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Article

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FINANCIAL ECONOMICS | RESEARCH ARTICLE

Impact of audit tenure and audit rotation on the audit quality: Big 4 vs non big 4

Dwi Martani^{1*}, Nur Aulia Rahmah¹, Fitriany Fitriany¹ and Viska Anggraita¹

Abstract: This paper examines the effect of audit tenure and audit rotation on audit quality. This study also examines whether this effect of the rotation is different between the Big 4 and non-Big 4 audit firm. This research was conducted in Indonesia, which is one of the few countries that not only implementing audit partner rotation but also mandatory audit firm rotation. However, in 2015, the mandatory audit firm rotation in Indonesia was abolished. The results show that the relationship between the tenure of auditor and audit quality is not significant. Audit firm rotation positively impacts audit quality, and the positive impact is lower in Big 4. In non-Big 4, audit partner rotation has no effect on audit quality, but audit firm rotation could improve audit quality. Meanwhile, in Big 4, audit partner rotation is sufficient to improve audit quality because they have sufficient partners to perform a quality review.

Subjects: Corporate Finance; Auditing; Financial Accounting

Keywords: audit firm rotation; audit firm tenure; audit partner rotation; audit partner tenure; audit quality

1. Introduction

This research aims to investigate the impact of the audit firm and audit partner rotation on audit quality in Indonesia. The regulation about audit rotation in Indonesia is interesting to be examined further since the rules of rotation in Indonesia are slightly different from those in other countries.



Dwi Martani

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Dwi Martani is a lecturer at the Faculty of Economics and Business, Universitas Indonesia (FEB UI). She received her doctoral degree from UI in 2004. She is one of the Editorial Board in JAKI (Jurnal Akuntansi dan Keuangan) FEB UI. Her research interest is on Financial Accounting (IFRS), Taxation, Auditing, Finance and Capital Markets, and Public sector. Her working experience is as a member of the Audit Board of the Financial Services Authority - OJK (2018 - now), Member of the Audit Committee of PT. Unilever Tbk (2016 - now), Member of the Audit Committee of PT. Pertamina Persero (2013 - 2018), Chair of the Accounting Department FEUI (2009 - 2013). Nur Aulia Rahmah, Viska Anggraita and Fitriany Fitriany is a lecturer in Department of Accounting at FEB UI. Viska Anggraita and Fitriany Fitriany is one of the Editor in FEB UI and their research interest is on Auditing and Financial Accounting.

PUBLIC INTEREST STATEMENT

Audit tenure is the number of years an auditor has audited a company. The longer the tenure, the lower the independence. Then it needs to be rotated. There are two kinds of rotation, namely audit firm rotation and audit partner rotation. Indonesia is one of the few countries that not only implements audit partner but also audit firm rotation. But, in 2015, mandatory audit firms rotation was abolished. This paper examines the effect of audit tenure and audit rotation on audit quality. The results show that the audit firm rotation increases audit quality, but the impact is lower in the Big 4. It means, in Big 4, the audit partner rotation is sufficient to improve audit quality because it has sufficient partners.

Following SOX in the United States, the Indonesian government also implemented mandatory audit rotation to improve audit quality. The SOX rule is motivated by the Enron and Arthur Anderson scandal and various other financial statement scandals that have led to a low public perception of audit quality.

In 2002, the Government of Indonesia issued a regulation that not only enforced companies to rotate audit partners but also to switch public accounting firms (audit firm rotation). Audit firms must be changed every five years, and the audit partners must be changed every three years. However, there is a loophole; if an audit firm changes the composition of the audit partner by more than 50%, the audit firm will be considered as a new audit firm. Therefore, all of its clients are considered new clients, and the audit firm can continue to provide audit services to the company. With this regulation, since 2002, there have been many audit firms that changed the composition of audit partners and automatically changed the name of the local accountant's office in Indonesia. Nevertheless, its foreign affiliates have not changed. Additionally, Siregar et al. (2012) state that the majority of audit firm rotations in Indonesia that occurred after 2003 were quasi-rotations.

Furthermore, in 2008, the Indonesian government changed the maximum audit firm tenure to six years, and the maximum audit partner tenure was still three years. In 2015, the government issued *PP No. 20/2015*, which stated that an audit firm does not need to be rotated but only the audit partners for every five years.

With that being said, the effect of rotation and tenure on audit quality found varied results. On the one hand, some research regarding the effect of audit tenure and auditor rotation indicate that auditor rotation would decrease audit quality (Monroe and Hossain (2013); (Bratten et al., 2019); Garcia-Blandon et al. (2019); and Nadia (2015)). These findings support the argument that rotation could decrease audit quality due to competency issues where new auditors are not too familiar with their clients (Fitriany et al., 2016). On the other hand, several other studies have found the opposite results, which deduce that auditor rotation could increase audit quality (Kurnianingsih and Rohman (2014); Carey and Simnett (2006), Rahmat and Ali (2016), and Rickett et al. (2016); Junaidi et al. (2016)) These findings support the argument that audit firm rotation could improve audit quality because it increases the independence of auditors. Hence, these studies' inconclusive results encourage the importance of further investigation with a better dataset and methodology in this specific area for contributing more towards the ongoing debate. This study re-examines the impact of tenure, audit firm rotation, and auditor rotation on audit quality in Indonesia.

There are two contributions of this study compared to previous studies. Firstly, it is related to the measurement of audit tenure variables. This study examines real tenure, not quasi tenure. Furthermore, this study calculates tenure with a very long period. Thus, it can identify public accounting firms that audit the same company for up to 21 years, even though Indonesia applies mandatory audit firm rotation every six years. Previous studies did not examine the tenure variable of which the very long period of this engagement exists. Based on 215 research samples per year, in 2017, 109 companies have been audited by the same public accounting firm for more than six years, which means they have violated regulations. Of those 109 companies, 33 companies were audited by the same audit firm for 6–9 years, 33 companies were audited by the same audit firm for 10–14 years, and 43 companies were audited by the same audit firm for 15–21 years which shows the importance to include these anomalies when conducting research to give a more realistic depiction of the audit practice in Indonesia. Secondly, this research investigates the effect of audit firm size on the

relationship between audit firm tenure and audit quality. The effect of audit firm tenure on audit quality is expected to be different between Big 4 and non-Big 4. In the Big 4 case, the incentive to protect its reputation is greater than non-Big 4. Therefore, the probability of decreasing independence due to long audit tenure will be lower compared to non-Big 4.

Hence, this study will examine the impact of audit tenure and audit rotation on audit quality by conducting separate tests between the Big 4 and non-Big 4 because Indonesia has uniqueness that makes it necessary to do separate research. Some of these uniqueness include: 1) competition in Indonesia's audit services market is high with varying audit firm sizes. Therefore, this will affect the firm's incentives to maintain its independence. 2) There have been several times of changes made to the rotation regulations for audit firms and auditors, where the last revision eliminated the obligation to rotate the audit firms. Therefore, this leads to the need for research to evaluate the elimination of the mandatory audit firm rotation in Indonesia, i.e., whether it creates a benefit to the audit quality or not. 3) Indonesia has a lower level of auditor supervision than developed countries. Thus, this fact creates differences in the costs and risks borne by auditors for committing violations.

2. Literature review and hypothesis development

2.1. Impact of audit firm tenure and rotation on audit quality

Until recently, literature about the impacts of the audit firm's rotation on the audit quality still arises conflicting results. The proponents argue that the idea of mandatory rotation of audit firms drives better independence and skepticism as a result of reducing familiarity threat between audit firms and their respective clients. This is considered necessary since a lack of auditor independence and skepticism have arguably been viewed as the primary reason for most of the audit failures. Carey and Simnett (2006) demonstrate that the tenure of auditors' service significantly degrades the quality of the audit. More specifically, Corbella et al. claim that the audit firm rotation raises the audit quality in clients audited by non-Big 4. In addition, Rahmat and Ali (2016) also argue that the established relationship created by auditor reappointment may intensify client engagement in related party transactions and interfere with auditors' independent judgment. Auditor rotation is also needed to ensure that client complies with the law as well as to incur fresh approaches to the audit process (Teh et al., 2016). In countries with poor accounting quality, it is also suggested that the auditor's lengthy tenure worsens the quality of audit (Rickett et al., 2016). It is further attested by Junaidi et al. (2016), indicating that auditor independence is favorably affected by auditor rotation. In line with Junaidi et al. (2016), Kim et al. (2019) also deduced investors positively perceive mandatory audit firm's rotation as it decreases the cost of equity capital and enhances auditor skepticism and independence.

On the other hand, the results of another research view show that hiring the same audit firm for a long time is beneficial. Longer audit tenure enables the audit firm to become more familiar with the client's business and environment, thus, streamlines the audit process. The audit firm can conduct a more effective and efficient audit after it has passed several audit cycles because they had gained institutional knowledge of the client throughout the engagement periods. In addition to the client's business expertise and competency possessed by the auditors during the long tenure, it is also possible for auditors to limit the discretionary accruals level determined by management as the tenure of audit be extended (Myers et al., 2003). The study from Monroe and Hossain (2013) also infers that the audit's long tenure is positively related to the more superior quality of audit. Moreover, Dordzhieva even finds that mandatory rotation of audit firm shall impair auditor independence by two channels. First, the truncation of the auditor's current engagement

serves the auditor with a chance to stop in the course of wrong actions if he has started down a slippery slope. Consequently, the initial determination to compromise his independence gets relatively less costly. Second, the enforced tenure restriction on the auditor's future engagements lowers the worth of reverting to the external market by terminating an engagement with a problematic client. Besides, Wilson et al. (2018) prove that familiarity between client and its auditor, built by long audit firm tenure, induces the client's trust which, successively promotes whistleblowing action of the client's employee. Specifically, Garcia-Blandon et al. (2019) find that ten years of audit engagement presents a high quality of audit. Additionally, audit firm tenure is positively associated with the quality of the financial statements, especially in more sophisticated institutions such as banks (Bratten et al., 2019).

Nevertheless, more recent research fails to prove the role of mandatory audit firm rotation in audit quality. Dattin (2017) and Quick and Schmidt (2018) reveal that audit firms' mandatory rotation does not increase auditor independence and audit quality. As Dattin (2017) stated, "independence is quite a difficult subject to regulate because it is a state of mind." Experiment research by Kamath et al. (2018) indicates that participants appear to be indifferent to auditor independence due to rotation. The participants merely respond to concurrent changes in audit fees and the industry expert status (competency) of the incoming auditor.

In the Indonesian context, some empirical testing conducted by Amjadallah Febriyanti and Mertha (2014), Nurhayati and Prastiti (2019), Fitriany et al. (2016), Hartadi (2018), and Ardhani et al. (2019) do not discover a statistically significant relationship between auditor rotation and audit quality. While Nadia (2015) documents a statistically significant negative impact of auditor rotation on the quality of the audit. Several researchers provided different analyses. Sumarwoto demonstrates that voluntary auditor rotation adversely affects the quality of the audit. Kurnianingsih and Rohman (2014) show that audit quality is negatively influenced by audit tenure and positively influenced by audit rotation. Furthermore, Sari and Indarto (2019) highlight that the audit firm's switch raises the audit quality of if the incoming auditor is Big 4. Otherwise, audit quality remains. However, unlike Kurnianingsih and Rohman (2014), Sari and Indarto (2019) report that audit tenure does not threaten auditor independence but enhance audit quality. Hence, the inconclusive results of these studies encourage the importance of further investigation with a better dataset and methodology in this specific area.

In addition, concerning audit firm size, the auditing literature generally suggests that the audit quality provided by Big 4 audit firms is higher than non-Big 4. Dopuch and Simunic (1980) argue that larger audit firms give more excellent audit services to maintain the firm's brand name and prevent costly litigation. Likewise, DeAngelo (1981) proposes that there is not any essential client to bigger audit firms and, therefore, bigger audit firms are less likely to compromise their independence. In the US, the Big 4 were also seen as supplying better quality and more enhanced assurance on financial reports compared to non-Big 4 (Teoh & Wong, 1993). According to Lawrence et al. (2011), audit firms in Big 4 can offer a better quality of audit as their size could aid stronger and more complete training programs, standardized audit methodologies, and proper engagement quality control reviews.

2.2. Impact of audit partner tenure and rotation on audit quality

Periodic audit partner rotations compromise full audit firm rotations, which bear significantly more expensive rotation costs. Therefore, there is a growing interest in answering whether the audit partner should be mandatorily changed or not. If yes, how long the optimum period of providing

high-quality audits is before the audit partner switch? The critical objective of audit partner rotation is to enhance the audit quality by preserving both independence in fact and appearance as well as carrying a fresh perspective at audit engagement issues. Additionally, a partner rotation could offer an effective peer review outcome as the new partner would scrutinize the outgoing partner's work (Public Oversight Board (POB), 2002). Consequently, mandatory audit partner rotation might elevate the quality of audit in the years prior and subsequent to the rotation, as suggested by the results of research from Lennox et al. (2014). Audit partner rotation is suggested to enhance independence since a long relationship between auditor and client can build a "learned confidence" for the auditor to less examine the critical financial statements assertions, apply professional skepticism to the anomaly, and enact rigorous audit procedures (e.g., American Institute of Certified Public Accountants (AICPA), 1992; Arrunada & Paz-Ares, 1997; Government Accountability Office (GAO), Johnson et al., 2002; Shockley, 1981). There also would be a familiarity threat undermining independence over longer tenure (American Institute of Certified Public Accountants (AICPA), 1992; Arel et al., 2005).

Nevertheless, it is debated by audit professionals that the rotation of the audit partner would reduce the quality of the audit since the new partner has less client-specific experience as well as related knowledge and, thus, has more difficulty in finding financial statements issues, particularly in his/her initial engagement years (Litt et al., 2014). Bedard and Johnstone (2010) provide evidence of extra efforts invested by the new audit partner in the early years of engagement to learn the client's nature of business. Similarly, more workload for the new audit partner due to the partner rotation regulation is documented by Daugherty et al. (2013). It composes an indirect unfavorable outcome for the quality of the audit. Moreover, Litt et al. (2014) show a lower quality of financial reporting, mainly in larger clients, subsequent to audit partner rotation. Further analysis suggests that audit challenges for Big 4 partners are presented in the first year of the rotation, which persists for a minimum of three years for non-Big 4 partners.

It is deduced that two contrast opinions regarding the impact of audit tenure on the quality of the audit appear. The first opinion states that the longer the auditor's tenure, the weaker auditor independence, thus, lower the quality of audit. This is because the longer the audit tenure, the personal auditor-client connection will be formed, which has the potential to lead to the formation of bonds of trust, and emotional relations (Arrunada & Paz-Ares, 1997).

The implication is that auditors will find it difficult to be independent, thereby increasing the chances of the auditor agreeing to client pressure regarding his accounting choices and policies. Closeness with clients also leads to a reduction in new perspectives and the skepticism that auditors usually have in the early years of an audit engagement (Mgbame et al., 2012). The lengthy relationship between auditor and client causes a tendency to create "learned confidence" in the client, therefore, the auditor tends to conduct audit procedures that are not too rigorous, and will use the same audit program, from year to year (Johnson et al., 2002). This rationale is supported by Carey and Simnett (2006), who demonstrate that auditor tenure significantly degrades audit quality. Similarly, Rickett et al. (2016) found that in countries with poor quality of accounting, the auditor's long tenure creates worsening audit quality.

Concerning the impact of audit tenure on the quality of the audit, mandatory rotation of audit is issued to maintain independence, skepticism, and objectivity. Several prior studies have discussed the need for the obligation of mandatory auditor rotation. As the tenure of an auditor extends, auditors limit discretionary and current accruals reported by management (Myers et al., 2003). Consistent with these findings, Johnson et al. (2002) discovered that higher levels of unexpected accruals (lower audit quality) in short tenure groups of companies (clients) compare to medium tenure group companies (clients). Moreover, in the long tenure group, there is not any observed

significant rise in unforeseen accruals. Likewise, Litt et al. (2014) inferred a lower quality of financial reporting, mainly in larger clients, after a partner rotation. The outcomes of these findings propose that mandatory change of audit may negatively affect audit quality since audit quality is more deficient in the initial years of the auditor-client relationship.

Bamber and Iyer (2007) deduced that incentives from audit partners can conflict with audit firms. They also found that a long audit partner tenure increased the likelihood of an auditor approving client preferences. However, the audit firm tenure was negatively related to the likelihood of an agreement (concession) between the auditor and the client. Therefore, this result implies that different from audit partners, audit firms have more substantial incentives to maintain their independence to preserve the reputation of the firm.

Another opinion states that the longer the audit tenure, the higher the audit quality because auditors need time to acquire expertise about the nature of the client's business that they are auditing and that over time the auditor also accumulates specific knowledge about the client (Ghosh & Moon, 2005; Jenkins & Velury, 2008). Client-specific knowledge attained by the auditor during the tenure of the audit will increase the auditor's ability to design audit procedures, and detect fraud and irregularities in the client's financial statements. This argument is supported by the findings of Myers et al. (2003) that explored the connection between the tenure and the quality of the audit as proxied by discretionary accruals. According to their study, the auditor tends to restrict both revenues increasing and decreasing accruals as the relationship between the auditor and its client be extended. Hence, these results argue that the tenure of the audit is positively associated with audit quality, and audit quality is not determined by tenure. Sari and Indarto (2019) found that an audit firm rotation increases the quality of audit if the new auditor is Big 4.

Based on the explanation above, auditor rotation could improve the quality of audit because it increases independence. Audit tenure also could improve the quality of audit because the longer the tenure, it will increased competence. Therefore, the research hypothesis is:

H1a: Audit firm tenure will increase audit quality

H1b: Audit partner tenure will increase audit quality

H2a: Audit firm rotation will increase audit quality

H2b: Audit partner rotation will increase audit quality

The impact of audit tenure is predicted to be different between Big 4 and non-Big 4. At Big 4, the effect of tenure and rotation on quality of audit is predicted weaker than non-Big4. In Big 4, the incentive to protect its reputation is more considerable than non-Big 4. Therefore, in Big 4, the decrease in independence due to long audit tenure will be lower than in non-Big 4. This is consistent with Dopuch and Simunic (1980) that larger audit firms give more distinguished audit services quality to maintain the firm's brand name fame and prevent costly litigation. Likewise, DeAngelo (1981) proposes that no single client is essential to bigger audit firms and, therefore, bigger audit firms are less likely to compromise their independence. In a big audit firm, the decrease in auditor competence due to new engagement is also lower. This is because a big audit firm has more human and technological resources. Thus, the Big 4 new engagement does not significantly affect the produced audit quality. According to Lawrence et al. (2011), Big 4 audit firms could offer higher quality audits as their size can aid stronger and more complete training programs, standardized audit methodologies, and proper engagement quality control reviews. Based on these arguments, the proposed hypothesis is:

H3a: Big 4 auditor will weaken the positive effect of audit firm tenure on audit quality compare to Non-Big 4

H3b: Big 4 auditor will weaken the positive effect of audit partner tenure on audit quality compare to Non-Big 4

H4a: Big 4 auditor will weaken the positive effect of audit firm rotation on audit quality compare to Non-Big 4

H4b: Big 4 auditor will weaken the positive effect of audit partner rotation on audit quality compare to Non-Big 4

3. Methodology

To investigate the impact of audit partner and audit firm rotation on audit quality, this study uses yearly of 215 listed firms for the period from 2013 to 2017, excluding companies in the financial and investment industries. This is because companies in the financial and investment sectors are regulated distinctively and have different characteristics that cannot be compared to companies in other industries. The research sample is selected by purposive sampling method with the following criteria: 1) Companies must be listed on the Indonesia Stock Exchange from 2013 to 2017; 2) The Company is not classified in financial and investment industries; 3) The Company has never been suspended during the selected study period; 4) The Company discloses the required data completely including the name of the audit firm and the public accountant (AP). Based on the above criteria, 1001 firm years samples were obtained from 2012 to 2017. The selection of the study period was to accommodate the period before and after Indonesia applied the rules that abolished the mandatory audit firm rotation rules in 2015. The research period began in 2013 because Indonesia began to fully implement IFRS in 2012. Prior to that year, Indonesia implemented IFRS in several phases. In 2013, IFRS was all adopted. This is important because the dependent variable is audit quality, measured by earnings quality, where earnings quality is measured by discretionary accruals (DAC). This DAC number is strongly influenced by the accounting standards used.

Model to test H1 and H2:

$$\begin{aligned} \text{ABS_DAC}_{it} = & \alpha_1 + \alpha_2 \text{AF_TEN}_{it} + \alpha_5 \text{AP_TEN}_{it} + \alpha_6 \text{AF_ROT}_{it} + \alpha_7 \text{AP_ROT}_{it} + \alpha_8 \text{D_REG}_{it} \\ & + \alpha_9 \text{D_BIG4}_{it} + \alpha_{10} \text{LEVERAGE}_{it} + \alpha_{11} \text{GROWTH}_{it} \quad \dots \text{ (Model 1)} \\ & + \alpha_{12} \text{SIZE}_{it} + \alpha_{13} \text{D_LOSS}_{it} + \alpha_{14} \text{CFO}_{it} + \varepsilon_{it} \end{aligned}$$

Model to test H3:

$$\begin{aligned} \text{ABS_DAC}_{it} = & \alpha_1 + \alpha_2 \text{AF_TEN}_{it} + \alpha_5 \text{AP_TEN}_{it} + \alpha_2 \text{AF_TEN} * \text{BIG4}_{it} + \alpha_2 \text{AP_TEN} * \\ & \text{BIG4}_{it} + \alpha_6 \text{AF_ROT}_{it} + \alpha_7 \text{AP_ROT}_{it} + \alpha_8 \text{D_REG}_{it} + \alpha_9 \text{D_BIG4}_{it} + \quad \dots \text{ (Model 2)} \\ & \alpha_{10} \text{LEVERAGE}_{it} + \alpha_{11} \text{GROWTH}_{it} + \alpha_{12} \text{SIZE}_{it} + \alpha_{13} \text{D_LOSS}_{it} + \alpha_{14} \text{CFO}_{it} + \varepsilon_{it} \end{aligned}$$

Where:

ABSDAC = audit quality measured by absolute discretionary accruals; AF_TEN = audit firm tenure; AP_TEN = audit partner tenure; AF_ROT = dummy, 1 if the company rotates its audit firm and 0 if the company does not rotate its audit firm; AP_ROT = dummy, 1 if there is a rotation in the signing audit partner and 0 if there is not any rotation in the signing audit partner; D_REG = dummy, 1 for period the after regulation PP no. 20/2015 and 0 for the period before regulation; D_BIG4 = dummy, 1 if the company's auditor is Big4 and 0 if the company's auditor is not Big4; LEVERAGE = leverage levels of the company, measure by debt-to-total assets; GROWTH = the company's growth rate, measured using price-to-book value; SIZE = the company's size, proxied by

the natural logarithm of the total asset value; D_LOSS = dummy, 1 if the company booked a loss and 0 if it posted a profit; CFO = cash flow from the operation, scaled up to total company assets.

4. Operationalization of variables

The audit quality is proxied by absolute discretionary accruals (ABS_DAC). Myers et al. (2003), Chi et al. (2009), and Fitriany et al. (2016) used ABSDAC to measure audit quality. It is predicted that there is a negative relationship between ABS_DAC and audit quality. The higher the level of ABS_DAC, it indicates the huge of earnings management (Velury & Jenkins, 2006). If earnings management is high, the quality of earnings will be low because the auditor cannot prevent earnings management done by the company. Furthermore, low earnings quality illustrates the poor quality of the audit. Because discretionary accruals cannot be observed, several researchers have developed various models to separate the accrual components into discretionary accruals and non-discretionary accruals. Several ways to measure the amount of DAC, for example, the Jones model (1991), Dechow et al. (1995), Kaznik (1999), and Kothari et al. (2005). This study uses the Kaznik (1999) model to measure the value of discretionary accruals because it is based on research by Siregar and Siregar and Utama (2008), the Kaznik model gave better results. The following is Kaznik (1999) model:

$$TACC_{it}/TA_{i,t-1} = \alpha_1(1/TA_{i,t-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it})/TA_{i,t-1} + \alpha_3PPE_{it}/TA_{i,t-1} + \alpha_4\Delta CFO_{it}/TA_{i,t-1} + \epsilon_{it}$$

Where:

TACC_{it} = total accruals of company i in period t

TA_{it} = total accruals of company i in year t

Δ REV_{it} = change in firm i's income between years t and t-1

Δ REC_{it} = change in receivables of company i between years t and t-1

PPE_{it} = gross fixed assets of company i in year t

ΔCFO_{it} = change in operating cash flow between years t from year t-1

ε_{it} = discretionary accrual

To measure the length of time (tenure), there are two types of tenure, namely audit firm tenure (AF_TEN) and audit partner tenure (AP_TEN), which is the length of time the auditor has been audited a company in a given year (number of years). In calculating the audit firm's tenure, the real tenure is calculated from the length of the foreign-affiliated audit firm. From 2002–2015, Indonesia has had a mandatory rotation for public accounting firms, but if the audit partner changes 50%, it is assumed that the public accounting firm has changed. So, there have been many changes in the name of the public accounting firm, but actually, the foreign affiliation audit firm is still the same. So, to measure the real tenure, this study looks at the name of the foreign-affiliated audit firm.

The rotation variable is a dummy variable, 1 if there is a rotation in the audit firm/audit partner and 0 if there is not any rotation in the audit firm/audit partner. D_REG represents a dummy variable with 1 for the period after regulation no. 20/2015 was being enacted and 0 for the period

before the regulation was enacted. D_BIG4 is a dummy variable, 1 if the company is audited by Big 4 and 0 if it is not audited by Big 4.

Following is the explanation for the control variable. Debt levels are predicted to have a positive or negative effect on audit quality. Positive effect because companies with higher debt levels have incentives to conduct earnings management to meet debt restrictions (DeFond & Jiambalvo, 1994). On the contrary, companies with high debt levels, do not dare to perform earnings management because there are creditors who have the ability and interest to monitor the company's activities (Larcker et al., 2007).

Variable GROWTH is expected to have a negative relation to ABSDAC. Summers and Sweeney (1998) said that to preserve consistent companies' growth rates, financial statements of companies with low growth rates tend to be manipulated by their managers. Moreover, the smaller the growth, the more likely it is to do earnings management. Then GROWTH is negatively related to earnings management (ABSDAC). GROWTH is proxied by price to book value (PBV).

The SIZE company is predicted to have a positive or negative effect on ABSDAC. Lyss and Watt and Shu (2000) found that company size and litigation risk are positively related, thus, motivating large companies to increase transparency in financial reporting and reduce the tendency to do earnings management. Therefore, company size is negatively related to ABSDAC. On the other hand, Siregar et al., (2012) also found that company size is negatively correlated with the company's discretionary accruals. the larger the company, the more complex the business and operations of the company, the more difficult users of financial statements to detect manipulation of financial statements, therefore, the greater the opportunity for management to manage earnings (Lobo & Zhou, 2006). Hence, SIZE could also have a positive impact on earnings management. SIZE is measured by Ln of total assets

LOSS is predicted to have a positive effect on ABSDAC because when a company experiences losses, the greater the desire of the company to do earnings management (Kallapur et al., 2010). CFO is predicted to have a negative effect on ABSDAC because if the company's financial condition is good, the less likely the company will do earnings management (Velury and Jenkins (2006), Lobo and Zhou (2006), and Becker et al. (1998)).

5. Discussions of results

Table 1 illustrates the complete sample descriptions (N: 1,001), as well as the sample firms audited by Big 4 (N: 429) and non-Big 4 (N: 572). The average audit firm tenure (AF_TEN) of the sample audited by Big 4 was 9.9 years, with a maximum tenure of 21 years. Whereas for non Big-4, the average audit firm's tenure is 5.2 years with a maximum tenure of 18 years. Interestingly, the maximum audit firm tenure allowed was only six years before the regulation was abolished in 2015. These tenure statistics shows that there are some audit firms that has changed its partner composition with the aim of circumventing the rotation regulation. Based on Indonesian regulation if the audit firm's partner composition has changed by more than 50%, then the audit firm is considered as the new audit firm, and the audit firm can continue to provide audit services to the client. The average partner's tenure is 1.66 years, which in accordance with the maximum audit tenure requirements (three years for 2008–2015 and five years for 2015–present). Of the entire sample of this study, only a few samples performed real audit firm rotation during 2013–2017, i.e., only 15.38% of the sample. Moreover, only 6.29% of the sample audited by the Big 4 switched audit firms during the period. This may imply that companies that are audited by Big 4 are very likely to retain their auditors. In general, audit firms do not feel burdensome if they have to change audit partner, because the client is still in the same office. This is supported by the high audit partner rotation of 54.25% of the sample.

Table 1. Descriptive Statistic

Variable	All Samples				Big 4				Non-Big 4			
	Mean	Std. Dev.	Min.	Max.	Mean	Std. Dev.	Min.	Max.	Mean	Std. Dev.	Min.	Max.
ABSDAC_DECHOW	0.0700	0.1028	0	0.8676	0.0617	0.0858	0.0002	0.8676	0.0763	0.1136	0	0.8676
ABSDAC_KAZNIK	0.0688	0.1058	0	0.9528	0.0649	0.0905	0.0001	0.9528	0.0717	0.1159	0	0.9528
AF_TEN	7.2088	5.1743	1	21	9.8811	5.1779	1	21	5.2045	4.1717	1	18
AP_TEN	1.6643	0.7920	1	4	1.6107	0.7673	1	4	1.7045	0.8083	1	4
AF_ROT	0.1538	0.3610	0	1	0.0629	0.2431	0	1	0.2220	0.4160	0	1
AP_ROT	0.5425	0.5445	0	1	0.5594	0.5245	0	1	0.5297	0.5591	0	1
D_REG	0.5764	0.4944	0	1	0.5874	0.4929	0	1	0.5682	0.4958	0	1
D_BIG	0.4286	0.4951	0	1	1	0	1	1	0	0	0	0
LEV	0.2668	0.2680	0	1.7263	0.2338	0.2329	0	1.7263	0.2916	0.2894	0	1.7263
GROWTH	2.4103	4.4681	-19.7327	25.3443	2.9695	4.9331	-19.7327	25.3443	1.9909	4.0387	-5.6340	25.3443
SIZE	21.5895	1.7716	16.2372	26.9287	22.5200	1.4855	18.4642	26.9287	20.8917	1.6444	16.2372	25.3622
D_LOSS	0.2498	0.4331	0	1	0.1888	0.3918	0	1	0.2955	0.4566	0	1
CFO	0.1699	0.8433	-3.2249	8.4198	0.1302	0.4518	-0.2229	8.4198	0.1997	1.0443	-3.2249	8.4198
	N: 1,001				N: 429				N: 572			

ABSDAC_DECHOW = audit quality measured by discretionary accruals (Dechow); **ABSDAC_KAZNIK** = audit quality measured by discretionary accruals (Kaznik); **AF_TEN** = audit firm tenure; **AP_TEN** = audit partner tenure; **AF_ROT** = dummy, 1 if the company rotates its audit firm and 0 if the company does not rotate its audit firm; **AP_ROT** = dummy, 1 if there is a rotation in the signing audit partner and 0 if there is not any rotation in the signing audit partner; **D_REG** = dummy, 1 for the period after regulation PP no. 20/2015 and 0 for the period before regulation; **D_BIG4** = dummy, 1 if the company's auditor is Big4 and 0 if the company's auditor is not Big4; **LEVERAGE** = leverage levels of the company, measure by debt-to-total assets; **GROWTH** = the company's growth rate, measured using price-to-book value; **SIZE** = the company's size, proxied by the natural logarithm of the total asset value; **D_LOSS** = dummy, 1 if the company booked a loss and 0 if it posted a profit; **CFO** = cash flow from the operation, scaled up to total company assets.

Correlation coefficients between variables are presented in Table 2. Audit quality increased (lower discretionary accruals) along with the lower tenure of audit partners. Audit partner rotation has positive correlation with audit quality while there is no significant correlation between audit firm rotation and audit quality. The correlation test indicates audit partner rotation and tenure has significant correlation with audit quality. The period after regulation PP no. 20/2015, the Big 4 audit firm, the company's growth rate and size have a direct relationship with audit quality. As there is not any coefficient above ± 0.8 , it is considered that no multicollinearity among variab

Table 3 shows the regression results of the hypothesis of the effect of audit (partner and audit firm) tenure and rotation on audit quality. Table 3 shows the regression results where the dependent variable is audit quality, which is measured using the abnormal accrual (ABSDAC) value using the Kaznic model (1999). Lower abnormal accrual indicates higher audit quality. In Table 3, the abnormal accrual is already reversed (multiplied by negative 1), so the positive coefficient indicates the independent variable positively affect the quality of the audit.

Column 1 is the test result without entering the moderating variable of BIG 4, while column 2 is the test result by entering the moderating variable. It can be seen from Table 3 column 1 that the variable of AF_TEN, AP_TEN, AF_ROT, AP_ROT is not significant. It shows that the relationship between audit tenure and audit quality is not significant. Thus, hypotheses 1a and 1b are not proven. This result is likely because the relationship between audit tenure and audit quality is not linear but quadratic, such as findings from Fitriany et al. (2016) that there is an optimum point of tenure instead of a simple decrease or increase result. At the beginning of the audit period, audit quality will increase because longer tenure sharpen the auditor's competence. However, until a certain point in time, audit quality will decrease because the auditors' independence decreases as time goes by.

Furthermore, column 1 shows that the variables of AF_ROT and AP_ROT are not significant as well. It means the relationship between audit rotation and audit quality is not significant (hypotheses 2a and 2b are not proven). This result indicates that the audit partner and audit firm rotation do not affect audit quality. Even though there is no rotation, the audit partner and audit firm still maintain their independence, thus not lowering audit quality. In addition, variable D_BIG4 is showing a significant positive value. This result indicates that audits conducted by Big 4 are of better quality than audits conducted by non-Big 4. To investigate whether there is a different effect between Big 4 and non-Big 4 audit firms, we partition the sample using D_BIG4 as moderating variable. Table 3 column 2 shows the regression results after inserting the moderating effect of BIG 4 (D_BIG4). The AF_TEN*BIG4 and AP_TEN*BIG4 are not significant. It means there is not any different effect of the audit firm and partner tenure on audit quality between BIG 4 and non-BIG 4; thus, hypotheses 3a and 3b are not proven. However, the AF_ROT variable has a significant positive effect on audit quality, while the moderating variable AF_ROT * BIG4 has a significant negative effect on audit quality. These results indicate that hypothesis 4a is proven. They show that if an audit firm is rotated, it will increase the audit quality. This positive impact of the audit firm rotation on the quality of the audit is weaker in Big 4 than non-Big 4. This is because Big 4 has a higher incentive to maintain its reputation so that its independence is more maintained even though there is no audit firm rotation, compared to non-big 4. These results are consistent with the findings of Dopuch and Simunic (1980) that Big 4 always tries to maintain service quality and brand name.

For the additional test, we regress the main model separately between the group sample audited by non-Big 4 (column 3) and Big 4 (column 4). Table 3 column 3 (non-big) shows that the AF_ROT is proven to have a statistically significant positive effect on the quality of the audit while AP_ROT is not significant. However, column 4 (big 4 data) shows that the AP_ROT is proven to

Table 2. Correlation Coefficients

	ABSDAC_ DECHOW	ABSDAC_ KAZNIC	AF_TEN	AP_TEN	AF_ROT	AP_ROT	D_REG	D_BIG	LEV	GROWTH	SIZE	D_LOSS	CFO
ABSDAC_ DECHOW	1												
ABSDAC_ KAZNIC	0.947*** (0.000)	1											
AF_TEN	-0.036 (0.251)	-0.035 (0.273)	1										
AP_TEN	0.064** (0.043)	0.074** (0.020)	-0.008 (0.794)	1									
AF_ROT	-0.028 (0.373)	-0.036 (0.255)	-0.503*** (0.000)	-0.277*** (0.000)	1								
AP_ROT	-0.039 (0.220)	-0.054* (0.091)	0.006 (0.852)	-0.800*** (0.000)	0.297*** (0.000)	1							
D_REG	-0.149*** (0.000)	-0.155*** (0.000)	0.122*** (0.000)	-0.113*** (0.000)	0.013 (0.693)	0.108*** (0.001)	1						
D_BIG	-0.070** (0.026)	-0.032 (0.310)	0.448*** (0.000)	-0.059* (0.064)	-0.218*** (0.000)	0.027 (0.393)	0.019 (0.543)	1					
LEV	0.011 (0.728)	-0.008 (0.795)	-0.072** (0.022)	-0.011 (0.735)	0.071** (0.024)	0.026 (0.408)	0.011 (0.722)	-0.107*** (0.001)	1				
GROWTH	-0.053* (0.096)	-0.023 (0.459)	0.031 (0.321)	0.005 (0.883)	-0.002 (0.957)	-0.002 (0.960)	0.021 (0.510)	0.108*** (0.001)	-0.137*** (0.000)	1			
SIZE	-0.147*** (0.000)	-0.129*** (0.000)	0.242*** (0.000)	-0.007 (0.816)	-0.151*** (0.000)	-0.020 (0.539)	0.043 (0.175)	0.455*** (0.000)	0.100*** (0.002)	0.014 (0.670)	1		
D_LOSS	0.039 (0.215)	0.009 (0.775)	-0.175*** (0.000)	0.049 (0.119)	0.131*** (0.000)	-0.024 (0.452)	0.060* (0.057)	-0.122*** (0.000)	0.235*** (0.000)	0.016 (0.609)	-0.127*** (0.000)	1	

(Continued)

Table 2. (Continued)

	ABSDAC_ DECHOW	ABSDAC_ KAZNIK	AF_TEN	AP_TEN	AF_ROT	AP_ROT	D_REG	D_BIG	LEV	GROWTH	SIZE	D_LOSS	CFO
CFO	-0.007 (0.835)	-0.020 (0.522)	-0.060* (0.057)	-0.063** (0.046)	0.125*** (0.000)	0.059* (0.063)	0.111*** (0.001)	-0.041 (0.197)	-0.027 (0.400)	0.049 (0.121)	-0.114*** (0.000)	0.021 (0.509)	1

Correlation coefficient below the diagonal; p-value is provided parentheses below the correlation. **ABSDAC_DECHOW** = audit quality measured by discretionary accruals (Dechow); **ABSDAC_KAZNIK** = audit quality measured by discretionary accruals (Kaznik); **AF_TEN** = audit firm tenure; **AP_TEN** = audit partner tenure; **AF_ROT** = dummy, 1 if the company rotates its audit firm and 0 if the company does not rotate its audit firm; **AP_ROT** = dummy, 1 if there is a rotation in the signing audit partner and 0 if there is not any rotation in the signing audit partner; **D_REG** = dummy, 1 for the period after regulation PP no. 20/2015 and 0 for the period before regulation; **D_BIG4** = dummy, 1 if the company's auditor is Big4 and 0 if the company's auditor is not Big4; **LEVERAGE** = leverage levels of the company, measure by debt-to-total assets; **GROWTH** = the company's growth rate, measured using price-to-book value; **SIZE** = the company's size, proxied by the natural logarithm of the total asset value; **D_LOSS** = dummy, 1 if the company booked a loss and 0 if it posted a profit; **CFO** = cash flow from the operation, scaled up to total company assets.

* significant at 10%, ** significant at 5%, *** significant at 1%

have a statistically significant positive effect on the quality of the audit while AF ROT is not significant. Hence, these results indicate that in non-Big 4, audit firm rotation improves audit quality, while audit partner rotation has no effect on audit quality. This may be due to lack of audit partners in some of non-Big 4 audit firms; thus, they may not do internal partner rotation (this is possible by rotating only the signing audit partner but not changing the audit partner who performs the audit in the field) as a result audit partner rotation has no effect on the audit team independence and thus audit quality. For non-Big 4, the enforcement to merely rotate the audit partner is insufficient. The independence as well as the quality of the audit will only improve by rotating audit firms. This result is consistent with Kurnianingsih and Rohman (2014), who found that the quality of the audit is positively affected by audit rotation.

Table 3 indicates for non-Big 4 firms, audit partner rotation without changing the public accounting firm is not enough because although the audit partner did change, the audit manager and audit staff do not change. Hence, the rotation goal to maintain auditor independence is not achieved. In some real cases, the change of audit partners is only on paper, the one who changes the audit report is the signing partner, but the partner who leads the audit team remains. Meanwhile, in Big 4 firms, partner rotation is sufficient to improve audit quality. This is because Big 4 firms has many audit partners to do internal partner rotation. Furthermore, this result inferred that Big 4 audit firms have more incentive to maintain their audit quality. This is consistent with Dopuch and Simunic (1980) argument that larger audit firms give more superior audit services quality to maintain the firm's brand name reputation and prevent costly litigation.

Table 4 shows that the robustness test results using the Dechow model to measure audit quality were not too different from the main test. Consistent with the main test result, the audit tenure has no effect on audit quality. In contrast, audit partner rotation has a higher positive effect on audit quality in Big 4 compared to non-Big 4 accounting firms.

6. Conclusion

The purpose of this study is to examine the impact of audit tenure and rotation on audit quality in Indonesia. This study also looks at the differences in these effects on Big and non-Big 4 audit firms. The results conclude that the relationship between audit tenure and audit quality is not significant. Furthermore, this study shows that in non-Big 4 audit firm, audit firm rotation is proven to significantly improve audit quality, while audit partner rotation does not affect the quality of the audit. This indicates that mandatory rotation of the audit firm is still necessary for non-Big 4 since the rotation of the audit partner only is insufficient to maintain the independence thus the quality of the auditor. As non-Big 4 usually has less audit partners, so the internal auditor rotation is limited. In other words, the audit quality is not affected by audit partner rotation, and by rotating audit firms, the audit quality can be improved. Meanwhile, in Big 4, audit partner rotation is sufficient to improve audit quality because they have sufficient partners to perform quality reviews between audit partners.

The results of this study imply that current Indonesia's regulation abolishing the enforcement to rotate audit firms needs to be reviewed further. It is particularly in non-Big 4 audit firms as the number of partners is relatively small, so the review process and discussion among partners is less intensive. This study finds that although partner rotation is sufficient to improve audit quality in Big 4 audit firms, audit firms must always carry out audits according to standards and maintain their independence. With these findings, the Indonesian government can consider the urgency to reimpose the firm's audit rotation obligation or make a policy of the need to merge small non-Big 4 audit firms to increase the number of partners, and it will result in better inter-partner review processes to produce higher-quality audits.

Table 3. Regression Results (Kaznic Model)

Variables	Pred.	Model 1—All sample (Column 1)		Model 2—All sample (Column 2)		Model 1—Non-Big 4 (Column 3)		Model 1—Big 4 (Column 4)	
		Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
AF_TEN	(+)	0.0026	0.135	0.0050	0.072*	0.0030	0.231	0.0027	0.191
AP_TEN	(+)	-0.0019	0.397	-0.0009	0.3975	0.0016	0.437	-0.0010	0.464
AF_ROT	(+)	0.0127	0.172	0.0309	0.027**	0.0253	0.078*	-0.0125	0.305
AP_ROT	(+)	0.0046	0.334	-0.0066	0.312	-0.0032	0.413	0.0259	0.052*
AF_TEN*BIG4	(+)			-0.0047	0.145				
AP_TEN*BIG4	(+)			-0.0004	0.490				
AF_ROT*BIG4	(+)			-0.0542	0.042**				
AP_ROT*BIG4	(+)			0.0290	0.102				
D_REG	(+)	0.0261	0.000***	0.0251	0.000***	0.0359	0.000***	0.0061	0.280
D_BIG	(+)	0.0442	0.070	0.0696	0.098*				
LEVERAGE	(+)	0.0313	0.159	0.0346	0.135	-0.0264	0.288	0.1040	0.006***
GROWTH	(+)	0.0018	0.078*	0.0017	0.083***	0.00154	0.223	0.0024	0.047***
SIZE	(+)	0.0187	0.079*	0.0184	0.082***	0.00999	0.312	0.0389	0.012***
D_LOSS	(+)	0.0161	0.074*	0.0151	0.088	0.01924	0.107	0.0039	0.402
CFO	(+)	-0.0025	0.28	-0.0021	0.314	-0.0028	0.285	-0.0075	0.386
CONS		-0.5419	0.029	-0.5487	0.027	-0.32363	0.223	-1.0165	0.005
Prob		0.0000		0.0000		0.0082		0.0036	
R-sq		0.0198		0.0209		0.0404		0.0318	
N		1001		1001		572		429	

ABSDAC = audit quality measured by discretionary accruals-Kaznic Model; AF_TEN = audit firm tenure; AP_TEN = audit partner tenure; AF_ROT = dummy, 1 if the company rotates its audit firm and 0 if the company does not rotate its audit firm; AP_ROT = dummy, 1 if there is a rotation in the signing audit partner and 0 if there is not any rotation in the signing audit partner; D_REG = dummy, 1 for the period after regulation PP no. 20/2015 and 0 for the period before regulation; D_BIG4 = dummy, 1 if the company's auditor is Big4 and 0 if the company's auditor is not Big4; LEVERAGE = leverage levels of the company, measure by debt-to-total assets; GROWTH = the company's growth rate, measured using price-to-book value; SIZE = the company's size, proxied by the natural logarithm of the total asset value; D_LOSS = dummy, 1 if the company booked a loss and 0 if it posted a profit; CFO = cash flow from the operation, scaled up to total company assets.

Dependent variable: ABSDAC-KAZNIC * significant at 10%, ** significant at 5%, * significant at 1%**

Table 4. Regression Results (Dechow Model)—Robustness Test

Variables	Pred.	Model 1—All sample (testing hypothesis 1)		Model 2—All sample		Model 1—Non-Big 4		Model 1—Big 4 Data	
		Column 1		Column 2		Column 3		Column 4	
		Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
AF_TEN	(+)	0.0016	0.236	0.0039	0.121	0.0028	0.243	0.0019	0.255
AP_TEN	(+)	-0.0025	0.362	-0.0006	0.471	0.0018	0.428	-0.0049	0.317
AF_ROT	(+)	0.0103	0.217	0.0270	0.043**	0.0232	0.094*	-0.0025	0.457
AP_ROT	(+)	0.0011	0.460	-0.0103	0.219	-0.0071	0.314	0.0189	0.108
AF_TEN*BIG4	(+)			-0.0044	0.158				
AP_TEN*BIG4	(+)			-0.0026	0.431				
AF_ROT*BIG4	(+)			-0.0459	0.067*				
AP_ROT*BIG4	(+)			0.0290	0.097*				
D_REG	(+)	0.0253	0.000***	0.0241	0.000***	0.0328	0.001***	0.0070	0.243
D_BIG	(+)	0.0557	0.029**	0.0791	0.067*				
LEVERAGE	(+)	0.0267	0.192	0.0303	0.163	-0.0234	0.309	0.0953	0.008***
GROWTH	(+)	0.0025	0.020**	0.0025	0.021**	0.0020	0.164	0.0034	0.008***
SIZE	(+)	0.0195	0.065*	0.0196	0.065	0.0130	0.259	0.03989	0.008***
D_LOSS	(+)	0.0099	0.183	0.0089	0.206	0.0178	0.122	-0.0065	0.334
CFO	(+)	-0.0038	0.187	-0.0033	0.220	-0.0032	0.261	0.0049	0.422
CONS		-0.5546	0.023	-0.5682	0.021	-0.3882	0.177	-1.0179	0.003
Prob		0.0001		0.0001		0.0148		0.0028	
R-sq		0.0262		0.0277		0.0331		0.0398	
N		1001		1001		572		429	

Dependent Variable: Audit Quality measured by ABSDAC—Dechow Model

Nevertheless, this study has several limitations. First, this study only used non-financial listed companies, then generalization of research results to financial companies and companies that are not listed must be made carefully. Second, audit quality is very difficult to measure. This study uses discretionary accrual to measure the quality of the audit. Future research can employ other proxy that better represents audit quality, for example, the extent to which an accounting firm complies with auditing standards.

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