). Corporate governance is an effort to reduce asymmetric information between agents (company management) and principals (shareholders). This effort is conducted by supervising the company's activities through internal and external mechanisms. To date, a few studies have linked the role of corporate governance in the relationship between the COVID-19 pandemic and earning management. Only Hsu and Yang (2022) have examined the effect of corporate governance on earning management in companies listed on the UK Stock Exchange during COVID-19. The research was conducted in a developed country that has a high good governance index score. In addition, the UK adheres to a one-tier board system. Therefore, this current study wants to analyze this relationship in a developing country, which has weak governance indices and adopts a two-tier board system.

Based on this explanation, this current research formulates two research questions.

1. Does the COVID-19 pandemic crisis affect earning management?
2. Do corporate governance mechanisms affect the relationship between the COVID-19 pandemic and earning management?

This study aims to empirically prove the effects of the COVID-19 pandemic on earning management practices in Indonesia. In addition, this study aims to prove the role of corporate governance mechanisms in the effects of the COVID-19 pandemic on earning management. Thus, this study is expected to contribute to the financial accounting literature in three ways. First, it empirically proves the effects of the COVID-19 pandemic on corporate behavior, especially on the quality of accounting information reported by companies. Second, this study expands the literature on the impact of the crisis emerging due to the COVID-19 pandemic. Most previous studies were conducted during the 1997 Asian financial crisis and the 2008 global financial crisis (Liu & Sun, 2022). Third, this study expands the investigation on the role of corporate governance when the company experiences a crisis.

LITERATURE REVIEW

Theoretical review

Institutional theory is the rationale for explaining earning management practices during a crisis. According to this theory, the business environment in which a company operates is an important institutional component and significantly influences the company's practices (Lassoued & Khanchel, 2021). These practices include the emergence of distinctive forms, processes, strategies, views, and competencies as they emerge from patterns of social interaction and adaptation. This emergence is frequently driven by the need to respond to environmental pressures.

The theoretical framework of the institutional theory leads the researchers to predict changes in accounting practices, such as earning management, as a response to environmental pressures. To react to exogenous shocks in the business environment, companies adopt some conservative practices. Chen et al. (2022) assert that negative events, such as natural disasters and economic crises, can increase economic uncertainty in a company's operating environment and across the countries. Specific to the pandemic, Chen et al. (2022) propose that economic concerns caused by COVID-19-related uncertainty exceed other opportunistic considerations, such as incentives to garner reputation and legitimacy; thus, the company adopts a conservative strategy. Therefore, the institutional theory is employed to observe earning management practices to respond to environmental pressures, namely the COVID-19 pandemic.

The agency theory postulates that earning management can be explained by the manager's opportunistic intentions as a consequence of the asymmetric information between management as an agent and shareholders as a principle (Roychowdhury et al., 2019). This behavior is more prominent when the company has financial problems, such as during the COVID-19 pandemic crisis (Lassoued & Khanchel, 2021). Managers who have self-interest behavior will use these crisis phenomena to manipulate the statement of financial positions that lead to personal benefit, not to the benefit of shareholders. In this situation, company managers can choose to carry out earning management to increase or decrease profits.

Earnings management in times of crisis

During a crisis, companies may carry out earning management practices that are different from those in normal conditions. Several companies tend to improve earning management (Eng et al., 2019; Persakis & Latridis, 2015; Trombetta & Imperatore, 2014). In contrast, other companies reduce their earning management (Chia et al., 2007; Cimini, 2015; Filip & Raffournier, 2014; Kousenidis et al., 2013; Rusmin et al., 2013). Several studies have also specifically analyzed the increase and decrease in earning management, such as income-increasing earning management and income-decreasing earning management.

Chia et al. (2007) have found that the management of service companies in Singapore reduced earning management practices during the Asian financial crisis. This finding is supported by Rusmin et al. (2013) who deploy that managers of

transportation companies in seven Asian countries were involved in a less aggressive discretionary accrual strategy during the global financial crisis. Besides research in Asia, the majority of research on the relationship between crisis and earning management has been conducted in several European countries. In general, the test on the relationship of European countries has uniformly proven that earning management practices decline significantly during the debt crisis (Kousenidis et al., 2013) and after the financial crisis (Cimini, 2015; Filip & Raffournier, 2014).

In contrast, Trombetta and Imperatore (2014) state that the relationship between the financial crisis and earning management is not monotonous. Earning management decreases when the intensity of the crisis is low but increases when an acute crisis occurs. Persakis and Latridis (2015) have discovered that during the global financial crisis, the earning quality of all companies decreases, but, at the same time, their earning management increases. Eng et al. (2019) compare the earning management between family firms in China and those in the US after the 2008 financial crisis. This study has revealed that in the post-crisis period, earning management of family firms in the US is greater than those in China.

Related to the COVID-19 pandemic crisis, Lassoued and Khanchel (2021) investigated 2031 listed companies in 15 European countries. They have found that, unlike in the previous period, companies tend to carry out earnings management during the pandemic. In particular, companies carry out earning management to increase profits in 2020 and have rebuilt the confidence of investors and stakeholders to support the economic recovery.

Corporate governance in time of crisis

Corporate governance is an important factor to develop financial markets and company values (Mitton, 2002). Moreover, corporate governance shows the effectiveness of mechanisms that minimize agency conflicts involving managers by emphasizing legal mechanisms to prevent the expropriation of minority shareholders (Johnson et al., 2000). During the crisis, research on corporate governance is generally associated with firm values (Davis-Friday et al., 2006; Villanueva-Villar et al., 2016), and firm performance (Erkens et al., 2012; Mitton, 2002).

Davis-Friday et al. (2006) examine the role of corporate governance mechanisms that interact with the economic crisis on the valuation of book values of equity and earnings. They have discovered that the level of corporate governance interferes with the effects of the crisis on the relevance of the book value of equity. In particular, the relevance of the book value decreases when corporate governance is weak. Villanueva-Villar et al. (2016) have discovered the effects of corporate governance on the creation of values of companies listed on the Spanish Stock Exchange in 2005-2012. The governance mechanisms focus on the structures and composition of the board, including size, independence, diligence, and duality. They have proven that during the 2009-2012 economic crisis, the most significant variables that have positive effects on value creation are board independence and board size. Therefore, the global financial crisis has highlighted the need for effective corporate governance.

Some researchers have investigated the effects of corporate governance on crisis conditions in several countries. Mitton (2002) examines the impact of corporate governance on corporate performance during the Asian financial crisis using firm-level data from five East Asian countries, namely Indonesia, South Korea, Malaysia, the Philippines, and Thailand. He has found that a better stock price performance is significantly associated with companies that have higher disclosure quality indicators (in terms of the quality of external auditors) and with companies that have a higher concentration of outside ownership. Meanwhile, Erkens et al. (2012) investigate the effects of corporate governance on the corporate financial performance of 296 financial companies in 30 countries (in North America, Europe, and Australia) during the 2007-2008 financial crisis. They have discovered that companies with more independent boards experience poorer stock returns during the crisis because they raise more equity capital; therefore, wealth is transferred from shareholders to lenders.

Gupta et al. (2013) examine the impact of internal corporate governance on the performance of 4046 non-financial public companies in the US and 22 other developed countries during the financial crisis. The study employed a comprehensive cross-country sample and a broad-based corporate governance quality index. The study has discovered that companies with good governance could not outperform companies with bad governance. This study also presents empirical evidence that the stock market in developed countries less efficiently inserts a company's specific information into prices during a crisis.

Iwasaki (2014) clarifies the survival status of industrial companies in Russia before and after the global financial crisis and empirically examines the determinants of corporate survival using a survey method. He conducted a survival analysis using the Cox proportional hazard model and has discovered that the independence of top management is a factor that enables a company to survive. In addition, empirical results show that the variables of the board of directors and audit committee play a significant role to increase the probability of survival of Russian companies.

In general, previous studies have proven the important role of corporate governance mechanisms, especially during crises. However, the important role of corporate governance mechanisms is strongly influenced by the institutional factors operated by the company. In countries with weak governance and law enforcement indexes, corporate governance may not function effectively to provide benefits for corporate stakeholders. On the other hand, in developed countries with strong governance and law enforcement indexes, the effectiveness of the governance built by the company could provide benefits for its internal parties and stakeholders.

Earning management and corporate governance

Chen et al. (2007) investigate the relationship between the characteristics of corporate governance and earning management of companies listed in Taiwan. The study has found that independence, financial expertise of independent directors, and

voluntary formation of independent directors are associated with lower absolute values of discretionary accruals.

Liu and Lu (2007) employed a tunneling perspective to document systematic differences in earning management of all companies in China listed in 1999-2005. They empirically find that companies with higher levels of corporate governance have lower levels of earning management. They also strongly suggest that agency conflict between controlling shareholders and minority investors is a significant part of earning management of companies in China.

Research on the relationship between governance and earning management in Indonesia has been conducted by several researcher, such as Siregar & Utama (2008) and Wahyono et al. (2019). Siregar & Utama (2008) has proven that the type of earning management chosen by listed companies in Indonesia creates bigger-efficient earning management (i.e., to increase earning informativeness in communicating personal information) than opportunistic earning management (i.e., to maximize the utility of earnings opportunistically reported by the management). The study also finds that unlike other types of companies, companies with a high proportion of family ownership and non-business groups are more likely to choose efficient earning management. However, the study could not prove that corporate governance practices, such as audit quality, independence of the board of commissioners, and the existence of an audit committee, affect the type of earning management. This condition is probably caused by the fact that regulations on corporate governance practices in Indonesia are relatively new.

To date, only a few studies have investigated the relationship between mechanisms of corporate governance and earning management during a crisis. Hsu and Yang (2022) analyze the mitigating effects of corporate governance due to COVID-19 on the quality of corporate financial statements. The study analyzed data from companies listed in the UK and has found two results. First, the companies are engaged in more earning management during the pandemic. Second, larger board sizes could reduce the negative impact of COVID-19 on the quality of financial statements.

Research hypotheses

The crisis due to the COVID-19 pandemic could encourage management to carry out higher earning management. Companies can improve their earning management practices when economic stress occurs for several reasons. First, since most companies may show lower earnings in this period, managers are encouraged to engage in earning management to increase profits and compensate for the declining-operational performance (Ahmad-Zaluki et al., 2011). Moreover, managers manipulate earnings upwards to avoid the companies' declining stock prices, which could negatively impact their compensation. Second, since debt covenants are generally based on profit, manipulation of profit increases will reduce the likelihood of breach (Lassoued & Khanchel, 2021).

On the other hand, crises may prompt companies to minimize their management practices for several reasons. First, management compensation, especially the CEO, is not significantly influenced by the performance of companies affected by the macroeconomic crisis (Liu & Sun, 2022). Since the pandemic is beyond management's influence and control, the management is unlikely to be penalized for failing to meet profit targets in a pandemic year. Second, monitoring and supervision activities are increased by external stakeholders. This supervisory activity pressures the manager to submit a more credible earning report. As a result, the level of earning management will be reduced. External stakeholders are also aware of the possible decline in the company's profit performance during the crisis. Therefore, any reduction in reported earnings will be considered temporary and acceptable as long as the company's management shows evidence of potential future improvement. Liu and Sun (2022) confirm this argument by showing that companies in the US engaged in earning management tend to lower their earnings to create a big bath in reporting earnings in a pandemic year.

In Indonesia, the concentrated ownership structure makes the supervision of management performance stronger, especially during the global crisis, such as the COVID-19 pandemic. Controlling shareholders who usually place their representatives on the company's board of commissioners will increasingly tighten the monitoring of the company's business activities because uncertainty about future conditions is very high. This supervision enables the management to more carefully run and report the activities of company management. Therefore, the researchers assume that the company management in Indonesia will tend to reduce earning management practices during the COVID-19 pandemic.

Based on the aforementioned explanation, the researchers formulate the first hypothesis as follows.

H1. The COVID-19 pandemic declines the earning management practices of a company.

Corporate governance refers to a way in which minority shareholders are protected from expropriation by managers or controlling shareholders (Mitton, 2002). Corporate governance can become more important during a crisis for two reasons. First, minority shareholders' takeovers can become more severe during a crisis. Johnson et al. (2000) argue that crises can lead to greater expropriation because managers are led to expropriate more and the expected return on investment decreases. Second, the crisis can force investors to recognize and consider the weaknesses of corporate governance (Mitton, 2002).

During a crisis, managers can reduce discretion on the reported earning management because oversights from creditors, auditors, and other stakeholders increase. If the managers are motivated to manage earnings, this period provides an appropriate setting for examining these incentives through internal (i.e. board size and independent board ratios) and external (i.e. selection of external auditors) governance mechanisms.

The size of the board of commissioners and the ratio of the board of independent commissioners are the most commonly used corporate governance proxies in previous studies (Hsu & Liao, 2021; Koutoupis et al., 2021; Lehn 2021). Nearly all studies in Indonesia always employ these proxies to analyze corporate governance (Siregar & Utama, 2008). The board of commissioners is a representation of the company's shareholders who solve agency problems between shareholders and management. Since companies in Indonesia, mostly family firms, are dominated by a concentrated shareholding structure, an independent board of commissioners becomes a principal aspect of corporate governance. This is because the independent board of commissioners is expected to be able to prevent the expropriation of the controlling shareholders against the minority shareholders.

The board of commissioners, which supervises and provides strategic directions to the management, is the center of the internal mechanism for corporate governance practices (Utama & Utama, 2019). The role of the board of commissioners is pivotal to minimize agency conflicts so that the company can maximize its shareholder wealth. On the other hand, the large size of the board of commissioners can embody a good governance mechanism because it can provide bigger and more diverse knowledge to improve the quality of decision-making as well as monitor and provide advice to the management. On the other hand, the larger the size of the board of commissioners may reduce the efficiency of its performance due to difficulties in communication, coordination, and decision-making processes.

During a crisis, the size of the board of directors can positively affect the creation values (Villanueva-Villar et al., 2016) and significantly improve the viability of the company (Iwasaki, 2014). More monitoring and advisory activities can mitigate earning management practices. However, the rules during the COVID-19 pandemic that limit face-to-face interactions can result in new barriers, such as communication barriers, that hamper the board of commissioners to make decisions collectively. In addition, monitoring activities on management are limited due to mobility restrictions and work-from-home policies. Therefore, the researchers propose a moderating effect of the size of the board of commissioners, either a strengthening or weakening effect, on the relationship between the COVID-19 pandemic and earning management. Based on the aforementioned explanation, the researchers formulate the first hypothesis as follows.

H2a. The size of the company board of commissioners moderates the relationship between the COVID-19 pandemic and earning management.

The agency theory postulates that an independent board of commissioners will tend to carry out a more effective monitoring mechanism than a non-independent board. Such an action can reduce asymmetric information to ensure the quality of financial statements (Lu & Boateng, 2018). Chen et al. (2007) have discovered that director independence is associated with a lower probability of the absolute value of discretionary accruals in Taiwanese companies. An independent board is expected to more objectively provide advice to companies, especially in complex situations, such as the COVID-19 pandemic; thus, the earning management can be mitigated.

In contrast, Erkens et al. (2012) have found that companies with more independent boards have worse stock returns during a crisis. The research indicates that independent commissioners may not be able to work optimally in some conditions, such as the COVID-19 pandemic. Since the board of commissioners decides to carry out their roles collectively, they less frequently listen to the aspirations of the independent commissioners, which is generally less than half of the total number of the boards. Based on the aforementioned explanation, the researchers formulate the first hypothesis as follows.

H2b. The ratio of the company's independent board of commissioners moderates the relationship between the COVID-19 pandemic and the earning management.

External governance mechanisms, namely the selection of external auditors, may influence a company's earning management practices during the COVID-19 pandemic. External auditors also influence the company's earning management practices in crisis conditions. Qualified external auditors, such as Big4 Public Accounting Firm, tend to be more skeptical and conservative when assessing the financial information presented by their clients (Chia et al., 2007). Public accounting firms tend to have better quality to ensure transparency and eliminate errors in the company's financial statements (Mitton, 2002). Moreover, public accounting firms have a high reputation that should be protected and are likely to face greater legal liability if they make a mistake.

On the other hand, the condition of the COVID-19 pandemic crisis is different from that of a financial crisis. In the COVID-19 pandemic crisis, restrictions on mobility and interactions have forced auditors to conduct assessments without meeting clients directly, commonly referred to as remote audits. Such a condition affects the quality of public accounting firms.

H2c. The quality of external auditors moderates the relationship between the COVID-19 pandemic and profit management.

RESEARCH METHODS

Data sources

The samples of this study were manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2019 and 2020. This study specifically investigated the manufacturing industry to ascertain the possibility of controlled industrial effects. In addition, previous studies on earning management with discretionary accrual proxies were generally conducted in non-financial industries, such as the manufacturing industry, as investigated by Xie et al. (2022). The data to measure earning management variables were collected from the Eikon–Thompson Reuters database. Meanwhile, the data on corporate governance were collected using the hand-collected technique from the company's financial statements. Finally, the company's financial statements were collected from the IDX website and/or the websites of each company.

The researchers employed several criteria to select companies for the sample.

1. The manufacturing companies were listed on the IDX from 2019-2020.

2. The financial statements were published on the websites of IDX and the companies in 2019-2020.
3. The company's end of the fiscal year was December 31.
4. The variable data for each year were available in the sample period.

Table 1. Sample Selection Procedures

Total of manufacturing companies listed on the Indonesia Stock Exchange (sectors 3-5)	19 0
Unavailable data of company financial statements 2019 and/or 2020	-2
Company's fiscal year end is not December 31	-1
Total samples	18 7

Table 1 summarizes the sample selection procedure using the predetermined criteria and shows that the final samples of this study are 187 companies or 374 company years.

Earning management measurement

This study employed discretionary accrual proxies to measure earning management (EM). This proxy is the most commonly used proxy for earning management and reflects how aggressively or conservatively management reports earnings (Liu & Sun, 2022). The discretionary component is also subject to manager manipulation that may arise from managers' opportunistic behavior (Lassoued & Khanchel, 2021). This study employed the performance-adjusted discretionary accrual model from the modified Jones model, as presented in the research of Xiao and Xi (2021). The equation of this model is as follows.

$$TAC_{i,t}/TA_{i,t-1} = \alpha_1 (1/TA_{i,t-1}) + \alpha_2 ((\Delta SALES_{i,t} - \Delta AR_{i,t})/TA_{i,t-1}) + \alpha_3 (PPE_{i,t}/TA_{i,t-1}) + \alpha_4 ROA + \varepsilon$$

where:

TAC_{i,t} is total accruals measured by earnings before extraordinary items in t year minus operating cash flows in t year.

TA_{i,t-1} is the total assets of the previous period or t-1.

ΔSALES_{i,t} is the change in sales from t-1 year to t year.

ΔAR_{i,t} is the change in receivables from t-1 year to t year.

PPE_{i,t} is the value of property, plant, and equipment in t year.

ROA is the ratio of return on assets measured by earnings before extraordinary items in t year t divided by total assets in t year.

This current research estimated these equations for each IDX industry category in 2019 and 2020, namely sectors 3, 4, and 5. The absolute residual value (errors) from the equation referred to the discretionary accrual value used as a variable of the earning management.

Econometric model

To test the research hypothesis, the researchers employed a panel data regression equation model. The first hypothesis (H1) was tested using the following equation model.

$$EM_{it} = \alpha_0 + \alpha_1 PANDEMIC_{it} + CONTROLS_{it} + \varepsilon$$

(1)

where:

EM_{it} is the absolute value of the residual (error) measurement of total accruals as a proxy for earning management in equation (1).

$PANDEMIC_{it}$ is a binary variable with a value of 1 for the 2020 pandemic period and 0 for the 2019 pre-pandemic period.

The second hypothesis was tested using the following three models.

$$EM_{it} = \alpha_0 + \alpha_1 PANDEMIC_{it} + \alpha_2 BSIZE_{it} + \alpha_3 PANDEMIC_{it} * BSIZE_{it} + CONTROLS_{it} + \varepsilon$$

(2)

$$EM_{it} = \alpha_0 + \alpha_1 PANDEMIC_{it} + \alpha_2 BIND_{it} + \alpha_3 PANDEMIC_{it} * BIND_{it} + CONTROLS_{it} + \varepsilon$$

(3)

$$EM_{it} = \alpha_0 + \alpha_1 PANDEMIC_{it} + \alpha_2 BIG4_{it} + \alpha_3 PANDEMIC_{it} * BIG4_{it} + CONTROLS_{it} + \varepsilon$$

(4)

where:

EM_{it} is the absolute value of the residual (error) measurement of discretionary accruals/earnings management in i company in t year.

$PANDEMIC_{it}$ is a binary variable with a value of 1 for the 2020 COVID-19 pandemic period and 0 for the 2019 pre-pandemic period.

$BSIZE_{it}$ is the number of the board of commissioners in i company in t year.

$BIND_{it}$ is the percentage of the independent board of commissioners divided by the number of commissioners in i company in t year.

$BIG4_{it}$ is a measurement for the quality of external auditors with 1 for i company audited by Big4 Public Accounting Firm in t year and 0 for otherwise.

$PANDEMIC_{it} * BSIZE_{it}$ is the moderating variable between the COVID-19 pandemic period and the number of the board of commissioners in i company in t year.

$PANDEMIC_{it} * BIND_{it}$ is the moderating variable between the COVID-19 pandemic period and the percentage of the board of commissioners in i company in t year.

$PANDEMIC_{it} * BIG4_{it}$ is the moderating variable between the COVID-19 pandemic period and the number of the board of commissioners in i company in t year.

Several control variables (CONTROLS) used in this study referred to the research of Xiao and Xi (2021) in China. The governance contexts in China, including the implementation of a two-tier board system and a concentrated shareholding structure, are similar to that in Indonesia. The first control variable was the company

size (SIZE), which referred to the natural logarithm of the total assets of *i* company in *t* year. The second variable was the leverage (LEV), which referred to the ratio of total liabilities divided by the total assets of *i* company in *t* year *t*. The third variable is the return on assets (ROA), which referred to the ratio of operating profit divided by the total assets of *i* company in *t* year. The fourth variable was the share ownership by family companies (CS_Family), which referred to the binary variable with a value of 1 if the controlling shareholder of the company (with more than 20% shares) was from a national non-institutional company, and 0 if it was not. The fifth variable was the share ownership by foreign companies (CS_Foreign), which referred to the binary variable with a value of 1 if the controlling shareholder of the company (with more than 20% shares) was from a foreign corporation, and 0 if it was not. The sixth variant was LOSS, which referred to a binary variable with a value of 1 if the company suffered from a loss, and 0 if the company earned a profit.

To prove the first hypothesis (H1) that examined the negative effect of the COVID-19 pandemic on the company's earning management practices, coefficient β_1 in equation (1) should be negative and significant. The second hypothesis examined the moderating effect of corporate governance mechanisms on the relationship between the COVID-19 pandemic and earning management; thus, the interaction coefficient β_3 in equations (2), (3), and (4) should have significant values.

Data Testing

This study employed the STATA MP 17 application as the panel data regression model to test the hypotheses. The panel data regression model was chosen because the research sample combines cross-sectional data (more than one company) and time series (more than 1 period). Specifically, this study employed balanced panel data and observed 187 companies company in 2019 and 2020, respectively.

Before concluding the regression test with panel data, the previous research tested the classical assumptions, namely multicollinearity and heteroscedasticity. The multicollinearity test was conducted using the VIF command. The equation model is considered to pass the multicollinearity test if the VIF value is less than 10. The heteroscedasticity test was conducted using the modified wald test to examine the heteroscedasticity test. If the Prob>chi2 value is greater than 0.05, the equation model is considered to pass the heteroscedasticity test. To overcome a heteroscedasticity problem (if any), this study employed the robust method.

In addition to the classical assumption test, this study conducted the Hausman test to compare the estimated coefficients for covariates in the framework of fixed effects and random effects. This test was conducted to determine the most appropriate panel data regression model for this study, whether more significantly using a fixed effect model or a random effect model.

RESEARCH RESULTS

Descriptive Statistics

Table 2 presents the results of the descriptive statistics of all variables used in this study. To reduce the impact of outliers, winsorization is employed on all continuous variables at the level of 10% and 90%; this step refers to the research of da Silva (2019). The observations employed 374 company years. The average value of earning management proxied with the absolute value of discretionary accruals is 0.5149. This result indicates that manufacturing companies in Indonesia, on average, prefer to manipulate earnings through management policies in 2019 and 2020.

The variable of the board of commissioners has the highest value of 6 and the lowest of 2, with an average value of almost 4 people per company. The average ratio of independent commissioners in Indonesia is 41%, meaning that the number of independent commissioners is nearly half of the company's board of commissioners. In addition, the variable of auditor quality, proxied by BIG4, shows an average value of 30%. These results indicate that almost a third of the companies are clients of BIG4 auditors.

Pearson's correlation coefficients of all the variables used in this study are presented in Table 3. The highest coefficient value of -0.7368 was found in the relationship between the earnings management variable (EM) and the pandemic variable (PANDEMIC). The absence of a coefficient that is more than 0.8 indicates that multicollinearity problems do not occur. In addition, Table 4 shows that the VIF value is not more than 10. This finding shows that the relationship between the independent variables will not cause biased research findings. Thus, it can be concluded that multicollinearity problems do not occur in this study.

Table 2. Descriptive Statistics

Variable	Obs.	Mean	Std dev.	Min.	Max.
EM	374	0.5149	0.5933	0.0145	1.7355
PANDEMIC	374	0.5000	0.5007	0.0000	1.0000
BIG4	374	0.2968	0.4575	0.0000	1.0000
BSIZE	374	3.7032	1.4028	2.0000	6.0000
BIND	374	0.4071	0.0772	0.3333	0.5000
SIZE	374	28.2754	1.3541	26.3517	30.6156
LEV	374	0.4784	0.2002	0.1803	0.8143
ROA	374	0.0269	0.0539	-0.0613	0.1212
LOSS	374	0.2701	0.4446	0.0000	1.0000
CS_Family	374	0.6043	0.4897	0.0000	1.0000
CS_Foreign	374	0.2834	0.4513	0.0000	1.0000

All continuous variables have been *winsorized* at the 10% and 90% levels.

Table 3. Pearson's Correlation Matrix

	EM	Pandemic	BIG4	BOC	BIND	SIZE	LEV	ROA	LOSS	CS_Family	CS_Foreign
EM	1										
PANDEMIC	-0,7368	1									
BIG4	-0,1062	-0,0293	1								
BSIZE	-0,1207	-0,0019	0,4342	1							
BIND	-0,042	0,0428	-0,0003	-0,2022	1						
SIZE	-0,1825	-0,0006	0,474	0,6171	-0,0766	1					
LEV	0,0254	-0,0221	-0,1096	-0,0119	-0,0055	0,0621	1				
ROA	0,0591	-0,1034	0,1956	0,0803	0,0351	0,1989	-0,3925	1			
LOSS	-0,063	0,1385	-0,026	-0,056	0,0348	-0,1605	0,2606	-0,7379	1		
CS_Family	-0,0227	0,0219	-0,1685	-0,1129	0,0154	-0,0925	-0,0935	0,0819	-0,0866	1	
CS_Foreign	-0,0635	0,0119	0,3707	0,2942	-0,0751	0,2125	0,017	-0,0475	0,1119	-0,4253	1

The heteroscedasticity test employed a modified wald test, which was applied to STATA with the `xttest3` command. The test has discovered that the Prob > chi2 value of the four research models is less than 0.05; thus, the model is declared not to pass the heteroscedasticity test. To overcome this problem, this study employed a robust method to conduct a regression test on the four models to prove the proposed hypotheses.

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Table 4. VIF Values

Variable	VIF	1/VIF
ROA	2.63	0.380615
LOSS	2.35	0.426107
SIZE	1.9	0.526621
BSIZE	1.82	0.5502
BIG4	1.59	0.630814
CS_Foreign	1.43	0.69799
LEV	1.25	0.7998
CS_Family	1.24	0.808364
BIND	1.07	0.937207
PANDEMIC	1.03	0.970388
Mean VIF	1.63	

Table 5. Results of the Hausman Test

	Model 1	Model 2	Model 3	Model 4
Chi-squared	16.530	18.100	17.49	15.44
Prob.	0.0853	0.0792	0.0943	0.163

To gain the best estimation results, this study conducted the Hausman test by comparing the estimated coefficients for covariates in the framework of fixed effects and random effects. The results of the Hausman test in Table 5 show that the probability value is more than 0.05. Therefore, the best model used in the regression test of this study is the random effect model. This model can be regarded as the best linear unbiased estimator.

Result and analysis

The regression results in Table 6 column 1 (model 1) present the results of the panel data regression to support the first hypothesis. The pandemic coefficient has a significantly negative value (p-value of 0.000). This finding indicates that the COVID-19 pandemic has reduced earning management practices with discretionary accruals in manufacturing companies in Indonesia. The decline in earning management during the COVID-19 pandemic crisis could be caused by an increase in conditional conservatism, which increases the quality of earnings. In addition, this decline can be caused by increasingly stringent monitoring activities by stakeholders and auditors (Cimini, 2015); thus, companies improve the quality of their financial information.

Table 6. Earning Management Regression Results

VARIABLES	(1) EM	(2) EM	(3) EM	(4) EM
PANDEMIC	-0.872*** (0.0431)	-1.192*** (0.115)	-0.911*** (0.228)	-0.953*** (0.0532)
PANDEMIC_BSIZE		0.0859*** (0.0266)		
PANDEMIC_BIND			0.0942 (0.558)	
PANDEMIC_BIG4				0.269*** (0.0830)
BSIZE	-0.00119 (0.0169)	-0.0439 (0.0277)	-0.00117 (0.0169)	-4.25e-05 (0.0169)
BIND	-0.233 (0.260)	-0.216 (0.260)	-0.282 (0.526)	-0.205 (0.261)
BIG4	-0.0824* (0.0473)	-0.0818* (0.0477)	-0.0821* (0.0472)	-0.215*** (0.0812)
SIZE	-0.0709*** (0.0185)	-0.0691*** (0.0186)	-0.0710*** (0.0185)	-0.0707*** (0.0185)
LEV	0.0813 (0.111)	0.0689 (0.110)	0.0816 (0.111)	0.0790 (0.110)
ROA	1.083* (0.613)	1.042* (0.611)	1.086* (0.615)	1.060* (0.621)

LOSS	0.102 (0.0676)	0.108 (0.0681)	0.102 (0.0677)	0.107 (0.0675)
CS_Family	-0.0475 (0.0397)	-0.0494 (0.0396)	-0.0476 (0.0398)	-0.0477 (0.0399)
CS_Foreign	-0.0253 (0.0431)	-0.0255 (0.0432)	-0.0254 (0.0433)	-0.0256 (0.0433)
(Constant)	3.021*** (0.491)	3.128*** (0.495)	3.042*** (0.507)	3.039*** (0.491)
Observations	374	374	374	374
R-squared	0.5841	0.5944	0.5842	0.5948

Robust standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

This finding is supported by several previous studies, which have discovered that earning management decreased during the financial crisis in Europe (Cimini, 2015; Filip & Raffournier, 2014; Kousenidis et al., 2013). In addition, the results of this current study are supported by Liu and Sun (2022) who have proven that discretionary accruals decreased during the COVID-19 pandemic in the United States.

Table 6 columns 2-4 presents the evidence for the second hypothesis. Column 2 shows that the value of the interaction coefficient between PANDEMIC_BSIZE is positive and significant (p-value of 0.001). This finding proves that the board of directors of a company moderates the relationship between the COVID-19 pandemic crisis and earning management practices. The relationship with a positive sign specifically indicates that the size of the board of directors weakens the negative relationship between the pandemic and earning management.

This finding disagrees with Hsu and Yang (2022), who have discovered that the size of the board of commissioners weakens the positive effects of the COVID-19 pandemic on earning management. This difference may be caused by two factors. First, the two studies examine employ different contexts of countries as the research sample. Hsu and Yang (2022) conducted a study in a developed country, namely the UK, which has relatively good corporate governance mechanisms. On the other hand, this study was conducted in a developing country, namely Indonesia, which tends to have poor corporate governance mechanisms. Second, companies listed on the Indonesia Stock Exchange have a special characteristic, namely the presence of a concentrated ownership structure, generally in family ownership. Companies that have controlling shareholders with high share ownership (above 20%) can place their representatives on the board. During the pandemic, representatives of the controlling shareholders may take advantage by expropriating minority shareholders using earning management. Thus, the test has discovered that the negative effects of the pandemic on earning management are weakening when the size of the board of commissioners increases.

The PANDEMIC_BIND coefficient in Table 6 column 3 shows the evidence that rejects hypothesis 2b. These results indicate that the company's independent board

ratio does not have moderating effects on the relationship between the COVID-19 pandemic and earning management. This result agrees with (Hsu & Yang, 2022) who have discovered that independent boards do not mitigate the adverse effects of the pandemic on improving earning management of companies listed on the UK stock exchanges.

The H2c hypothesis is supported by the PANDEMIC_BIG4 coefficients, which have a significant positive value (p-value of 0.001). This finding proves that the quality of external auditors moderates the relationship between the COVID-19 pandemic and earning management. The positive sign on this interaction coefficient indicates that the quality of external auditors, namely Big4 Public Accounting Firm, attenuates the negative influence between the pandemic and earning management. This result is contradictory with previous research, which has discovered that auditor quality can reduce the company's tendency to perform earning management (Chia et al., 2007; Xiao & Xi, 2021). This difference may be caused by two factors. First, it relates to the setting of previous studies conducted in China and Singapore; the two developed countries have better law enforcement and governance than Indonesia do. Second, external auditors in Indonesia probably do not have sufficient capabilities to deal with conditions during the COVID-19 pandemic. The demand for a remote audit can hamper Big4 Public Accounting Firm to carry out its duties and provide assurance services for its clients.

CONCLUSION

The research aims to empirically prove the effects of the COVID-19 pandemic on earning management practices and investigate the role of corporate governance mechanisms in the effect of the COVID-19 pandemic on earning management. Based on the agency theory, this study proposes 4 hypotheses. The first hypothesis is related to the effects of the pandemic on earning management practices while the other three hypotheses are related to the moderating role of governance mechanisms in the relationship between the COVID-19 pandemic and earning management.

This study employed panel data from 187 manufacturing companies listed on the Indonesian Stock Exchange in 2019 and 2020. Moreover, 387 company years were observed, which referred to the balanced-panel data. The multiple regression test with the fixed effect model was chosen as the best model to test the research hypotheses after the four equation models used in this study had been tested by the Hausman test.

This study has discovered that earning management practices have declined during the COVID-19 pandemic. This decline most likely occurs because stakeholders increasingly tighten surveillance activities during a crisis. As a result, management reluctantly conducts earning management, which can harm the company. This study also has proven that governance mechanisms, namely the number of boards of commissioners and the quality of external auditors, can moderate the relationship between pandemics and earning management.

However, this study has several limitations that can be developed for further research. First, it only investigated a limited sample and period, namely manufacturing companies in Indonesia in 2019 and 2020. Therefore, further research could expand the research sample so that the results can be generalized; for example, by investigating all companies listed on the Indonesian Stock Exchange or adding samples from other countries. Further research may also consider the different effects of the pandemic in countries with strong and weak governance. In addition, if the data are available, further research can extend the study period to observe the effects of the pandemic on EM, which may last for a long period.

Second, this study only employed the size of the board of commissioners, the ratio of independent commissioners, and the quality of external auditors due to limited access to data. Further research can consider other proxies of governance, for example by using the CG index so that the influence of governance can be analyzed more comprehensively. In addition, this study has not considered the possibility of endogeneity of the three governance variables used in this study, such as the board of commissioners size, the independent board of commissioners, and the quality of auditors. Therefore, future research should consider this endogeneity issue.

Third, the proxy for earning management employed in this study is discretionary accruals from the modified Jones model. Future research may consider other measure proxies of earning management, such as discretionary income adapted to research contexts.

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