Article

Accrual Management and Firm-Specific Risk

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Abstract: Firm-specific risk causes opinion differences on whether it relates to price informativeness or errors. The main difference is related to the disparity in information transparency. Therefore, this study tests the relationship between accrual management and firm-specific risk based on information transparency. It was conducted on firms listed on the Indonesia Stock Exchange from 2015 to 2019. The results showed that accrual management positively affects specific risks, which is strengthened by information asymmetry. These results indicate that accrual management has the potential to occur in environments with low transparency or high information asymmetry. Accrual management inhibits actual information, causing errors in stock price assessments that indicate firm-specific risk. This proves that firm-specific risk shows a price error. These results are consistent with previous studies that discretionary accruals can measure earnings quality by considering the firm's fundamental factors reflected in how non-discretionary accruals affect firm-specific risk. This study shows that risk fluctuates depending on firm-specific information.

Keywords: CAPM; earnings management; accrual management; firm-specific risk; idiosyncratic

1. Introduction

The Capital Asset Pricing Model (CAPM) considers returns and risk by assuming that the return rate is based on market risk and ignores firm-specific risk. This is because firm-specific risk, unlike market risk, can be diversified and ignored. However, studies show contradictory evidence that firm-specific risk cannot be fully diversified and affects stock returns (Ang et al. 2006, 2009; Malagon et al. 2015). Firm-specific risk is caused by and fluctuates based on firm-specific information. Campbell et al. (2001) found a significant increase in firm-specific risk when market risk is constant. This shows that a firm's specific risk is an important concern for investors in making investment decisions, necessitating studies on influencing factors.

Studies on firm-specific risk have been conducted in several countries, including the United States (Jin and Myers 2006; Hutton et al. 2009; Rajgopal and Venkatachalam 2011), Japan (Mitra 2016; Datta et al. 2017), and the United Kingdom (Domingues 2016). These studies found that increasing firm-specific risk relates to financial reporting quality, although there are still differing opinions. The difference in opinions lies mainly in the basic assumptions that explain firm-specific risk. These assumptions are related to the transparency of financial reporting information. The first assumption is that increased firm-specific risk indicates price errors owing to low information transparency (Hutton et al. 2009; Mitra 2016; Datta et al. 2017). The second assumption states that increased firm-specific risk indicates price informativeness because of high information transparency (Ali et al. 2003; Wei and Zhang 2006; Bartram et al. 2009).

The different assumptions motivated this study to investigate whether the basic firm-specific risk assumptions relate to informativeness or error pricing, implying high or low information transparency. The information transparency can be observed in earnings quality. Earnings quality reflects management actions when financial reporting information

is presented. High earnings quality provides complete information related to firm performance that is relevant to decision-making (Dechow et al. 2010). Conversely, low earnings quality indicates low transparency. This condition allows managers to manage earnings when profit fluctuations are high. Profit fluctuations reflect market or economic shocks to a firm's business and are considered risk determinants (Kim 2018). This shows that earnings management actions indicate income smoothing by performing accrual management to shift profits (Hibrar and Collins 2002) to avoid corporate risk-taking.

The results indicate that accrual management is one of the factors that determines firm-specific risk. Few studies have examined the relationship between accrual management and firm-specific risks. They show that firm-specific risk determines earnings management (Datta et al. 2017). These studies used sample data from Japanese firms and found that firm-specific risk positively affects accrual management. Firms with high-risk volatility seek to increase their earnings informativeness through accrual management. This approach aims to minimize the increase in risk volatility and generate returns.

The relationship between accrual management and firm-specific risk is inseparable, based on information transparency. The aim is to fill the gap by increasing the level of information transparency proxied by information asymmetry. According to agency theory, information asymmetry provides opportunities for agent managers to perform accrual management. Managers' actions could provide inappropriate information about the firm, causing decision-making errors in investors' share valuation. Stock valuation errors can cause market price deviations from fair values, indicating a firm-specific risk. This is consistent with a study that found that the specific risk of Indonesian firms is higher than that in other Association of Southeast Asian Nations (ASEAN) member countries, such as the Philippines, Singapore, Thailand, and Malaysia (Morck et al. 2000). A firm's earnings quality is also low (Hutagaol-Martowidjojo et al. 2019), as indicated by the earnings management actions of several firms (Sulistiawan et al. 2011; Suprianto et al. 2019). This study examines the case of earnings management based on the records of the Capital Market Supervisory Agency. PT. Ades Alfindo Ltd. recorded higher sales and lower costs, which resulted in higher profits. Furthermore, PT. Bank Lippo Ltd. issued two different financial statements in 2002: collateral and asset value, minimum capital liability ratio, and income statement. PT. Kimia Farma Ltd. reported the value of finished goods inventory and sales, indicating higher profits. Therefore, this study aims to determine the effect of accrual management on firm-specific risk based on information transparency.

1.1. Literature Review
1.1.1. Firm-Specific Risk

In the asset-pricing model, firm-specific risk is caused by a firm's fundamental information. The asset pricing model ignores firm-specific risk and assumes that market risk is the only determinant of stock return. Firm-specific risk can be diversified by carrying out a security portfolio, making it generally ignored when assessing investment decisions. Studies show an anomaly in which firm-specific risk has increased significantly, but market risk remains unchanged (Morck et al. 2000; Campbell et al. 2001). Moreover, other studies show the effect of firm-specific risk on stock returns. This condition indicates that firm-specific risk cannot be fully diversified (Ang et al. 2006, 2009; Malagon et al. 2015) and should be considered when making investment decisions (Lin et al. 2014).

These findings require proper measurement of the firm-specific risk value, which cannot be determined because it relates to other fundamental factors that determine stock returns. Firm-specific risk was determined based on the standard deviation of the asset pricing model equation. A larger standard deviation indicates a greater deviation of the market value from the stock's fair value, implying a firm's increasing specific risk.

1.1.2. Accrual Management

The financial reporting quality reflected in earnings quality can be assessed by detecting earnings management actions. Earnings management involves the use of certain

accounting or other methods designed to manipulate or affect reported short-term earnings (Akers et al. 2007). These management measures are detected by accounting policy methods (Skinner 1993), real transactions (Roychowdhury 2006), income smoothing (Copeland 1968), and accrual management (Jones 1991; Dechow et al. 1995). The accounting method allows managers to choose policies that affect the generated profits. As this approach uses dichotomous variables to detect earnings management; it cannot capture the combined effects of various choices. The real transaction approach attempts to accelerate sales increases by offering discounts or credit terms (Sun and Rath 2010). However, this method cannot detect earnings management because of the absence of a definite benchmark for managers' actions (Sun and Rath 2010). The income-smoothing approach aims to smooth out fluctuations in earnings from high to low income (Copeland 1968). This makes it difficult to distinguish between the profits made by normal income smoothing and those carried out intentionally. In addition, the accrual management approach shifts income or expenses between accounting periods (Jones 1991; Dechow et al. 1995) by classifying discretionary and non-discretionary accruals.

External parties monitor the methods used to detect earnings management. A comparison of each approach shows that the accrual management approach captures the effects of almost all accounting choices firms make in the period under consideration (Sun and Rath 2010). Therefore, this study chose the accrual management approach to detect earnings management to explain firm-specific risk.

1.1.3. Information Asymmetry

This study adds an information asymmetry variable because it indicates the quality of the information environment (Beyer et al. 2010). High information asymmetry indicates low quality because of a low transparency level. The level of transparency affects the trend of stock return volatility (Kothari 2000), which influences the risk level, including the firm-specific risk. The higher the volatility of stock returns, the higher the firm-specific risk. The value of information asymmetry is shown based on the difference between the asking and supply prices.

1.2. Hypothesis

This study applied the agency theory (Jensen and Meckling 1976) to fill this literature gap. The agency theory explains the relationship between principals as shareholders and agents as managers in contractual cooperation. Implementing the contract involves a conflict of interest between the two, causing information asymmetry. Managers have more complete firm information than shareholders do and have the opportunity to conduct accrual management, causing stock valuation errors by investors that indicate firm-specific risk.

The relationship between accrual management, information asymmetry, and firm-specific risk is tested using price informativeness and error assumptions. Price informativeness assumes that when firm-specific risk reflects price informativeness, the effect of earnings quality is positive. In the US, studies (Durnev et al. 2003; Ferreira and Laux 2007; Hutton et al. 2009) show that low financial reporting quality is associated with low firm-risk-specific volatility. Jin and Myers (2006) also find a positive relationship between financial reporting quality and firm-specific risk using cross-country data. Therefore, low accrual management indicates high earnings quality. This implies that an increase in specific risk reflects price informativeness.

Hypothesis 1. *Accrual management negatively affects firm-specific risk.*

Price error assumes that the effect of earnings quality is negative when firm-specific risk reflects a price error. High accrual management indicates low earnings quality, whereas an increase indicates a price error. According to Pastor and Veronesi (2005), a decrease in financial reporting quality increases firm-specific risk, proxied by idiosyncratic risk. Poor earnings quality indicates uncertainty in firm profitability, potentially increasing firm-

specific risks. Rajgopal and Venkatachalam (2011) show that decreased financial reporting quality, as measured by accrual-based earnings quality, increases firm-specific risk volatility. Furthermore, Mitra (2016) found that an increase in financial reporting quality is influenced by low earnings quality and is related to price errors. Datta et al. (2017) show that increased financial reporting quality reduces firms' earnings quality, as measured by an increase in earnings management. Therefore, accrual management positively affects firm-specific risks.

Hypothesis 2. *Accrual management positively affects firm-specific risk.*

This study adds information asymmetry to the measure of accounting information transparency. This variable was adopted from Kothari (2000) and Mitra (2016), who show that financial statement information transparency is related to stock return volatility. The variable level of financial reporting transparency as proxied by information asymmetry was added to prove that when firm-specific information risk reflects price informativeness (Hypothesis 1), it is indicated by high earnings quality or low accrual management, with high earnings quality and low information asymmetry.

Hypothesis 3. *Information asymmetry weakens accrual management's effect on firm-specific risk.*

Information asymmetry variables were added to prove that when firm-specific information risk reflects price errors (Hypothesis 2), it is indicated by low earnings quality or high accrual management with high information asymmetry.

Hypothesis 4. *Information asymmetry strengthens accrual management's effect on firm-specific risk.*

2. Results

2.1. Descriptive Statistics

Panels A, B, and C in Table 1 present the descriptive statistics for the entire firm and the sample with positive and negative accrual management values. In Panel A, the analyzed unbalanced data are 1915, with 952 and 963 firms with positive and negative accrual management, respectively. The firm-specific risk was based on the CAPM method (Risk1). The robustness test used the Fama and French (1993) (Risk_2) method. Risk_1 shows a mean of 1.6514, Risk_2 is −1.5764, the minimum values are 0 and −6.1490, and the maximum values are 6.3361 and 5.5126, respectively. Accrual management had a mean value of −0.3960, with minimum and maximum values of −386.7725 and 605.2690, respectively. The mean and median values were −0.3960 and −0.3027. Information asymmetry also shows that the mean and median were 0.6071 and 0.6500, respectively.

Table 1 Panel B shows the descriptive statistics of firms with positive accrual management. The firm-specific risk has mean values of 1.5182 and −1.7501, almost the same as the median values of 1.4626 and −1.7561. Accrual management has almost the same mean and median values of 1.2050 and 1.1823. Furthermore, information asymmetry also shows that the mean and median values are 1.0960 and 1.0600, which are almost equal. Panel C shows descriptive statistics of firms with negative accrual management values. The firm-specific risk has mean values of 1.4901 and −1.4418, almost equal to the median values of 1.2680 and −1.4515, respectively. Accrual management shows almost the same mean and median values of −1.7726 and −1.7548. Also, information symmetry shows that the mean (0.3922) and median values (0.4400) are almost equal.

Table 1. Descriptive Statistics.

Panel A. Specific-Risk, Accrual Management, and Firm Characteristics						
	N	Mean	Median	Minimum	Maximum	Std. Dev.
Risk_1	1915	1.6514	1.5716	0.0000	6.3361	1.2123
Risk_2	1915	−1.5764	−1.5713	−6.1490	5.5126	1.3805
AM	1915	−0.3960	−0.3027	−386.7725	605.2690	19.0064
Asym	1792	0.6071	0.6500	−18.6900	207.1100	5.6339
ROA	1792	−1.9403	0.0283	−16.6660	1.7155	46.4393
SIZE	1792	12.2089	12.0000	10.0000	15.0000	0.8954
CFO	1792	1.4628	0.0457	0.0000	62.2240	23.1528
Panel B. Statistic for Positive Accrual Management						
	N	Mean	Median	Minimum	Maximum	Std. Dev.
Risk_1	952	1.5182	1.4626	0.0000	5.5002	1.2974
Risk_2	952	−1.7501	−1.7561	−6.1226	4.3962	1.3027
AM	952	1.2050	1.1823	0.0002	605.2690	23.5347
Asym	908	1.0960	1.0600	−11.6800	207.1100	8.7153
ROA	908	−1.0696	0.0430	−725.6841	1.7155	27.7047
SIZE	908	12.4253	12.4001	9.9469	14.6408	0.7516
CFO	908	1.0989	0.0380	0.0003	409.0080	19.2986
Panel C. Statistic for Negative Accrual Management						
	N	Mean	Median	Minimum	Maximum	Std. Dev.
Risk_1	963	1.4901	1.2680	0.0000	6.3361	1.3233
Risk_2	963	−1.4418	−1.4515	−6.1490	4.5865	1.4596
AM	963	−1.7726	−1.7548	−386.7725	0.0000	17.1324
Asym	884	0.3922	0.4400	−18.6900	28.2300	2.1871
ROA	884	−3.1064	0.0075	−16.6660	1.3434	61.3561
SIZE	884	11.7715	11.6727	9.9542	14.7405	0.7562
CFO	884	2.0783	0.0558	0.0000	62.2240	28.1610

2.2. Empirical Results

2.2.1. Univariate Analysis

This section presents an analysis of univariate accruals management and firm-specific risk. Table 2 shows the correlations between the study variables, where firm-specific risk is correlated with accrual management, information asymmetry, and firm size. Accrual management and information asymmetry are positively correlated, with a firm-specific risk of 5%. This supports Mitra (2016) and Datta et al. (2017), who find that low earnings quality indicated by earnings management positively relates to firm-specific risk. Firm size positively correlates with firm-specific risk, whereas the return on assets (ROA) and cash flow volatility (CFO) show no correlation. The test results show a low correlation between the variables.

Table 2. Correlations.

	Risk	**AM**	**Asym**	**ROA**	**SIZE**	**CFO**
Risk	1.0000					
AM	0.0511 **	1.0000				
Asym	0.0538 **	0.0139 *	1.0000			
ROA	0.0245	0.1611	0.0046	1.0000		
SIZE	0.2381 **	0.1920 ***	0.0413	0.0108	1.0000	
CFO	−0.0238	0.2045 ***	−0.0041	−0.0810 ***	−0.0126	1.0000

Level of significance ***, **, * = 0.01, 0.05, 0.10.

Table 3 shows the stratification of firm-specific risk quartile data, accruals management, and information asymmetry. Stratification was performed for the entire sample, which was grouped based on positive and negative accrual management values. This study aimed to

compare the data groups of the samples in each quartile. The overall stratification indicates the Q1, Q2, and Q3 quartiles of risk based on the CAPM model, accrual management, and information asymmetry, in increasing order. Similarly, the quartile stratification in the positive and negative accrual management groups showed an increasing trend. This indicates that increased accrual management and information asymmetry increase firm-specific risks.

Table 3. Accrual Management, Information Asymmetry, and Firm-Specific Risk.

		Q1	Q2	Q3
	Risk_1	0.3707	1.3596	2.2024
Whole sample	Risk_2	−2.1849	−1.3611	−0.204
	AM	−2.9646	−2.1782	−1.4938
	Asym	0.0046	0.0281	0.1468
	Risk_1	0.0968	1.4029	2.2175
Positive accrual management	Risk_2	0.0994	1.4009	2.2208
	AM	0.0453	0.0863	0.1525
	Asym	0.0000	0.0000	0.0000
	Risk_1	0.0000	1.277	2.1055
Negative accrual management	Risk_2	0.6363	1.2772	2.1216
	AM	−386.7725	−0.1553	−0.0638
	Asym	0.0100	0.0400	0.1700

2.2.2. Multivariate Analysis

This section presents the results of the multivariate analysis. The first testing stage was conducted as a whole sample (Table 4) and then grouped by firms with positive and negative accrual management (Tables 5 and 6). Models 1 and 2 (Table 4) test the first two hypotheses, showing that accrual management positively affects firm-specific risk by 0.3% (Model 1). Adding control variables ROA, SIZE, and CFO (Model 2) strengthened the testing of Model 1, supporting Hypothesis 2 that accrual management positively affects firm-specific risk.

Table 4. The Impact of Accrual Management on Firm-Specific Risk (CAPM Discretionary Accrual).

	1	2	3	4	5	6
AM	0.0491	0.0532	0.05042	0.0514	0.0651	0.0633
	2.2111 **	2.3511 ***	2.2675 **	2.2758 **	2.862 ***	2.751 ***
Asym			0.011064	0.0104	0.0859	0.0791
			2.1466 **	2.0688 **	3.228 ***	2.9570 ***
Asym × AM					0.0270	0.0251
					2.828 ***	2.6138 ***
ROA		0.0002		0.0002		0.0002
		0.2109		0.2160		0.2020
SIZE		0.0001		0.0001		0.0001
		5.828 ***		5.8876 ***		5.8602 ***
CFO		−0.0012		−0.0011		−0.0012
		−0.5547		−0.5480		−0.5941
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.0067	0.0255	0.0087	0.0275	0.0086	0.0306
F-Stat	3.5996 ***	6.9755 ***	3.7055 ***	6.6173 ***	6.3419 ***	6.6582 ***
N	1915	1827	1858	1792	1858	1792

Level of significance ***, ** = 0.01, 0.05.

Table 5. The Impact of Positive Accrual Management on Firm-Specific Risk.

	1	2	3	4	5	6
AM	0.0491	0.0532	0.0504	0.0514	0.0636	0.0633
	2.2111 **	2.3511 **	2.2675 **	2.2758 ***	2.8027 ***	2.7511 ***
Asym			0.0111	0.0104	0.0833	0.0791
			2.1466 **	2.0688 **	3.1335 ***	2.9570 ***
Asym × AM					0.0264	0.0251
					2.7699 ***	2.6138 ***
ROA		0.0002		0.0002		0.0002
		0.2109		0.2160		0.2020
SIZE		0.0001		0.0001		0.0001
		5.8281 ***		5.8876 ***		5.8602 ***
CFO		−0.0012		−0.0011		−0.0012
		−0.5547		−0.5480		−0.5941
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.0067	0.0255	0.0087	0.0275	0.0122	0.0306
F-Stat	3.5996 ***	6.9755 ***	3.7055 ***	6.6173 ***	4.2836 ***	6.6582 ***

Level of significance ***, ** = 0.01, 0.05.

Table 6. The Impact of Negative Accrual Management on Firm-Specific Risk.

	1	2	3	4	5	6
AM	0.0422	0.0380	0.0402	0.0321	0.0548	0.0449
	1.8063 *	1.5847 ***	1.7156 *	1.6407 *	2.2874 ***	1.8387 *
Asym			0.0109	0.0103	0.0832	0.0781
			2.1541 *	2.0611 *	3.1609 ***	2.9210 ***
Asym × AM					0.0264	0.0248
					2.7988 ***	2.5809 ***
ROA		0.0009		−0.0003		−0.0009
		0.0717		−0.0267		−0.0714
SIZE		0.0001		0.0001		0.0001
		5.6360 ***		5.6481 *		5.6370 ***
CFO		−0.0003		−0.0018		−0.0025
		−0.0172		−0.1140		−0.1595
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.0053	0.0215	0.0065	0.0229	0.0104	0.0262
F-Stat	2.8874 ***	5.6812 ***	2.9026 ***	5.3776	3.6168 ***	5.5224 ***

Level of significance ***, * = 0.01, 0.10.

Further tests were conducted with the information asymmetry variable in Models 3 and 4. The test results show that information asymmetry positively affects firm-specific risks. As the basis for testing Hypotheses 3 and 4, the results show that information asymmetry strengthens the effect of accrual management on firm-specific risk by 0.8% (Model 5). These results are consistent with the addition of a control variable in Model 6, supporting Hypothesis 4.

The second stage of the test was conducted to strengthen the results of the first stage by grouping firms based on positive and negative accruals management. Table 5 shows the analysis of the firm groups with positive accrual management. The data shows that accrual management positively affects firm-specific risk, supporting Hypothesis 2. Information asymmetry also strengthens the effect of accrual management on firm-specific risk, indicating that Hypothesis 4 is accepted.

The third stage of the test was conducted on firm groups with negative accruals management. Previous tests have found that the positive effect of accrual management on firm-specific risk is strengthened by information asymmetry. The overall test supported Hypotheses 2 and 4 that increased firm-specific risk is associated with price errors caused by accrual management and strengthened by information asymmetry.

3. Discussion

As a measure of financial reporting quality, accrual management affects firm-specific risk insignificantly for two reasons. First, the earnings quality test depends on the method and size used. This study only considered discretionary accruals to assess managers' actions in determining accounting policies and methods used to evaluate earnings. Francis et al. (2005) also determined earnings quality. The study found that accrual quality comprises non-discretionary and discretionary accruals. Non-discretionary accruals are determined based on firm fundamentals and business environment. By contrast, discretionary accruals are based on management decisions to determine the accounting model and policies used to report earnings. This study finds that discretionary accrual quality has a smaller capital effect than non-discretionary accruals. Therefore, the quality of non-discretionary accruals should be considered when determining the risk. This relates to non-discretionary accrual determinants, including firm fundamentals and business environment. According to (Dechow and Dichev 2002), fundamental firm factors are determined based on cash flow volatility, firm size, negative profit, and the operating cycle. Subsequently, non-discretionary accruals have a greater effect on capital costs and a greater potential to increase risk than discretionary accruals. Therefore, discretionary accruals cause a small increase in firm-specific risks.

Second, the sampled Indonesian firms have low earnings quality because other non-fundamental factors affect investors' decisions. Market conditions include rational and irrational investors who use fundamental and non-fundamental factors in making decisions. These test limitations are expected to be used to consider more detailed components of earnings quality. Additionally, non-fundamental factors should be identified and tested to provide more comprehensive results.

We conducted a robustness test to prove the effect of discretionary accruals on firm-specific risk. Since firm fundamentals significantly increase firm-specific risk, this study uses a set pricing model based on the Three Factor Model (Fama and French 1993).

Robustness Test

The robustness test measures firm-specific risk based on the Fama method to determine the consistency of the test results using the CAPM model. The Fama and French models are more accurate because they consider market and fundamental factors. The fundamental factors used in the Fama and French models are firm size and the book-to-market ratio. Both measures are sensitive to the determination of return and risk.

Table 7 shows the test results for the effect of accrual management on firm-specific risk based on the Fama and French models. The results show that accrual management positively affects firm-specific risk and that this effect is strengthened by information asymmetry. The effect of accrual management on specific risks based on the Fama and French models is greater than that of the CAPM model. This was indicated by the larger adjusted R^2 values in the Fama and French models.

The results show that accrual management positively affects firm-specific risk, and the magnitude of the effect relates to the firm's fundamental information. This is consistent with (BenSaida 2017), who stated that the magnitude of firm-specific risk fluctuates based on firm-specific information received by the market. Therefore, the information environment reflecting asymmetry should also be considered when determining magnitude.

Table 7. The Impact Accrual Management on Firm-Specific Risk (FAMA Discretionary Accrual).

	1	2	3	4	5	6
AM	0.0624	0.0651	0.0668	0.0708	0.0733	0.0761
	2.9789 ***	2.9423 ***	3.1583 ***	3.2039 ***	3.3956	3.3850 ***
Asym			0.0095	0.0091	0.0538	0.0471
			1.6418 ***	1.6847 *	1.8074 *	1.6429 *
Asym $\times$ AM					0.0162	0.0139
					1.6176 *	1.2667
ROA		−0.0003		−0.0004		−0.0004
		−0.2801		−0.3108		−0.3052
SIZE		−0.0001		−0.0001		−0.0001
		−3.0915 ***		−3.2459 ***		−3.2276 ***
CFO		−0.0001		−0.0003		−0.0004
		−0.0485		−0.1348		−0.1585
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.0165	0.0224	0.0186	0.0249	0.0193	0.0252
F-Stat	7.4211 ***	6.2210 ***	6.8451 ***	6.0605 ***	6.2004 ***	5.6168 ***
N	1915	1827	1858	1792	1858	1792

Level of significance ***, * = 0.01, 0.10.

4. Materials and Methods

4.1. Sample Selection

This study examines firms listed on the Indonesia Stock Exchange, with the exception of the financial sector. The sample comprises firms that published financial statements with daily stock prices from 2015 to 2019. Daily stock price data of 3336 firm prices were used to calculate monthly firm-specific risk and annual data of 1915 firms' prices.

4.2. Method

4.2.1. Variable and Measurement

- Dependent Variable

The firm-specific risk is the dependent variable proxied by the standard deviation calculated based on the CAPM model (Equation (1a)).

$$R_{it} = \alpha_{it} + \beta_{it}RM + \varepsilon_{it} \tag{1a}$$

where R_{it} is the security return in period t, β_{it} is the market return calculated based on changes in the Composite Stock Price Index (IHSG), α_{it} is the magnitude of the intercept, and β_{it} is the beta value.

This study also used firm-specific risk calculations based on the Fama–French 3 factor model (Fama and French 1993).

$$Rit = \alpha_{it} + \beta_{im}(RM_t) + \beta_{is}SMB_t + \beta_{ih}HML_t + \varepsilon_{it} \tag{1b}$$

where Rit is the firm's return, $\beta im(RMt)$ is the expected market premium, and small-minus-big (SMB) is the access return factor from the average return of small firms minus the average return of large firms. High-minus-low (HML) is the difference between the average returns of the high and low book-to-market portfolios.

εit in Equations (1a) and (1b) is the residual error used to measure firm-specific risk (Bali and Cakici 2006). The firm-specific risk was calculated using the standard deviation of the residual error based on Equation (2):

$$\text{Risk} = \sqrt{\text{Var}(\varepsilon_{it})} \tag{2}$$

- Independent Variable

This study used accrual management as an independent variable proxied by discretionary accrual value. The discretionary accrual value is calculated in two stages. First, total accrual (TA) was calculated as the difference between net income and cash flow from operating activities, based on Equation (3):

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \left(\frac{\Delta REV_{it}}{A_{it-1}} - \frac{\Delta AR_{it}}{A_{it-1}} \right) + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \quad (3)$$

where TA is the total accrual; A is the firm's total assets; ΔREV is the change in revenue; ΔAR is the change in accounts receivable; and PPE is the firm's property, plant, and equipment (i) for period (t). Coefficients α_1, α_2, α_3, and α_4 were used to calculate the discretionary accrual (DA) value using Equation (4):

$$DA_{it} = \varepsilon_{it} = \frac{TA_{it}}{A_{it-1}} - \left(\alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \left(\frac{\Delta REV_{it}}{A_{it-1}} - \frac{\Delta AR_{it}}{A_{it-1}} \right) + \alpha_3 \frac{PPE_{it}}{A_{it-1}} \right) \quad (4)$$

The greater the DA value away from zero indicates the earnings management action.

- Moderating Variable

This study used information asymmetry as a moderating variable proxied by financial reporting information transparency. The information asymmetry level is determined based on the following measures:

$$Asym = \frac{Ask - bid}{mid\ point} \quad (5)$$

where Asym is information asymmetry, ask is the daily ask closing price, and bid is the bid closing price.

- Control Variable

This study used the variables ROA, firm size (SIZE) using market capitalization value, and CFO of operating activities. These are the fundamental variables that reflect firm-specific information. These factors should be considered when determining firm-specific risks.

4.2.2. Regression Model

The test used the following equation:

$$Risk = \alpha + \beta_1 AM + \beta_3 Asym + \beta_3 Asym*AM + \beta_4 ROA + \beta_5 SIZE + \beta_6 CFO + e \quad (6)$$

where Risk is a firm-specific risk calculated based on Equation (2), AM is a proxy for accrual management based on the DA value in Equation (4), Asym is information asymmetry, ROA is the return on assets, SIZE is the market capitalization value as firm size, and CFO is the cash flow volatility of operating activities.

5. Conclusions

Firms in Indonesia have low earnings quality and high firm-specific risk (Morck et al. 2000; Hutagaol-Martowidjojo et al. 2019). This study shows that low earnings quality influences the specific risk in Indonesian firms. Accrual management positively affects firm-specific risk as a measure of earnings quality. The effect is strengthened by information asymmetry, although both show a relatively small increase in firm-specific risk. This finding is consistent with previous studies finding that discretionary accruals can measure earnings quality. However, it is necessary to consider the firm's fundamental factors, as reflected in non-discretionary accruals (Dechow and Dichev 2002; Francis et al. 2005), in influencing firm-specific risk. The results support those of BenSaida (2017), who stated that a firm's risk fluctuates depending on firm-specific information. These results also support previous research that specific risk relates to price errors (Rajgopal and Venkatachalam 2011; Mitra 2016; Datta et al. 2017). Price errors occur because the information received by investors

does not reflect the actual conditions. This could lead to stock valuation errors that cause deviations in market values from their fundamental values, indicating a firm-specific risk.

The current study focuses on the relationship between accrual management and firm-specific risk. However, as Roychowdhury (2006) argues, management can manage earnings through accrual and real activities. Therefore, we suggest that future studies consider the relationship between real earnings management and firm-specific risk. Further, the previous study shows the importance of ownership structure on earnings management (Suprianto et al. 2019; Setiawan et al. 2020), dividend (Setiawan et al. 2019) and CSR disclosure (Setiawan et al. 2021). Therefore, we suggest that future studies consider the role of ownership structure on the relationship between accrual earnings management and firm-specific risks.

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