Financial Distress, Audit Quality, and Earnings Management –Indonesia's Mining Sector Evidence

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Abstract:
This paper describes research that investigated the association between financial distress (Dist) and accrual earnings management (AEM), and the role played by audit quality (AQ) in that association. Financial distress is measured by The Modified Altman Z-Score for emerging markets (EMZ score), earnings management is measured by discretionary accrual, and audit quality is measured by audit-firm size (Big4). Using data from Indonesian Mining Sector for 2016 – 2020, the research finds empirical evidence that financial distress firms involve in income-increasing accrual earning management, but such involvement is lower when firms are audited by Big 4 audit firms. This research contributes to previous literature about similar issues, specifically about the impact of financial distress on accrual earnings management. It also presents evidence about the role of audit quality in such an effect.
Keywords: Financial distress, audit quality, earnings management, EM Zscore.

Abstrak:
Paper ini memaparkan hasil penelitian yang menyelidiki hubungan antara tekanan keuangan (Dist) dan manajemen laba akrual (AEM), dan peran yang dimainkan oleh kualitas audit (AQ) dalam asosiasi tersebut. Tekanan keuangan diukur dengan The Modified Altman Z-Score untuk pasar negara berkembang (skor EMZ), manajemen laba diukur dengan akrual diskresioner, dan kualitas audit diukur dengan ukuran perusahaan audit (Big4). Menggunakan data dari Sektor Pertambangan Indonesia untuk 2016 – 2020, penelitian ini menemukan bukti empiris bahwa perusahaan kesulitan keuangan terlibat dalam manajemen pendapatan akrual yang meningkatkan pendapatan, tetapi keterlibatan tersebut lebih rendah ketika perusahaan diaudit oleh perusahaan audit Big 4. Penelitian ini berkontribusi pada literatur sebelumnya tentang masalah serupa, khususnya tentang dampak tekanan keuangan pada manajemen pendapatan akrual. Ini juga menyajikan bukti tentang peran kualitas audit dalam efek seperti itu.
Kata kunci: Financial distress, audit quality, earnings management, EM Zscore.

INTRODUCTION

This study aims to examine the relationship between financial distress and earnings management in the mining sector listed in Indonesian Stock Exchange (IDX) for the period 2016-2020 and examine the role of auditors in this relationship. The research is motivated by concerns about the negative impact of high-level financial problems, especially in emerging markets, which could lead to bankruptcy, although this situation could also provide

opportunities for investors with attractive returns. Nonetheless, a wave of corporate defaults in emerging markets could trigger broader financial pressures (Asis et al., 2021).

The level of financial stress is the probability that a company will fail to meet its financial obligations (Campbell et al., 2008). This condition will be worse if the company has poor financial performance, bankruptcy risk, and a high cost of capital(Habib et al., 2020). This in turn negatively impacts investment growth(Su, 2016). Changes in managers' incentives to address negative impacts make financial hardship levels likely to affect earnings management practices, especially in developing countries, which are characterized by low levels of shareholder monitoring and low levels of protection against minority shareholders (Viana Junior & Crisóstomo, 2019).

Previous research has reported a link between financial distress and accrual-based earnings management practices, although the results have been inconsistent. Filip & Raffournier (2014) find that managers who have a high level of financial difficulty tend to engage in accrual earnings management practices in the direction of improvement to avoid market sanctions and falling share prices, which in turn will lower managers' compensation. Other research reports that companies facing financial distress engage in the manipulation of declining accrual earnings due to pressure from auditors, creditors, or even more conservative accounting practices (Charitou et al., 2007). In developing countries, there is a high likelihood of a positive relationship between financial distress and accrual earnings management to create a safe environment, with improved earnings management patterns.

The Big 4 plays an important role in controlling companies' involvement in earnings management practices in developing countries(Viana et al., 2022). Previous research has shown that Big4 auditors are more sensitive to client misreporting and more reputational than non-Big4 auditors(Francis & Wang, 2008). Therefore, the Big4 auditors are more intense in examining financial statements that are indicated to contain earnings management, to avoid reputational damage(Hogan, 1997). Supervision tends to be tighter in emerging markets due to a weaker regulatory environment (Fan & Wong, 2005). Based on this study, researchers expect the positive relationship between financial distress and increased accrual earnings management to be reduced if the company is audited by Big4 auditors.

The contribution of this research to the accounting and finance literature is the availability of empirical evidence on the relationship between financial distress and accrual earnings management in emerging markets, particularly Indonesia by adding to the audit literature by including the role of audit quality as an external corporate governance

mechanism for Control the opportunistic behavior of managers in the face of financial distress.

LITERATURE REVIEW

This study uses agency theory that explains and predicts the behavior of parties involved in agency relationships (Jensen & Meckling, 1976). Agents are given the task of managing the company to improve the welfare of the principal. Managers prioritize their own best interests to bring up the concept of moral hazard(Smith, 2010). When the company experiences financial pressure, the company overcomes it by manipulating earnings, so that the company's financial performance remains good and in turn, agents will still get rewards according to the contract. Conflicts that occur in agency relationships do not only occur between agents and principals but also between controlling owners and minority shareholders. This conflict is prevalent in developing countries, as companies are still dominated by family ownership. These conditions allow large shareholders to implement poor corporate governance systems (e.g. weakening board composition) by maintaining weak internal control systems to allow for manfaat personal control that benefits their interests (Viana Junior & Crisóstomo, 2019). This weaker internal control can facilitate earning management with an increased pattern when the company experiences greater financial stress. One of the problems that arise in agency relationships is the information asymmetry between agents and principals (Jensen & Meckling, 1976). To overcome this problem, along with its impact on the quality of financial information, monitoring, and control instruments are used, namely corporate governance and audit quality(Viana et al., 2022)

Financial Distress and Accrual Earnings Management

Financial distress is the potential failure of a company to meet financial obligations(Campbell et al., 2008)), which includes the potential deterioration of financial performance, increased risk of bankruptcy, and increased cost of capital (Habib et al., 2020). This has an impact on operations, capital markets, and corporate governance that deteriorates, such as the abnormal condition of the relationship between investment and company growth (Su, 2016) and poor governance practices (Chou et al., 2010). This situation certainly affects managers' incentives, and these financial pressures can impact earnings management practices.

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Previous research on the relationship between financial distress and accrual earnings management conducted in developing countries was carried out by Agrawal & Chatterjee (2015; Chen et al. (2010); Du & Lai (2018); Li et al. (2020); Muljono & Sung Suk (2018); Rakshit & Paul, (2020); Saleh & Ahmed (2005). Overall, this previous stream of literature on emerging markets paid special attention to China (Y. Chen et al., 2010; Du & Lai, 2018; Li et al., 2020)

Emerging market-specific characteristics provide room for earnings management practices, such as flexible regulatory enforcement, poor (Viana et al., 2022)legal protection for investors, large shareholders implementing poor corporate governance systems (Crisóstomo et al., 2020), Weaker internal control of the company (Filip & Raffournier, 2014) and the existence of a strong shareholder bloc that tends to seek legitimacy and improvement in the company's reputation and image(Viana Junior & Crisóstomo, 2019)

Previous research on the relationship between financial distress was grouped into 3, namely (1) research using Z-score 1968, (2) research using modified Z-score, and (3) research using Z-score emerging market (EM Z). The first research group earlier reported that Indian companies experiencing mild financial distress engaged in higher earnings management (Agrawal & Chatterjee, 2015). Whereas Chen et al. (2020) reported that the desire to avoid continued special treatment (ST) status and the risk of de-listing caused the company to adopt different earnings management behaviors before and after it was established as an ST company. Other research has shown that financially determined companies engage in declining earnings management practices (Rakshit & Paul, 2020).

The second research group found that financially stressed companies tend to perform more accrual earnings management and lower real earnings management. Internal control exerts a moderating effect on the relationship between financial stress and earnings management by restraining accrual and real earnings management(Li et al., 2020). A third research group reported that financial distress led to a significant increase in real earnings management and a significant decrease in accrual earnings management (Muljono & Sung Suk, 2018) whereas Alfaro et al. (2019) report that company size plays an important role in the relationship between leverage, corporate fragility and exchange rate movements in emerging markets, but the relationship between firm leverage and distress scores varies over time, whereas the relationship between firm size and firm vulnerability is relatively constant. Jacoby et al. (2019) found that financially distressed companies were more involved in reporting small positive earnings relative to financially healthy companies, but the relationship was weakened by the presence of political affiliation variables. Campa &

Camacho-Miñano (2015) reports research findings showing that, on average, companies with higher levels of financial stress show signs of higher upward earnings management through REM than AEM and vice versa. But recent research conducted by Viana et al. (2022) Finds empirical evidence that the more severe a company experiences financial stress, the more effort to make accrual earnings management towards improvement. Therefore, taking all these arguments together brings us to the first hypothesis we propose:

H1. The level of financial distress is positively related to accrual earnings management.

The Role of Big4 Auditors in the Relationship between *Financial Distress* and Accrual Earnings Management

With innate conditions of low law enforcement in developing countries, Big4 auditor plays an important role in curbing earnings manipulation practices (Iatridis, 2012). The literature provides convincing empirical information that Big4 auditors are associated with higher audit quality than non-Big 4 auditors (Behn et al., 2007; DeFond et al., 2017; Iatridis, 2012). From this point of view, Big4auditor can limit the level of accrual-based earnings management, as they have stronger incentives for reputational interests and litigation (DeFond et al., 2017). Thus, Big 4 auditors are more sensitive to client reporting inaccuracies and their effect on auditor reputation, so Big 4 auditors are more likely to impose higher quality earnings (Francis & Wang, 2008). Compared to audits or non-Big4, Big4 auditors may provide greater oversight of financial statements to avoid future litigation by external stakeholders(Hogan, 1997).

Based on those arguments, Iatridis (2012) empirically shows that emerging markets from Brazil and South Africa audited by Big4 auditors tend to exhibit lower levels of accrual-based earnings management. A similar study in emerging markets also found that audits of financial statements by Big4 auditors limited accrual earnings manipulation strategies (Khurana & Raman, 2004; Pelucio-Grecco et al., 2014). Thus, it can be concluded that Big4 auditors are able to limit earnings management practices. Based on this argument, then the second hypothesis can be formulated as follows.

H2. The positive relationship between levels of financial distress and accrual earnings management was lower in companies audited by Big4 auditors

RESEARCH METHODS
Data

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This research uses data on companies listed on the Indonesia Stock Exchange (IDX) for the period 2016-2020 as a population. Sample selection was carried out using purposive sampling with criteria: (1) the sample was a mining company, (2) the company had complete data, and (3) the company suffered a loss in the observation year.

Model Specifications

To test hypothesis 1 which states that financial distress is positively related to accrual earnings management , researchers use equation model (1) with accrual earnings management (AEM) as the dependent variable and financial distress (Distress) as the independent variable as follows:

$$AEM_{it} = \alpha_0 + \beta_1 Dist_{it-1} + \beta_2 Lev_{it} + \beta_3 Size_{it} + \beta_4 ROA_{it} + \varepsilon_{it} \qquad (1)$$

For each company i in year t, AEM represents the level of accrual earnings management, and Distress is the level of financial difficulty at the beginning of year t. Lev is the financial leverage, size is the size of the company, and ROA is the level of earnings ability of the company. Consistent with H1, we predict a positive and statistically significant value of the $\beta 1$ coefficient. Researchers also predict that accrual earnings management is positively related to financial leverage (Campa & Camacho-Miñano, 2015; Johnston & Soileau, 2020), and negatively related to company size(Laraa et al., 2020; Paiva et al., 2019).

To test the hypothesis stating that the positive relationship between financial distress and accrual-based earnings management is lower if the company is audited by a Big4 auditor, researchers predict with equation model (2) using accrual earnings management as the dependent variable and interaction variable between financial distress (Dist) and Big4 auditors (AQ) as independent variables as follows:

$$AEM_{it} = \alpha_0 + \beta_1 Dist_{it-1} + \beta_2 AQ_{it} + \beta_3 Dist*AQ_{it} + \beta_4 Lev_{it} + \beta_5 Size_{it} + \beta_6 ROA_{it} + \varepsilon_{it} \qquad (2)$$

AQ is a dummy variable that is worth 1 if the financial statements are audited by a Big4 auditor (Deloitte, EY, KPMG, or PwC) and zero if it is the other way around. Researchers expect that in equation (2) the β_1 is a significant positive and the value of the β_3 is negative significantly, thus indicating that auditor Big4 reduces the level of accrual earnings management. The following is an explanation of the research variables.

Distress (DIST) is an independent variable measured by the Z-score for developing countries. This score is a modified score from the (Altman, 2005) original z-score version (Altman, 1968) adapted to structural conditions in emerging markets. This 2005 version has

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been used by several researchers, among others Alfaro et al. (2019); Jacoby et al. (2019); Liu et al. (2021) A higher Distress value indicates a healthier financial condition. The Z-Score measures for emerging markets (EM) are as follows.

$$\text{EM Z-score} = 6.56\, X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 + 3.25 \qquad (3)$$

X1 is working capital/total assets; X2 is retained earnings/total assets; X3 = is the operating earnings/total assets, and X4 is the book value of equity/total liabilities. A lower Z-score indicates vulnerability and a greater likelihood of bankruptcy. Companies with a score of 5.85 are assumed to be in the safe zone, scores between 5.85 and 3.75 indicate vulnerability, and scores below 3.75 indicate that the company is in a state of distress.

Accrual Earnings Management (AEM) is an independent variable that measures the number of discretionary accruals (Charitou et al., 2011; Dechow et al., 1995; Kothari et al., 2005; Li et al., 2020). A discretionary accrual is calculated by the model modified by Jones (Dechow et al., 1995) and additionally includes measures of company performance as control variables (Kothari et al., 2005). The residual generated from such models is discretionary accrual (EM) which is a proxy for accrual earnings management.

$$TAC_{i,j,t} \;=\; \beta_1 \frac{1}{TA_{i,j,t-1}} + \beta_2 \frac{(\Delta Rev_{i,j,t} - \Delta AR_{i,j,t})}{TA_{i,j,t-1}} + \beta_3 \frac{PPE_{i,j,t}}{TA_{i,j,t-1}} + \varepsilon_{i,j,t} \qquad (4)$$

Audit Quality (AQ) is an independent variable proxied by the firm's audit measures. AQ is a dummy variable that has a value of 1 if the audit firm is a member of the Big Four (Deloitte, EY, KPMG, or PwC), and has a value of 0 if the audit firm is not a member of the Big Four.

Control variables in this study include earnings ability as proxied by return on assets (ROA) which is the ratio between net income and total assets, leverage (LEV) measured by dividing total liabilities by total assets, and company size (Size) calculated by natural log (Ln) total assets.

RESULTS AND DISCUSSION

Univariate Analysis

Based on the sampling process described above, this study obtained data from 47 mining companies for the period of 2016 to 2020, resulting in observations of 235 company years. Table 1 presents descriptive statistics of sample data. The results showed that all variables used in the scoring model had a reasonable degree of variation. Accrual earnings management (AEM) has a mean value of -0.112 similar to the previous research in emerging

markets that used discretionary accrual (Dimitropoulos et al., 2013). The mean value of Altman's z-score (Dist) is 4.832. This score is included in the vulnerable group (gray zone). Table 1 shows that approximately 47.7% of our company observations were audited by Big4 (Big 4) audit firms. Table 1 also shows that company size varies significantly with a range between 3.486 to 8.033 with a mean of 6.469, while financial leverage (LEV) shows variation with a range of 0.088 to 1.898 and a mean of 0.541. Finally, earnings ability (ROA) shows variation with a range between -3.933 and 0.456 with a mean of -0.002.

Table 1. Descriptive Statistics

	Minimum	Maximum	Mean	Std.Dev
ROA	-3,933	0,456	-0,002	0,310
DIST	-56,461	57,633	4,832	13,737
LEV	0,088	1,898	0,541	0,266
SIZE	3,486	8,033	6,469	0,807
AQ	0,000	1,000	0,477	0,501
AEM	-1,507	1,348	-0,112	0,172
DAQ	-9,103	97,633	7,566	18,088

Bivariate Analysis

Pearson and Spearman's correlations between variables have been calculated and presented in Table 2. Tests of the correlation matrix for the independent variables in Table 2 showed no correlation coefficient above 0.8. This shows that there is no multicollinearity problem. In Table 2 it can also be seen that the correlation between DIST and AEM is positively correlated. This indicates that when companies experience financial stress, earnings management practices increase. When DIST is moderated by AQ, this variable is negatively correlated with AEM. However, more comprehensive testing will be carried out through regression analysis (multivariate).

Table 2. Pearson Correlation

	ROA		DIST		LEV		AEM	SIZE		AQ	
DIST	0.307	**									
LEV	-0.319	**	-0.455	**							
AEM	0,017		-0,015		0,076						
SIZE	0,104		0,315	**	0,008		0.032				
AQ	0,182	**	0,166	*	-0,345	**	-0.079	0,054	.		
DAQ	0.141	*	0.669	**	-0,306	**	-0.043	0,288	**	0,439	**

Multivariate Analysis

Before the hypothesis test is carried out, a classical assumption test is first carried out. From the test, it was concluded that there was no violation of classical assumptions and there were no outliers in the tested data. Regression model (1) to examine the effect of financial distress on accrual earnings management, and model (2) to examine the role of audit quality on the relationship between financial distress and accrual earnings management. Regression test results are presented in Table 3.

Table 3. Regression Analysis

$$AEM_{it} = \alpha_0 + \beta_1 Dist_{it-1} + \beta_2 Lev_{it} + \beta_3 Size_{it} + \beta_4 ROA_{it} + \varepsilon_{it} \qquad (1)$$

$$AEM_{it} = \alpha_0 + \beta_1 Dist_{it-1} + \beta_2 AQ_{it} + \beta_3 Dist*AQ_{it} + \beta_4 Lev_{it} + \beta_5 Size_{it} + \beta_6 ROA_{it} + \varepsilon_{it} \qquad (2)$$

	Model 1		Model 2	
Variable	Coefficient		Coefficient	
Intercept	0.237	*	0.186	***
DIST	0.118	***	0.211	***
AQ			-1.006	
DIST*AQ			-0.054	***
ROA	0.029		0.144	
LEV	0.151	***	0.191	***
SIZE	-0.090	***	0.101	**
Adj. R^2	0.091		0.103	
F-statistic	5.719	***	4.582	***

***, **, * Coefficient is significant at the 0.01 level, 0.05, and 0.10 respectively

Table 3 of the Model 1 column presents the results of the hypothesis 1 test which states that the level of financial distress is positively related to accrual earnings management. The test results showed that the variable distress coefficient (DIST) was 0.118 and significant at the level of 1%. These results support hypothesis 1 and confirm previous research conducted by Agrawal & Chatterjee (2015); Chen et al. (2020); Jacoby et al. (2019); Muljono &; Sung Suk (2018); Viana et al. (2022) who have found evidence that the existence of financial distress both mild and severe carryout earnings management towards improvement to avoid special treatment, risk of delisting, decrease in compensation. This is in line with and confirms agency theory which predicts and explains that managers (agents) feel threatened if the company experiences financial distress. Therefore, the effort made by the agent is to manipulate earnings figures, especially covering up so that the company's earnings figures appear normal. Managers can manipulate earnings because they have more information than principals (information asymmetry).

Table 3 of the Model 2 column presents the results of the hypothesis 2 test which states that the positive relationship between levels of financial distress and accrual earnings management is lower in companies audited by Big4 auditors. The regression coefficient of the interaction variable between financial distress and audit quality (DIST*AQ) has a negative value (-0.054) and is significant at the level of 1%. Thus, it can be concluded that hypothesis 2 is supported and confirmed by the results of empirical research. These results also confirm previous research conducted by Viana et al. (2022) which proved that the positive relationship between financial and accrual earnings management is declining. The findings also confirm research conducted by Iatridic (2012) which shows that companies in Brazil and South Africa audited by Big4 auditors have lower levels of accrual earnings management.   Similarly, the results of research carried out by Khurana &; Raman (2004) and Pelucio-Grecco et al. (2014), prove that Big4 auditor limits the practice of manipulating accrual earnings. Big4 Auditor can limit the level of accrual-based earnings management, as they have a stronger incentive to protect the reputation and reduce litigation risk (DeFond et al., 2017). Thus, Big 4 auditor is more sensitive to the quality of client reporting, including the impact of earnings management practices, and its effect on the auditor's reputation, so Big 4 auditors tend to impose higher quality earnings (Francis & Wang, 2008). Big4 auditor provides greater oversight of financial statements to avoid future litigation by external stakeholders (Hogan, 1997).

In addition, the control variables, namely ROA and LEV, have similar relationship patterns in contrast to the dependent variable, accrual earnings management (AEM). ROA has no effect and LEV has a positive 1% effect on accrual earnings management whether or not audit quality and the interaction between audit quality and financial distress are included in the analysis. The last control variable, namely company size (SIZE), negatively affects accrual earnings management at the level of 1% in Model 1 (without audit quality variables) and positively affects the level of 1% on accrual earnings management in Model 2 (by involving audit quality and the interaction between audit quality and financial distress).

CONCLUSION AND SUGGESTIONS

This research analyzes the impact of financial stress and accrual earnings management in Indonesia and the role of audit quality in it. The results of the research prove that companies with financial distress, especially high-level pressure, manage accrued earnings upwards. In addition, this research also proves that the existence of quality auditors,

proxied with Big4 auditors, can moderate and weaken [3] the effect of financial distress on accrual earnings management.

This research has several limitations. First, this research only uses data on one sector, namely the mining sector, so the research results may be less generalizable to a jurisdiction. Further research can be done by expanding the object by involving more types of sectors in it. Second, this study covers the period before and at the beginning of the Covid 19 pandemic, so the impact of the financial crisis has not been reflected in the research results. Further research can be done by entering data when the Covid-19 pandemic occurs, namely data for 2021 and 2022, or even post-pandemic data. By increasing the research period, the results will become more complete and extensive. Third, this study uses one measure of earnings management, namely accrual earnings management calculated by the Modified-Jones Model. Further research can be done by involving other accrual earnings management measurements, or even using real earnings management which does have different characteristics than accrual earnings management.

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