



Audit Fees, Audit Tenure, Auditor Industry Specialization, Audit Firm Size, and Audit Quality: Evidence from Indonesian Listed Companies

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<https://dx.doi.org/10.24815/JDAB.V10I2.27750>

ARTICLE INFO

Article history:

Received date: 11 October 2022

Received in revised form: 09 May 2023

Accepted: 04 June 2023

Available online: 8 August 2023

Keywords:

Audit fees, audit firm size, audit quality, audit tenure, auditor industry specialization

ABSTRACT

This study aims to examine determinants of audit quality in companies listed on the Indonesia Stock Exchange (IDX). The audit quality determinants tested in this study are audit fees, audit tenure, auditor industry specialization and audit firm size. Using purposive sampling method, a total of 240 companies listed on IDX between 2018 and 2020 (720 observations) were selected as the research samples. The panel regression analysis with a random effect model was applied to test the hypotheses. The results of this study show that audit fees and auditor industry specialization have a negative effect on audit quality proxied by discretionary accruals, while audit tenure and audit firm size have a positive influence on audit quality. These results indicate that audit tenure and audit firm size are crucial factors for maintaining audit quality.

Audit Fee, Masa Perikatan, Spesialisasi Industri Auditor, Ukuran KAP, dan Kualitas Audit: Bukti Empiris dari Perusahaan yang Terdaftar di Bursa Efek Indonesia

Citation:

Ananda, C., & Faisal, F. (2023). Audit Fees, Audit Tenure, Auditor Industry Specialization, Audit Firm Size, and Audit Quality: Evidence from Indonesian Listed Companies. *Jurnal Dinamika Akuntansi dan Bisnis*, 10 (2), 213 – 230

Kata Kunci:

Audit fees, kualitas audit, masa perikatan, spesialisasi industri auditor, ukuran KAP

ABSTRAK

Penelitian ini bertujuan untuk memperoleh bukti empiris mengenai faktor-faktor yang mempengaruhi kualitas audit pada perusahaan yang terdaftar pada Indonesia Stock Exchange (IDX). Faktor-faktor kualitas audit yang diuji adalah audit fee, masa perikatan (tenure), spesialisasi industri auditor dan ukuran kantor akuntan publik (KAP). Dengan menggunakan metode purposive sampling, terpilih 240 perusahaan yang terdaftar di IDX antara tahun 2018 dan 2020 (720 observasi). Analisis regresi panel dengan model random effect digunakan untuk menguji hipotesis. Hasil penelitian ini menunjukkan bahwa audit fee dan spesialisasi industri auditor berpengaruh negatif terhadap kualitas audit yang diprosikan dengan akrual diskresioner, sedangkan masa perikatan dan ukuran kantor akuntan publik (KAP) berpengaruh positif terhadap kualitas audit. Hasil ini menunjukkan bahwa masa perikatan dan ukuran KAP merupakan faktor yang krusial untuk mempertahankan kualitas audit.

1. Introduction

For the last few decades, audit quality has been the focus of research particularly after the Enron and WorldCom scandals (Almomani & Ayedh, 2017; El-Dyasty & Elamer, 2021; James & Izien, 2014; Kim et al., 2015; Narayanaswamy & Raghunandan, 2019). The external audit function plays an important role in these audit issues (Jادیappa et al., 2021). The tendency of investors to use audited financial reports for making investment decisions has been proven by many studies (Al-Othman, 2019;

Cao & Pham, 2021). Therefore, the auditor must have strong independence and sufficient competence to identify accounting misstatements and report the detected misstatements (Garcia-Blandón & Argilés-Bosch, 2018). The existence of an external audit is considered the main monitoring element to improve the quality of financial reports and provide assurance to investors about the status and value of the company (Habib & Jiang, 2015). However, according to Ali & Aulia (2015), audited financial statements do not fully guarantee that the financial

statements are free of material misstatement. This causes the auditor to often be the party to blame when a financial report manipulation scandal is revealed (Shafie et al., 2009).

In Indonesia, there have been many cases of manipulation of financial statements involving external auditors, such as the case that happened to Public Accounting Firm (PAF) Purwanto, Sungkoro, and Surja was subject to sanctions by the Indonesian Financial Services Authority regarding overstatement of income of IDR 613 billion for the 2016 period annual report at PT Hanson International Tbk; PAF Tanubrata, Sutanto, Fahmi, Bambang & partners was subject to a license suspension for 12 months; PAF Kasner Sirumpea for the 2018 annual financial report regarding profit inflation of US\$809,946 at PT Garuda Indonesia Tbk; and PAF Amir Abadi Jusuf, Aryanto, Mawar & Rekan were subject to sanctions by the Financial Services Authority regarding the overstatement in the 2017 annual financial reports of PT Tiga Pilar Sejahtera Food Tbk (CNBC Indonesia, 2019). Cases of financial report manipulations that occurred in several Indonesian public companies, not only illustrate the existence of fraud in the company's management, but also indicate the existence of fraudulent audits carried out by external auditors (in this case for audit firms).

Statement of Auditing Standards (SAS) No. 99 states that a quality audit is an audit that can provide reasonable assurance about whether the financial statements are free from material misstatement, whether caused by errors or fraud (Golden et al., 2011). Detection of violations of accounting standards carried out by qualified external audits can show the accuracy of financial reports, thus reflecting the underlying economics of the company (DeFond & Zhang, 2014). Several factors used in this study as determinants of audit quality are audit fees (Jadiyappa et al., 2021; Jung et al., 2016), audit tenure (Corbella et al., 2015; Jadiyappa et al., 2021; Salehi et al., 2019), auditor industry specialization (Eshleman & Guo, 2020; Minutti-Meza, 2013;

Nagy, 2012) and audit firm size (Ali & Aulia, 2015; James & Izien, 2014).

Audit fees are an indication of how well the audit quality is produced (Ghafran & O'Sullivan, 2017). Increased audit fees have an effect on increasing audit quality (Jadiyappa et al., 2021). This is related to competition between audit firms in the audit market (Ding & Jia, 2012). On the other hand, Gunn et al. (2019) provide evidence that a higher audit fee is charged has no effect on improving audit quality. Similarly, Jung et al. (2016) documented increased audit fees actually lead to reduced audit quality provided by the auditor.

Audit tenure is also a determinant of audit quality (Corbella et al., 2015; Jadiyappa et al., 2021; Salehi et al., 2019). Audit tenure can improve the quality of the audit provide by an external auditor (audit firm) (Jadiyappa et al., 2021). Furthermore, Jadiyappa et al. (2021) explain that the possibility of this positive relationship occurs because the longer the auditor is involved in auditing a particular company, the more knowledge the auditor has about the company's operations. James & Izien (2014) prove otherwise regarding this relationship that audit tenure shows a negative relationship with audit quality.

Regarding the audit tenure, the Government of Indonesia in 2008, through Regulation of the Minister of Finance of the Republic Indonesia No. 17/PMK.01/2008 regarding Public Accountant Services chapter 3 limits the provision of audit services to an entity. The regulation limits the assignment of audit firm to audit the same client for a maximum of six consecutive financial years and the same public accountant (partner) for a maximum of three consecutive financial years. However, the regulation has changed through Government Regulation No. 20 of 2015 concerning the Practice of Public Accountants which removes the rules for limiting audit firm services. In this latest rule, there is no limit on audit services at the audit firm level, in other words, there is no mandatory audit firm rotation, while partner-level rotation is still valid with the maximum tenure being increased to five

consecutive years. This change is suspected because there were audit firms who tried to get around audit firm rotation through a practice called pseudo-rotation (Kalanjati et al., 2019). This provision regarding the audit tenure in Indonesia shows that the regulator pays great attention to the auditing profession to maintain the professionalism of auditors (Junaidi et al., 2016).

Furthermore, the determinant of audit quality is the specialization of the auditor industry (Ali & Aulia, 2015; Eshleman & Guo, 2020; Hegazy et al., 2015; Minutti-Meza, 2013; Nagy, 2012; Salehi et al., 2019). This is because it is believed that auditor industry specialization can be used to reduce information asymmetry problems (DeBoskey & Jiang, 2012; Elaoud & Jarboui, 2017). Auditor industry specialization is the right factor in determining how well the quality of the audit is provided by the auditor (Nagy, 2012). The development of professional auditing standards in various countries proves the importance of auditor industry specialization to understand the client's industry and business in order to improve audit quality (Hegazy et al., 2015). However, Eshleman & Guo (2020) proves that auditor industry specialization has no significant relationship with improving audit quality.

The fourth determinant of audit quality is audit firm size (Ali & Aulia, 2015; James & Izien, 2014; Salehi et al., 2019). Audit firm size is a consideration in predicting how much audit quality can be accepted by clients (Salehi et al., 2019). Big 4 has a larger client base and a good reputation thereby motivating them to maintain better audit quality (Alzoubi, 2018). According to Salehi et al. (2019), the contractual relationship between the auditee and audit firms in the Big 4 category is directly proportional to the results of a quality audit. However, research by Ali & Aulia (2015) did not prove a relationship between these two variables.

This research is based on agency theory, that external auditors are third parties who bridge the contractual relationship between agents (managers) and principals (shareholders) (Jensen & Meckling,

1976). The differences between this study and previous research are as follows: First, this study uses a wider sample in the Indonesian context than the research of Ali & Aulia (2015) which is limited to 36 state-owned companies in Indonesia with the 2010-2012 time period. This study expands the sample size, namely public companies listed on the Indonesia Stock Exchange (IDX) the 2018 - 2020-time period. Second, audit quality in this study was assessed using discretionary accruals as a proxy for audit quality, whereas previous research used different audit quality proxies to examine the relationship between research variables. According to Nagy (2012), the audit quality value approach is better approached by the value of discretionary accruals, where this approach is able to show indications of violations of auditor independence. Audit quality measurements proxied by discretionary accruals can be used to identify those policies (Kalanjati et al., 2019; Myers et al., 2003).

Buntara & Adhariani (2019), Jung et al. (2016), Minutti-Meza (2013), Nagy (2012), and Reguera-Alvarado et al. (2019) show that discretionary accruals provide a metric for assessing the degree of bias that is incorporated into the financial statements by management and tolerated by auditors. High discretionary accruals can be considered a result of opportunistic behavior (Jung et al., 2016). On the other hand, low discretionary accruals are associated with conservatism which reflects high audit quality (Kalanjati et al., 2019).

The practical implication of the result of this study is that regulators or policies must be more careful in studying what driving factors influence audit firms to provide better audit quality. High audit quality will certainly increase the confidence of users of financial statements in making investment decisions.

The structure of the next article is as follows: Section 2 describes the theoretical framework and development of the research hypothesis. Section 3 describes the research approach, data sources, sample selection, variables, and technical analysis used. Section 4 contains the result of the analysis and

a discussion of the research result. Section 5 contains the contents of the research, limitations, and suggestions for further research.

2. Theoretical framework and hypothesis development

Agency theory

Agency theory explains that there are information asymmetry and agency problems that occur between managers and shareholders (Jensen & Meckling, 1976). This problem occurs because of the different interests of the two parties (James & Izien, 2014; Nisrina, 2021). According to Jensen & Meckling (1976), managers as agents will try to maximize their benefits by sacrificing the interests of owners and shareholders as principals. This motivates owners and shareholders to collaborate with independent parties to provide them with guarantees for the information provided by managers (Al-Othman, 2019).

The auditing process and auditor independence play an important role in determining audit quality (Ball et al., 2015). Detection of financial statement misstatements from auditors gives owners and shareholders confidence in a report provided by managers (DeFond & Zhang, 2014). High reputational and litigation risks make auditors act in their best interest, namely a professional and independent attitude so that their function as information intermediaries is an added value for companies (Cao & Pham, 2021). However, this agency problem can also occur in the auditor's contractual relationship with the principal (shareholder/owner) (Gavious, 2007). Furthermore, Gavious (2007) explains that the auditor's agency problem arises when the auditor may depend on management to minimize the risk of loss of audit fees and long-term relationships with clients.

Audit quality

The definition of audit service quality is put forward by DeAngelo (1981) as a joint probability measured by the market, where violations are detected by the auditor in the client's accounting

system, and the violations are reported. The function of audit services can at least discover reported earnings misstatements and manipulation (Al-Ajmi, 2009), therefore, a qualified auditor is an important consideration for shareholders to assess their company (Alsmairat et al., 2019; Habib & Jiang, 2015). Qualified auditors with their experience in conducting many audits will provide higher quality (Giroux & Jones, 2011). James & Izien (2014) explained that audit failures to detect corporate scandals result in client company failures.

Results of previous studies

Jung et al. (2016) conducted research on the impact of audit fees on audit quality of 10,856 observations for the 2007-2013 period in Korea. The research results of Jung et al. (2016) prove that audit quality decreases when audit fees are higher. However, it is different from the research of Alhadab (2018) which examined the relationship between audit fees and audit quality using a sample of 1,055 company observations in England from 2006-2015. The results of the research of Alhadab (2018) prove that audit fees have a significant positive effect on audit quality. Moreover, Jadiyahappa et al. (2021) demonstrated that audit quality may increase in the case of high audit fee and long audit tenure, which in turn, improves audit quality. Audit quality is measured by proxy for discretionary accruals.

Nagy (2012) examined the effect of auditor specialization on audit quality in the development market of the United States. The result of the research of Nagy (2012) shows that auditor industry specialization plays a role in improving audit quality. This research is supported by Minutti-Meza (2013) who examined the effect of auditors with industry specialization on audit quality is US public companies for the period 1988-2008. However, different results were shown by Ali & Aulia (2015) who examined the effect of audit firm size and auditor industry specialization on audit quality in 36 state-owned companies in 2010-2012 in Indonesia. The result of research by Ali & Aulia (2015) shows that there is no significant relationship between audit

firm size and auditor industry specialization on audit quality.

Corbella et al. (2015) examined the relationship between audit tenure and audit quality using 1,583 observations. The results of the study show that audit quality is not affected by audit tenure. Research by Corbella et al. (2015) supported by Salehi et al. (2019). Salehi et al. (2019) examined the effect of audit firm size, audit tenure, and auditor industry specialization for the 2000-2015 period. The research results of Salehi et al. (2019) prove that a longer audit tenure does not affect audit quality improvement. However, audit firm size and auditor industry specialization can improve audit quality. González-Díaz et al. (2015) examined the effect of audit tenure on audit quality in non-profit organizations in 254 audit reports from 2003-2010. The results of González-Díaz et al. (2015) prove that audit quality decreases when audit tenure is longer. However, the results of this study are different from

the results of research conducted by Buntara & Adhariani (2019). Buntara & Adhariani (2019) found evidence that audit tenure of the audit firm-client company has a significant positive relationship with audit quality.

Reguera-Alvarado et al. (2019) examined the relationship between audit firm size, audit tenure, and auditor industry specialization on audit quality and periods of economic crisis as a moderating effect. The results of Reguera-Alvarado et al. (2019) proved that audit firm size and auditor industry specialization have a significant positive relationship with audit quality, while audit tenure has a negative relationship with audit quality. In contrast to the research of James & Izien (2014) which examined the effect in Nigeria from 2007-2012. The results of his research prove that audit quality decreases when the auditor examines from a larger audit firm and has a longer audit tenure.

Table 1. Previous studies on determinants of audit quality

Author	Year	Independent variable	Results
Nagy	2012	Auditor industry specialization	Positive
Minutti-Meza	2013	Auditor industry specialization	Positive
James & Izien	2014	Audit tenure, Auditor independence, Audit firm size, Board independence, Company size	Negative Positive Negative Positive Positive
Corbella et al.	2015	Audit tenure	No significant
Gonzalez-Diaz et al.	2015	Audit tenure	Negative
Ali & Aulia	2015	Audit firm size, Auditor industry specialization	No significant No significant
Jung et al.	2016	Audit fee	Negative
Alhadab	2018	Audit fee	Positive
Salehi et al.	2019	Audit firm size, Audit tenure, Auditor industry specialization	Positive No significant Positive
Buntara & Adhariani	2019	Audit tenure	Positive
Reguera-Alvarado et al.	2019	Audit firm size, Audit tenure, Auditor industry specialization	Positive Negative Positive
Eshleman & Guo	2020	Auditor industry specialization	No significant

Author	Year	Independent variable	Results
Jadiyappa et al.	2021	Audit tenure, Audit fee	Positive Positive

Hypotheses development

Audit fee and audit quality

Agency theory shows that the separation of management (agents) from shareholders (owners/principals) leads to moral hazard because agents can pursue their interests at the expense of principals (Jensen & Meckling, 1976). One way to reduce the consequences and costs associated with moral hazard is to contract with a third party, namely the external auditor/audit firm (Corbella et al., 2015). The audit fee is determined at the start of the engagement as an external monitoring fee (Rusmanto & Waworuntu, 2015).

Consideration of the size of the audit depends on the audit vulnerabilities faced by the auditor (Jadiyappa et al., 2021). Previous research has proven that audit fees have a positive relationship with audit quality (Alhadab, 2018; Jadiyappa et al., 2021). High audit fees are associated with low discretionary accruals, indicating higher audit quality (Jadiyappa et al., 2021). Based on agency theory and empirical evidence from previous research, a hypothesis is formulated, namely:

H₁: Audit fees have a positive effect on audit quality.

Audit tenure and audit quality

Audit tenure is related to the independence of the external auditor which is embodied in agency theory (Jensen & Meckling, 1976). An audit firm's involvement with clients for a long time may affect the auditor's professional attitude in the audit process (Al-Thuneibat et al., 2011). This happens because a longer audit contract can lead to a closer relationship between the audit firm and the client company (Buntara & Adhariani, 2019). The positive effect of audit tenure on audit quality is shown by Jadiyappa et al. (2021) and Buntara & Adhariani (2019). So, for the second hypothesis as follows:

H₂: Audit tenure has a positive effect on audit quality.

Auditor industry specialization and audit quality

Agency theory implies that a competent auditor is key to a quality audit process to produce credible financial reports (Scott, 2003). Therefore, external auditors will use their abilities to understand the client's business characteristics and become specialists in certain industries (DeBoskey & Jiang, 2012). Auditor industry specialization can provide better opportunities to find possible deviations from managerial behavior, which in turn can achieve high-quality audits (Nagy, 2012). The positive influence of auditor industry specialization on audit quality has been proven empirically by Nagy (2012), Minutti-Meza (2013) dan Salehi et al. (2019). The third hypothesis is as follows:

H₃: Auditor industry specialization has a positive effect on audit quality.

Audit firm size and audit quality

An independent auditor acts as a monitoring element in agency theory to minimize information asymmetry between owners or shareholders and company management (James & Izien, 2014). The complexity of client companies requires large audit firms to reduce agency costs (Nasser et al., 2006). Auditors from large audit firms are more competent and accurate in detecting material misstatements in financial statements (Ali & Aulia, 2015). Large audit firms have incentives to lower litigation risk and protect their reputation by conducting quality audits (Reguera-Alvarado et al., 2019).

Furthermore, Reguera-Alvarado et al. (2019) found that auditors from the Big 4 helped reduce the value of discretionary accruals during an economic crisis, in other words, they could provide higher audit quality and offer greater reliability for their clients' financial statements than auditors from non-Big 4. The positive effect of audit firm size on audit quality has been proven empirically by Salehi et al.

(2019) and Reguera-Alvarado et al. (2019). Based on agency theory and empirical evidence from previous research, it is hypothesized:

H₄: Audit firm size has a positive effect on audit quality.

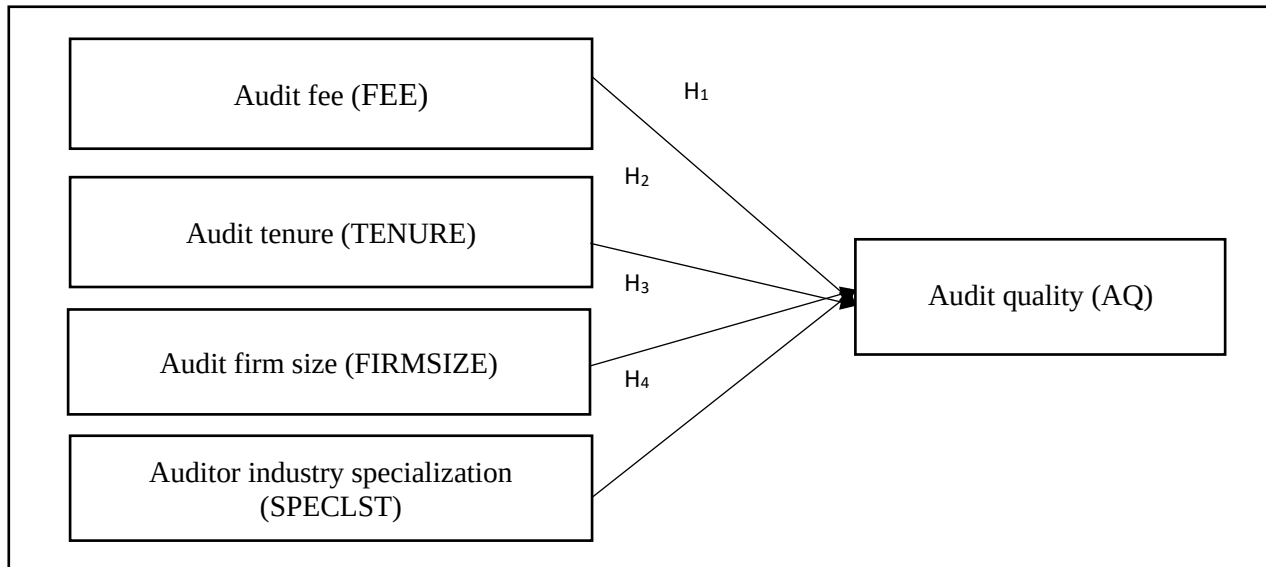


Figure 1. Conceptual framework

3. Research method

The population in this study are all go-public companies listed on the Indonesia Stock Exchange (IDX) in 2018-2020. Financial companies are excluded from this study because they have unique characteristics and are highly regulated so they cannot be compared (Ball et al., 2015; Soepriyanto et al., 2020).

The unique characteristics of financial companies are: First, companies in the financial sector are subject to additional regulatory reporting requirements, supervision, and government intervention (Ball et al., 2015; Levine, 2004). Second, financial companies have too large

receivables (Levine, 2004), which will interfere with the estimation of audit quality based on discretionary accruals. Receivable is used as a revenue reduction in the modified Jones (1991) model so that the minus beta will be higher if the receivable value is too large.

Purposive sampling method was used to determine the research samples. Data were collected manually from the companies' annual report provided in the IDX website and the website of each company. Table 2 shows the sample selection criteria and computation of the sample numbers.

Table 2. The criteria of samples

No.	Notes	2018	2019	2020	Total
1.	Number of companies listed on IDX	619	668	713	2,000
2.	Financial sector companies	(91)	(88)	(98)	(273)
3.	Annual reports are not available on the IDX website and the company's official website (excluding financial sector companies)	(105)	(56)	(52)	(213)
4.	Companies that do not disclose all research variable data in annual reports consistently for 2018-2020 (excluding financial sector companies)	(180)	(281)	(324)	(785)
5.	Companies that closed their books as of March 31	(3)	(3)	(3)	(9)
Final sample		240	240	240	720

Research model

This study uses multiple linear regression analysis. The structural equation model used is:

$$DA = \beta_0 + \beta_1 FEE + \beta_2 TENURE + \beta_3 SPECLST + \beta_4 FIRMSIZE + \varepsilon$$

Where DA is discretionary accruals as a proxy for audit quality.

Operational definition and measurement

Dependent variable

Calculating total accruals using the following regression equation.

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_1 \left(\frac{1}{A_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (1)$$

Calculate non-discretionary accruals (NDA) for each company in each period.

$$NDA_{i,t} = \hat{\beta}_1 \left(\frac{1}{A_{i,t-1}} \right) + \hat{\beta}_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} \right) + \hat{\beta}_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) \quad (2)$$

Calculate discretionary accruals (DA)

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - NDA_{i,t} \quad (3)$$

Where $TA_{i,t}$ is the total cash flow (earnings before interest and taxes/EBIT minus reported cash flow from operations/CFO), $\Delta REV_{i,t}$ is the change in income, $\Delta REC_{i,t}$ is the change in receivables, $PPE_{i,t}$ is the total tangible fixed assets, $A_{i,t-1}$ are total assets in year t-1, $NDA_{i,t}$ are non-discretionary accruals, and $DA_{i,t}$ are discretionary accruals. The value of audit quality is opposite to the value of discretionary accruals (Al-Thuneibat et al., 2011).

Independent variables

This study uses audit fees, audit tenure, auditor industry specialization, and audit firm size are independent variables. Audit fees are measured using natural logarithms. Audit fee data is collected from the annual report of each public company

This study uses discretionary accruals to proxy audit quality. Audit quality proxies using discretionary accruals have been used in previous studies to represent audit quality and indications of violations of auditor independence (Ali & Aulia, 2015; Jadiyahappa et al., 2021; Jung et al., 2016; Minutti-Meza, 2013; Nagy, 2012). The measurement of discretionary accruals uses a modification of the Jones (1991) method proposed by Dechow et al. (1995) and Cohen & Zarowin (2010).

which reports all audit fees paid to the auditor (audit firm). Audit tenure, which captures the length of the relationship between the audit firm and the client company (Jadiyahappa et al., 2021), by calculating the number of years during the research sample period and 2018 as the initial year of the engagement. Auditor industry specialization uses a nominal scale, 1 for specialists and 0 for others. The measurement of auditor industry specialization uses the highest number of clients in the industry from the number of clients at other audit firms in the same industry (DeBoskey & Jiang, 2012; Elaoud & Jarboui, 2017). Audit firm size is symbolized by a nominal scale, 1 for audit firms that have affiliated relationships with the Big 4 and 0 for others (Ali & Aulia, 2015; Salehi et al., 2019).

Table 2. Operational definition and measurement

Variable	Prediction	Variable Measurement
Dependent variable		
Audit quality	AQ	Discretionary Accruals (DA).

Independent variables

Audit fee	FEE	+	The natural logarithm of the audit fee
Audit tenure	TENURE	+	The number of years during the sample period of this study where 2018 is the initial year of the engagement.
Auditor industry specialization	SPECLST	+	Specialization coded 1 if the audit firm has the most clients in the industry and 0 otherwise.
Audit firm size	FIRMSIZE	+	1 for audit firms that have affiliations with Big 4 audit firms and 0 for others.

Data analysis technique

The analysis technique used in this study is multiple linear analysis for panel data. Before testing the hypothesis, a model specification test was carried out with 3 (three) approaches namely Common Effect (CE) or Pooled Least Square (PLS), Fixed Effect (FE), and Random Effect (RE) (Nwakuya & Ijomah, 2017). These three approaches are carried out with several tests, namely the Chow test, the Hausman test, and the Lagrange Multiplier test. then, a classic assumption test was carried out to ensure the resulting research model was representative.

consisted of the residual normality test, autocorrelation test, multicollinearity test, and heteroscedasticity test. Some extreme (outliers) are removed so that the research data passes the residual normality test. A total of 87 research data that had outliers were removed so that they became 633 observations. However, when the autocorrelation test was carried out, the research data (n=633) had not passed the autocorrelation test. Therefore, a data transformation was carried out to overcome the autocorrelation problem so that the final number of observations in this study totaled 632 observations.

4. Results and discussion

The final sample that met the research criteria was 240 companies with 720 observations for the 2018-2020 period. Before carrying out multiple linear regression analysis, the research data was first subjected to the classic assumption test which

Results of descriptive statistic test

Table 3 presents the results of the descriptive statistical analysis used in this study, by displaying the average value (mean), maximum value, minimum value, and standard deviation to show the results of the analysis of the data collected.

Table 3. Descriptive statistic

Continuous variables					
Variables	N	Mean	Maximum	Minimum	Std. Deviation
DA	632	-0.0032	0.14248	-0.20401	0.0618
FEE	632	20.4512	23.4213	17.6603	1.0763
TENURE	632	1.7900	3.0000	1.0000	0.7920
Categorical variables					
	N	Code 1	%	Code 0	%
SPECLST	632	165	26.10	467	73.90
FIRMSIZE	632	230	36.40	402	63.60
DA	Mean = -0.0032				
Note: Dependent Variable: DA = Accrual Discretionary; Independent Variable: FEE = Audit Fee, TENURE = Audit Tenure, SPECLST = Auditor Industry Specialization, FIRMSIZE = Audit Firm Size					

Discretionary accruals (DA) have a positive maximum value of 0.14248, a negative minimum value of -0.20401, an average value (mean) of -

0.0032, and a standard deviation of 0.0618. This standard deviation figure indicates that there is relatively high variation in the management of

discretionary accruals by companies because the mean value is far below the standard deviation value.

The audit fee (FEE) shows a minimum value of 17.6603 and a maximum value of 23.4213 with an average value of 20.4512. The value of the FEE variable used in this study comes from the audit fee's natural logarithmic (Ln) data transformation. The minimum value is 17.6603 and the maximum value is 23.4312 if the transformation is carried out to the initial data, each has a value of IDR 46,749,774.96 and IDR 14,850,063,822.54. Determination of this audit fee also depends on the complexity of each client (Rusmanto & Waworuntu, 2015). Furthermore, the standard deviation value for the FEE variable is 1.0763, this figure is lower than the average value (20.4512) which indicates that the FEE data is less varied or in other words, homogeneous.

The audit tenure variable (TENURE) has a minimum value of 1 and a maximum value of 3 with an average value of 1.7900. This illustrates that the companies that were sampled in 2018-2020 conducted audit tenure with the same audit firm for a maximum of 3 years and a minimum of 1 year. The standard deviation of the TENURE variable is 0.7920 which is lower than the average value. Thus, the TENURE variable data is homogeneous.

The auditor industry specialization variable (SPECLST) has a total sample of 165 companies

with auditor industry specialties out of a total of data (26.10%), while the sample companies without auditor industry specialization are 467 out of 632 data (73.90%). This indicates that the number of companies listed on the IDX for 2018-2020 have conducted audit engagements with auditor industry specialization or in the other words, clients do not make auditor industry specialization the main indicator in conducting audit engagements with audit firms.

The audit firm size variable (FIRMSIZE) has a total sample company data that engages with Big 4 as many as 230 out of 632 data (36.40%) while sampling company data that performs audit engagements with audit firms other than Big 4 are 402 out of 632 data (63.60%). This indicates that there are fewer companies listed on IDX in 2018-2020 that have conducted audit engagements with the Big 4.

Model specification test

The process of selecting a research model is determined by conducting the Choi test, Hausman test, and Lagrange Multipliers test to determine whether the CE (Common Effect) model, FE (Fixed Effect) model or RE (Random Effect) model is suitable for use in research. The results of the three tests are presented in Table 4 below:

Table 4. Model specification test results

Test	Statistical value and probability	Decision
Chow test	Chi-Square: 432.4928 Prob.: 0.0000	The probability value is lower than the value of 0.05, so reject H0 which means that the FE model is better than the CE model
Hausman test	Chi-Sq Statistics: 5.9444 Prob.: 0.2033	The probability value is greater than the value of 0.05, so H0 cannot be rejected, so the RE model is better than the FE model
Lagrange multipliers test	Breush-Pagan: 20.9522 Prob: 0.0000	The probability value is less than the value of 0.05, so reject H0 so that the RE model is better than the CE model

From the results of testing the specifications of the model, the right model for this study is the Random Effect model, which can be seen Hausman test and Lagrange Multipliers test.

Classical assumption tests

The classical assumption test is needed so that the regression model becomes a good empirical model (Ghozali, 2017). In this study, there are four types of classical assumption tests, namely the normality test, autocorrelation test, multicollinearity test, and heteroscedasticity test. The normality test tests whether in the regression model, the residual variables have a normal distribution. The autocorrelation test tests whether in the linear regression model, there is a correlation between the residuals in the previous period (t-1). The multicollinearity test tests whether there is a correlation between the independent variables. The heteroscedasticity test tests whether there is a constant variance error from the residual.

The results of the four classic assumption tests are fulfilled after some of the outlier data (extreme research data) are removed and the autocorrelation

problem is overcome so that the total research data becomes as many as 632 observations. The normality test with a significance value of 0.0660 indicates a number greater than 0.05 so it is stated that the residuals are normally distributed. The autocorrelation test was carried out using the Durbin-Watson test (DW) and a DW value of 1.8934 was obtained which lies between the dU value (1,8760) and the 4-dU value (2,1240). The multicollinearity test can be seen from the VIP (Variance Inflation Factor) value and a VIF value of less than 10 is obtained which states that there is no multicollinearity in the research data. The heteroscedasticity test was carried out using the Glejser test and the probability values of all independent variables were greater than 0.05.

Regression results

Table 5 shows the results of the multiple regression test with the random effect model. The results showed that hypotheses 2 and 4 were supported, while hypotheses 1 and 3 were not supported statistically with a significance level below 5% respectively.

Table 5. Multiple regression results with random effect model

Variables	Discretionary accruals (Y)		
	Coefficient	t-Statistics	Probability
C (Konstanta)	-0.1185	-2.0430	0.0415
FEE	0.0080	2.5440	0.0112
TENURE	-0.0183	-6.4241	0.0000
SPECLST	0.0150	2.0976	0.0363
FIRMSIZE	-0.0250	-3.2801	0.0011
R2	: 0.0751		
Adjusted R2	: 0.0692		
F-Statistic	: 12.7236		
Prob. (F-Statistic)	: 0.0000		
Observation (N)	: 632		

Significant level 5%

Table 5 shows the results of the Adjusted R2 value of 0.0692. This figure explains that the independent variables audit fee, audit tenure, auditor industry specialization, and audit firm size can explain the dependent variable (discretionary accruals which are a proxy for audit quality) of

6.92%, and the remaining 93.08% is explained by other variables not examined in this research.

The influence of audit fees on audit quality

Audit fees paid to auditors can affect audit quality in two ways, namely increasing the efforts

made by the auditor to improve audit quality or the auditor's economic dependence on the client which might damage audit quality. The average audit fee paid by companies in Indonesia who were the research sample during 2018-2020 was IDR 1,366,746,979.61 with the lowest audit fee value of IDR 46,749,774.96 and the highest of IDR 14,850,063,822.54. A positive and significant influence on discretionary accounting is shown from the results of the audit fee variable analysis where a high discretionary accrual value indicates low audit quality, so hypothesis 1 is not supported. This finding is not in line with the research of Alhadab (2018) and Jادیappa et al. (2021) but in line with the research of Jung et al. (2016).

The results of the study illustrate how the higher the audit fee, the lower the audit quality. An increase in audit fees requires the board of commissioners to be vigilant about the possibility of the auditor's economic ties to the company. Another possibility is that the negative influence may be due to the convenience provided by audit firms in Indonesia in measuring audit fee offerings, especially for a client with good corporate governance, so that when audit fees increase, it does not guarantee an increase in audit quality.

The influence of audit tenure on audit quality

The important role of the auditor-client audit tenure can strengthen auditor independence in improving audit quality (Salehi et al., 2019). Following agency theory, that the auditor as an independent party plays an important role in bridging the relationship between agents and principals, to improve audit quality, which in turn produces credible financial reports (Ball et al., 2015). A significant negative effect on discretionary accruals is shown from the results of the analysis of the audit tenure variable (TENURE), where a low value of discretionary accruals indicates high audit quality, so hypothesis 2 is supported. This finding is in line with the research of Buntara & Adhariani (2019) and Jادیappa et al. (2021) but this is not in line with the findings from James & Izien (2014),

González-Díaz et al. (2015), and Reguera-Alvarado et al. (2019).

This study shows that audit tenure is an important factor in improving audit quality. An increase in the audit tenure leads to a better understanding of the client, so as to be able to detect mistakes and manipulations by management (Buntara & Adhariani, 2019; Jادیappa et al., 2021). The long audit tenure allows the development of auditor skills, especially for audit assignments to complex clients (Ball et al., 2015). A good understanding of client complexity and increased auditor expertise due to an increase in the audit tenure will lead to effective communication between the client and the auditor resulting in better audit quality.

The influence of auditor industry specialization on audit quality

Auditor industry specialization is an important component for performing quality audit services because of the superiority of the expertise they provide, especially for relatively large and complex groups of auditees (clients) (Salehi et al., 2019). According to Elaoud & Jarboui (2017), auditor industry specialization can be used to reduce the problem of information asymmetry revealed in agency theory. Industry-specific knowledge enables specialist auditors to provide higher-quality audit services to clients by reducing information asymmetry through their better ability to detect material misstatements and limit management's discretionary behavior (DeBoskey & Jiang, 2012).

This study does not provide empirical support for hypothesis 3, and the findings of Nagy (2012), Minutti-Meza (2013), Salehi et al. (2019), and Reguera-Alvarado et al. (2019), which show the positive impact of the auditor industry specialization on audit quality. The positive effect of auditor industry specialization on discretionary accruals where a high discretionary accrual value indicates low audit quality may occur because several companies with auditor industry specialization are not included in the sample. This is because the

company does not disclose the existence of other variables needed in this study, so they must be eliminated from the research sample. However, the existence of a significant influence indicates that the auditor industry specialization has a considerable influence on the audit process, although it is not enough to guarantee an increase in audit quality. Based on the results of the descriptive analysis to support this finding, fewer companies were audited by specialist auditors (26.10%) compared to companies that were not audited by specialist auditors (73.90%), but the average value (mean) of discretionary accruals the resulting value is negative (-0.0032) which indicates good audit quality.

The influence of audit firm size on audit quality

Audit firm size is determined by total revenue, number of partners, number of staff, number of offices, and number of clients served by the audit firm (Salehi et al., 2019). Big 4 are audit firms that have subsets in the United States and have affiliates with audit firms in other countries, consisting of Deloitte, Ernst & Young, KPMG, and Pricewaterhouse-Coopers (Reguera-Alvarado et al., 2019). DeAngelo (1981) assumes that auditors from large audit firms will have a more diverse total audit fee because their client portfolio is larger so that the audit firm's business performance and survival are less dependent on each client, which ultimately encourage auditor independence. A significant negative effect on discretionary accruals is shown from the result of the analysis of the audit firm size variable (FIRMSIZE), where a low value of discretionary accruals indicates high audit quality, so hypothesis 4 is supported. This finding is in line with the research of Salehi et al. (2019) and Reguera-Alvarado et al. (2019). However, the results of this study are not in line with research findings from James & Izien (2014) and Ali & Aulia (2015).

The results of this study illustrate that audit firm size can have an impact on higher audit quality where the auditor detects material misstatements in the financial statements presented by company management better. Audit firms affiliated with the

Big 4 provide higher quality audits and offer greater reliability for their client's financial statements compared to non-Big 4 auditors (Reguera-Alvarado et al., 2019). This relates to the possibility of reputational loss due to audit failures where most of the reputational losses are borne by the audit firm itself. In addition, Big 4 supports training programs, standardizes audit methodologies, and provides more opportunities for peer review by other partners (Salehi et al., 2019).

5. Conclusions

This study examines the effect of audit fees, audit tenure, auditor industry specialization, and audit firm size on audit quality. The results show that audit fees and auditor industry specialization have a positive effect on discretionary accruals, which means they reduce audit quality. This indicates that increasing the value of the audit fee has the potential to reduce audit quality as indicated by an increase in the value of discretionary accruals. An increase in the value of the audit fee requires the board of commissioners to be vigilant about the possibility of the auditor's economic ties to the company. However, the positive relationship between audit fees and discretionary accruals can also mean that an increase in audit fees does not guarantee that management's discretionary accruals are low, which means that it is not enough to guarantee an increase in audit quality. In addition, companies audited by industry specialist auditors have not been able to improve audit quality, even though the influence of industrial specialist auditors is significant on audit quality. This also indicates that the large number of auditor clients in the same industry does not guarantee the auditor's ability to detect material misstatements in the financial statements of companies in similar industries.

Audit tenure and audit firm size have a positive and significant effect on audit quality. The audit tenure can improve audit quality. A longer audit tenure allows the auditor to increase their understanding of the characteristics of the client company so that material misstatements in the

financial statements and extreme accounting policies from management are better detected. In addition, audit firm size can affect audit quality improvement. A possible reason to explain this finding is that the Big 4 prioritize their reputation from the possibility of audit failure, so they are motivated to produce high-quality audits.

The practical implication of the results of this study is that regulators of policies must be more careful in studying what driving factors influence audit firms to provide better audit quality. High audit quality will certainly increase the confidence of users of financial statements, especially investors, who will determine investment decisions. Periodic training programs also need to be carried out by the audit firm to improve the ability of personnel to conduct audits of client companies.

This research has several limitations. First, the sample that becomes the research observation does not include financial sector companies, where the financial sector has unique characteristics and is highly regulated. Second, this study has not considered the influence of the COVID-19 pandemic which might affect audit quality. For further research, it is recommended to use additional samples by including the financial sector with an expanded range of research periods. In addition, future research can consider the influence of the COVID-19 pandemic as a moderating variable.

Acknowledgments

Acknowledgments are conveyed to the Head of BPS RI, all parties managing the BPS APBN, and lecturers at Diponegoro University who have supported the completion of this research.

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