Ilkogretim Online - Elementary Education Online, 2020; 19 (4): pp. 560-566
http://ilkogretim-online.org
doi:10.17051/ilkonline.2020.04.159

The Effect of Accounting Information Quality on Investment Efficiency with Auditor Specialization as Moderating Variables

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Abstract. This paper examines the effect of accounting information quality on investment efficiency with auditor specialization as moderating variables. This paper use 88 observations of manufacture company listed on Indonesian Stock Exchange year 2014-2016. We analyse the model using multiple linear regression method. The result finds that companies with high quality accounting information are able to reduce the level of overinvestment, indicating a more efficient investment. Further, we find that auditor specialization and good quality accounting information will be associated with more efficient investment decisions. The results of this study have implications for managers to produce good quality accounting information, as well as hiring auditors who specialize in their industries to be able to produce efficient investment decisions.

Keywords: investment efficiency, accounting information quality, auditor specialist.

Received: 03.10.2020	Accepted: 10.11.2020	Published: 14.12.2020

INTRODUCTION

Investment is an allocation of cash or cash equivalents intended to obtain future benefits. In general, investment is defined as a company investment activity which is expected to be used for a long period of time and to bring future benefits. Investment is also considered as a tool to raise funds to increase the company's revenue and value (Gitman and Joehnk, 2005).

Managers often make inefficiencies on their investment decision which may harm the company. Companies are required to make investment efficiency to avoid underinvestment and overinvestment through a proper resource planning. Overinvestment occurs when a company continues to invest in a negative Net Present Value (NPV) investment, while underinvestment occurs when the company skips the opportunity to invest in a positive NPV (Biddle et al, 2009).

Companies should have a good quality of accounting information to improve the investment decisions efficiency (Biddle & Hilary, 2006; Biddle et al., 2009; Chen et al., 2011). Investment decisions making must be supported with accurate information about the company's financial capabilities. Financial statements quality will reflect the real condition of the company, reduce information asymmetry and improve decision making quality on corporate funding and investment (Chen et al, 2011; Dunga & Mafini, 2019; Bonal et al., 2019).

Nezami (2016) states that accounting information will have better quality when companies hiring auditors specialist in their audit activities. Several studies concerning auditors and audit quality have been conducted in Indonesia (Kalanjati et al., 2019; Harymawan et al., 2019; Qomariyah, 2019; Hasibuan et al., 2017; Bulutoding,2016). The appearance of professional experience of individuals in the auditing process could be a factor that affects audit quality (Behzadian & Nia, 2012; Sihombing et al, 2019). Auditors specialist are considered to have specific knowledge of the characteristics in a particular industry (Owhoso, 2002). Auditors who have experience and expertise in an industry are considered to be able to improve the financial statement audit quality. Previous research has shown that auditors specialization reduces the level of information asymmetry within the company (Biddle and Hilary, 2006; McNichols and Stubben, 2008; Biddle et al., 2009; Chen et al., 2011).

Based on the table above it can be seen that eco-efficiency which is an independent variable in this study, measured by obtaining ISO 14001 certification and testing descriptive statistics from a total of 466 existing data, about 39.7% of companies that have implemented eco-efficiency and the rest as much 60.3% of companies have not applied the concept of eco-efficiency.

The results of this study indicate that the accounting information quality has a significant positive effect on investment efficiency. The existence of auditor specialization is able to strengthen the relationship between the quality of accounting information with investment efficiency. The results of this study have implications for managers to produce good quality accounting information, as well as hiring auditors who specialize in their industries to be able to produce efficient investment decisions.

The remainder of this paper is structured as follows. Section 2 develops the research hypotheses. Section 3 describes the sample and variables. Section 4 specifies the empirical result. Section 5 summarizes the paper and presents concluding remarks.

LITERATURE REVIEW AND HYPOTHESIS

Agency Theory

Jansen and Meckling (1976) explained that the agency relationship in agency theory is that the company is a collection of contracts between the principle shareholders and managers (agents) who take care of the use of these resource controls. Managers are morally responsible for optimizing the profits for shareholders (principle) and in return will receive compensation according to the contract. Thus there are two different

interests that cause agency conflicts within the company where each party strives to achieve or maintain the desired level of prosperity.

One type of agency conflict is information asymmetry. Information asymmetry is information disparity between managers and different shareholders (Clinton, 2014). Managers have the obligation to provide information and convey the actual condition of the company to shareholders. However, in practice, managers tend to prioritize their personal interests. As a result, the information obtained by shareholders is incomplete so that it cannot be used as an appropriate basis in assessing management performance and decision making.

The emergence of information asymmetry will make accounting information less qualified. To improve the accounting information quality, auditor specialist is needed to audit the financial statements. The auditor's specialization is expected to produce better audit quality, to provide a qualified financial statement in reflecting management's past performance and becomes the basis for investment decision making in the future, to improve investment efficiency.

Hypothesis

investment is determined by the growth preference, financial security and risk assessment within the company (Gordon and Crotty,1992; Ali & Asri, 2019),. In accordance with Chen et al. (2011), companies can deviate from their optimal level of investment, which will lead to a state of overinvestment or underinvestment. The situation of overinvestment and underinvestment occurs because of the information asymmetry within the company (Chen et al., 2011). The existence of good AIQ (Accounting Information Quality) may reduce the information asymmetry and improve supervision of managerial activities. Good quality of financial disclosure could assist investor to choose an optimum investment decision (Sadalia at al.,2017) .AIQ can improve investment efficiency by enabling managers to access reliable accounting information so as to produce more accurate investment decisions (Bushman et al, 2001; Bushman and Smith, 2001; McNichols and Stubben, 2008; Gomariz and Bellestam, 2014). Good information quality may reduce the problem of overinvestment and underinvestment in the company (Hirshleifer et al, 2004; Biddle et al., 2009; Chen et al., 2011)

H1. The quality of accounting information affects the efficiency of investment

Auditor specialization is an important instrument that is useful for reducing information asymmetry and earnings management (DeBoskey et al., 2012; Mary and Bing, 2012). Specialist auditors are considered capable to identify managerial opportunist actions that are detrimental to the company. Besides, they also can provide a guarantee of information quality in company's financial statement. Therefore, the impact of AIQ on investment efficiency will be stronger for companies whose auditors are industry specialists. In line with this, Elaoud and Jarboui (2017) found that the existence of good accounting information quality is able to reduce the level of overinvestment. Specialist capabilities of the auditor are able to help increase investment efficiency by reducing the problem of underinvestment.

Hence, we argue that the relationship between AIQ and investment efficiency will be strengthened by the presence of auditor specialization. Based on this, the second hypothesis is as follows:

H2. The auditor specialization strengthens the relationship between accounting information quality and investment efficiency.

METHODOLOGY

Sample and Data

This study uses sample of companies in manufacturing industries listed on Indonesia Stock Exchange (IDX) period 2014-2016. The data were hand collected through the company's financial report that is publicly available in IDX official website. Our initial observation was 422 year-observation. After excluding companies that do not have intangible assets and the company presents jam financial statements in currencies other than rupiah, Finally, this study uses 88 firm-year observation as the main sample.

Table 1. *Sample Selection Result*

Criteria	Total
Total manufacturing companies listed on the Indonesia Stock Exchange in 2014-2016	422
Companies that do not have intangible assets	(239)
Financial statements that are not stated in Rupiah	(95)
Total samples	88

Operational Variables Definition

The dependent variable of this study is Investment Efficiency (InvEf). The value of investment efficiency is measured using Biddle et al (2009) and Gomariz and Bellesta (2014) model, to estimate the level of investment expected by company i in year t. The model is as follows:

$$Investment_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t-1} + e_{i,t} \quad (1)$$

Invesment i, t is the sum of tangible assets and intangible assets in year t minus year t-1 divided by total assets t. Sales Growth i, t-1 is the company's sales in year t-1 minus year t-2 divided by sales t-2. Residues with positive values indicate that the company overinvested, where the level of investment was higher than expected according to sales growth. Conversely, a negative residual value indicates that company is underinvesting, the investment level is less than it should be. Whereas for investment efficiency is the absolute residual value multiplied by -1, so a higher value indicates a higher level of investment.

The independent variable in this study is the accounting information quality (AIQ). AIQ is measured using proxy of earnings management with the accrual model by Kothari et al (2005). The following is a calculation model by Kothari et al (2005):

$$TA_{i,t} = \beta o + \beta_1 (1/Asset_{i,t-1}) + \beta 2\ \Delta Sales_{i,t} - \beta 3\ \Delta piutang + \beta 4\ PPE_{i,t} + \beta 5\ ROA_{i,t\ (or\ i,t-1)} + e_{i,t} \quad (2)$$

TA $_{i,t}$ is a measure of the total accruals of company i in year t, Sales $_{i,t}$ is the amount of sales of company i in year t. Receivables represent the amount of company i receivables in year t. PPE $_{i,t}$ is the net value of total fixed assets owned by company i in year t. ROA $_{i,t\ (or\ i,t-1)}$ is net income before tax divided by total assets of company i in year t. Asset $_{i,\ t-}$ are the total assets of the company in the previous period.

The accounting information quality is interpreted using the accrual discretionary value obtained through the residuals of equation (2). The higher the value of accrual discretionary indicates the existence of higher earnings management. Earnings management is inversely proportional to the accounting information quality. A lower level of earnings management indicate a better accounting information quality. To facilitate the interpretation, the residual value of equation (2) will be converted to a negative absolute value. Thus, a higher value indicates a higher AIQ.

This study involved specialist auditors as a moderating variable (SPAU). Specialization is measured by looking at the auditor's market share. Auditor which has a minimum of 20% market share in an industry will be considered a specialist auditor (Craswell et al, 1995; Gramling et al, 2001; DeBoskey et al., 2012). The ratio of manufacturing specialization auditors in this study was formulated as follows referring to the research conducted by DeBoskey (2012):

Specialization Ratio : X/ Y

X is the number of companies audited by the same auditor in the manufacturing sector. Whereas, Y is the total number of companies audited by all auditors in the manufacturing sector. If the auditor has a market share of more than 20%, the auditor includes the manufacturing industry specialist auditor (Deboskey, 2017). So the SPAU value is a dummy variable, where it will have a value of 1 if the auditor has a market share of more than 20% and 0 if otherwise.

This study uses several control variables in the regression model. The control variable used is LnSales, the natural logarithm of total sales at the company in year t; LnAge is the company age which is calculated from the year of the Initial Public Offering (IPO) and company Tangibilutas (Tang) which is the ratio of fixed assets to total assets

METHODOLOGY

This study uses two analytical techniques. To answer the first hypothesis, the multiple linear regression equation (3) is used as follows:

$$InvEf_{it} = \alpha + \beta 1AIQ_{it} + \beta 2Lnsales_{it} + \beta 3LnAge_{it} + \beta 4Tang_{it} + e_{it} \quad (3)$$

To answer the second hypothesis, the moderating regression equation (4) is used as follows:

$$InvEf_{it} = \alpha + \beta 1AIQ_{it} + \beta 2SPAU_{it} + \beta 3AIQ_{it} * SPAU_{it}) + \beta 4LnSales_{it} + \beta 5LnAge_{it} + \beta 6Tang_{it} + e_{it} \quad (4)$$

Empirical Result

Descriptive Satistics

Table 1 summarizes descriptive statistics of all variable used in this study. The calculation results show the lowest Efficiency value is -0.09999, while the highest Efficiency value is 0.17247, and the average value obtained is -0.0072330. The calculation results show the lowest AIQ value is -0,38750, while the highest AIQ is -0,00036, and the average value obtained is -0,0651506. The calculation results show the lowest SPAU value is 0 while the highest SPAU is 1 and the average value obtained is 25. These results indicate that if the auditor has a 20% market share of a particular industry sector, the auditor can be said to be a specialist. Specialist auditors are given a score of 1 while a non-specialist auditor is given a score of 0.

Table 2. *Descriptive Statistics*

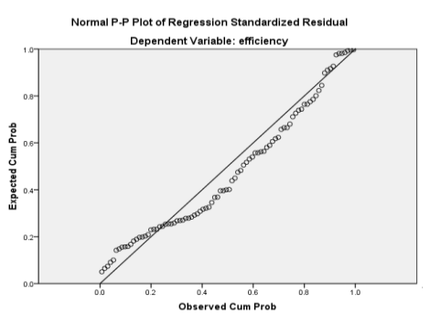
	N	Minimum	Maximum	Mean	Std. Deviation
Efficiency	88	-0,09999	0,17247	-0,0072330	0,06521200
AIQ	88	-0,38750	-0,00036	-0,0651506	0,06595729
SPAU	88	0	1	0,25	0,435
Ln_Sales	88	23,93557	32,93781	28,5624132	1,86750830
Ln_Age	88	0,00000	3,66356	2,6652109	0,87096877
Tang	88	0,04422	1,34188	0,5704472	0,30444500

Classical Assumption Test

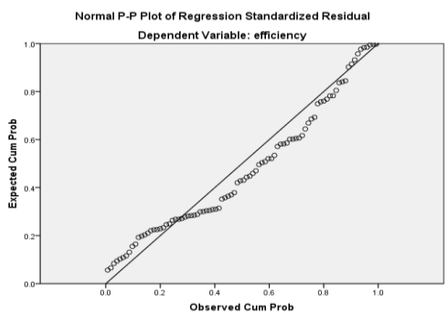
Normality Test

Normality Test aims to test whether in the regression model, the dependent variable and the independent variable have a normal distribution. Based on the normal P-P plot graph, the research data is around the diagonal line and follows the direction of the diagonal line so that it can be concluded that model 1 and model 2 have fulfilled the normality assumption.

Normality Chart Plot Model 1



Normality Chart Plot Model 2

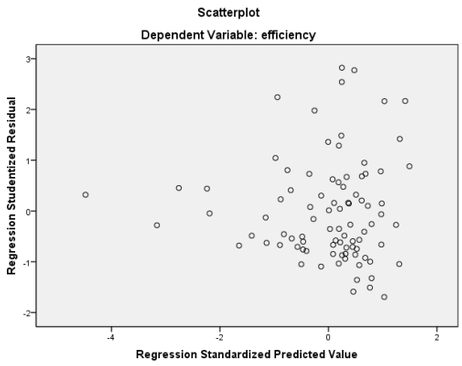


Notes : This picture shows the results of the P-P normality test Plots of multiple linear regression models and moderation regression of 88 manufacturing companies listed on the Indonesia Stock Exchange in 2014-2016

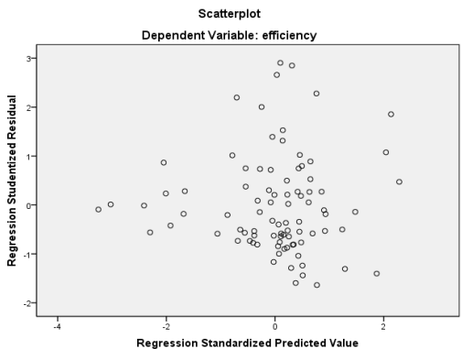
Heteroscedasticity Test

Based on the scatter plot diagram, it can be seen that the scattered points do not collect and do not form a distinctive pattern. Thus, it can be concluded that the symptoms of homoscedasticity or variance from the residuals of one observation to another are constant so that there is no relationship between the confounding variable with the independent variable and the dependent variable is really only explained by the independent variable. The results of this test state that the regression model is free from symptoms of heteroscedasticity

Scatterplot Analysis Model 1



Scatterplot Analysis Model 2



Notes: This picture shows the results of heteroskedasticity test of multiple linear regression models and moderation regression of 88 manufacturing companies listed on the Indonesia Stock Exchange in 2014-2016.
Autocorrelation Test

Durbin Watson test is used to find out whether there are autocorrelation or not. The test is said to be free of autocorrelation if Watson's durbin value is below -2 to +2. Full table on the results of multiple linear regression and moderation regression tests:

Table 3: *Autocorrelation Test Result*

Regression	Durbin Watson	Notes
Double Least Square	1,846	Free autocorrelation
Moderation	1,884	Free autocorrelation

Notes: This figure shows the results of the autocorrelation test of multiple linear regression models and moderation regression of 88 manufacturing companies listed on the Indonesia Stock Exchange in 2014-2016.

Table 3 shows the value of Durbin Watson in the multiple linear regression test obtained a value of 1.846 and for the moderating regression test obtain a value of 1.884. The results show that the Watson durbin value is below -2 to +2. So that both in multiple linear testing and moderation regression do not occur autocorrelation symptoms.

Multicollinearity Test

Table 4 shows that all variables in the multiple linear regression and moderation regression models did not experience multicolinearity problems because all variables had tolerance values> 0.1 and VIF <10. Table 4 shows that all the variables in the moderation regression model did not experience multicollinearity problems because all variables had tolerance values> 0.1 and VIF <10.

Table 4: *Multicollinearity Test Result*

Panel A		
Model 1	**Colliniearity Statistic**	
	Tolerance	**VIF**
AIQ	0,948	1,055
LnSales	0,856	1,618
LnAge	0,818	1,222
Tang	0,904	1,106
Panel B		
Model 2	**Colliniearity Statistic**	
	Tolerance	**VIF**
AIQ	0,834	1,198
SPAU	0,417	2,400
AIQ_SPAU	0,420	2,381
LnSales	0,825	1,212
LnAge	0,815	1,227

Tang	0,872	1,147

Accounting information quality and investment efficiency

Table 5 shows the results of multiple linear regression tests between accounting information quality and investment efficiency with control variables. The coefficient with positive sign means that the change in the independent variable is in the direction of the change in the dependent variable and vice versa. Table 5 shows the regression coefficient of the AIQ variable of 0.326 and the t-test value of the accounting information quality (AIQ) variable is 3.152 with a significance level of 0.002. This significance value is smaller than 0.05 so H1 is accepted. Where AIQ has a positive influence on investment efficiency with a significant value of 2%. Thus the quality of accounting information has a significant positive effect on investment efficiency. That is, the higher the quality of accounting information will help companies in reducing the problem of excessive investment, where companies can manage to reduce investment, so as to achieve an optimal level of investment. The results of this study are consistent with the findings achieved by Gomariz and Bellesta (2014).

Table 5. *Multiple Linear Regression Test Results*

Variable	**Multiple Liniear Regression**			**Conclusion**
	B	**T**	**Sig.**	
Constant	-0,041	-0,380	0,705	Not significant
AIQ	0,326	3,152	0,002*	Significant
LnSales	0,002	0,487	0,627	Not significant
LnAge	-0,005	-0,639	0,524	Not significant
Tang	0,027	1,187	0,239	Not significant
R	0,375			
R^2	0,140			
Uji F	3,390			
Significance	0,013			
Level of significance *5%, **10%				

Auditors specialization, accounting information quality and investment efficiency

Table 6 shows the results of the moderation regression test between auditor specialization and accounting information quality and its effect on investment efficiency. The coefficient marked positive means that the change in the independent variable has the same direction with the change in the dependent variable. Table 6 shows the moderation coefficient of AIQ * SPAU variable of 0.520 and has a positive effect on investment efficiency with a significant value of 8.2% with a significant level of 10%. Based on the summary results of the moderation regression analysis in Table 6, the t-test value on the interaction between the accounting information quality variable (AIQ) and the auditor's specialization (SPAU) was 1.763, with a significance level of 0.082. This significance value is smaller than 0.10 so H2 is accepted. That is, auditor specialization strengthens the positive influence of accounting information quality on investment efficiency. The ability of specialist auditors to reduce the level of information asymmetry and earnings management is shown to be able to strengthen the impact of AIQ on investment efficiency. In addition, specialist auditors can reduce adverse choices and can provide guarantees for the quality of information so that accounting information will be more relevant for investment decision making.

CONCLUSION

This study was conducted to examine the effect of accounting information quality on investment efficiency with auditor specialization as a moderating variable. In this study we find that quality financial statements can prevent companies from experiencing inefficient investment conditions. Good quality financial reports can serve as a monitoring tool for investment decisions made by managers. That way the total investment of the company is no longer at odds with the total investment predicted. So the company can avoid the conditions of underinvestment and overinvestment as well as investment activities carried out by the company will be efficient. The results of this study are in line with Chen et al (2010), Biddle and Hilary (2009), and Sari and Suaryana (2014) that the quality of accounting information has a significant positive effect on investment efficiency.

Furthermore, we also find that auditor specialization is able to strengthen the relationship between the quality of accounting information with investment efficiency. Specialist auditors have more expertise and experience in certain industrial fields. This makes the specialist auditor better able to find faults and fraud in financial reporting through his experience. The deeper knowledge possessed by manufacturing specialist auditors is able to provide better audit quality so that the accounting information produced will also be better. Auditors who have special specialization in certain industries will produce quality information for the company compared to non-specialist auditors (Havasi and Darabi, 2016). Research by Cahan et al (2006) shows that auditor specialization is able to increase investment opportunities. Therefore, the impact of information quality on investment efficiency will be stronger for companies whose auditors are industry specialists. Specialist auditors can reduce adverse choices and can provide guarantees for the quality of accounting information. The results of this study are in line with research by Elaoud and Jarboui (2017) which states that auditor specialization moderates (strengthens) the influence of the quality of accounting information on investment efficiency.

The limitation in this research is that it only uses the manufacturing industry sector as the research object. Subsequent research can use companies with broader sector variations to determine the effect of the quality of accounting information, and auditor specialization on investment efficiency.

Table 6. *Moderation Regression Test Results*

Variable	Moderation Regression Test			Conclusion
	B	T	Sig.	
Constant	-0,025	-0,230	0,819	Not significant
AIQ	0,259	2,364	0,020*	Significant
SPAU	0,034	1,462	0,148	Not significant
AIQ_SPAU	0,520	1,763	0,082**	Significant
Ln_Sales	0,001	0,278	0,782	Not significant
Ln_Age	-0,004	-0,535	0,594	Not significant
Tang	0,025	1,078	0,284	Not significant
R	0,416			
R^2	0,173			
F-Test	2,818			
Signifikance	0,015			
Level of significance *5%, **10%				

ACKNOWLEDGEMENT

This paper is derived form Sarah Bela Dina Hidayat's Undergraduate thesis at the Faculty of Economics and Business, Universitas Airlangga, Surabaya, Indonesia. We are also grateful for the comments and inshights from Eka Sari Ayuningtyas and Dyah Ayu Larasati.

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