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Financial Reporting Quality and Investment Efficiency: Evidence from Indonesian Stock Market

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Abstract

This study aims to analyze the impact of financial reporting quality on the investment efficiency of a company. The study uses 994 observations from companies listed on the Indonesia Stock Exchange (IDX) in three periods from 2013 to 2015. The findings suggest that higher financial reporting quality has a positive and significant relationship with investment efficiency. Furthermore, the tests were conducted on groups of companies experiencing underinvestment and overinvestment. It was found that higher financial reporting quality had a negative and significant relationship with companies experiencing overinvestment. The findings provide implications for investors in assessing investment management carried out by company.

Keywords: financial reporting quality; investment efficiency; underinvestment; overinvestment

JEL classifications: G31; G32; M41

1. Introduction

Quality financial reporting contributes to the company's increasing performance (Martínez-Ferrero 2014; Lopes, Cerqueira & Brandão 2012). In general, higher financial reporting quality has a positive influence on company performance. Furthermore, recent research has examined the contribution of financial reporting quality in the context of company investment efficiency. Ideally, there should be no asymmetric information between managers and investors to optimize investment in profitable projects, such as investments with a positive net present value (NPV), and avoid unfavorable investment projects.

However, in practice, information asymmetry often arises between investors and managers. Investors may not be fully informed about activities carried out by managers, and this will hinder the company's investment project to reach its full potential. Underinvestment problems occur when companies face financing constraints that cause managers to forgo profitable investment projects (Myers & Majluf 1984; Fazzari, Hubbard & Petersen 1988). Conversely, overinvestment occurs when a company has sufficient funding sources, but its managers fail to opt for the optimal investment project. They tend to select investment projects that bring short-term profits and have a negative *NPV*. This action is usually taken to increase personal wealth (Jensen 1986; Stein 2003; Hope & Thomas 2008).

Higher financial reporting quality may lead to investment efficiency, as it reduces information asymmetry between managers and investors, thereby potentially lowering the company's capital costs and preventing underinvestment problems. Furthermore, higher financial reporting quality may prevent managers from taking opportunistic actions to favor investment projects that do not benefit the company (overinvestment) (Biddle, Hilary & Verdi 2009). This is because investors have more accurate information, enabling them to monitor managers' activities,

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especially those related to investment decisions (Ahmed & Duellman 2007).

A major financial crisis hit Indonesia in 1998, and it led the government to initiate a reporting and disclosure guidance issued by the Indonesian Capital Market Regulatory Body (the BAPEPAM 2002) (Siagian, Siregar & Rahadian 2013). Since then, financial reporting quality has become a main concern and compliance with the guidance has been made mandatory. Research has found that the value relevance of accounting information has increased and earnings management has decreased since the implementation of the International Financial Reporting Standards (IFRS) in Indonesia under Indonesia financial accounting standards (PSAK) (Arum 2013). However, as legislation is often associated with overt political interests, it raises concerns that regulations made by the government will hinder the efficiency of IFRS implementation in Indonesia. Nonetheless, it was found that the implementation of IFRS in Indonesia improved the quality of financial reporting. According to Gomariz & Ballesta (2014), financial reporting quality can mitigate the problem of investment inefficiency.

According to Al'Alam & Firmansyah (2019), investment is one of the crucial determinants for economic growth in developing countries, including Indonesia. Thus, investment efficiency is necessary to identify how well a company will invest its assets, and it indirectly influences the performance of the company (Chen, Sung & Yang 2017). However, Indonesia still lags behind in terms of investor protection rights compared with developed countries (Arum 2013). Therefore, within the context of Indonesia, this study aims to examine the association between financial reporting quality and investment efficiency in Indonesian companies.

Previous research suggests that financial reporting quality could enhance investment efficiency, but this finding was based on a sample of private firms (Chen et al. 2011). Further, previous study mostly examined the effect of financial reporting quality in overinvestment and underinvestment companies in a developed country, such as a study by Biddle, Hilary & Verdi (2009). By contrast, this current study drew on a sample of Indonesian public firms subject to public attention and scrutiny because information presented in the financial reports is essential for investors and stakeholders for their decision making (Barton & Waymire 2004). Further, this current study used a sample of public firms in Indonesia, an emerging country with weak enforcement of investor protection rights compared with developed countries (Arum 2013).

Therefore, this study aims to analyze how financial reporting quality contributes to the companies' investment efficiency in the context of public firms in an emerging country, with reference to Indonesia. Moreover, this study examines the association between financial reporting quality and companies which experienced overinvestment and underinvestment. This study hypothesizes that companies with higher reporting quality will be able to improve their investment efficiency. The findings from this research are expected to extend the literature on financial reporting quality. Furthermore, on a more practical level, the findings are also expected to inform investors in assessing investment management carried out by managers to allow improved monitoring of investment activities and policies taken by managers.

This paper is organized as follows. Section 2 discusses the literature review while Section 3 describes the research methodology. Results are discussed in Section 4 and conclusion is presented in Section 5.

2. Literature Review

2.1. Grand Theory

2.1.1. Agency Theory

The separation between company owners and company management will lead to a relationship that is commonly referred to as agency theory. According to Anthony & Govindarajan (2005), agency theory is a theory that explains the relationship between

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company owners (principal) and company management (agent). An agency relationship arises when one or more parties employ another party, where the employer is called the principal, and the party employed is called the agent.

Agency theory argues that each individual only focuses on their interests, thus creating a conflict of interest between the principal and the agent. This can lead to managers' tendency to focus on projects and investment companies that generate high returns in the short term rather than maximize shareholder welfare by investing in profitable projects in the long term. The difference in interests between the principal and the agent will also incur costs, namely, agency costs. Agency costs are costs incurred by the principal to ensure that the agent (manager) acts in the principal's best interest, for example, in return for a percentage of profits in the form of bonuses or other costs incurred by agency problems.

2.1.2. Information Asymmetry

According to Eisenhardt (1989), agency theory is based on several assumptions, including information asymmetry. Information asymmetry is an imbalance of information between the principal and the agent. The principal should receive comprehensive information to be able to assess the agent's performance and make decisions. In reality, the information is often not presented thoroughly by the agent, so the principal cannot evaluate the agent's performance in managing the company and the information lacks relevance as a basis for decision making.

This information asymmetry can cause problems due to the principal's difficulty in overseeing the actions taken by the agent. Jensen & Meckling (1976) explain these two problems, i.e., moral hazard and adverse selection. Moral hazard problems arise when the agent can take actions that are unknown to the principal. A moral hazard condition occurs when the managers' activities are beyond the monitoring of the principal. Managers tend to act opportunistically to increase their wealth. They are likely to overinvest in low-value investment projects. This can happen because investors are not aware of the activities carried out by the manager, and therefore, managers can violate the ethical codes and harm the investors (Lambert, Leuz & Verrecchia 2007; Biddle, Hilary & Verdi 2009).

Adverse selection problems occur when the agent who manages the company has complete information about the prospects and conditions of the company while the principal does not because the information that should reach the investors is not fully conveyed. On the other hand, investors can increase the cost of capital to get a substantial return. High capital costs and insufficient internal funds lead to managers' reduced interest in external funding, causing managers to miss investment opportunities in positive *NPV* value projects, and in turn resulting in companies experiencing underinvestment (Myers & Majluf 1984).

2.2. Hypothesis Development

Based on the agency theory, there are various mechanisms to reduce information asymmetry and information risks. It can be done by enabling higher supervision of managerial activities to avoid opportunistic managerial behaviors, such as financial reporting quality and disclosure. A series of studies have been conducted to assess the impact of financial reporting quality on investment efficiency including Bushman & Smith (2001), Healy & Palepu (2001), and Hope & Thomas (2008).

Higher financial reporting quality forces managers to be more responsible because higher monitoring can reduce adverse selection and moral hazards caused by information asymmetry. Therefore, higher financial reporting quality can make investment decisions more efficient. Previous studies, including Bushman & Smith (2001,2003), Lambert (2001), Sloan (2001), and Ahmed & Duelleman (2007,2011) have found empirical evidence that higher financial reporting quality contributes to increased monitoring of managerial activities. Thus,

it can reduce managers' opportunity to commit to overinvestment projects that are detrimental to the interests of the investors caused by a moral hazard (Biddle & Hilary 2006; McNichols & Stubben 2008).

Higher financial reporting quality can also reduce the level of information risk that investors cannot identify to mitigate adverse selection and capital costs. Higher financial reporting quality can attract fund providers to provide funding to companies, thereby reducing underinvestment potential (Easley & O'hara 2004; Handayani, Siregar & Tresnaningsih 2016). High quality financial reporting will help overinvestment-companies mitigate their investment levels and underinvestment-companies attract more investments. Based on the findings of previous studies, the following hypotheses are proposed:

H1: Financial reporting quality has a positive relationship with investment efficiency.

H2a: Financial reporting quality has a negative relationship with overinvestment.

H2b: Financial reporting quality has a negative relationship with underinvestment.

3. Method

3.1. Sample and Data Sources

The capital market in Indonesia has existed since the Dutch colonial era in 1912 in what is formerly known as Batavia. However, due to various obstacles such as World War I and World War II, several activities in Indonesian capital market were halted. After Indonesia's independence in 1945, the Government of the Republic of Indonesia resumed the capital market in 1977, and a few years later the capital market experienced growth as a result of the various incentives and regulations issued by the government. In 2020, there are 712 companies listed on the Indonesia Stock Exchange (IDX).

The initial sample in this study consisted of all companies listed on IDX. The sample period in this study is between 2013 and 2015 because this study assumes the effect of the three-year period after the intial implementation of IFRS in Indonesia. According to Cahyonowati & Ratmono (2012), the implementation of IFRS in Indonesia started on 1st January 2012, and its implementation has since enhanced the quality of financial reporting (Arum 2013). Data in this study were obtained through company financial reports and ORBIS[1] databases. A total of 1,520 observations were initially collected. Next, two sample selection criteria we applied. First, companies included in the financial, insurance, and real estate industries (SIC 6)[2] were excluded because they had 417 different financial reports. Second, observations with missing data in any of the variables in this study, amounting to 109 observations, were also excluded. After the sample selection criteria were applied, the remaining 994 observations were used as the primary sample in this study.

3.2. Estimation Method

Investment efficiency is the dependent variable in this study. Investment efficiency was measured based on the research model proposed by Biddle, Hilary & Verdi (2009) and Chen et al. (2011). Furthermore, an estimation of a regression and residual values was carried out. The regression model is as follows:

$$\begin{aligned}\mathrm{Investment}_{\mathrm{i,t}} &= \beta_0 + \beta_1 \mathrm{RevGrowth}_{\mathrm{i,t-1}} \\ &\quad + \beta_2 \mathrm{NEG}_{\mathrm{i,t-1}} \\ &\quad + \beta_3 \mathrm{NEG} * \mathrm{Rev}_{\mathrm{i,t-1}} + \varepsilon_{\mathrm{i,t}} \end{aligned} \quad (1)$$

Investment is the difference between the company's tangible assets and intangible assets in year t compared to year $\mathrm{t}-1$ divided by lagged total assets. The measurement using $\mathrm{t}-1$ (growth from previous year) is sufficient and optimum (Chen et al.

[1] ORBIS is a global database equipped with advanced search and analysis software providing information on over 20 million companies.

[2] SIC stands for Standard Industrial Classification to classify companies based on their industry area. In this study companies in SIC 6 were excluded, which means companies in Finance, Insurance, and Real Estate industries were not included in the sample.

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2011). *RevGrowth* is the annual income growth rate for the company i in year $\mathrm{t}-1$. The *NEG* indicator variable takes the value of one for negative income growth and zero for the opposite. A positive residual value indicates that the company is experiencing overinvestment, while a negative value indicates that it is experiencing underinvestment.

Investment efficiency is obtained by multiplying the absolute residual value by -1. The purpose of making the residual value into an absolute value is to avoid bias interpretation of overinvestment and underinvestment value. Without an absolute value, the result will implicitly show that underinvestment is bigger than overinvestment while the actual result might be otherwise (Chen et al. 2011). Furthermore, the purpose of multiplying the value by -1 is to make the interpretation of the regression results easier. If the result is positive, it indicates that financial reporting quality enhances the investment efficiency, and vice versa.

Financial reporting quality (*FRQ*) is an independent variable in this study. *FRQ* was measured using accrual quality and income smoothing. The accrual quality used is Dechow & Dichev's (2002) model approach, which has been widely used in previous research (e.g., Francis et al. 2005; Biddle, Hilary & Verdi 2009; Chen et al. 2011), and it was modified and supplemented by fundamental variables from Jones' (1991) model, as proposed by McNichols (2002). In order to obtain the accrual quality value, the following regression was conducted, and the residual value is our point of interest.

$$\begin{aligned}\mathrm{WCA_{i,t}} &= \beta_0 + \beta_1 \mathrm{CFO_{i,t-1}} + \beta_2 \mathrm{CFO_{i,t}} \\ &\quad + \beta_3 \mathrm{CFO_{i,t+1}} + \beta_4 \Delta \mathrm{Rev_{i,t}} \\ &\quad + \beta_5 \mathrm{PPE_{i,t}} + \varepsilon_{\mathrm{i,t}} \end{aligned} \tag{2}$$

WCA is the difference between current assets and current liabilities, derived by substracting amortization and depreciation from the sum of cash and cash equivalent. *CFO* is operating cash flows, and $\Delta \mathrm{Rev}$ is the difference in income, while *PPE* is a category of land, buildings, and equipment. All variables were divided by lagged total assets to prevent heteroscedasticity. The residual value illustrates each observation's earnings quality, whereby the higher the residual value of accrual quality implies the lower the earnings quality, which causes low quality of financial reporting. The residual value was then made into an absolute value and multiplied by -1 to make an easier interpretation. Thus, the higher the residual value of accrual quality, the better the company's earnings quality, which implies the higher quality of financial reporting.

Furthermore, income smoothing was used as another indicator for measuring financial reporting quality in this study, because based on previous research, higher quality of financial reporting is also indicated by lower income smoothing practiced by the company (Zarowin 2002). Income smoothing (*SMOOTH*) in this study is operationalized as that in previous studies by Bhattacharya & Daouk (2002), Leuz, Nanda & Wysocki (2003), and Francis et al. (2005), which measured income smoothing using a standard deviation ratio of net income ($\delta \mathrm{NEI}$) compared to the operating cash flow standard deviation ($\delta \mathrm{OCF}$).

$$\mathrm{SMOOTH_{it}} = \frac{\delta \mathrm{NEI}}{\delta \mathrm{OCF}} \tag{3}$$

According to Zarowin (2002), a smaller value of $\frac{\delta \mathrm{NEI}}{\delta \mathrm{OCF}}$ indicates that the company is practicing income smoothing. The higher the *SMOOTH* value is, the lower the probability that the company is practicing income smoothing. It indicates that the financial reporting quality becomes higher because the reported earnings are more accurate as a source of information in decision making.

This study employed the ordinary least square (OLS) regression model. Furthermore, this study used a regression model with Petersen's (2009) cluster approach by grouping companies by industry and year. We controlled the year fixed effect and industry fixed effects to obtain a robust result and controlled differences in economic conditions and industrial characteristics. In examining the relationship between financial reporting quality

(*FRQ*) and investment efficiency (*INVEF*), the used regression model is as follows:

$$\begin{aligned}\mathrm{INVEF_{it}} &= \alpha + \beta_1\mathrm{FRQ_{i,t}} + \beta_2\mathrm{AGE_{i,t}} \\ &+\beta_3\mathrm{SIZE_{i,t}} + \beta_4\mathrm{TANG_{i,t}} \\ &+\beta_5\mathrm{LEV_{i,t}} + \beta_6\mathrm{ROA_{i,t}} \\ &+\beta_7\mathrm{FCF_{i,t}} + \beta_8\mathrm{LOSS_{i,t}} \\ &+\mathrm{YEAR_{i,t}} + \mathrm{INDUSTRY_{i,t}} \\ &+\varepsilon_{\mathrm{i,t}} \end{aligned} \quad (4)$$

The control variables used are based on previous research (i.e. Nor, Nawawi & Salin 2017; Lai & Liu 2018; Houcine 2017; Habib & Hasan 2017; Elaoud & Jarboui 2017; Oh 2017; Samet & Jarboui, 2017). They are company age (*AGE*), company size (*SIZE*), tangibility (*TANG*), debt ratio (*LEV*), return on assets (*ROA*), free cash flow (*FCF*), and loss (*LOSS*).

This study also examined the relationship between financial reporting quality (*FRQ*) and overinvestment (*OVER*) and underinvestment (*UNDER*). Accordingly, the following regression models below were used:

$$\begin{aligned}\mathrm{OVER_{i,t}} &= \alpha + \beta_1\mathrm{FRQ_{i,t}} + \beta_2\mathrm{AGE_{i,t}} \\ &+\beta_3\mathrm{SIZE_{i,t}} + \beta_4\mathrm{TANG_{i,t}} \\ &+\beta_5\mathrm{LEV_{i,t}} + \beta_6\mathrm{ROA_{i,t}} \\ &+\beta_7\mathrm{FCF_{i,t}} + \beta_8\mathrm{LOSS_{i,t}} \\ &+\mathrm{YEAR_{i,t}} + \mathrm{INDUSTRY_{i,t}} \\ &+\varepsilon_{\mathrm{i,t}} \end{aligned} \quad (5)$$

$$\begin{aligned}\mathrm{UNDER_{i,t}} &= \alpha + \beta_1\mathrm{FRQ_{i,t}} + \beta_2\mathrm{AGE_{i,t}} \\ &+\beta_3\mathrm{SIZE_{i,t}} + \beta_4\mathrm{TANG_{i,t}} \\ &+\beta_5\mathrm{LEV_{i,t}} + \beta_6\mathrm{ROA_{i,t}} \\ &+\beta_7\mathrm{FCF_{i,t}} + \beta_8\mathrm{LOSS_{i,t}} \\ &+\mathrm{YEAR_{i,t}} + \mathrm{INDUSTRY_{i,t}} \\ &+\varepsilon_{\mathrm{i,t}} \end{aligned} \quad (6)$$

Table 1 provides a summary of variable used in this research.

4. Result

4.1. Descriptive Statistics and Univariate Analysis

Table 2 presents the distribution of the samples based on industrial groups. Of 994 observations, 798 observations were overinvestment companies and 196 observations were underinvestment companies. In Table 2, the companies that experienced the most overinvestment and underinvestment were those in the manufacturing sector (SIC 2).

Table 3 provides the descriptive statistics of the sampled companies. The dependent variable, investment efficiency (*INVEF*), had an average value of -0.481. The independent variable, financial reporting quality (*FRQ*), measured using accrual quality (*ACCQ*) and income smoothing (*SMOOTH*) had an average value of 0.117 and 1.510, respectively. As for the control variables, company age level (*AGE*) and firm size (*SIZE*), had an average value of 3-.971 and 21.571, respectively, tangibility (*TANG*) and leverage (*LEV*) had an average of 52.4% and 55.1%, respectively, while *ROA* had an average value of 0.072.

Table 4 shows the results of the Pearson correlation test. The correlation between investment efficiency variables (*INVEF*) and financial reporting quality, measured using accrual quality (*ACCQ*) and income smoothing (*SMOOTH*), showed positive and significant results. It means that companies with higher reporting quality had increased investment efficiency. The control variable company age (*AGE*) was positively but not significantly correlated with the *INVEF* variable. Furthermore, firm size (*SIZE*) and return on assets (*ROA*) were positively and significantly correlated with a significance level of 10% and 1%, respectively. These results proved that *ROA* and company size play an essential role in increasing company investment efficiency.

Meanwhile, the control variables tangible assets of the company (*TANG*), leverage (*LEV*), free cash flow (*FCF*), losses suffered by the company (*LOSS*)

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Table 1. Variable Definition

Variables	Measurement	Data Sources
Investment	The difference between the company's tangible assets and intangible assets in year t compared to year t-1 divided by lagged total assets (Biddle and Chen's model)	ORBIS
INVEF	Investment efficiency, the residual value of the investment model, absoluted and multiplied by -1	ORBIS
OVER	Overinvestment, positive residual value from the investment model	ORBIS
UNDER	Underinvestment, negative residual value from the investment model multiplied by -1	ORBIS
ACCQ	Accrual Quality from Dechow and Dichev's model	ORBIS & Financial Report
SMOOTH	Income smoothing using Francis and Zarowin's model	ORBIS
AGE	Company's age (year)	ORBIS
SIZE	Natural logarithm over total company assets	ORBIS
TANG	The company's tangible assets divided by the company's total assets	ORBIS
LEV	Total debt divided by total assets of the company	ORBIS
ROA	Company profit (EBIT) divided by total assets of the company	ORBIS
FCF	Free cash flow, a dummy variable where a value of 1 represents a company that had free cash flow above the average sample value, and a value of 0 for a company below the average value	ORBIS & Financial Report
LOSS	A dummy variable where a value of 1 represents a company that had a loss assessed by a negative operating income and a value of 0 for a company that did not experience a loss	ORBIS

Table 2. Sample Distribution by Industry

SIC	Company Experiencing				Total	
	Underinvestment		Overinvestment			
	N	%	N	%	N	%
0	30	75.00	10	25.00	40	100
1	115	79.86	29	20.14	144	100
2	229	83.27	46	16.73	275	100
3	169	86.22	27	13.78	196	100
4	99	68.28	46	31.72	145	100
5	78	82.98	16	17.02	94	100
7	65	82.28	14	17.72	79	100
8	13	61.90	8	38.10	21	100
Total	798	80.28	196	19.72	994	100

Note: This table displays the sample distribution of companies listed on the IDX in 2013–2015 based on industry classification

Table 3. Descriptive Statistics

Variables	Average	Median	Minimum	Maximum
INVEF	-0.481	-0.122	-2.158	-0.000
ACCQ	0.117	0.078	0.001	0.997
SMOOTH	1.510	0.580	0.016	24.813
AGE	30.971	29.000	5.000	113.000
SIZE	21.571	21.523	17.774	25.179
TANG	0.524	0.528	0.042	0.947
LEV	0.551	0.511	0.065	2.925
ROA	0.072	0.067	-0.226	0.505
FCF	0.406	0.000	0.000	1.000
LOSS	0.259	0.000	0.000	1.000

Note: This table shows the descriptive statistics for all the variables used in this study in their original values

had a negative and significant correlation to the company's investment efficiency (*INVEF*), with a significance level of 1%, 1%, 5%, and 1%, respectively. These results proved that tangible assets, leverage, free cash flow, and losses experienced by the company can hinder investment efficiency.

4.2. Estimation Results

Table 5 shows the results of the OLS estimation. The value of r2 shows that the regression model can explain 14.9% of the relationship between independent and dependent variables. Financial reporting quality measured using accrual quality (*ACCQ*) had a coefficient of 0.311 (t = 2.11), showing positive results and a 5% significance level on investment efficiency. Similarly, financial reporting quality measured using income smoothing (*SMOOTH*) had a coefficient of 0.014 (t = 1.84), showing positive results and a 10% significance level on investment efficiency. This means that for every 1 point *FRQ* increase, *INVEF* increases by 0.311 and 0.014, respectively. The results show that higher financial reporting quality increases the efficiency of a company's investment. Hence, the first hypothesis (H1) is supported.

Two control variables, namely *SIZE* and *ROA* showed a positive and significant relationship with investment efficiency, both when *FRQ* is measured using *ACCQ* and *SMOOTH*, Conversely, *TANG*, *LEV*, *FCF*, and *LOSS* had negative and significant relationships with investment efficiency.

Table 4. Pearson Correlation Test

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) INVEF	1.000									
(2) ACCQ	0.109***	1.000								
	(0.001)									
(3) SMOOTH	0.128***	0.076**	1.000							
	(0.000)	(0.017)								
(4) AGE	0.036	-0.095***	0.018	1.000						
	(0.260)	(0.003)	(0.565)							
(5) SIZE	0.060*	0.083***	-0.019	-0.053*	1.000					
	(0.060)	(0.009)	(0.547)	(0.094)						
(6) TANG	-0.166***	-0.020	-0.182***	0.088***	0.182***	1.000				
	(0.000)	(0.536)	(0.000)	(0.005)	(0.000)					
(7) LEV	-0.105***	-0.279***	-0.240***	-0.018	0.040	0.051	1.000			
	(0.001)	(0.000)	(0.000)	(0.573)	(0.210)	(0.111)				
(8) ROA	0.287***	0.075**	0.061*	-0.105***	0.121***	-0.248***	-0.235***	1.000		
	(0.000)	(0.017)	(0.053)	(0.001)	(0.000)	(0.000)	(0.000)			
(9) FCF	-0.064**	-0.042	-0.095***	0.114***	0.213***	0.409***	0.056*	0.070**	1.000	
	(0.043)	(0.184)	(0.003)	(0.000)	(0.000)	(0.000)	(0.075)	(0.027)		
(10) LOSS	-0.275***	-0.162***	-0.167***	0.043	-0.063**	0.238***	0.292***	-0.563***	0.068**	1.000
	(0.000)	(0.000)	(0.000)	(0.180)	(0.048)	(0.000)	(0.000)	(0.000)	(0.032)	

Note: This table displays the Pearson correlation test results from 994 observations on listed companies on IDX in 2013-2015 with p-values in parentheses and (*), (**) and (***) represent 10%, 5% and 1% significance levels, respectively.

Table 5. OLS Estimation Result

Variables	Prediction of Direction	INVEF	
		ACCQ	SMOOTH
FRQ	+	0.311**(2.11)	0.014*(1.84)
AGE	+	0.002*(1.91)	0.002(1.62)
SIZE	+	0.029**(2.43)	0.031***(2.59)
TANG	-	-0.235**(-2.42)	-0.196**(-2.03)
LEV	-	-0.005(-0.08)	-0.010(-0.16)
ROA	+	1.034***(4.00)	1.053***(4.10)
FCF	-	-0.082*(-1.85)	-0.083*(-1.88)
LOSS	-	-0.164***(-2.83)	-0.164***(-2.80)
_cons		-0.944***(-3.42)	-1.047***(-3.83)
Dummy:			
Year		Included	Included
Industry		Included	Included
r2		0.149	0.149
N		994	994

Note: This table presents the results of multiple linear regression of companies registered on IDX in 2013–2015, with p-values in parentheses and (*), (**) and (***) represent 10%, 5% and 1% significance levels, respectively.

Further regression analysis was conducted to test whether there was an influence of financial reporting quality with on less-than-optimum investment. Accordingly, regressions were conducted on groups of underinvestment companies and overinvestment companies separately. Table 6 shows the estimation results of the companies that experienced overinvestment. It shows that *FRQ* measured using accrual quality (*ACCQ*) was negatively and significantly related to overinvestment (*OVER*). However, financial reporting quality measured by using income smoothing (*SMOOTH*) was negatively and insignificantly related to overinvestment. The estimated coefficient of *ACCQ* on *OVER* had a value of -0.637 (t = -4.90) and a significance level of 1%. This indicates that the quality of financial reporting is negatively and significantly related to overinvestment, thus supporting the second hypothesis (H2a). In other words, the better the quality of the financial reporting is, the lower the possibility of overinvestment problems. Further, the r2 value showed that the model using *FRQ* measured by *ACCQ* and *SMOOTH* can explain the variation of dependent variable by 35.1% and 18.8%, respectively, with 196 samples.

Table 7 presents the results of the regression tests on the underinvestment companies. The results show that financial reporting quality measured using accrual quality (*ACCQ*) and income smoothing (*SMOOTH*) were negatively but not significantly related to underinvestment (*UNDER*). These results do not support the third hypothesis (H2b) and show that higher financial reporting quality cannot reduce

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Table 6. OLS Estimation Result for Companies Experiencing Overinvestment

Variables	Prediction of Direction	OVER	
		ACCQ	SMOOTH
FRQ	-	-0.637***(-4.90)	-0.008(-0.74)
AGE	-	-0.001(-0.42)	0.001(0.48)
SIZE	-	-0.007(-0.72)	-0.018(-1.36)
TANG	+	0.220*(1.90)	0.105(0.82)
LEV	-	-0.095(-0.71)	-0.042(-0.32)
ROA	-	-0.602**(-2.25)	-0.720**(-2.31)
FCF	+	0.052(1.13)	0.052(0.90)
LOSS	-	-0.052(-0.84)	-0.002(-0.03)
_cons		0.331(1.23)	0.847**(2.43)
Dummy:			
Year		Included	Included
Industry		Included	Included
r2		0.351	0.188
N		196	196

Note: This table presents the results of multiple linear regression of companies registered on IDX in 2013–2015, with p-values in parentheses and (*), (**) and (***) represents 10%, 5% and 1% significance levels, respectively.

underinvestment problems experienced by companies. Further, the r2 value showed that the model using *FRQ* measured by *ACCQ* and *SMOOTH* can explain the variation of dependent variable by 16.1% and 16% respectively, with 798 samples.

Table 7. OLS Estimation Result for Companies Experiencing Underinvestment

Variables	Prediction of Direction	UNDER	
		ACCQ	SMOOTH
FRQ	-	-0.364(-1.62)	-0.013(-1.37)
AGE	-	-0.001(-1.06)	-0.001(-0.89)
SIZE	-	-0.025*(-1.77)	-0.028**(-1.98)
TANG	+	0.417***(3.57)	0.380***(3.27)
LEV	-	-0.008(-0.12)	0.004(0.07)
ROA	-	-0.926***(-3.20)	-0.921***(-3.22)
FCF	+	0.044(0.86)	0.050(0.96)
LOSS	+	0.162**(2.48)	0.163**(2.49)
_cons		0.842***(2.62)	0.943***(2.98)
Dummy:			
Year		Included	Included
Industry		Included	Included
r2		0.161	0.16
N		798	798

Note: This table presents the results of multiple linear regression of companies registered on IDX in 2013–2015, with p-values in parentheses and (*), (**) and (***) represents 10%, 5% and 1% significance levels, respectively.

5. Conclusion

This study found that higher financial reporting quality was positively and significantly related to investment efficiency. Higher financial reporting quality was found to increase a company's investment efficiency (reaching an optimal point) by reducing asymmetric information between managers and investors so that investors can have accurate and comprehensive information about the company. Consequently, investors will be able to better monitor the activities of managers. This, in turn, can prevent investment decisions that can harm the company. The results of this study are consistent with findings from research conducted by Biddle, Hilary & Verdi (2009), Chen et al. (2011), and Gomaris & Balesta (2013).

This study also found that higher financial reporting quality could reduce overinvestment problems but failed to reduce underinvestment problems. Higher financial reporting quality can reduce overinvestment problems caused by asymmetric information, allowing companies to avoid opportunistic managerial actions (moral hazard) in selecting investments that have a negative *NPV*. However, higher financial reporting quality cannot attract investors because the decrease in capital costs will reduce the level of return that investors receive. In other words, higher reporting quality cannot solve a company's underinvestment problem. The results from this study confirm and support earlier findings from the research conducted by Gomaris & Balesta (2013) and Butar (2015).

The findings from this study provide insights and knowledge about the importance of financial reporting quality for companies; thus, managers should avoid any inappropriate investment decision by investors that might harm the company. Investors should always take an important role in monitoring managers' investment activities and policies. They should also be aware that investment efficiency will also benefit them, so they should make prudent decision-making based on

the information presented in the financial report.

Furthermore, the findings may also be of interest to policymakers so that they can enforce the standards and oversee financial reporting quality of companies to reduce any information asymmetry between the company and the public.

The findings reported here are also expected to extend the literature on financial reporting quality and investment efficiency in the context of public firms in an emerging country. Further research could usefully explore other criteria and the quality of accruals and income smoothing in measuring financial reporting quality and its effect on investment efficiency to provide further insights into financial reporting quality.

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