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## Article

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## ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

# Audit firm rotation and audit quality: Comparison before vs after the elimination of audit firm rotation regulations in Indonesia

Inas Aisyah Widyaningsih<sup>1</sup>, Iman Harymawan<sup>1\*</sup>, Agus Widodo Mardijuwono<sup>1</sup>,  
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**Abstract:** This paper examines whether the changes in audit rotation policy affect the relationship between audit firm rotation and audit quality in Indonesia. This study uses 2,403 observations from 371 firms listed on the IDX for the period 2010–2017. This study uses Ordinary Least Squares regression to test the hypothesis. We find that, in the mandatory audit rotation period (pre-period), there is no significant association between audit rotation and audit quality. Interestingly, we find a positive relationship between audit rotation and audit quality in the voluntary audit rotation (post-period). Our result implies that voluntary audit rotation without any coercive regulation is more effective in improving audit quality. This research

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### PUBLIC INTEREST STATEMENT

This paper analyzes audit regulation and its impact on audit quality. This regulation is considering the audit firm rotation, which is newly published in Indonesia. This study is essential because standard-setter and regulators need to measure whether their regulation is effective and have a positive impact on audit practice or not. This study compares the audit quality resulted from auditing practice before and after the regulation of audit firm rotation is applied. This study found that audit firm rotation doesn't affect audit quality. However, in the period after the regulation of audit firm rotation was abolished in Indonesia, there is a significant positive effect on audit quality. The audit quality is increasing after those phenomena. This result provides a reference to the regulator as well as management as the consideration in making decisions related to audit firm rotation.

provides an insight to policy makers that eliminating the regulation of audit firm rotation is an effective decision to enhance audit quality.

**Subjects:** Accounting; Corporate Governance; Business Ethics

**Keywords:** audit; audit firm rotation; audit quality

**Jel Classification:** M41; M42; M48

## 1. Introduction

Audit quality has been questioned since the Enron Corp and WorldCom Inc. cases. Enron Corp is the largest energy company in the United States, having a very competitive executive council to create a new type of company energy. After several years of international and domestic expansion, Enron Corp had billions of dollars of debt, but this was hidden from shareholders through partnerships with other companies, accounting fraud, and illegal loans. Another case is from WorldCom Inc., the second-largest telecommunications company in the United States, which was running overcapacity and experiencing poor financials due to lack of demand of the agreement to pay lease fees to other providers in exchange for access in 1999. In 2000, the obligation to pay for the right to use cables became a problem. However, WorldCom Inc., under its chief executive Bernie Ebbers, used aggressive earnings management techniques to hide the problem by reducing its expenditure and increasing its income. Meanwhile, audit firm Arthur Andersen, who acted as auditor of the two companies, claimed that his failure to recognize the two scandals was due to executives hiding information from them. However, because this didn't just happen once, the audit opinion containing Arthur Andersen's signature lowers investor confidence (Handley-Schachler & Li, 2006).

The Enron Corp. and WorldCom Inc. cases caused the American Government to issue the Sarbanes Oxley Act (SOx or Sarbox) in 2002, which contained a ban on providing non-audit services to audited entities. SOx had an impact on the Indonesian Government to issue KMK Number 423/KMK.06/2002 concerning Public Accountant Services (Menteri Keuangan Republik Indonesia, 2002), which was then updated with the issuance of Minister of Finance Regulation Number: 17/PMK.01/2008 Concerning Public Accountant Services (Menteri Keuangan Republik Indonesia, 2008). The two regulations contain restrictions on the provision of general audit services on the financial statements of an entity by audit firms and public accountants. However in 2015, the Minister of Finance Regulation Number 17/PMK.01/2008 concerning Public Accountant Services was updated with the issuance of the Government Regulation of the Republic of Indonesia Number 20 of 2015 concerning the Practice of Public Accountants (Presiden Republik Indonesia, 2015), which only contained restrictions on the provision of general audit services on an entity's financial statements by a public accountant.

The limitation on the provision of general audit services on financial statements of an entity by an audit firm is also expected to bring client equity between large, medium, and small firms. However, the practice in Indonesia shows that, if an audit firm has reached its tenure limits, several audit firms tend to change their audit partner structure to retain clients, even though they have to pay more (Febrianto, Dini, Audina, Yuskar, & Juita, 2017). Therefore, regulations in Indonesia regarding restrictions on general audit services on financial statements by audit firms were abolished with the issuance of Government Regulation of the Republic of Indonesia Number 20 of 2015 concerning Practices of Public Accountants.

Study related to the audit rotation and audit quality is essential to do since audit quality is an assurance of financial statement quality. Moreover, this study seeks to compare the audit quality pre and post the abolition of audit rotation regulation. The result will be useful for both practitioners and regulators to examine the effectiveness of the regulation to make a better decision in the future. Previous research related to audit firm rotation and audit quality has been carried out in various countries, such as Australia (Jackson, Moldrich, & Roebuck, 2008), Jordan (Al-Thuneibat, Al

Issa, & Ata Baker, 2011), Indonesia (Siregar, Amarullah, Wibowo, & Anggraita, 2012), Italy (Cameran et al., 2014)), South Korea (Choi, Lim, & Mali, 2017; Kim, Lee, & Lee, 2015; Kwon, Lim, & Simnett, 2014), Malaysia (Bamahros & Wan-Hussin, 2015), Oman (Baatwah, 2016), and Iran (Azizkhani, Daghani, & Shailer, 2018). Previous studies show that the rotation of audit firms influences audit quality (Al-Thuneibat et al., 2011; Azizkhani et al., 2018; Bamahros & Wan-Hussin, 2015; Jackson et al., 2008). Previous studies also show that there is a difference in audit quality between the rotation of audit firms in the mandatory and voluntary period (Choi et al., 2017; Colusi et al., 2014; Kwon et al., 2014; Siregar et al., 2012). However, another paper shows that audit firm rotation does not influence audit quality (Baatwah, 2016). This research extends the previous literature and gives contribution specifically by comparing between pre and post period of the abolition of audit firm regulation with Indonesia's specific setting. There are several ways to measure audit quality, such as from their audit opinion or audit report aggressiveness (Ocak, 2018), misstatement (Azizkhani et al., 2018), or discretionary accrual model (Choi et al., 2017). The measurements for audit quality in this study refer to the research of Choi et al. (2017) by using a discretionary accrual model (Kothari, Leone, & Wasley, 2005). Audit quality in the study of Azizkhani et al. (2018) used a proxy of misstatements in the company's financial statements and identified as auditor errors by IACPA. It was not used in this study because of differences in policies used and the limitations of data. This study uses discretionary accruals as a proxy for audit quality because it provides an indication of management intervention in reporting earnings (Al-Thuneibat et al., 2011).

This study used 2,403 observations from 371 companies listed on the IDX for the period 2010–2017. The analytical model used in this study is Ordinary Least Squares regression. This study found that companies with audit firm rotation had no effect on audit quality. However, in the period after rotation of audit firm regulations were abolished in Indonesia, there is a significant positive effect on audit quality. Audit quality is higher for companies which use audit firms in the period after the rotation regulation of audit firms was abolished in Indonesia rather than before.

The results of this study make a contribution, both theoretically and practically. Theoretically, this research can be used as a means to increase knowledge and insight into the rotational influence of audit firms in the period before and after the rotation of audit firms was abolished in Indonesia on audit quality, and can contribute in developing further research in related fields. Practically, it can be used as a consideration in making decisions regarding the rotation of the audit firm in the period after the rotation regulation of audit firms was abolished in Indonesia. This research consists of: Part 1, introduction; Part 2, literature review and hypothesis development; Part 3, a description of samples and variables; Part 4 which models the analysis and presentation of the main results; and Part 5 is the conclusion of the study.

## 2. Literature review and hypothesis development

### 2.1. Institutional setting

The obligation to do audit firm rotation in Indonesia was previously regulated in Article 3 Paragraph 1 of the Minister of Finance Regulation Number: 17/PMK.01/2008 concerning Public Accountant Services, which is obliged to rotate if an audit firm has provided general audit services for financial statements of an entity for six (6) consecutive financial years. However, the regulation of rotation obligations of the audit firm was abolished with the issuance of the Republic of Indonesia Government Regulation Number 20 of 2015 concerning the Practice of Public Accountants. This is because the purpose of the regulation was not fulfilled, namely for even distribution of clients. This is because in practice in Indonesia, if an audit firm has reached the specified limit, there are those that change their local identity by changing the structure of the partnership but still retain their foreign affiliates, in order to retain clients even though they have to pay more (Febrianto et al., 2017).

## 2.2. Hypothesis development

There are some determinant factors of audit quality and audit firm rotation is considered to be one of them. Kim et al. (2015) argue that there are two different perspectives related to audit rotation. The first view is from the pro side, which supports the application of audit rotation. The supporters argue that audit firm rotation can prevent a long relationship between the auditor and his client to become a personal relationship. Besides which, audit firms may have a good effect on audit performance. The new auditor may have a different point of view and give new insight into the client's financial statements. They will be more skeptical to identify questionable accounting practices and detect material misstatements in financial statements. However, whenever the external auditor's characteristics prove to be high, the audit report publication date is discovered to be short (Fakhfakh Sakka & Jarboui, 2016). Meanwhile, another perspective from the opponents of audit firm rotation argues that audit firm rotation can increase initial costs through the changing of the auditor. A new auditor starts from the beginning to understand the companies, the management business process, and the industry of the client. This condition will make auditors more dependent on management estimates and representations during the initial year of audit involvement, which can lead to a possible bias. However, there are some different conditions in practice. For example, the cases of Enron Corp. and WorldCom Inc. involving audit firm Arthur Andersen prove that audit quality increases when the rotation of the audit firm is carried out. The existence of audit rotation can prevent a long relationship between the auditor and his client, which can reduce the independence of the auditor. Increasing the independence of auditors contributes to the improvement of the quality of the auditing services (Hoang Tien, Thuong, Minh Duc, & Hoang Yen, 2019). Auditor independence must be maintained, especially about their audit fees. Zhang, Hay, and Holm (2016) found that the amount of audit fees does not suggest any loss of independence. However, higher audit cost leads to more efficient audit services as compared to companies having less audit cost (Khan & Abdul Subhan, 2019). The results of some previous research support the auditor independence case (Al-Thuneibat et al., 2011; Azizkhani et al., 2018). Al-Thuneibat et al. (2011) show that audit quality deteriorates when the tenure of an audit firm is extended as a result of growth in the magnitude of discretionary accruals. Meanwhile, study by Azizkhani et al. (2018) shows that the possibility of misstatements identified in the financial statements is significantly lower in the first two years of the audit tenure compared to the longer tenure period. Thus, the hypothesis proposed is:

### H1: Audit firm rotation is positively related to audit quality

The second hypothesis is built through the argument that, with the issuance of the Government Regulation of the Republic of Indonesia Number 20 of 2015 concerning the Practice of Public Accountants, to minimize the strategies carried out by several audit firms in dealing with audit firm rotation regulations, they change their local identity by changing the structure of partnerships while maintaining foreign affiliations, in order to retain clients, even though they have to pay more, in the period before the issuance of the Republic of Indonesia Government Regulation Number 20 of 2015 concerning the Practice of Public Accountants, due to weak law enforcement in Indonesia (Febrianto et al., 2017; Siregar et al., 2012). Furthermore, by minimizing the strategies carried out by the audit firm, it means that the auditor has carried out his responsibilities under the policeman theory, which are to find and prevent fraud (Hayes, Dassen, Schilder, & Wallage, 2005). Thus the hypothesis proposed is:

### H2: In the post-period of the abolition of audit firm rotation regulation, audit firm rotation is positively related to audit quality

The third hypothesis is built through the argument that, before the audit firm rotation regulation was abolished in Indonesia, the rotation of the audit firm was forced to fulfill the

regulatory obligations, so that there were audit firms that changed their local identity by changing the structure of the partnership, but still retained their foreign affiliation in order to be able to retain clients, even though they had to pay more (Febrianto et al., 2017). The strategy carried out by the audit firm is subsequently expected to lead to client equality and the prevention of long relationships between the auditor and his client changing into a personal relationship. Therefore, with the issuance of the Government Regulation of the Republic of Indonesia Number 20 of 2015 concerning the Practice of Public Accountants, it is expected to minimize the strategies carried out by the audit firm, because the rotation of audit firms can be done naturally without coercion from applicable regulations in Indonesia. This is supported by the results of research by Choi et al. (2017), which show that audit quality with coercion of audit firm rotation must be lower than the voluntary audit firm rotation. Thus the hypothesis proposed is:

**H3: Audit firm rotation in the post-period of the abolition of the audit firm has higher audit quality compared with the pre-period.**

### 3. Research methodology

#### 3.1. Sample and source of data

The population used in this study is companies listed on the Indonesia Stock Exchange (IDX) for the period 2010–2017. Then, from that population, a sample selection is carried out based on some criteria, such as the company is not categorized in SIC 6 code (based on the US SIC Code), published their Annual Report and audited Financial Reports for the period 2010–2017, and has the necessary data and information with the variables used in this study. Furthermore, based on financial data obtained from OSIRIS as well as non-financial data obtained manually through the Annual Report and Financial Report, which can be downloaded at [www.idx.co.id](http://www.idx.co.id), from 4,545 observations that became population, a sample of 2,403 observations was obtained. The sample selection process is provided in the Table 1.

#### 3.2. Operational definition and variable measurement

##### 3.2.1. Audit quality

Audit quality is a joint probability whereby the auditor can find and report violations in the client's accounting system (DeAngelo, 1981). The measurement of audit quality variables in this study refers to the research of Choi et al. (2017), by using the Kothari et al. model (2005) of discretionary accruals in the following ways:

##### a Measurement of the company's total accruals

The company's accrual total is calculated using the difference between current assets other than cash for the current period and the previous period, minus the difference between short-term liabilities for the current period and the previous period, minus depreciation and amortization.

**Table 1. Sample selection criteria**

Description	Number
Total of observations used as the population of research	4,545 observations
Except:	1,072 observations
Companies categorized in SIC 6 code	1,070 observations
Companies which not publish complete information	
Total of observations selected as sample	2,403 observations



$$TACC_{i,t} = \Delta NON - CASH CURRENT ASSETS_{i,t} - \Delta CURRENT LIABILITIES_{i,t} - DEPRECIATION_{i,t} - AMORTIZATION_{i,t} \quad (1)$$

#### b Measurement of non-discretionary accruals

Kothari et al.'s model (2005) attempts to perfect the Jones (1991) model by adding return on assets (ROA) to control performance. This model argues that incorporating elements of return on assets (ROA) in the calculation of discretionary accruals will be able to minimize specification errors.

$$TACC_{i,t} / TA_{i,t-1} = \alpha_0 1 / TA_{i,t-1} + \alpha_1 \Delta REV_{i,t} / TA_{i,t-1} + \alpha_2 PPE_{i,t} / TA_{i,t-1} + \alpha_3 ROA_{i,t} + \epsilon \quad (1)$$

#### c Measurement of discretionary accruals

Non-discretionary accruals (NDAC) are the fitted values of the Kothari et al. (2005) model equation, while discretionary accrual (DACC) is the value of the residuals ( $\epsilon$ ).

$$DACC_{i,t} = 1TACC_{i,t} / TA_{i,t-1} - NDAC_{i,t} \quad (2)$$

#### d Measurement of audit quality

Audit quality is the negative value of the absolute discretionary accruals.

$$AQ = |DACC| * (-1) \quad (3)$$

Keterangan:

TACC:	total accrual
TA:	total assets period t-1
$\Delta REV$ :	changes of revenue from period t-1 to period t
PPE:	net value of fixed assets
ROA:	Return on asset
NDAC:	non-discretionary accruals
DACC:	discretionary accruals
AQ:	audit quality

#### 3.2.2. Audit firm rotation

Audit firm rotation is the replacement of an audit firm from the provision of general audit services to the financial statements of an entity. The measurement of audit firm rotation variables in this study is using dummy variables. Value of 1 (one) if the company rotates the audit firm and the value of 0 (zero) if the company does not rotate the audit firm.

#### 3.2.3. The period after the audit firm rotation regulation was abolished in Indonesia

The period after the regulation of firm audit rotation was abolished in Indonesia began when the Republic of Indonesia Government Regulation Number 20 of 2015 was issued concerning the Practice of Public Accountants. Measurement of period variables after the regulation of audit firm rotation was abolished in Indonesia in this study uses a dummy variable; the value of 1 (one) for the period after regulation of the audit firm rotation was abolished in Indonesia and the value of 0 (zero) for the period before the audit firm rotation regulation was abolished in Indonesia. The complete variable measurements are provided in Table 2.



**Table 2. Variable measurement**

Variable		Proxy	Sources of Data
<b>Dependent Variable:</b> Quality Audit	AQ	$AQ =  DACC  * (-1)$	OSIRIS
<b>Dependent Variable:</b> Audit Firm Rotation	ROTATION	dummy variable, 1 if doing audit firm rotation and 0 if not	Annual Report or Financial Report
<b>Moderating Variable:</b> The period after the Regulation of Audit Firm Rotation was Abolished in Indonesia	POST	dummy variable, 1 for the period after regulation of audit firm rotation is written off and 0 if not	Annual Report or Financial Report
<b>Control Variable:</b> Tenure of Audit Firm	TENURE	the length of the audit firm relationship with the company	Annual Report or Financial Report
Big 4 Audit Firm	BIG4	dummy variable, 1 if audited by BIG 4 audit firm and 0 if not	Annual Report or Financial Report
Firm Size	FSIZE	$FSIZE = \ln(\text{Total Assets})$	OSIRIS
Firm Age	FAGE	$FAGE = \ln(\text{Sum of Year Incorporation})$	OSIRIS
Market Value to Book Value	MTB	$MTB = \frac{\text{market value}}{\text{book value}}$	OSIRIS
The ratio of Inventory and Receivable to Total Assets	INVREC		
$INVREC = \frac{\text{totalinventory} + \text{totalreceivable}}{\text{totalassets}}$	OSIRIS		

### 3.3. Data analysis technique

The software used for data analysis in this study is STATA 14.0. Winsorizing is performed before doing data analysis. Furthermore, data analysis techniques are in the form of descriptive statistics, Pearson correlation, independent t test, and multiple linear regression. The research model used in this study includes:

#### 1. The research model used to analyze the influence of audit firm rotation and the period after regulation of audit firm rotation was abolished in Indonesia on audit quality

$$AQ_{i,t} = \beta_0 + \beta_1 ROTATION_{i,t} + \beta_2 POST_{i,t} + \beta_3 TENURE_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 FSIZE_{i,t} + \beta_6 FAGE_{i,t} + \beta_7 MTB_{i,t} + \beta_8 INVREC_{i,t} + \text{Industry Fixed Effects} + \varepsilon \quad (4)$$

#### 2. The research model used to analyze the effect of audit firm rotation on the period before and after the regulation of audit firm rotation was abolished in Indonesia against audit quality

$$AQ_{i,t} = \beta_0 + \beta_1 ROTATION * POST_{i,t} + \beta_2 ROTATION_{i,t} + \beta_3 POST_{i,t} + \beta_4 TENURE_{i,t} + \beta_5 BIG4_{i,t} + \beta_6 FSIZE_{i,t} + \beta_7 FAGE_{i,t} + \beta_8 MTB_{i,t} + \beta_9 INVREC_{i,t} + \text{Industry Fixed Effects} + \varepsilon \quad (5)$$

Description:

$\beta_0$ :	Constant
$\beta_{1-9}$ :	Coefficient
AQ:	audit quality
ROTATION:	dummy variable, 1 if doing audit firm rotation and 0 if not
POST:	Dummy variable, 1 for the period after regulation of audit firm rotation was written off and 0 if not
TENURE:	The length of the audit firm relationship with the company

BIG4:	Dummy variable, 1 if audited by BIG 4 audit firm and 0 if not
FSIZE:	Firm size
FAGE:	Firm age
MTB:	Market value to book value
INVREC:	Ratio of inventories and receivables to total assets
INDUSTRY:	Industry fixed effects
$\epsilon$ :	Error

#### 4. Result and discussion

##### 4.1. Descriptive statistics and univariate comparison

Table 3 presents the audit firm rotation carried out by each industry. From 2,403 observations that became the sample of the study, there was found 372 observations (15.48%) which carried out an audit firm rotation, with details of 14 observations obtained from the agriculture, forestry and fisheries industries (code SIC 0); 58 observations obtained from the mining industry (code SIC 1), 106 observations obtained from the construction industry (SIC code 2); 91 observations obtained from the manufacturing industry (SIC code 3); 39 observations obtained from the transportation, communication, and utility industries (SIC code 4); 24 observations obtained from wholesale and retail industry (SIC code 5); 37 observations were obtained from the service industry (SIC 7 code); and three observations were obtained from the health, legal, and education services and consulting industries (code SIC 8). Meanwhile, based on the ratio of companies rotating the audit firm against the total related industrial sector, the highest percentage is found in the service industry with SIC 7 code, which is 20.22%, and the lowest percentage is in the health, legal and education consulting industry with SIC 8 code, which is 8.33%.

Table 4 presents the average value, middle value, highest value, and the lowest value for each variable. Based on Table 4, audit quality has an average value of  $-0.085$ ; the middle value of  $-0.054$ ; the highest value is  $-0.001$ , and the lowest value is  $-0.480$ , while the rotation of the audit firm has an average value of  $0.155$ ; the middle value of  $0$ ; the highest value of  $1$ ; and the lowest value is  $0$ .

**Table 3. Audit firm rotation based on industry classification**

SIC	Industry	Perform Audit Firm Rotation		Do not Perform Audit Firm Rotation		Total Firms
		Total Firms	%	Total Firms	%	
0	Agriculture, Forestry, and Fisheries	14	13.73	88	86.27	102
1	Mining	58	16.62	291	83.38	349
2	Construction	106	15.41	582	84.59	688
3	Manufacturer	91	18.84	392	81.16	483
4	Transportation, Communication, and Utility	39	12	286	88	325
5	Wholesale and Retail	24	10.13	213	89.87	237
7	Service	37	20.22	146	79.78	183
8	Health, Legal and Education Services and Consultations	3	8.33	33	91.67	36
Total		372	15.48	2,031	84.52	2,403

**Table 4. Descriptive statistics**

Variable	Mean	Median	Minimum	Maximum
AQ	-0.085	-0.054	-0.480	-0.001
ROTATION	0.155	0.000	0.000	1,000
POST	0.404	0.000	0.000	1,000
TENURE	3.923	3.000	1.000	9.000
BIG4	0.415	0.000	0.000	1,000
FSIZE	464,224	460,523	309,450	634,484
FAGE	3,302	3,367	1,609	4,710
MTB	2,473	1,227	-1,145	30,095
INVREC	0.258	0.217	0.007	0.768

Table 5 presents the relationship between independent variables and dependent variables. Audit quality decreased when the company rotated audit firm (-0.078) but increased in the period after the rotation regulation of audit firm was abolished in Indonesia (0.098). The tenure of audit firm, large international audit firm (BIG 4), firm size, firm age, and inventory and receivable ratio to total assets have a relationship that is directly proportional to audit quality (0.130; 0.086; 0.076; 0.120; and 0.098, respectively), but market value to book value has a relationship that is inversely proportional to audit quality (-0.114).

Table 6 presents a comparison of the average company rotating audit firm and the companies that do not rotate the audit firm on the given variable. Based on Table 6, companies that carry out audit firm rotation have lower average audit quality (AQ) compared to companies that do not rotate the audit firm ( $-0.102 < -0.082$ ). This also applies to the tenure of audit firm (TENURE), large international audit firm 4 (BIG4), firm size (FSIZE), and firm age (FAGE) which have lower average value when the company rotates FIRM AUDIT ( $1,046 < 4,451$ ;  $0.172 < 0.460$ ;  $433,013 < 469,941$ ; and  $3,230 < 3,316$ ). However, it does not apply to market value to book value (MTB) as well as inventory and receivables ratios to total assets (INVREC), which have a higher average value when the company rotates audit firm ( $2,675 > 2,436$  and  $0.266 > 0.256$ ).

#### 4.2. Audit firm rotation

Table 7 presents a comparison of the average period before and after the rotation of AUDIT FIRM was eliminated in Indonesia in the given variable. Based on Table 7, in the period after rotation of AUDIT FIRM regulation was abolished in Indonesia, the average audit quality (AQ) value was higher than in the period before the AUDIT FIRM rotation regulation was abolished in Indonesia ( $-0.074 > -0.093$ ). This also applies to the tenure of audit firm (TENURE), firm size (FSIZE), and firm age (FAGE), which have a higher average value in the period after rotation of the audit firm regulations was abolished in Indonesia ( $4,938 > 3,235$ ;  $475,059 > 456,878$ ; and  $3,357 > 3,266$ ). However, it does not apply to large international audit firms (BIG4), market value to book value (MTB), and inventory and receivable ratios to total assets (INVREC), which have a lower average value in the period after rotation of AUDIT FIRM abolished in Indonesia ( $0.415 < 0.416$ ;  $2,315 < 2,580$ ; and  $0.240 < 0.270$ ).

#### 4.3. Main analysis

Table 8 presents the rotational effects of the audit firm and the period after AUDIT FIRM rotation regulation was abolished in Indonesia on audit quality in columns (1) and (2), while the AUDIT FIRM rotational influence in audit firm before and after rotation regulation was abolished in Indonesia on audit quality in columns (3) and (4). Column (1) and (3) present the regression results normally, while columns (2) and (4) present regression results robustly.

**Table 5. Pearson correlation**

Variable	AQ	ROTATION	POST	TENURE	BIG4	FSIZE	FAGE	MTB	INVREC
AQ	1.000								
ROTATION	-0.078*** (0.000)	1.000							
POST	0.098*** (0.000)	0.006 (0.758)	1.000						
TENURE	0.130*** (0.000)	-0.535*** (0.000)	0.363*** (0.000)	1.000					
BIG4	0.086*** (0.000)	-0.211*** (0.000)	-0.000 (0.982)	0.276*** (0.000)	1.000				
FSIZE	0.076*** (0.000)	-0.189*** (0.000)	0.126*** (0.000)	0.269*** (0.000)	0.414*** (0.000)	1.000			
FAGE	0.120*** (0.000)	-0.055*** (0.007)	0.080*** (0.000)	0.188*** (0.000)	0.099*** (0.000)	0.049** (0.017)	1.000		
MTB	-0.114*** (0.000)	0.021 (0.304)	-0.032 (0.121)	-0.018 (0.369)	0.110*** (0.000)	0.034* (0.100)	-0.035* (0.088)	1.000	
INVREC	0.098*** (0.000)	0.017 (0.400)	-0.075*** (0.000)	0.005 (0.825)	-0.062*** (0.003)	-0.274*** (0.000)	0.187*** (0.000)	-0.008 (0.700)	1.000

*p*-values in parentheses

\**p* < 0.1, \*\**p* < 0.05, \*\*\**p* < 0.01

**Table 6. T-test audit firm rotation**

Variable	Perform an Audit Firm Rotation	Not Performing an Audit Firm Rotation	t-value	z-value
	n = 372	n = 2.031		
AQ	-0.102	-0.082	-3,825***	-3,264***
TENURE	1,046	4,451	-31,023***	-30,574***
BIG4	0.172	0.460	-10,592***	-10,355***
FSIZE	433,013	469,941	-9,408***	-9,515***
FAGE	3,230	3,316	-2,705***	-3,302***
MTB	2,675	2,436	1,028	-2,681***
INVREC	0.266	0.256	0.841	0.193

p-values in parentheses

\*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01

**Table 7. T-test period after regulation of audit firm rotation was abolished in Indonesia**

Variable	Period After Regulation of Audit Firm Rotation was Abolished in Indonesia	Period Before Regulation of Audit Firm Rotation was Abolished in Indonesia	t-value	z-value
	n = 971	n = 1.432		
AQ	-0.074	-0.093	4,827***	4,788***
TENURE	4,938	3,235	19,086***	14,493***
BIG4	0.415	0.416	-0.023	-0.023
FSIZ	475,059	456,878	6,220***	6,098***
FAGE	3,357	3,266	3,928***	4,659***
MTB	2,315	2,580	-1,553	-4,698***
INVREC	0.240	0.270	-3,683***	-3,717***

p-values in parentheses

\*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01

This study analyzes the rotational influence of audit firm and the period after AUDIT FIRM rotation regulation was abolished in Indonesia for audit quality by controlling the tenure AUDIT FIRM variable, international large audit firm, firm size, firm age, market value to book value, and inventory and receivable ratios of total assets using the regression model as follows:

$$AQ_{i,t} = \beta_0 + \beta_1 ROTATION_{i,t} + \beta_2 POST_{i,t} + \beta_3 TENURE_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 FSIZE_{i,t} + \beta_6 FAGE_{i,t} + \beta_7 MTB_{i,t} + \beta_8 INVREC_{i,t} + Industry\ Fixed\ Effects + \varepsilon$$

Based on columns (1) and (2) in Table 8, the audit firm rotation (ROTATION) has a coefficient of -0.008 (t = -1.21 and t = -1.07), but it is not significant either with normal or robust regression. This means that the audit firm rotation does not affect audit quality, so the first hypothesis is rejected. Meanwhile, the period after the regulation of audit firm rotation was abolished in Indonesia (POST) has a coefficient of 0.014 (t = 3.31 and t = 3.44), with a significance level of 1%, both with normal and robust regression. This means that the period after the regulation of audit firm rotation was abolished in Indonesia has a significant positive effect on audit quality, so the second hypothesis is accepted. This result supports the argument that the period after regulation of audit firm rotation was abolished in Indonesia can make

**Table 8. Results of multiple linear regression**

Variable	Direction Prediction	(1) AQ	(2) AQ	(3) AQ	(4) AQ
ROTATION	±	-0.008	-0.008	-0.019***	-0.019**
		(-1,21)	(-1,07)	(-2,65)	(-2,08)
POST	+	0.014***	0.014***	0.007	0.007*
		(3.31)	(3.44)	(1.57)	(1.68)
ROTATION*POST	+			0.034***	0.034***
				(3.22)	(3.10)
TENURE	±	0.002	0.002	0.002**	0.002**
		(1.36)	(1.54)	(2.03)	(2.32)
BIG4	+	0.011**	0.011**	0.010**	0.010**
		(2.46)	(2.45)	(2.31)	(2.30)
FSIZE	-	0.000***	0.000***	0.000***	0.000***
		(3.33)	(3.06)	(3.31)	(3.05)
FAGE	-	0.008**	0.008**	0.008**	0.008**
		(2.25)	(2.17)	(2.15)	(2.07)
MTB	+	-0.003***	-0.03***	-0.003***	-0.003***
		(-5.96)	(-4.80)	(-5.93)	(-4.82)
INVREC	-	0.040***	0.040***	0.040***	0.040***
		(3.78)	(3.76)	(3.79)	(3.77)
Konstan		-0.179***	-0.179***	-0.178***	-0.178***
		(-8.67)	(-8.32)	(-8.61)	(-8.28)
INDUSTRY DUMMIES		Ya	Ya	Ya	Ya
r <sup>2</sup>		0.067	0.067	0.071	0.071
N		2,403	2,403	2,403	2,403

t statistics in parentheses

\*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01

the audit firm comply with the policeman theory and fulfill the expectation of the issuance of the Republic of Indonesia Government Regulation Number 20 of 2015 concerning the Practice of Public Accountants. Furthermore, the value of r<sup>2</sup> in columns (1) and (2) in Table 8 shows the relationship between audit firm rotation and the period after regulation of audit firm rotation was abolished in Indonesia with audit quality explained by 6.7% of the 2,403 observations that became the research sample.

This study analyzes the effect of audit firm rotation on the period before and after regulation of audit firm rotation was abolished in Indonesia on audit quality by controlling tenure audit firm variables, international BIG 4 audit firms, firm size, firm age, market value to book value, and inventory ratio and accounts receivable against total assets using the regression model as follows:

$$AQ_{i,t} = \beta_0 + \beta_1 ROTATION_{i,t} + \beta_2 POST_{i,t} + \beta_3 ROTATION_{i,t} * POST_{i,t} + \beta_4 TENURE_{i,t} + \beta_5 BIG4_{i,t} + \beta_6 FSIZE_{i,t} + \beta_7 FAGE_{i,t} + \beta_8 MTB_{i,t} + \beta_9 INVREC_{i,t} + Industry\ Fixed\ Effects + \varepsilon$$

Based on columns (3) and (4) in Table 8, the rotation of the audit firm in the period before the regulation of the audit firm rotation was abolished in Indonesia (ROTATION) has a coefficient of -0.019 (t = -2.65 and t = -2.08), with a significance level of 1% when using regression normally and 5% when using regression robustly. This means that the rotation of the audit firm in the period before the regulation of audit firm rotation was abolished in Indonesia has a significant negative effect on audit quality. Meanwhile, the rotation of the audit firm in the period after rotation of AUDIT FIRM regulations was abolished in Indonesia (ROTATION \* POST) has a coefficient of 0.034

( $t = 3.22$  and  $t = 3.10$ ), with a significance level of 1%, both with normal and robust regression. This means that the rotation of the audit firm in the period after the regulation of the audit firm rotation was abolished in Indonesia has a significant positive effect on audit quality. Through these two results, the third hypothesis is accepted, i.e. the rotation of the audit firm in the period after regulation of the audit firm rotation was abolished in Indonesia has a higher audit quality compared to the rotation of the audit firm in the period before the audit firm rotation was abolished in Indonesia. This result supports the argument that the rotation of the audit firm in the period after rotation of AUDIT FIRM was abolished in Indonesia can be done naturally without any coercion from prevailing regulations in Indonesia and does not need to carry out its own strategy in dealing with regulation of audit firm rotation. Furthermore, the value of  $r^2$  in columns (3) and (4) in Table 8 shows that the relationship between the audit firm rotation in the period before and after the rotation of audit firm was abolished in Indonesia with audit quality is explained by 7.1% of the 2,403 observations that were the research sample.

## 5. Conclusion

This study found that companies that carry out audit firm rotations have no effect on audit quality. However, the period after the regulation of audit firm rotation was abolished in Indonesia has a significant positive effect on audit quality. This shows that the period after regulation of audit firm rotation was abolished in Indonesia can make an audit firm adhere to the policeman theory and fulfill the expectation of the issuance of Government Regulation of the Republic of Indonesia Number 20 of 2015 concerning the Practice of Public Accountants, namely to minimize strategies conducted by audit firms in dealing with audit firm rotation regulations, in the period before the issuance of the Republic of Indonesia Government Regulation Number 20 of 2015 concerning the Practice of Public Accountants. Furthermore, the rotation of the audit firm in the period after regulation of the audit firm rotation was abolished in Indonesia has a higher audit quality compared to the rotation of the audit firm in the period before the regulation of the audit firm rotation was abolished in Indonesia. This shows that the rotation of the audit firm in the period after regulation of the audit firm rotation was abolished in Indonesia can be done naturally without coercion from applicable regulations in Indonesia and does not need to change their local identity by changing the structure of the partnership but still maintaining their foreign affiliation, if the company and the audit firm refuses to carry out an audit firm rotation, so that the expectation of increasing audit quality can be realized if the audit firm rotates voluntarily.

The limitation of this study is only using discretionary accruals as a proxy for audit quality. Future studies can use other proxies for audit quality or use multiple proxies for audit quality.

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