

Auditor in Charge Knowledge and Opinion Accuracy: Evidence from Indonesia

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Abstract— This research is aimed to examine (1) Effect of auditor in charge specialization on opinion accuracy (2) Effect of auditor in charge tenure on opinion accuracy. With logistic regression, using sample of manufacture companies listed in Indonesian Stock Exchange 2012-2015, this research analyze effect of auditor in charge specialization and tenure on relationship between financial distress and auditor opinion. As expected, financial distressed (healthy) companies are more likely to get going concern (non-going concern) opinion after audited by auditor in charge with high auditor specialization. In short term, financial distressed (healthy) companies are more likely to get going concern (non-going concern) opinion after audited by auditor in charge with long tenure. In long term, financial distressed (healthy) companies are less likely to get going concern (non-going concern) opinion after audited by auditor in charge with long tenure.

Keywords— Auditor in charge; opinion accuracy; specialization; tenure.

I. INTRODUCTION

Main objective of financial statement auditing is to make sure that financial statement is provided based on accounting standards [1], [2] and make sure that company is free of going concern problem [3], [4]. Based on it, auditor is not only assure that financial statement is free of misstatement, but also provide information about company's going concern to the users by providing sufficient opinion [5], [6], [7], as an early warning of bankruptcy signal. Early warning of bankruptcy can be seen by financial distress [8]. Auditor must communicate the condition of company weather company can still run the business in the future. Going concern refers to financial distress problem. Company that experience financial distress is more likely to get going concern opinion from auditor [9], [10], [11].

Enron case shows early warning of bankruptcy is important to be known as soon as possible. The case shows that big company like Enron is not always free from going concern problem, but they can also fall down. Enron is stated to be bankrupted in 2002 by manipulating financial problems and losses condition into good condition [12]. Arthur Andersen, as Enron's auditor, is also involved. Arthur Andersen is failed to be a high quality auditor by not caring about going concern problem of Enron. Arthur Andersen is an example of audit failure for not issuing going concern opinion regard to Enron condition [12], [13], [14].

Improvement of auditor quality is one of factors that can decrease audit failure. It can be seen by auditor knowledge. Higher auditor knowledge means that auditor knows well about condition and businesses of company. Higher knowledge of company can be achieved by auditor from two ways, which are: (1) Auditor knows about industry of company, it is fulfilled by doing audit work in other company, as many as auditor can, in same industry (2) Auditor knows about company's condition, it is fulfilled if auditor has longer auditing experience in the same company. Knowledge about industry of company refers to auditor industry specialization [15] and long auditing experience in the same company refers to auditor tenure [16], [17].

Industry specialist means that auditor has industry expertise. Auditor with industry specialization has sufficient evaluation of company's condition, especially evaluation of financial problems [18]. Well evaluation leads to better financial distress detection, further, auditor can issue accurate opinion based on real condition. Accurate audit opinion refers to lower audit failure. Bruynseels et al. [18] find that industry specialist auditor tends to issue going concern opinion going-bankrupt company.

Auditor with long tenure has higher knowledge of condition of company, include in competence to detect financial distress [19], [20]. With higher competence to detect financial distress, longer tenure auditor improves opinion accuracy by report appropriate opinion based on condition of company. Knechel and Vanstraelen [19] and Read and Yezege [21] find that long tenure auditor will more likely to report going concern opinion for company that subsequent period go bankrupt. Even longer tenure improves auditor knowledge, in long-term, too-long audit tenure will decrease auditor independence [22] and provides low audit quality [23], [24].

There are previous researches that examine effect of audit quality on opinion accuracy. Auditor with long auditor tenure [19], [20], [21] and specialist auditor [18] have positive effect on opinion accuracy. Robinson [25] examines effect of auditor independence on likelihood of giving going concern opinion to bankrupt companies. Result of Robinson [25] study shows that auditor independence more likely to give going concern opinion to bankrupt companies. Big 4 auditor have less error in opinion accuracy [26] and more likely to give going concern opinion to financial distress companies [27], compare to non-big 4 auditor.

This research will expand previous research about going concern opinion accuracy. First, this research will examine effect of auditor in charge (person-level) quality ongoing concern opinion accuracy. Previous research about auditor in charge quality has been examined by Sundgren and Svanstrom [28]. Sundgren and Svanstrom [28] examine effect auditor in charge work characteristics on going concern opinion, and shows that age and number of audit assignment have negative

effect on opinion accuracy. Auditor quality in audit firm-level have been examined, with size and reputation of audit firm on client restatement [29] and going concern opinion accuracy [18], [19], [21]. Auditor in charge quality is important to be examined because auditor in charge has direct relationship with industry of company and responsibility with audit activity in company.

Second, this research will reduce previous research limitations, which are research sample limited to bankrupt company [19], [21] and limited to company that have first time get going concern opinion [18]. This research will examine all of manufacture companies listed in Indonesian Stock Exchange year 2012-2015, broader than research sample by Knechel and Vanstraelen [19], Bruynseels et al. [18], and Read and Yezegel [21]. This research will examine (1) Effect of auditor in charge specialization on opinion accuracy (2) Effect of auditor in charge tenure on opinion accuracy.

II. RELATED LITERATURE AND HYPOTHESES

A. Going Concern Opinion and Financial Distress

Your Financial statements are prepared under the assumption that company will continue as a going concern [3], [4]. Where there is significant uncertainty regarding the going concern assumption, auditor will issue a going concern opinion. A going concern opinion may be an emphasis of matter to an unqualified audit report, where the client adequately discloses going concern issue in the notes to the financial statements, or a qualification, where the issue is not disclosed or the auditor believes the issue is so serious as to warrant a qualification [11].

Going concern opinion is early warning signal of company bankruptcy, can be seen by financial distress. Hudaib and Cooke [30] have stated that company in financial distress tends to get going concern opinion. Financial distress is a condition where company having losses [31], could not generating cash of business operations and having debt payment failure [32], and having negative book value of equity [33]. Financial distress can be measured by financial ratios [8]. In capital market context, financial distress company is not only has risk of bankruptcy, but also can be delisted by regulation from capital market [34]. Financial distress can be prevented by evaluation of loans, internal controls and investment criteria [8]. Financially distressed company tends to get going concern opinion [9], [10], [11], [35].

Financial distress and going concern are important issues. Big company such Enron Corp. has been fell down. Enron is bankrupt in 2002 because of financial and losses problems [12]. The Enron's problems cannot be detected because of audit failure by Arthur Andersen. Arthur Andersen have failed to detect or reported going concern problem of Enron. Arthur Andersen is an example of audit failure for not issue going concern opinion according to Enron's problem [12], [13], [14]. Bankruptcy of Enron is followed by fall down of Arthur Andersen because of client losing.

If there are financial distress companies do not get going concern opinion, or healthy companies get going concern

opinion, then there are errors or misclassifications of audit opinions. There are 2 types of error are as follow:

TABLE I. Error of audit opinion.

	Going Concern Opinion	Non-Going Concern Opinion
Financial Distress Company	No error	Type 2 error
Non-Financial Distress Company	Type 1 error	No error

Source: Carey et al. [11]; Geiger and Raghunandan [10]

Type 1 error is error made by auditor, when auditor was giving going concern opinion to healthy or survive company. Type 2 error is error made by auditor when auditor is giving non-going concern opinion to financial distress company. These errors reflect opinion accuracy. There are costs related to these errors. Type I error would result in the loss of the complete value of the investment in, or loan to the company in question [32]. Conversely, a Type II error could potentially be the loss of the profit associated with the investment or loan made to the company [32]. No error condition shows audit failure does not exist and audit opinion is reported accurately. Oppositely, error condition of type 1 or type 2 shows audit failure is occurred high and audit opinion is not reported accurately. Relationship between going concern opinion and financial distress describes financial statement quality as well [36]. No error condition made by auditor leads to improvement of financial statement quality. When auditor makes error, either type 1 errors or type 2 errors, financial statement quality is low. Possibility of making of error shows that uncertainty of going concern opinion accuracy exists. Uncertainty of going concern opinion accuracy can be affected by auditor-factors [37]. This research will use auditor in charge specialization and auditor in charge tenure as auditor-factors that affect audit opinion accuracy.

B. Auditor Specialization

Specialist auditors are auditors whose training and experience largely concentrated in a particular industry and believed to possess a comprehensive understanding of a company's characteristics [38]. Accounting firms recognize the importance of industry expertise in providing high quality audit and organize their assurance practices along industry lines [15]. US GAO [39] notes that "a firm with industry expertise may exploit its specialization by developing and marketing audit related services which are specific to clients in the industry and provide a higher level of assurance". Specialist auditor can improves audit quality than non-specialist auditor. Reichelt and Wang [40] and Krishnan [41] have found that specialist auditor can reduce discretionary accrual and improve audit quality. In addition, Reichelt and Wang [40] have found as well that auditor specialization has negative effect on likelihood of company to meets or beats earnings. Industry of company is an important dimension that auditors can use to align themselves with specific company characteristics and service needs [42].

Industry expertise can be measured by how broad auditor has been doing audit practice along industry lines. Market share of audit reflects how expert auditor is, and can be

specialist auditor. Mayhew and Wilkins [42] determines that auditors with market share 20 percent or more are specialist auditors, and auditors with market share below 20 percent are non-specialist auditor. Krishnan [41] determines auditor specialization with continuous measure of market share, the higher market share of audit, the higher auditor specialization. This research will use both Mayhew and Wilkins [42] and Krishnan [41] classification as measurement of auditor industry specialization.

C. Auditor Tenure

Knowledge is important factor auditor's ability to provide high audit quality [16]. Knowledge about company-specific factors is important as well as knowledge about industry of company. Auditor needs to know about company-specific factors; such as company's accounting system, internal control; to produce high quality audit especially for new auditors to create significant learning curve [46]. In order to get higher knowledge of company-specific factors, auditor needs more time (longer audit tenure) to provide audit services in the same company. Auditor with long tenure has higher knowledge of specific company, than auditor with short tenure [16], [17]. Chen et al. [17] found that auditor with longer tenure improves earnings quality and detects material misstatement of financial statement. Gul et al. [47] have found that auditor with short tenure associated with lower earnings quality. The longer auditor tenure, the higher audit quality is.

In the other hand, there were argument said that the longer auditor tenure, the lower audit quality. This argument based on independence factor. The longer auditor tenure the higher auditor knowledge, but at optimal point, knowledge improving will constant and auditor independence will decreases [48]. Brooks et al. [48] have found that auditor tenure and audit quality is non-linear correlation. Auditor with too long tenure will lost independence and objectivity, so audit quality will decrease [24]. Auditor may be pressured by company's manager to not disclose failed business, so auditor will not act independently because auditor have economic incentive not to losses client [49]. Davis et al. [23] found that auditor with long tenure will decreasing earnings quality. Junaidi et al. [24] have found that auditor tenure will decrease auditor independence. Johnson et al. [46] have found that there is no association between long auditor tenure with earnings quality. After Enron case, there is audit rotation regulation in some countries, includes Indonesia, based on Sarbanes-Oxley Act (SOX) of 2002 in United States to solve independence problem [25]. Junaidi et al. [22] have found that audit rotation improve auditor independence. This research will use quadratic association between long auditor tenure and audit quality, based on Brooks et al. [48]. Increasing auditor tenure in a short term will increase audit quality because of higher auditor knowledge, but will decrease audit quality in a long term because of lower auditor independence [50].

D. Auditor in Indonesia

In Indonesia, auditors and audit firm are regulated by President through Government Regulation, Finance Ministry and Indonesian Public Accountant Association (*Ikatan*

Akuntan Publik Indonesia or IAPI). Based on Finance Minister Regulation *no.17/PMK.01/2008* and Government Regulation *PP: 20/2015*, in order to get permission to be auditor by Finance Minister, auditor have to fulfill regulation such as having register accountant, following certification of public accountant, having experience in auditing. In 2015, numbers of auditors as member of IAPI are 1628 auditors, while the active ones are 1067 auditors. Auditor will provide audit services not more than 3 years in a row in the same company. Indonesia has auditor rotation regulation in every 3 years.

In order to open audit firm, auditor have to get permission by Finance Minister as well, and fulfill regulation such as having auditor license, member of IAPI, having at least 3 auditors, having Quality Control System of audit firm based on Professional Standard of Public Accountant. In 2015, number of audit firms is 525 audit firms. Audit firm will provide audit service not more than 6 years in a row in the same company. Indonesia has auditor rotation regulation in every 6 years.

Indonesia is a country that include in using SOX of 2002 to lead regulation of rotation and auditor profession code of ethics because of auditor independence problem. In terms of audit rotation, auditor tenure is more real than audit firm tenure. In Indonesia, audit firm rotation counts if there is change of 50 percent of partners or public accountant in the same audit firm. Junaidi et al. [22] have found that there were artificial audit firm rotation, because there are still previous auditor or partners in the same audit firm and still have affiliation in the same big audit firm, so they were not fully independent. This research will examine auditor in charge tenure, instead audit firm tenure, because auditor in charge tenure is more real, because auditor in charge rotation is so clear. Auditor in charge rotation shows directly change of person who provide audit services.

E. Auditor Specialization, Going Concern Opinion and Financial Distress

Place Auditor specialization can improve audit quality because possess a comprehensive understanding of a particular industry of company. Previous research have been found correlation between auditor specialization and audit quality, such as improving of accrual quality [41], decreasing of earnings management [40], increasing of audit fee [38], [42], decreasing of information risk in capital market [45] as well as higher earnings-response coefficients [44].

Specialist auditor can improve audit quality as well as reduce audit failure. Audit failure comes when auditor failed to determine if company in financial distress condition and have given adequate opinion appropriate with condition of company. Specialist auditor with high industry knowledge will know better business of company and know if company financially distressed, than no- specialist auditor. Specialist auditor will increase opinion accuracy, that going concern opinion will be given to financial distressed company and non-going concern opinion will be given to healthy company. Bruynseels et al. [18] have found that specialist auditor will

give going concern opinion to will-be-bankrupt company, and give non going concern opinion to survive company.

H1: Financial distressed (healthy) companies are more likely to get going concern (non-going concern) opinion after audited by auditor in charge with high auditor specialization.

F. Auditor Tenure, Going Concern Opinion and Financial Distress

Place Auditor tenure can improve audit quality because possess knowledge about company specific factors. The longer auditor tenure, the higher client-specific knowledge accumulates over successive audits [50]. Previous research have been found correlation between auditor tenure and audit quality, such as improving of earnings quality [17], [47], and decreasing of accrual estimation errors [16], [50].

Auditor with long tenure can improve audit quality as well as reduce audit failure. Audit failure comes when auditor failed to determine if company in financial distress condition because auditor possess low knowledge about company specific factors, and failed to give adequate opinion appropriate with condition of company. Auditor with long tenure will know better internal control and financial condition of company and know if company financially distressed, than auditor with short tenure. Auditor with short tenure has to face learning curve in first year and spend bigger cost to know company specific factors [50]. Auditor with long tenure will increase opinion accuracy, that going concern opinion will be given to financial distressed company and non-going concern opinion will be given to healthy company. Knechel and Vanstraelen [19] have found that the longer auditor tenure, auditor become better in predicting bankruptcy and will give going concern opinion, give non going concern opinion to survive company. Read and Yezegel [21] have found as well as auditor with long tenure can predicting bankruptcy in big 4 audit firm.

H2a: In short term, financial distressed (healthy) companies are more likely to get going concern (non-going concern) opinion after audited by auditor in charge with long auditor tenure.

There is debate that auditor tenure will decrease audit quality as well, because of independence lack. If auditor has too-long tenure, then auditor has too-close relationship with company. Previous research have found that long auditor tenure will increase use of discretionary accruals to meet or beat earnings forecasts [23] and decrease auditor independence [22]. Because of two concepts of knowledge adding and independence, auditor tenure has non-linear correlation with audit quality [48].

In contrast with knowledge concept, auditor with long tenure can improve audit failure with low opinion accuracy. Even though auditor with long tenure can predict bankruptcy, auditor will not give going concern opinion. Auditor may be pressured by company's manager to not disclose failed business, so auditor will not act independently because auditor have economic incentive not to losses client [49]. Auditor with long tenure is less likely to give going concern opinion [24].

H2b: In long term, financial distressed companies are less likely to get going concern opinion after audited by auditor in charge with long auditor tenure.

III. RESEARCH DESIGN

A. Variables

Dependent variable of this research is audit opinion (AO). Going concern audit opinion is auditor opinion describes if company have problems with going concern. Non going concern opinion includes unqualified opinion. Going concern opinion includes unqualified opinion, where the client adequately discloses going concern issue in the notes to the financial statements, or a qualification, where the issue is not disclosed or the auditor believes the issue is too serious as to warrant a qualification [11]. It is occurred by dummy variable, score 1 if company get non going concern opinion (non GCO) opinion, 0 if company get going concern opinion (GCO).

Independent variable of this research is financial distress. Financial distress is a condition where company having losses [31], could not generating cash of business operations and having debt payment failure [32], and having negative book value of equity [33]. It is occurred by z score of Altman (1968) with formula $z = 1.2(\text{working capital to total assets}) + 1.4(\text{retained earnings to total assets}) + 3.3(\text{earnings before interest and tax to total assets}) + 0.6(\text{market value of equity to total liabilities}) + 0.999(\text{sales to total assets})$. The higher z score, the less distress a company.

Moderating variable of this research is auditor in charge quality. They are occurred by auditor specialization and audit tenure. Auditor specialization measured by industry specialization (IS) calculated with market share of auditor in industry of company that shows how broad auditor has been doing audit practice along industry lines. Market share of audit reflects how expert auditor is, and can be specialist auditor. Market share of audit can be calculated as follow [38], [43]:

$$MS_{ik} = \frac{\sum_{j=1}^{j_{ik}} SALES_{ijk}}{\sum_{i=1}^{i_k} \sum_{j=1}^{j_{ik}} SALES_{ijk}} \quad (1)$$

Where MS_{ik} is market share of audit firm i in industry k , i is auditor, k is industry, j is company or client.

Market share of audited clients will be calculated from company sales based on third level of industry classification in IDX. The bigger market share of audited clients, the more expertise auditor in charge in company's industry, the better auditor will determining financial distress and followed by giving suitable opinion as well. This research will use both as a dummy variable [42] and as a ratio variable [41] as measurement of auditor industry specialization. Industry specialization as dummy variable (IS-dummy) will be measured as 1 if market share is 20 percent or more within its industry, 0 otherwise [42]. Industry specialization as dummy ratio (IS-ratio) will be measured by value of continues market share of audited clients [41].

Auditor tenure will be measured by number of years auditor in charge have audited company in a row [21]. The longer audit tenure, the more capable auditor to know company specific factors, the better auditor will determining financial distress and followed by giving suitable opinion as

well. In the other hand, the longer audit tenure extended, the more attached auditor to management of company, the less independent auditor will be. Audit tenure have quadratic effect, when auditor is less independent, auditor will give audit opinion which is not suitable to condition of company. To avoid this problem this research will use these two measurements of audit tenure. First, number of years auditor in charge (AT) have audited client in a row will be expected have high auditor quality [21]. Second, value of squared number of years auditor in charge (SQAT) have audited client in a row will be expected have low independency and decreasing auditor quality [21].

Control variables are audit firm reputation (BIG) and size of company (SIZE). There are two effects of audit firm reputation (BIG) on going concern opinion. First, big 4 audit firms are more likely to give going concern opinion [51], especially to financial distressed company [26], [27]. Second, big 4 audit firms are less likely to give going concern opinion because big 4 audit firms have higher quality to predict and prevent financial distress condition [52], [53]. Audit firm reputation (BIG) will be occurred by dummy variable, score 1 if company audited by big 4 audit firm, 0 otherwise.

The bigger company, the less likely to get going concern opinion, because big company have more stable financial condition and have been more monitored by public. Size of company (SIZE) will be occurred by logarithm of total assets.

B. Analysis Model

This research will examine hypotheses with logistic regression. The regression model is as followed:

$$AOit = \alpha + \beta1zit + \beta2zit \times ISit + \beta3zit \times ATit + \beta4zit \times SQATit + \beta5ISit + \beta6ATit + \beta7SQATit + \beta8BIGit + \beta8SIZEit \quad (2)$$

Where *AOit* is audit opinion given by auditor to company *i* period *t*, *zit* is *z* score of company *i* period *t*, *ISit* is industry specialization of auditor of company *i* period *t* (dummy or ratio), *ATit* is audit tenure of auditor of company *i* period *t*, *SQATit* is squared of audit tenure of auditor of company *i* period *t*, *BIGit* is reputation of audit firm of company *i* period *t*, *SIZEit* is size of company *i* period *t*.

IV. SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

Use Research populations are firms listed in Indonesian Stock Exchange. It is important to examine audit failure and

audit quality in Indonesia. In 2013-2014, Asian Development Bank [54] have reported that Indonesian Stock Exchange have the second lowest, one level above Vietnam, corporate governance score of six countries of ASEAN Capital Market Forum. In addition, Indonesia has low disclosures of right of shareholders and stakeholders as well as lack of transparency [54]. It means that Indonesia still have lack of corporate governance in business practices and high asymmetric information and will leads to higher needed of auditor as external governance. Meanwhile, Indonesian Stock Exchange has potential investor, with its largest population among ASEAN countries, and growing firms [55]. Further, Indonesian Stock Exchange is one of the most sensitive stock market in ASEAN to international financial market information [55]. It is important to see audit high needs of audit quality, in the same time having potential capital market.

Samples of this research are manufacture companies listed in Indonesian Stock Exchange (IDX) from 2012 until 2015. Free access of complete research data is available only for last three years in Indonesian Stock Exchange website. This research use manufacture companies to avoid industry effect in determining financial distress. In Indonesia, it is important to examine financial distress and going concern in manufacture companies as early indicator of development, because manufacture industry have the biggest contribution to national economic for last 20 years [56]. Sample's data will be got from financial statement accessed in IDX website and share price database accessed in yahoo finance website. Data that will be used are auditor opinion, auditor in charge, audit firm, current assets, total assets, current liabilities, total liabilities, retained earnings, sales, earnings before interest and tax got from financial statement; and closing year share price got from yahoo finance. Sample of this research are as follow:

TABLE II. Research Sample.

		Total
Manufacture companies listed in IDX 2012-2015		130
Less:	Change financial statement in research period	2
	Incomplete data	1
Number of companies		127
Number of observations 2012-2015		508

TABLE III. Descriptive Statistics.

	Mean			Standard Deviation		
	Non GCO	GCO	All	Non GCO	GCO	All
z	14.018	-0.788	12.356	84.52423	4.318	79.781
z x IS-dummy	2.001	-0.123	1.763	12.65335	1.402982	11.94886
z x IS-ratio	1.690	-0.077	1.491	10.28922	0.747	9.712
z x AT	21.502	-1.359	18.937	129.1712	7.635	121.934
z x SQAT	39.600	-2.637	34.816	268.4405	17.637	253.320
IS-dummy	0.243	0.280	0.248	0.429911	0.453336	0.432296
IS-ratio	0.163	0.199	0.167	0.240203	0.288	0.246
AT	1.691	1.877	1.712	0.794648	0.867	0.804
SQAT	3.492	4.263	3.578	3.123646	3.613	3.187
BIG	0.452	0.192	0.423	0.498275	0.398	0.494
SIZE	11.508	10.749	11.423	1.612470	1.643	1.632
Observations	451	57	508	451	57	508

Source: Statistical output

Based on table 3, mean of z score for observations which get non going concern opinion (non GCO) is 14.018. Mean of z score for observations which get going concern opinion (GCO) is -0.788. As expected, table 3 shows that mean of z score is higher for non GCO observations than GCO observations.

Interaction between z score and industry specialization (IS) is 2.001 (for IS-dummy) and 1.690 (for IS-ratio) for non GCO observations. Interaction between z score and industry

specialization (IS) is -0.123 (for IS-dummy) and -0.077 (for IS-ratio) for GCO observations. Interaction between z score and industry specialization (dummy and ratio) is higher for non GCO observations than GCO observations. Interaction between z score and auditor tenure (AT) is 21.502 for non GCO observations. Interaction between z score and auditor tenure (AT) is -1.359 for GCO observations. Interaction between z score and auditor tenure (AT) is higher for non GCO observations than GCO observations.

TABLE IV. Descriptive Statistics for Dummy Variables.

	Non GCO	GCO	Total	IS	Non IS	Total	Big 4	Non Big 4	Total
Observations	451	57	508	126	382	508	215	293	508
Percentage	88.8%	11.2%	100%	24.8%	75.2%	100%	42.3%	57.7%	100%

Source: Statistical output

Table 4 shows that there are 451 non GCO observations or 88.8 percent of all 508 observations. There are 57 GCO observations or 11.2 percent of all 508 observations. Non GCO observations are greater than GCO observations. There are 126 observations of specialist auditor or 24.8 percent of all 508 observations. There are 382 observations of non-specialist auditor or 75.2 percent of all 508 observations. Number of specialist auditor is less than non-specialist auditor. There are 215 observations of big 4 audit firm or 42.3 percent of all 508 observations. There are 293 observations of non-big 4 audit firm or 57.7 percent of all 508 observations. Number of big 4 audit firm is less than non-big 4 audit firm.

V. EMPIRICAL FINDINGS AND ADDITIONAL ANALYSIS

A. Univariate Analysis

TABLE V. Comparison analysis.

	z	z_IS-dummy	z_IS-ratio	z_IS-AT
Normality (K-S) Sig.	0.000***	0.000***	0.000***	0.000***
Mean Rank	GCO	88.04	217.11	140.14
	Non GCO	275.54	259.23	268.95
Mann-Whitney U Sig.	0.000***	0.007***	0.000***	0.000***
*significant in 10% ** significant in 5% *** significant in 1%				

Source: Statistical output

Table 5 shows univariate analysis of main variables. Variable z, interaction between z and industry specialization (dummy and ratio), interactions between z and auditor tenure are not distributed normally. In this case, *Mann-Whitney U* test will be used to analyze comparison of main variables between non GCO and GCO companies. All of main variables are different significantly in 1 percent between non GCO and GCO companies. As expected, GCO companies have mean rank value less than non GCO companies, for variable z, interaction between z and industry specialization (dummy and ratio), interactions between z and auditor tenure.

GCO companies have smaller z score than non GCO companies, because GCO companies face financial distress condition. Interaction between z and industry specialization (dummy and ratio) have smaller value for GCO companies than non GCO companies, because specialist auditor can

predict small z score in GCO companies and high z score in non GCO companies, than non-specialist auditor. Interaction between z and auditor tenure have smaller value for GCO companies than non GCO companies, because auditor with long tenure can predict small z score in GCO companies and high z score in non GCO companies, than auditor with short tenure.

B. Multivariate Analysis

Table 6 shows multivariate analysis as main analysis for hypotheses testing. Logistic regression, as hypotheses testing, have been fulfill preliminary test with significant Likelihood Test, insignificant Hosmer-Lemshow Test, and high correct prediction. Z score has negative direction but have no significant effect on auditor opinion. It is not as expected as higher z score will be less distress and get non going concern opinion.

Interaction between z and industry specialization (IS-dummy) have positive significant effect (in 10 percent) on auditor opinion. It means that industry specialization (IS-dummy) weaken negative effect of z score on auditor opinion. Interaction between z and industry specialization (IS-ratio) have positive significant effect (in 5 percent) on auditor opinion. It means that industry specialization (IS-ratio) weaken negative effect of z score on auditor opinion. Financial distressed (healthy) companies are more likely to get going concern (non-going concern) opinion after audited by auditor in charge with high auditor specialization.

Interaction between z and auditor tenure (AT) have positive significant effect (in 5 percent) on auditor opinion. It means that auditor tenure (AT) weaken negative effect of z score on auditor opinion. In short term, financial distressed (healthy) companies are more likely to get going concern (non-going concern) opinion after audited by auditor in charge with long tenure.

Interaction between z and square of auditor tenure (SQAT), have negative significant effect (in 5 percent) on auditor opinion. It means that square of auditor tenure (SQAT) strengthen negative effect of z score on auditor opinion. In long term, financial distressed (healthy) companies are less likely to get going concern (non-going concern) opinion after audited by auditor in charge with long tenure.

TABLE VI. Logistic regression (main analysis).

	Coeff.	Sig.	Notes	Coeff.	Sig.	Notes
Constant	1.042			1.458		
z	-1.010	0.149		-0.885	0.214	
z x IS-dummy	0.491	0.053*				
z x IS-ratio				0.923	0.038**	
z x AT	1.966	0.021**		1.817	0.038**	
z x SQAT	-0.542	0.010**	Ha1 Accepted	-0.509	0.018**	
IS-dummy	-1.052	0.021**				Ha1 Accepted
IS-ratio			Ha2 Accepted	-2.263	0.007***	Ha2 Accepted
AT	-2.073	0.162	Ha3 Accepted	-1.840	0.214	Ha3 Accepted
SQAT	0.517	0.153		0.467	0.197	
BIG	1.421	0.001***		1.313	0.002***	
SIZE	0.159	0.150		0.109	0.333	
Dep. Variable	Auditor Opinion			Auditor Opinion		
Nagelkerke R ²	0.358			0.362		
LR sig.	0.000***			0.000***		
H-L sig.	0.251			0.260		
Correct prediction	90.2%			90.9%		

*significant in 10%
** significant in 5%
*** significant in 1%

Source: Statistical output

Audit firm size has positive significant effect (in 1 percent) on auditor opinion. Big 4 audit firms are less likely to give going concern opinion because big 4 audit firms have higher quality to predict and prevent financial distress condition. Company size have no significant effect on auditor opinion.

C. Additional Analysis

Previous researches have measured opinion accuracy with combination of opinion and bankruptcy or financial distress classification. Combination of non-going concern opinion with bankruptcy filling [19], [21], [27]; first time going concern opinion with bankruptcy filling [18], [26]; going concern opinion in save company, non-going concern in distress company with Altman z score criteria of financial distress [22] as error of opinion accuracy. This research will make combination of opinion and financial distress classification with Altman z score criteria [22] and divided by 3 possibilities which are with all observation [22], with save and distress observation because grey area is difficult to classified as going concern or non-going concern [32], with distress observation only [19], [21], [27]. Opinion accuracy will be measured with score 1 if no error opinion accuracy, 0 otherwise.

TABLE VII. Opinion accuracy with Altman criteria of financial distress.

	Going Concern Opinion	Non Going Concern Opinion
Distress	No error Opinion Accuracy	Error Opinion Accuracy
Grey Area	No error Opinion Accuracy	No error Opinion Accuracy
Save	Error Opinion Accuracy	No error Opinion Accuracy

Source: Junaidi et al. [22]

Altman criteria of financial distress based on z score. If z below 1.81 company is distress, z above 2.99 company is save, z between 1.81 and 2.99 company is in grey area [8]. Classification of observations in this research is as follow.

TABLE VIII. Classification of financial distress.

	Observations	Percentage
Distress	185	36.4%
Save	233	45.9%
Grey Area	90	17.7%
Total	508	100%

Source: Statistical output

Table 8 shows that there are 185 observations in financial distress condition or 36.4 percent of all 508 observations. There are 233 observations in save condition or 45.9 percent of all 508 observations. There are 90 observations in grey area or 17.7 percent of all 508 observations.

Table 9 shows opinion accuracy with 3 conditions of observations. In all observations, there are 141 observations with error opinion accuracy or 27.8 percent of all 508 observations, and 367 observations with error opinion accuracy or 72.2 percent of all 508 observations. In save and distress observations, there are 141 observations with error opinion accuracy or 33.7 percent of all 418 observations, and 277 observations with error opinion accuracy or 66.3 percent of all 418 observations. In distress observations, there are 141 observations with error opinion accuracy or 73.5 percent of all 185 observations, and 49 observations with error opinion accuracy or 26.5 percent of all 185 observations.

TABLE IX. Classification of opinion accuracy

	All Observations		Distress and Non-Distress Observations		Distress Observations Only	
	Observations	Percentage	Observations	Percentage	Observations	Percentage
Error Opinion Accuracy	141	27.8%	141	33.7%	136	73.5%
No error Opinion Accuracy	367	72.2%	277	66.3%	49	26.5%
Total	508	100%	418	100%	185	100%

Source: Statistical output

TABLE X. Additional Analysis

	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	-1.863		-1.922		-2.624		-2.702		0.788		0.606	
IS-dummy	0.034	0.889			0.138	0.589			0.503	0.212		
IS-ratio			0.375	0.387			0.504	0.275			1.095	0.144
AT	0.736	0.364	0.759	0.349	0.803	0.337	0.813	0.331	0.493	0.686	0.472	0.698
SQAT	0.138	0.359	-0.194	0.341	-0.209	0.319	-0.213	0.311	-0.063	0.832	-0.059	0.842
BIG	0.190	0.513	0.102	0.628	0.126	0.574	0.089	0.692	-1.334	0.002***	-1.315	0.002***
SIZE		0.001***	0.192	0.001***	0.228	0.000***	0.231	0.000***	-0.201	0.071*	-0.188	0.094*
Dependent Variable	Opinion Accuracy		Opinion Accuracy		Opinion Accuracy		Opinion Accuracy		Opinion Accuracy		Opinion Accuracy	
N	508		508		418		418		185		185	
	Test	Sig.	Test	Sig.	Test	Sig.	Test	Sig.	Test	Sig.	Test	Sig.
IS-dummy	(Chi-squared)	0.651			(Chi-Squared)	0.375			(Chi-Squared)	0.329		
IS-ratio	(Normality)	0.000***	(Mann-Whitney U)	0.538	(Normality)	0.000***	(Mann-Whitney U)	0.556	(Normality)	0.000***	(Mann-Whitney U)	0.911
AT		0.000***		0.861		0.000***		0.928		0.000***		0.205

*significant in 10%
** significant in 5%
*** significant in 1%

Source: Statistical output

In logistic regression, table 10 shows that there are no significant effect of industry specialization (dummy and ratio), auditor tenure, and square auditor tenure on opinion accuracy in those 3 conditions. In comparison test, either Chi-Squared or Mann-Whitney U, there is no different of industry specialization (dummy and ratio) and auditor tenure between no error opinion accuracy and have error opinion accuracy. This additional test shows that auditors use z score to measure financial distress and give appropriate opinion, but not all auditors use Altman (1968) criteria to determine if company is in financial distress.

VI. CONCLUSION

Based on data analysis, auditor in charge knowledge can reduce audit failure by improving of opinion accuracy. Auditor in charge knowledge defined as auditor specialization and auditor tenure. In line with previous research, financial distressed (healthy) companies are more likely to get going concern (non-going concern) opinion after audited by auditor in charge with high auditor specialization. Specialist auditor has more understanding of industry of companies than non-specialist auditor to predict financial distress and give appropriate opinion.

In short term, financial distressed (healthy) companies are more likely to get going concern (non-going concern) opinion after audited by auditor in charge with long tenure. Auditor with long tenure has more knowledge of company specific factors than auditor with short tenure to predict financial distress and give appropriate opinion.

In long term, financial distressed (healthy) companies are less likely to get going concern (non-going concern) opinion after audited by auditor in charge with long tenure. Auditor with too-long tenure has less independence than auditor with short tenure to give appropriate opinion based on company's condition.

This research has implication to management companies to choose auditor with high knowledge and obey the regulation about auditor rotation to keep auditor independence. Company

will provides high quality financial statement with appropriate audit opinion. This research has implication to auditor as well to improve knowledge so auditor will provide high quality audit services.

Limitation of this research is research sample limited for manufacture companies, so result of research could not be generalized to other companies in different industries. Other limitation is this research did not consider about auditor in charge characteristics (such as age, number of assignment, etc.) as knowledge factors, because of limited data access. Future research can examine other industries and consider about auditor in charge characteristics.

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