

The Impact of Audit Market Concentration on Audit Quality: Evidence from Indonesia

(Impak Penumpuan Pasaran Audit ke atas Kualiti Audit: Bukti dari Indonesia)

Mutiara Clarina
Fitriany Fitriany
(Faculty of Economics and Business, Universitas Indonesia)

ABSTRACT

This study examines the impact of audit market concentration on audit quality when regulation about mandatory audit firm rotation are applied in Indonesia. This study used 2,578 firm-years of data from non-financial companies listed on the Indonesia Stock Exchange (IDX) during 2008–2015. Audit quality was measured by discretionary accruals and abnormal working capital, and market concentration was calculated by the Herfindahl–Hirschman Index. The study found that market concentration decrease the accrual discreationer and improves audit quality. This outcome is likely because auditors experience in a particular industry have a better understanding of industry risk and will thus undertake better audit planning and procedures that tend to improve audit quality. So, regulators need to encourage public accounting firms to specialise in specific areas and have better knowledge of the industry to make audit quality better.

Keywords: Audit market concentration; audit quality; Herfindahl index.

ABSTRAK

Kajian ini mengkaji impak penumpuan pasaran audit ke atas kualiti audit apabila peraturan diwajibkan penggiliran firma audit dilaksanakan di Indonesia. Kajian ini menggunakan data tahunan 2,578 firma bukan kewangan yang tersenarai di Bursa Saham Indonesia (IDX) bagi tempoh 2008-2015. Kualiti audit diukur menggunakan akruan boleh pilih dan modal kerja abnormal, dan penumpuan pasaran di kira menggunakan Indeks Herfindahl–Hirschman. Hasil kajian mendapati penumpuan pasaran mengurangkan penanggungan akruan dan meningkatkan kualiti audit. Hasil ini adalah kerana pengalaman juruaudit dalam sesuatu industri mempunyai kefahaman yang lebih baik ke atas risiko industri tersebut dan akan mempunyai perancangan dan prosedur audit yang lebih baik dan cenderung untuk menambahbaik kualiti audit. Oleh itu, pembuat dasar perlulah menggalakkan firma perakaunan awam untuk mengkhusus dalam bahagian tertentu dan mempunyai kefahaman yang baik dalam sesuatu industri untuk menjadikan kualiti audit yang lebih baik.

Kata kunci: Penumpuan pasaran audit; kualiti audit; Indeks Herfindahl.

INTRODUCTION

After the financial crisis during 2007-2008, there was a discussion about how to improve financial system stability and rebuild market confidence in the audit profession after many cases of audit violations occurred, including the Enron and Arthur Anderson cases. Bleibtreu and Stefani (2018) said that there are two things that concern the regulator, namely audit firm rotation and audit market concentration. Regulations regarding the obligation to rotate public accounting firms are expected to increase auditor independence because auditors must be replaced

periodically, thus auditors are not too familiar with clients so that more independence and audit quality can be maintained (Dao, Mishra & Raghunandan 2008; Davis, Soo & Trompeter 2009). But there are also those who disagree with the rotation obligations of public accounting firms, arguing that with rotation, auditors must incur large initial costs, because they must understand the client's business from the start. Public accounting firm rotation does not have benefit because audit quality is lower in the early years of the engagement (Geiger & Raghunandan 2002; Johnson, Khurana & Reynolds 2002; Myers, Myers

& Omer 2003; Carcello & Nagy 2004 ; Gul, Jaggi & Krishnan 2007; Knechel & Vanstraelen 2007). Hence, rotation obligations are expected to increase auditor independence (Harris & Whisenant 2012; Cameran, Prencipes & Trombetta 2016). In addition, those who agrees with mandatory audit firm rotation state that although audit partners are changed regularly, auditors may become overly familiar with clients and thus be less skeptical and have an impact on deteriorating audit quality (Carey & Simnett 2006; Davis et al. 2009).

The second concern refers to the high level of audit market concentration. In the regulatory debate, a high level of market concentration is considered critical, because the collapse of one of the Big 4 can have adverse consequences on the availability of suppliers of audit services and on financial system stability (Bleibtreu & Stefani 2018). In addition, there are concerns that when the market is oligopolistic, audit quality will be low due to lack of auditor choice and low level of competition. Bandyopadhyay and Kao (2001); Boone, Khurana and Raman (2012) stated that there was a negative relationship between audit market concentration and the quality of financial statements. Proponents of rotation regulation state that mandatory audit firm rotation will be able to improve audit quality because it can improve the dynamics in the audit market (Commission of the European Communities. 2011b).

Within the European Union (EU), regulators respond to the global financial crisis by implementing the obligation to rotate public accounting firms after a maximum of ten years, with a four-year cooling off period (European Parliament and European Council 2014). The purpose of this policy is to expand the audit market and to improve the audit quality. In the United States (US), PCAOB has advocated for the implementation of mandatory audit firm rotation for years. However, in 2013, Congress decided not to rotate the audit firm, because it was not considered the most profitable way to strengthen auditor independence (Roush et al. 2011; Edwards 2014).

Since 2002, Indonesia has also implemented mandatory audit firm rotation rules every 5 years, then changed to 6 years since 2008. But in 2015 the Indonesian Government issued a regulation that abolish the mandatory audit firm rotation rules. Indonesia is interesting to study because not many countries apply the mandatory audit firm rotation rules, usually there is only mandatory audit partner rotation.

Most existing audit markets are oligopolistic. Oligopolies get stronger when the audit market has fewer competitors, stable market shares, high concentrations, and middle to high barriers to entry. They weaken as the number of competitors increases, entry barriers are lowered, and market shares become stable—concentration becomes low and there are opportunities to profit from economies of scale (Abidin, Beattie & Goodacre 2010; Pong 1999).

Market concentration is simply an indicator of the extent to which a public accounting firm may use its power, although significant concentration does not necessarily indicate the prevalence of anticompetitive behaviour (Evans & Schwartz 2014). Another consequence of increased audit market concentration is the greater gap between first-tier public accounting firms and smaller firms (Willekens & Achmadi 2003).

Lubbers (1993) argued that more attention is given in developed countries to the conditions of audit markets as an increase in audit market concentration could increase audit fees. However, concentration may reduce the independence of auditors, resulting in a decrease in audit quality. Congruently, Bandyopadhyay et al. (2014) stated that rotation of audit partners does not provide any special advantage to the rotated partners; instead, rotation can reduce audit quality because new auditors usually need time to understand the client in depth. However, research performed in Australia (Carey & Simnett2006) provides some evidence that audit partner rotation does improve audit quality, which was confirmed by the results of research by Dopuch, King and Schwartz (2001).

Research on the concentration of audit services markets was conducted in Indonesia by Afriansyah and Siregar (2007), who examined the effect of rotation rules on the audit services market structure for 2000–2005. Their study showed that regulations governing partner rotation caused a decrease in the audit market concentration in Indonesia. Anggraita et al. (2016) extended the data sample to 1998–2008 and incorporated the application of corporate governance (CG) regulations in its model. Their results indicated that an increasingly high concentration of market audit services would improve audit quality, implying that competition in the high quality audit services market in Indonesia would degrade the quality of audits being done. This outcome demonstrates the need for rules to regulate the level of market competition in Indonesia to maintain audit quality. The implementation of CG regulations has also been proven to reduce the negative effect that a high level of market competition has on audit quality. Takiah, Ruhanita and Aini (2000) found that a higher market share in an industry indicates that an auditor has specialised in that industry and is therefore considered to have a better understanding of its nature, leading to improvements in the quality of audits.

There are two arguments regarding the relationship between audit market concentration and audit quality, first, the study which states that market concentration can reduce audit quality. The argument is that high concentration can reduce both skepticism and tolerance, auditors will have low incentives to improve quality and tendencies to be overconfident and satisfied, resulting in worse audit quality. Second, a study that states that market concentration can

improve audit quality. The argument is when the audit market is concentrated, the choice of the audit company is limited. This causes independence not easily disturbed, resulting in higher audit quality. In addition, if the audit market is more concentrated, it will increase the economic scale of an accounting firm, then reduce audit costs, so that the audit can increase quality. A higher market share in an industry indicates that an auditor has specialized in that industry and is therefore considered to have a better understanding of its nature, leading to improvements in the quality of audits.

The effect of tenure on audit quality is also different. There are studies that find that tenure has a positive effect on audit quality because with rotation, auditor independence will increase, so audit quality increases. But there are also those who find that tenure has a negative effect on audit quality because if auditors are replaced, they are new, their competence is still low, which means that audit quality is low.

Due to the mixed result, this study attempts to reexamine the effect of market concentration dan audit firm tenure on audit quality with the setting of the country of Indonesia in the period 2008 to 2015 where in that period, the mandatory audit firm rotation rules still apply. Not many countries apply mandatory audit firm rotation rules, usually only audit partner rotation. So this case is interesting to study.

There has not been much research on the effect of audit market concentration on audit quality. Lubbers (1993) and Afriansyah and Siregar (2007) argue that there is more concern in developed countries of the audit market conditions that occur. This is because an increase in the audit market concentration has a positive impact, but market concentration can reduce the independence of the auditor and thus reduce the audit quality. Carey and Simnett (2006); Bandyopadhyay et al. (2014) provide some evidence that the regulation of audit partner rotation improves audit quality. This is confirmed by the results of research by Dopuch et al. (2001); Beattie, Goodacre and Fearnley (2003); Afriansyah and Siregar, (2008) which argue that an increase in market concentration in an industry resulting in increasingly large barriers for new companies and the unwillingness of clients to change service and goods providers.

Research on the market concentration of audit services has been conducted in Indonesia by Afriansyah and Siregar (2007) who examined the influence of rotation rules on the structure of the audit services market in Indonesia in the 2000-2005 range. The results of this study show that regulation of rotation results in a decrease in the audit market concentration. Furthermore Anggraita et al. (2016) extended the sample data used (1998 - 2008) and included the application of corporate governance (CG) regulations

in its measurement. The results of this study indicate that an increase in the market concentration of audit services will improve audit quality. So there are indications that competition in the high audit services market in Indonesia will reduce audit quality.

This research is a continuation of Anggraita et al. (2016). The difference between this study and existing research is that it extends the range of sample data from 2008 to 2015 and also adds, measurement of audit quality by another method, namely abnormal working capital accruals where in previous studies audit quality was only measured by discretionary accruals.

In addition, this study also examines the effect of audit firm tenure on audit quality. Actually the rotation rules in Indonesia state that every 6 years an audit firm must be changed, but what must be changed is the name of the local audit firm, not its foreign affiliates. If more than 50% of the partners in an audit firm are changed, the name of the local audit firm will be new and means that the office can continue to audit previous clients. But in reality, the foreign affiliation has not changed. This study examines the real tenure of foreign affiliates and examined the real tenure since the company was founded. This study identified there is an accounting firm that audits a company for up to 23 years. It is interesting to study, even though there are regulations which require an audit firm be replaced every 6 years, but in reality there is an audit firm that audits a client for up to 23 years.

The study found that market concentration improves audit quality, likely because auditors that have been audit a particular industry for some time have a better understanding of industry risk and will thus undertake better audit planning and procedures that tend to improve audit quality.

LITERATURE REVIEW

AUDIT QUALITY

Good audit quality is closely related to the basic principles of auditing competency and independence. Good quality can be said to exist if the auditor finds a violation of the rules in the client's accounting system and reports the violation (DeAngelo 1981). The quality of the audit as a whole cannot be represented by specific characteristics because of the multidimensional nature and quality of an audit. Defond and Zhang (2014) stated that an audit's quality can be measured on the basis of the outputs and inputs produced by the public accounting firm. The output results in Defond and Zhang (2014) were based on earnings quality, with the measurement of earnings management being in the form of discretionary accruals. Bandyopadhyay

et al. (2014) described a good auditor as one who has the ability to detect the existence of doubtful accounting practices and the misrepresentation of certain forms of discretionary accruals.

On the one hand, profit reported by management contains opportunistic value, in which management has the option of using its accounting policies as a form of maximisation and efficiency, which can in turn provide a preview of future economic potential. On the other hand, high audit quality can hamper opportunistic earnings strategies. Chen, Lin and Lin (2008) explained that, if the quality of an audit is low, the profits presented on the audited financial statements are likely to contain an incorrect accounting of the operational results, along with an inaccurate financial picture of the company.

Myers et al. (2003) stated that a good quality audit can reduce extreme earnings management and indicated that accruals can be used to identify management decisions. Accrual becomes a measure of profit prescribed by management action because it is one of the profit-forming components. Thus, higher accrual rates indicate that management is exerting a force upon the auditor to serve the management (Jackson, Moldrich & Roebuck 2008). The higher the discretionary accruals, the lower the audit quality because when the discretionary accruals, it means the auditor is unable to restrict the earnings management which is done by the company's management.

Discretionary accruals have been used to measure audit quality for some time such as Healy (1985), DeAngelo (1986), Dechow and Sloan (1991), Jones (1991), Dechow, Sloan and Sweeney (1995), Kasznik (1999), and Kothari, Leone and Wasley (2005). In this study, audit quality was measured using accrual discretionary model from Kasznik (1999) because it is better than the existing model (Anggraita et al. 2016). The amount of earnings management can also be measured by the value of abnormal working capital accruals (AWCA) used by DeFond and Park (2001), Francis and Wang (2008), and Cameran et al. (2015).

MARKET CONCENTRATION

Measuring market concentration can usually be seen from the number and size of distribution of companies. Curry and Goerge (1983) said that many methods can be used to measure the concentration of a market, including Absolute Concentration, Rosenbluth Index, Comprehensive Concentration Index, Pareto Slope, Linde Index, U Index, Concentration Ratio and Herfindhal Index (HHi). However, the methods often used are the Concentration Ratio and Herfindahl Index (Martin 1994).

Herfindahl Hirschman Index or better known as the Herfindhal Index (HHi) is a methodology used to measure

the distribution of calculating market concentrations in industry. HHi is defined as the calculation of the number of squares of the market share of all companies in the industry. In measuring the Herfindhal Index, a company's market share data is needed as a determinant in this measurement. If the required data does not provide an explanation of a company's market share, the market share must be calculated first.

Dubaere (2008) said that market concentration of audit is depends on (1) the number of public accounting firms available in the audit services market, (2) the size of the public accounting firm market as measured by the number of clients, (3) the public accounting firm's client industry, and (4) the total sales of the public accounting firm's clientele. An industry will experience change if there is an increase in market concentration, such as increased barriers to entry into the market for new companies, which is particularly consequential when modifying market concentration for the audit services industry. Any public accounting firm in the audit market may become overwhelmed because some service users (clients) are more comfortable using a public accounting firm that has no relationship with its competitors (Beattie et al. 2003). Thus, public accounting firms will be increasingly pursued until a pattern is created that lends itself to market audit service concentration.

In this study, market concentration is measured by the HH_1 , a methodology that measures the count distribution of the number of rank two in the industry. The HH_1 is used because it includes imbalances and considers all the existing market shares in an industry.

THE EFFECT OF MARKET CONCENTRATION ON AUDIT QUALITY

The Big Four accounting firms (BIG4) provide good quality (Eshleman & Guo, 2014). However, the improvement of the quality of non big 4 is quite rapid so that many companies consider using non big 4 (Byrnes 2005). With the improvement of the quality of non-BIG4 public accounting firms, there is a supposed change in the market structure of audit services, such that the market concentration of audit services may be expected to change. The market concentration of these audit services is likewise expected to affect the quality of the resulting audits.

Previous research found mixed evidence regarding the effect of market concentration on audit quality. The relationship between audit market concentration and audit quality can be positive or negative, depends on whether a higher concentration results in a reduction in the cost of disclosing truth so that it can increase audit efforts and

audit fees (Blankley, Hurtt & MacGregor 2012; Lobo & Zhao 2013). Higher concentration could reduce costs of telling the truth (Jeter, and Shaw 2003) and thus increased audit efforts and audit fees (Lobo & Zhao 2013; Eshleman & Guo 2014).

Greater competition could lowers market concentration and increases equality among public accounting firms (Anggraita et al. 2016). Further, Boone et al. (2012) explained that a market that has a high concentration reduces both scepticism and tolerance. Scepticism is one of the important features of auditing; if it is disturbed, this will affect the quality of audits. If the audit market is concentrated, auditors will have low incentives to improve quality and tendencies to be overconfident and satisfied, resulting in worse audit quality (Boone et al. 2012; Francis and Michas (2013). Lubber (1993) agreeing with the aforementioned assessment of economists explained that an increase in audit market concentration decreases the quality of audits.

Krishnan, Patatoukas and Wang (2018) investigated the effect of the level of dependence of the supplier company (auditor), on its main customers, they found that suppliers with a more concentrated customer base, charged lower audit costs, thereby reducing audit efforts due to efficiency in the audit process, tended to be less likely to do material restatements of previously audited financial statements (audit quality decrease).

However, it can also be argued that market concentration of audit services improves audit quality, i.e., a more concentrated market will be specialised in providing audit services. According to Takiah et al. (2000), a higher market share in an industry indicates that an auditor has specialised in that industry and is therefore considered to have a better understanding of its nature, leading to improvements in the quality of audits. Mališ and Brozović (2015) explained that higher audit market concentrations constrain the choice of auditor in favour of larger companies, thus creating a high barrier to entry for non-BIG4 firms. Just as with monopolies in economics theory, where markets have a more monopolistic structure, they are harder to enter. Economists argue that monopolies that are inefficient can cause social welfare reductions through deadweight losses and rent-seeking. Bonne's (2012) said that a highly concentrated audit market, companies having a limited choice to choose auditor because the presence of incumbent auditors.

When the audit market is concentrated, the choice of the audit company is limited. This causes independence not easily disturbed, resulting in higher audit quality (Kallapur, Sankaraguruswamy & Zang 2010; Newton, Wang & Wilkins 2013). In addition, if the audit market is more concentrated, it will increase the economic scale of an accounting firm, thereby reducing audit costs, so that

the audit can increase quality. Huang, Chang and Chiou (2016) found that the impact of audit market concentration on audit quality can be direct and indirect. These direct and indirect effects may not be separated, it can be offset each other. Ohlsson and Carlsson (2018) evaluate the relationship between audit market concentration and audit quality on Stockholm NASDAQ for the time period 2008-2016 but the data shows that there is no significant relationship between audit market concentration and audit quality.

Based on the explanation above, there are two arguments, first, market concentration can reduce audit quality because high concentration reduces both skepticism and tolerance, auditors will have low incentives to improve quality and tendencies to be overconfident and satisfied, resulting in worse audit quality. Second, market concentration can improve audit quality because when the audit market is concentrated, the choice of the audit company is limited. This causes independence not easily disturbed, resulting in higher audit quality. In addition, if the audit market is more concentrated, it will increase the economic scale of an accounting firm, then reduce audit costs, so that the audit can increase quality. A higher market share in an industry indicates that an auditor has specialized in that industry and is therefore considered to have a better understanding of its nature, leading to improvements in the quality of audits.

The first argument that market concentration can reduce audit quality is not strong enough because in conducting an audit, the auditor must follow the audit standard where in the standard, it is regulated that the auditor must maintain skepticism and must not overconfident. A stronger argument is the second argument that market concentration can improve audit quality.

Thus, it proposed that:

H₁ The audit market concentration has a positive effect on audit quality.

THE EFFECT OF AUDIT TENURE ON AUDIT QUALITY

Previous researches that examined the effect of tenure on audit quality found different results. Some find that tenure has a positive effect on audit quality, but there are also those who find that tenure has a negative effect on audit quality. St. Pierre and Anderson (1984) found that many audit failures and lawsuits against auditors at the beginning of an audit engagement, the longer the tenure, the better the audit quality. Longer tenure should result in better audit quality due to better auditor knowledge (DeAngelo 1981),

but some also find that the longer the audit period, the auditor is usually less skeptical so that independence decreases and audit quality decreases (Al Thuneibat, Al Issa & Baker 2010).

The following research also found that tenure had a negative effect on audit quality. The argument is that the longer the tenure, there is a close relationship between the auditor and the client so that there is a bond between the auditor and the client, giving rise to opportunities to compromise with accounting and reporting methods. this will reduce auditor independence which causes a decrease in audit quality (Mautz & Sharaft 1961; Gavius 2007; Dopuch et al. 2001; Chi & Padgett 2005).

Other studies have found that audit rotation causes increased audit risk because when it was new, the auditor did not fully understand his client comprehensively (Beatty 1989; Craswell, Francis & Taylor 1995).

According to the explanation above, it can be hypothesized that the relationship between tenure and audit quality can be positive and negative (two tail) :

H₂ Audit firm tenure affects audit quality

DATA COLLECTION

This study uses secondary data obtained through financial reports from companies listed on the Indonesia Stock Exchange (IDX), excluding the financial industry. The research period (2008–2015) represents a purposive sampling method, which identified the following sample characteristics:

TABLE 1. Sample selection

Criteria	2008	2009	2010	2011	2012	2013	2014	2015
The number of listed companies on the Indonesia Stock Exchange (BEI)	473	486	504	529	552	589	610	613
Less:								
Financial Industry	143	148	152	157	164	174	184	185
Incomplete data	67	66	66	68	58	56	49	41
Sample per year	263	272	286	304	330	359	377	387
Total Sample	2,578							

RESEARCH MODEL

This research model follows Anggraita et al. (2016) approach with a dependent variable measured by two proxies: absolute discretionary accruals (ABS_DAC) and abnormal working capital accruals (AWCA). The independent variables measure the audit market concentration of audit services, including the total assets owned by clients and the total number of clients of a public accounting firm. Other variables are control variables.

$$ABS_DAC_{it} = a_{0+} + a_1CONC_{it} + a_2F_TENURE_{it} + a_3BIG4_{it} + a_4SIZE_{it} + a_5GROWTH_{it} + a_6RISK_{it} + a_7CFO_{it} + \epsilon_{it}$$

$$AWCA_{it} = a_{0+} + a_1CONC_{it} + a_2F_TENURE_{it} + a_3BIG4_{it} + a_4SIZE_{it} + a_5GROWTH_{it} + a_6RISK_{it} + a_7CFO_{it} + \epsilon_{it}$$

FIGURE 1. Research model

VARIABLE OPERATIONALISATION

Dependent Variable Audit quality as a dependent variable is estimated by two measures. The first is absolute discretionary accruals ABS_DAC using the model from Kasznik (1999), which Anggraita (2016) found to provide better results than other models. The model is as follows:

$$\frac{TACCit}{TAit - 1} = \beta_0 + \beta_1 \frac{1}{TAit - 1} + \beta_2 \frac{(\Delta REVit - \Delta RECit)}{TAit - 1} + \beta_3 \frac{PPEi, t}{TAit - 1} + \beta_4 \frac{\Delta CFOi, t}{TAit - 1} + \epsilon_{it}$$

FIGURE 2. Absolute discretionary Accrual Kasznik Model

The second measure is abnormal working capital accruals (AWCA) measured as follows:

$$AWCA_{i,t} = \frac{WCA_{i,t} - \left(\frac{WCA_{i,t-1}}{Si,t-1}\right) \times Si,t}{T_{ai,t}}$$

FIGURE 3. Abnormal working capital accrual (AWCA)

Independent Variable The market concentration of audit services (CONS) is the independent variable in this study, measured by the total number of clients of a public accounting firm, determined by the HH_1 :

$$HH_1 : P_1^2 + P_2^2 + P_3^2 + P_4^2 + P_5^2 + \dots + P_n^2$$

Where:

HHI = Herfindahl–Hirschman Index

P = Market share

FIGURE 4. Hirschman–Herfindahl Index

Market share calculated from total number of clients in an industry divided by the overall number of client in that industry. Once these figures are calculated for a public accounting firm, the total clients are squared. The HH_1 is then calculated by adding the quadratic results. Those results give the value of the HH_1 in an industry for a given year.

Audit tenure (F_TENURE) can be measured by identifying the number of years that audit services have been provided by a public accounting firm. Tenure is seen from the real tenure of foreign affiliates.

Control Variable Auditor size (BIG4) can be measured using a dummy variable for the BIG4. This variable have been found to be positively correlated with improved audit quality. However, accounting firm size can have both positive and negative impacts on audit quality. Becker et al. (1998) stated that earnings management can be prevented by BIG4 firm auditors—earnings management is one of the indicators of audit quality and has a high superlative relationship with it—yet larger firms have a tendency to permit a larger number of discretionary accruals (Becker et al. 1998), implying poor audit quality. SIZE (size of client) explained have positive effect to audit quality since that larger firms', calculations are more complex, making the auditors unpredictable (Lobo & Zhou 2006).

Client company growth (GROWTH) can be predicted to have a negative relationship with audit quality. When companies have high growth, the possibility of manipulations occurring through earnings management is high (McNichols 2000). Thus, the higher a company's growth, the more the audit quality will decrease.

RISK was chosen because it can illustrate the negative effects associated with a high value of debt (Carey & Simnett, 2006). This variable is predicted to have a negative effect on audit quality. Becker et al. (1998) stated that there are greater incentives for earnings management (lower audit quality) with high leverage ratios.

TABLE 2. Descriptive statistic

Variable	Observation	Average	Std dev	Min	Max
ABS_DAC	2578	0.0883	0.0988	0.0000	0.4514
AWCA	2578	0.1066	0.1229	0.0000	0.5381
Conc	2578	0.0928	0.0228	0.0227	0.1556
F_TENURE	2578	5	4	1	23
SIZE (Milyard)	2578	5,840,000	10,400,000	2,230	53,700,000
GROWTH	2578	1.3641	1.4088	(2.8824)	5.7156
RISK	2578	0.5248	0.2372	0.0002	1.2821
CFO	2578	0.0631	0.1178	(0.4139)	0.5411
CFO	2578	0.398	0.1178	(0.4139)	0.5411
Dummy Variable					
BIG	2578	Big 4		1	39.837%
		Non Big 4		0	60.163%

ABS_DAC : absolute discretioner accrual, AWCA : abnormal working capital accrual, CONC: audit market concentration, calculated by HHI based on total client, F_TENURE : period of an accounting firm audits in a company, BIG4 : Dummy, 1 if audits by BIG4 and 0 if audits by non BIG4, SIZE : size of firm calculated by total assets logarithm, GROWTH : Company growth, measured by market to book ratio, RISK : the risk, of using the debt level as measured by total debt divided by total assets, CFO: cash flow from operating activities divided by total assets of the firm

A client company’s condition can be observed from its cash flow (CFO) and is predicted to have a negative relationship with accruals (Corbella et al. 2015). When cash flow performance (CFO) is better, the likelihood of earnings management manipulations taking place will be higher (Becker et al. 1998), resulting in decreased audit quality.

DESCRIPTIVE STATISTICS

RESULT AND DISCUSSION

Statistical testing was performed using the panel method. A fixed-effects model was selected after conducting the model selection test. Table 6 and 7 shows that variable CONS have negative significant impact to ABS_DAC and AWCA. The inverse relationship between absolute discretionary accruals (ABS_DAC) and working capital accruals (AWCA) with audit quality shows that a higher audit market concentration leads to a decrease in discretionary accruals and working capital accruals, so that

TABLE 3. Market concentration trend based on industry

No	Industry	Year								Average
		2008	2009	2010	2011	2012	2013	2014	2015	
1	Miscellaneous Industry	0.091	0.082	0.092	0.094	0.082	0.090	0.089	0.029	0.081
2	Consumer Goods Industri	0.101	0.102	0.106	0.099	0.102	0.107	0.107	0.094	0.102
3	Basic Industry & Chemical	0.123	0.114	0.103	0.095	0.079	0.081	0.079	0.081	0.094
4	Infrastructure, Utilitas & Transportation	0.087	0.097	0.090	0.102	0.124	0.123	0.103	0.100	0.103
5	Trade, Service & Investment	0.09	0.077	0.085	0.076	0.094	0.092	0.052	0.091	0.082
6	Mining	0.102	0.116	0.109	0.141	0.131	0.123	0.108	0.123	0.119
7	Agriculture	0.156	0.141	0.130	0.136	0.130	0.155	0.082	0.143	0.134
8	Property, Real Estate & Building Construction	0.074	0.074	0.080	0.080	0.079	0.084	0.015	0.076	0.070
	Average	0.103	0.100	0.099	0.103	0.103	0.107	0.079	0.092	0.098

TABLE 4. Pearson correlation - model 1(absolute discretionary accrual)

	ABS_DAC	CONC	F_TENURE	BIG4	SIZE	GROWTH	RISK	CFO
ABS_DAC	1.0000							
CONC	-0.0879*	1.0000						
F_TENURE	-0.0557*	0.0485*	1.0000					
BIG4	-0.0055	0.0748*	0.3988*	1.0000				
SIZE	-0.0484*	0.0047	0.2089*	0.2282*	1.0000			
GROWTH	0.0440*	-0.1073*	0.1376*	0.1463*	0.1203*	1.0000		
RISK	0.0855*	0.0746*	0.0157	0.0418*	0.1048*	-0.0442*	1.0000	
CFO	-0.0183	0.0415*	0.1424*	0.2087*	0.0541*	0.1305*	-0.1037*	1.0000

TABLE 5. Pearson correlation - model 2 (abnormal working capital accrual)

	AWCA	CONC	F_TENURE	BIG4	SIZE	GROWTH	RISK	CFO
AWCA	1.0000							
CONC	-0.0012	1.0000						
F_TENURE	-0.1313*	0.0485*	1.0000					
BIG4	-0.0943*	0.0748*	0.3988*	1.0000				
SIZE	-0.0828*	0.0047	0.2089*	0.2282*	1.0000			
GROWTH	-0.0607*	-0.1073*	0.1376*	0.1463*	0.1203*	1.0000		
RISK	-0.0155	0.0746*	0.0157	0.0418*	0.1048*	-0.0442*	1.0000	
CFO	-0.0843*	0.0415*	0.1424*	0.2087*	0.0541*	0.1305*	-0.1037*	1.0000

the audit quality increases. This result is because in a concentrated audit market, public accounting firms usually have better knowledge of the industry and can therefore do better audit planning and conduct good audit procedures.

The US Government Accountability Office (2008) explained that in selecting an audit firm, a client will see ability or expertise as the paramount factor. This is in line with Kallapur et al. (2010), who found that audit market concentration was related to lower discretionary accruals, signifying better audit quality. Takiah et al. (2000) explained that a higher market share in an industry indicated that its auditors were specialised in that industry; understanding the nature of an industry was considered an advantage and thus a means of improving audits. If the audit market is more concentrated, it will increase the economic scale of an accounting firm, then reduce audit costs, so that the audit can increase quality.

Table 6 and 7 also shows that audit tenure (F_TENURE) has a significant negative impact on discretionary accrual or positive impact to audit quality, i.e., a longer engagement of an accounting firm will increase audit quality. This finding is in line with the claim by Al Thuneibat, Al Issa and Baker (2011) that independence will decrease due to

an increased tolerance or excessive auditor familiarity with clients. Independence is an important characteristic in conducting an audit; when an auditor's independence is disrupted, the quality of the audit will become questionable.

Based on the results shown in Table 6 and 7, the BIG4 variable would be expected to have a positive relationship with audit quality. However, this study do not found that audit quality of BIG4 was greater than non-BIG4. Growth and risk variables had significant impacts on audit quality which measured with discretionary accrual. Growth had a positive effect, as highly profitable companies tend to have less earnings management issues and the quality of audits is thus higher. This corresponds to the prediction that growth would have a negative relationship. The results also show a positive relationship with increased absolute discretionary accruals and abnormal working capital. This indicates that the greater the growth, the higher the profitability, the better the management of the company, and the lower the audit quality. This accords with McNichols (2000), who explained that companies with more earnings management were considered to experience low audit quality.

TABLE 6. Regression results - models 1 ABSDAC

Variable	Prediction	Coefficient	p-value	Sign
CONC	-	-0.4737	0.0000	***
F_TENURE	+/-	-0.0017	0.0810	*
BIG4	+	-0.0039	0.7540	
SIZE	+/-	-0.0004	0.7870	
GROWTH	-	0.0048	0.0260	**
RISK	-	-0.0425	0.0330	**
CFO	-	-0.0015	0.9620	
R Squared	2.07%			
Prob > F	0.0000			

Dep var: ABS DAC

TABLE 7. Regression Results - Models 2 WACC

Variable	Prediction	Coefficient	p-value	Sign
CONSC	-	-0.2361	0.0760	*
F_TENURE	+/-	-0.0029	0.0250	**
BIG4	+	-0.0120	0.4170	
SIZE	+/-	-0.0029	0.1030	
GROWTH	-	0.0005	0.8540	
RISK	-	-0.0344	0.1760	
CFO	-	0.0040	0.8850	
R Squared		0.95%		
Prob > F		0.0386		

Dep var: WACC

Risk variables also have a significant relationship with audit quality (table 6). The results obtained concur with the expectation that risks would have a negative effect on audit quality. The higher the risk, the lower the audit quality. Higher risk was measured by the leverage ratio, which indicates that a company's condition is poor. Incentives for profit might then lead to manipulations that yield an acceptable ratio; this notion is supported by Becker (1998). Neither company size nor cash flow from operating activities divided by the total assets of the firm had a significant relationship with the dependent variable.

CONCLUSIONS AND RECOMMENDATIONS

The study found that market concentration, as measured by the number of clients audit, had a negative effect on absolute discretionary accruals and abnormal working capital. This indicates that higher market concentration yields lower discretionary accruals, resulting in better audit quality. Under increased market concentration, an audit firm is considered to have better knowledge of the industry. Greater market share in an industry indicated that its auditors had achieved specialisation.

A limitation of this study is the fact that the sample only included companies listed on the Indonesia Stock Exchange. Consequently, the number of clients audited by the public accounting firms does not properly describe the firms' market shares in calculating the market concentration of audit services. This study also used data from Eikon Thomson Reuters; it would be better for future research to use companies that are not listed on the Indonesia Stock Exchange.

This research found that audit market concentration increases auditor specialist so that audit quality also increases. The implications of this study suggest that regulators need to encourage public accounting firms to specialise in specific areas, have better knowledge of the industry to make audit quality better.

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Mutiara Clarina
Faculty of Economics and Business
Universitas Indonesia
Widjojo Nitisastro Campus
16424 UI Depok, INDONESIA.
E-Mail: mutiara.clarina@gmail.com

Fitriany Fitriany (corresponding author)
Faculty of Economics and Business
Universitas Indonesia
Widjojo Nitisastro Campus
16424 UI Depok, INDONESIA.
E-Mail: fitrianyamarullah@gmail.com