

EARNINGS QUALITY AND ASYMMETRIC COST BEHAVIOR: A STUDY OF INDONESIA CAPITAL MARKET

Riki Martusa

Lecturer Master of Accounting Program, Faculty of Business, Maranatha Christian University, Bandung, Indonesia

<https://orcid.org/0000-0002-9779-5828>

Meythi Meythi

Lecturer of Accounting Study Program, Faculty of Business, Maranatha Christian University, Bandung, Indonesia

<https://orcid.org/0000-0002-0262-0268>

Laurensia Vina Dharmawan

Student of Master of Accounting Program, Faculty of Business Maranatha Christian University, Bandung, Indonesia

<https://orcid.org/0000-0002-3195-9770>

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Abstract

This study investigates whether earnings quality affects to asymmetric cost behavior, i.e., sticky cost of listed firms of Jakarta Stock Exchange (JKSE). This study analyzes 1032 year-firms observations during 2012-2019 periods. This study investigates earnings quality on listed firms of JKSE during the period of IFRS adoption in 2012 and implementation of sustainability reporting voluntarily. This study finds that earnings quality influence to cost stickiness is supported. However, earnings quality negatively influences cost stickiness. The result of this study indicates that there is likely the effect of IFRS adoption in 2012 and implementation of sustainability reporting voluntarily since 2010 from listed firms on the JKSE on its earnings quality. This result is consistent with study of Banker, Basu, Byzalov, & Chen (2016). So higher earnings quality, lower cost stickiness. This study contributes theoretically to the literature on financial accounting, management accounting and cost management related to the topic of asymmetric cost behavior on earnings characteristics. This research also contributes practically to the ability of earnings quality in listed firms of the JKSE to reflect information on their financial performance related to the earnings quality by investors and financial analysts.

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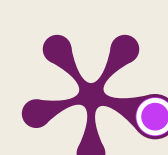
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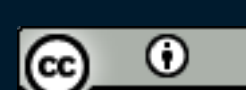
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Dolna 17, Warsaw, Poland 00-773

Tel: +48 226 0 227 03

Email - editorial_office@rsglobal.pl



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Riki Martusa

Lecturer Master of Accounting Program, Faculty of Business
Maranatha Christian University, Bandung, Indonesia
ORCID: <https://orcid.org/0000-0002-9779-5828>

Meythi Meythi

Lecturer of Accounting Study Program, Faculty of Business,
Maranatha Christian University, Bandung, Indonesia,
ORCID: <https://orcid.org/0000-0002-0262-0268>

Laurensia Vina Dharmawan

Student of Master of Accounting Program, Faculty of Business
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ORCID: <https://orcid.org/0000-0002-3195-9770>

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ABSTRACT

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1. Introduction

This research aims to investigate whether earnings quality affects asymmetric cost behavior, i.e., sticky costs in listed firms of Jakarta Stock Exchanges (JKSE). A large numbers of studies have examined sticky costs associated with various factors, i.e. economic (Anderson, Banker, & Janakiraman, 2003), time-series of properties earnings (Banker & Chen, 2006), analysts' forecast accuracy (Weiss, 2010), conservatism (Banker et al., 2016), analysts' earnings forecast (Ciftci, Mashruwala, & Weiss, 2016), and voluntary disclosures (Ciftci & Salama, 2018). However, very few studies have examined sticky costs relate to earnings quality, especially in listed firms of capital market of ASEAN countries, especially

Indonesia. This study aim to investigate earnings persistence as a part of concept of earnings quality according to Dechow, Ge, & Schrand (2010). But a few studies examine earnings quality relate to cost stickiness, specifically in ASEAN Countries, i.e., listed firms of JKSE.

Banker et al. (2016) suggested that cost stickiness affects conditional conservatism, i.e., asymmetric timeliness in listed firms of NYSE. Thus, this study conjectures cost stickiness influence earnings quality. But the question is whether or not earnings quality is taken account of by the asymmetric cost behavior, particularly sticky cost. This study is motivated, therefore, to examine whether earnings quality, i.e., earnings quality score of listed firms, are associated with sticky cost.

Prior studies of earnings quality suggested that International Financial Reporting Standards (IFRS) adoption hasn't direct effect to earnings quality (den Besten, Georgakopoulos, Vasileiou, & Eriotis, 2015) but this relationship is moderated by the protection of investor (Houqe, van Zijl, Dunstan, & Karim, 2012) and corporate social responsibility (Rezaee, Dou, & Zhang, 2020). However, Houqe, Monem, Tareq, & van Zijl (2016) suggested that the effect of mandatory adoption of IFRS to earnings quality depend on level of secrecy in a country. Since Indonesia become a member of Group of 20 countries, listed firms of capital market of Indonesia improve quality of its financial reporting, i.e. IFRS adoption, corporate governance and sustainability reporting. This study conjecture that the effort could improve earnings quality of listed firms of Indonesia Capital Market.

This study use sticky cost model from Anderson et al. (2003) and Z test from Clogg, Petkova, & Haritou (1995) to investigate whether earnings quality influence sticky cost of listed firms of JKSE. This study finds that earnings quality has an effect significantly on cost stickiness of listed firms of JKSE during period 2012-2019. But earnings quality negatively associated with cost stickiness of listed firms of JKSE during period 2012-2019.

This study contributes to theoretical and practical. This study contributes theoretically to the literature on financial accounting, management accounting and cost management related to the topic of asymmetric cost behavior on earnings characteristics. This research also contributes practically to the ability of earnings quality in listed firms of the JKSE to reflect information on their financial performance related to the earnings quality by investors and financial analysts.

2. Literature Review

Traditional cost behavior suggested that costs behavior show a symmetrical and mechanistic relationship between sales and costs of firms (Banker & Byzalov, 2014). The cost behavior model conveys that costs change proportionally according to changes in its activity (Garrison, Noreen, & Brewer, 2018). The traditional cost behavior model states that in the short term, costs that change according to changes in its activity are variable costs, while costs that do not change according to changes in its activity are fixed costs.

Anderson et al. (2003) proved empirically that Selling, General & Administrative (SGA) cost behaves asymmetrically and contradicts with the traditional cost behavior model. SGA cost decreased disproportionately according to the decrease in sales activity but the SGA cost increased proportionally according to the increase in sales activity at an equivalent volume. This asymmetric cost behavior is referred to as sticky cost by the study of Anderson et al. (2003). The cost stickiness incurs because of the manager decide to adjust the cost to the committed resources (Banker & Byzalov, 2014). When the adjustment cost is significant but not too high, then the cost will become sticky while the adjustment cost is too high or low, then the cost becomes fixed and variable (Banker & Byzalov, 2014). A previous studies have shown that sticky cost incurs in several cost categories and different types of data (Banker & Chen, 2006; Weiss, 2010; Chen, Lu, & Sougiannis, 2012; Dierynck, Landsman, & Renders, 2012; Kama & Weiss, 2013).

Prior studies of sticky cost (Banker & Chen, 2006; Weiss, 2010; Chen et al., 2012; Dierynck et al., 2012; Kama & Weiss, 2013) used cost stickiness as the basic explanation for asymmetric cost behavior. Asymmetric cost behavior incurs due to managers' decisions that focus on self-interest. Managers tend to engage in activities that benefit themselves rather than the benefit of shareholders. Based on the high/low adjustment costs, the manager decides to keep/cut the resources of the firms related to the prediction of future sales. Cost stickiness also incurs because the manager decide to build a company exceeds its optimal size for status, power, compensation and prestige (Chen et al., 2012).

Cost stickiness also incurs influenced by economic factors such as asset and employee intensity. Adjustment costs that arise from these economic factors are the costs of customization for

new company assets, the costs of selecting and training new employees, or the costs of negotiating contracts in the future. The high cost of adjustment causes managers to decide to slack resources or bear the cost by considering the lumpy amount. This manager's decision causes cost stickiness. In addition, managers' judgments are also influenced by their expectations of future sales, slack resources carried over from the previous period and managerial incentives (Kama & Weiss, 2013; Banker, Byzalov, Ciftci, & Mashruwala, 2014).

Labor costs or employee intensity regulated by a country's regulations affect cost stickiness (Dierynck et al., 2012; Banker, Byzalov, & Chen, 2013). Dierynck et al. (2012) empirically proves that the firms that have healthy profits can cause asymmetric cost behavior. Because the firms does not cut profits when demand falls but only changes its working hours. Banker et al. (2013) also stated that the listed firms in the capital market of a country that have strict labor regulations, then the managers of the firms decide not to cut labor costs when the firms demand decreases. The manager's decision causes cost stickiness.

Banker &Chen (2006) evaluated the descriptive validity of the cost behavior model (cost change and sales change) for profit analysis (earnings time series behavior) using Compustat data. The study of Banker &Chen (2006) examines whether the Cost Variability & Cost Stickiness (CVCS) model is better at predicting the forecasting of Return on Equity (ROE) one year ahead than the Operating Income & Non-operating Income (OPINC) model and the Cash Flows & Accruals (CASHFLOW). The study of Banker &Chen (2006) states that cost variability and cost stickiness models are used to predict earnings proxied by ROE. The study of Banker &Chen (2006) links the cost stickiness literature with the earnings forecasting literature. The study of Banker &Chen (2006) shows that analyst forecasting considers asymmetric cost behavior factors (Banker, Byzalov, Fang, & Liang, 2018).

However, the concept of asymmetric cost behavior shows that cost behaves asymmetrically in different directions based on the company manager's predictions of more optimistic or pessimistic future sales (Banker et al., 2014). When managers of the firms are more optimistic about predicting future sales, managers will add resources if sales activity increases and bear unused resources if sales activity declines. However, when managers of the firms are more pessimistic about predicting future sales, managers will cut unused resources when sales activity declines and only retain resources when sales activity increases. The managers' decisions that are more optimistic or pessimistic in predicting future sales lead to sticky costs and anti-sticky costs (Banker et al., 2014).

Weiss (2010) states that cost stickiness affects analysts' forecasts of future earnings. The listed firms in America that have a higher cost stickiness, the predictions of future earnings from the analysts are less accurate. The study of Weiss (2010) examines the relationship between cost attachments and analysts' earnings forecasts. The cost stickiness of the firms in the study of Weiss (2010) is measured quarterly by the ratio of quarterly costs (sales minus net income) to quarterly sales. The cost stickiness component uses SGA costs, costs of goods sold, and the mean difference of the slope of the quarterly cost function on an increasing or decreasing adjustment for seven years. Other predictive components are market value of equity, dummy of negative profit/loss, sum of forecasted earnings by analysts, dummy of negative unexpected earnings forecast, coefficient of variation in sales over four quarters, standard deviation of analyst forecasts announced by the company, ratio of sales minus cost of goods sold divided sales and profit dummy changes in the same quarter as the previous period are positive. The dependent variable is the absolute value of the analyst forecasting deviation (forecast error).

Higher quality earnings provide more information about the features of a firm's financial performance, more relevant to a specific decision made by a specific decision-maker about the firm's (Dechow et al., 2010). There are three features about earnings quality as follow. First, earnings quality depends on the decision-relevance of the information. Second, quality of a reported earnings number is conditional on whether or not it is informative about the firm's financial performance. Third, earnings quality is determined by both of them, i.e., the relevance of underlying financial performance to the decision and by the ability of the accounting system to measure performance. One of categories of earnings quality is characteristics of earnings quality, i.e. earnings persistence, abnormal accrual & modeling the accrual process, earnings smoothness, asymmetric timeliness & timely loss recognition, and target beating (Dechow et al., 2010).

In undertaking financial reporting, the construct of earnings quality is an importance topic interesting substantially concern. There is no agreement about definition of earnings quality and its measurement methods which have discussed by literature (Menicucci, 2020). In order to the company

able to operate, to have the governance mechanisms monitoring and rewarding employees and managers properly, they need to understand the construct of earnings quality (Dechow & Schrand, 2004). Higher earnings quality, more useful a number of earnings to decision making because of the earnings quality are defined dissimilarly by dissimilar users of financial reporting. For example, according to Dechow & Schrand (2004), for the viewpoint of analysts, quality of earnings is higher if the numbers of earnings represent current and future operating performance of the firms and also good indicator to assess firm value. On the other hand, for creditors and compensation committees, earnings quality is high if the earnings simply convertible into cash flows and show the true of managers performance (Menicucci, 2020).

Francis, Olsson, & Schipper (2008) divided earnings quality into two sources, i.e., innate and discretionary. Business models and operating environments are innate sources from earnings quality. Operating environment of the firms are reflected by the financial reporting process as follow. First, judgments and estimates that underlie management's financial reporting implementation decisions. Second, financial reporting is supported by the good quality of the information systems. Third, the firms have monitoring activities, i.e., internal and external audits. Fourth, the firms have good governance system which regulate decision taken by boards of directors, compensation arrangements, and ownership structures transparently. Fifth, the firms are monitored by regulatory scrutiny properly. Finally, there are reporting standards which regulated the firms.

In fact, the changing process of aspects of financial reporting, i.e., reporting standards are always slower than the decision who must be made the managers of the firms period by period. However discretionary determinants are associated with accounting choices, implementation decisions, managerial error, auditing, governance, and enforcement. So, the changing of innate factors are slower than the changing of discretionary earnings quality that are influenced by various factors. That is, innate factors that are predetermined at any given reporting date, but susceptible to modification over time through discretionary (Francis et al., 2008).

3. Hypothesis Development

Chen et al. (2012) stated that the high cost stickiness produced by American companies reflects the weak governance of these companies. Managers of these companies tend to make decisions for personal interests, namely building power (empire building). However, American companies that have strong governance have good sticky costs. Study of Chen et al. (2012) tested cost stickiness using the relationship between changes in sales revenue to changes in SGA costs which were interacted with economic factors and agency factors. Economic factors consist of asset intensity, employee intensity, successive decrease dummy, and stock performance. The agency factors consist of free cash flow (FCF), length of executive tenure (CEO tenure), executive turnover dummy (CEO horizon), and executive compensation (CEO Fixed Pay).

Kama & Weiss (2013) state that corporate managers in America who have incentives to avoid losses or achieve target profits have a low level of cost attachment. Study of Kama & Weiss (2013) uses the component of operating costs to capture managers' choices that affect the cost of manufacturing goods, service provider costs, and marketing and distribution costs. The definition of operating costs in the study of Kama & Weiss (2013) is sales revenue minus profit from operations. Cost stickiness in the study of Kama & Weiss (2013) is measured by a decrease in sales revenue changes to operating costs. The target profit in the study of Kama & Weiss (2013) is measured using a dummy variable to measure incentives to avoid losses, incentives to avoid decreasing profits, incentives to avoid losses or decrease profits. The loss avoidance incentive is measured by the annual profit subtracted by the market capitalization of shareholder equity at the end of the previous year. The incentive to avoid falling earnings is measured by the change in annual profit minus the market capitalization of shareholder equity at the end of the previous year.

Banker et al. (2014) extends the theoretical argument of cost stickiness into a new empirical model, namely the cost of asymmetric behavior in American companies. Study of Banker et al. (2014) developed a two-period model which states that the cost stickiness condition occurs when sales increase in the previous period (optimistic manager), while the non-sticky cost condition occurs when sales decrease in the previous period (pessimistic manager). Study of Banker et al. (2014) used components of SGA cost, cost of goods sold, number of employees, research and development costs, advertising costs and other SGA costs.

Balakrishnan, Labro, & Soderstrom (2014) state that the sticky cost theory is an econometric error. First, the estimation of the sticky cost model from Anderson et al. (2003) are influenced by the magnitude of fixed or uncontrolled costs in functions related to sales and costs of SGA. This leads to an inconstant elasticity in the response. Second, the presence of fixed costs causes a bias in the discovery of sticky costs when this study estimates the separate coefficients on increasing versus decreasing cost activity. Study by Balakrishnan et al. (2014) also states that the choice of the firm's previous cost structure influences the current manager's short-term decisions which may lead to sticky costs.

Banker & Byzalov (2014) examined an empirical model related to cost stickiness and its development, i.e., asymmetric cost behavior (Anderson et al., 2003; Chen et al., 2012; Kama & Weiss, 2013; Banker et al., 2014) of listed firms in twenty countries internationally. Sixteen countries show a significant level of cost stickiness, while the other four countries show a sign of cost attachment coefficient but it is not significant. The highest level of cost stickiness occurs in the listed firms in Chinese, while the lowest level of cost attachment occurs in Taiwanese companies. The study of Banker & Byzalov (2014) also answers criticism from Balakrishnan et al. (2014) that cost stickiness is not an econometric error.

Banker et al. (2016) demonstrated an extension of the standard conservatism model to control for the confounding effect of cost stickiness. The study of Banker et al. (2016) stated that the conservatism model went well after controlling for cost stickiness. The study of Banker et al. (2016) combined the model of Basu (1997) with cost stickiness and produced a precise asymmetric estimate. The study of Banker et al. (2016) stated that the firm's cost stickiness affects the timeliness of its earnings.

Meanwhile, currently Indonesia's economic growth is ranked 2nd among the Group of Twenty (G20) countries (Ratung, 2021). Since Indonesia become a member of G20, Indonesia Capital Market improves quality of corporate governance, sustainability reporting and implementation IFRS to listed firms. Financial Services Authorities as regulator which regulate listed firms through regulation. Based on the reform of the improvement of the Indonesian Capital Market, this study assumes that listed firms of the JKSE will experience improvements in the quality of their earnings. Dechow et al. (2010) stated that the higher the earnings quality, the more information provided about the characteristics of the company's financial performance in accordance with the decisions made by company managers. Meanwhile, profit is the same as sales minus costs, so firms managers' decisions are reflected in cost behavior which directly affects earnings characteristics such as earnings predictability, earnings timeliness, earnings persistence and earnings quality (Banker et al., 2018).

Weiss (2010) states that the higher the firm's cost stickiness, the lower its adjustment costs when sales activity declines and the lower the cost savings. The lower cost savings of the company will result in a greater decrease in profit. This larger decline in firms profits when sales activity declines will increase the variability of the profit distribution and lead to less accurate profit predictions and lower earnings quality. Based on the above arguments, this study makes an analogy that earnings quality has an effect on asymmetric cost behavior in listed firms of the JKSE. Thus, the hypothesis can be formulated as follows.

H₁: Earnings quality affects asymmetric cost behaviour, i.e. cost stickiness of listed firms of JKSE.

4. Materials and Methods

This study uses a purposive sampling method and the sampling period from 2012 to 2019¹. This study aims to investigate the effect earnings quality on the cost stickiness of listed firms of the JKSE. This study uses financial data of listed firms of JKSE from the Refinitiv Eikon/Thomson Reuters database is provided by the Faculty of Business, Maranatha Christian University, Indonesia.

Table 1 show how to do sampling selection from this study. Sample of this study consists of listed firms of the JKSE for the period 2012-2019. The number of listed firms of the JKSE for the period 2012-2019 is 750 firms. Then this study excluded the listed firms of the JKSE for the period 2012-2019 in the financial sector and the listed firm which have missing value, i.e. 129 listed firms with a total sample observation of 1032 year-listed firms. This study uses a winsorizing technique to reduce outliers of the research sample data. This study uses the interquartile range technique to detect outliers from the sample data of this study.

¹ This study uses sampling 2012-2019 period because 2012 period is Indonesia full adoption IFRS. This study also excluded 2020 period because this period is Covid 19 to impact on Indonesia Capital Market.

Table 1. Sampling Selection

Sampling Selection Process	Observation
Listed firms of JKSE during period 2012-2019 are provided Refinitiv Eikon/Thomson Reuters.	6000
Excluded listed firms of financial sector and listed firms which have missing value data.	-4968
Total data	1032

This study tested the hypothesis using the sticky cost model according to Anderson et al. (2003) but we use operating cost as dependent variable.

$$\ln \frac{OC_t}{OC_{t-1}} = \gamma_0 + \gamma_1 \ln \left[\frac{R_t}{R_{t-1}} \right] + \gamma_2 \ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t + \varepsilon \tag{1}$$

Operating Cost (OC) is sales revenue minus income before extraordinary items. $\ln \frac{OC_t}{OC_{t-1}}$ = natural logarithm of OC_t is the operating cost of firms i in year t divided by OC_{t-1}, i.e., the operating costs of firms i in year t-1. This study uses $\ln \left[\frac{R_t}{R_{t-1}} \right]$ = natural logarithm of sales revenue (R_t) as the level of activity of firms i in year t divided by sales revenue (R_{t-1}) as the level of activity of firms i in year t-1. Decrease Dummy (DD) represents a value of 1 when sales revenue in year t is less than sales revenue in year t-1 and a value of 0 when sales revenue in year t is higher than sales revenue in year t-1.

The coefficient 1 measures the percentage increase in operating cost with a 1% increase in sales revenue. The sum of the coefficients ($\gamma_1 + \gamma_2$) measures the percentage decrease in operating cost with a 1% decrease in sales revenue. A positive coefficient for γ_1 and a negative coefficient for γ_2 will confirm the cost stickiness. This study uses divides the sample into two sub samples based on earnings quality. This study divides the sample using the median earnings quality score as measured and provided by the Refinitiv Eikon/Thomson Reuters. The sample is divided into High Earnings Quality (HEQ) and Low Earnings Quality (LEQ). Each sub sample (HEQ and LEQ) was tested using the basic research model of cost stickiness. Each result of regression is tested based on the differences of the inter regression coefficients between the two sub-samples as follows.

$$z = \frac{(\beta_1 - \beta_2)}{\sqrt{SE_1^2 + SE_2^2}} \tag{2}$$

Sources from: Clogg et al. (1995)

Note. β_1 and β_2 are defined as regression coefficient of each sample group. SE_1^2 dan SE_2^2 are defined as standard error of coefficient squared from each sample group.

5. Results

Table 2 shows the descriptive statistic of each variable used to investigate whether earnings quality has an effect on cost stickiness. The mean and median values of all the variables in this study were only slightly different. This shows that the data proxied by all these variables have a normal distribution. However, the mean and median values of the dependent interaction variables are close to zero. This illustrates that the income data from the sample of this study has mostly increased rather than decreased.

Table 3 shows the results of the classical assumption test consist of multicollinearity, autocorrelation, heteroscedasticity, and normality tests. All of the variables of this study met all the requirements of the classical assumption test. The data of this study which is pro- cised by these variables also shows that the data is normally distributed. This shows that all of the variables in this study are free from bias and can be tested on the basic model of cost stickiness.

Earnings quality has an effect on cost stickiness during 2012-2019. The sample of this study is divided into two groups of company samples, i.e., high and low earnings quality.

Table 2 Descriptive statistics of earnings quality

<i>HEQ</i>								
Variabel	<i>M</i>	<i>Med</i>	<i>SD</i>	<i>Q1</i>	<i>Q3</i>	<i>Min</i>	<i>Max</i>	<i>N</i>
$\ln \frac{OC_t}{OC_{t-1}}$	0.357	0.380	0.061	0.004	0.068	-0.159	0.231	520
$\ln \left[\frac{R_t}{R_{t-1}} \right]$	0.036	0.040	0.061	0.005	0.069	-0.150	0.230	520
$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	0.010	0	0.026	0	0	-0.148	0.041	520
$\ln \frac{OC_t}{OC_{t-1}}$	0.034	0.039	0.070	-0.006	0.071	-0.149	0.242	512
$\ln \left[\frac{R_t}{R_{t-1}} \right]$	0.032	0.037	0.071	-0.008	0.071	-0.160	0.260	512
$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	-0.012	0	0.033	-0.009	0	-0.159	0.041	512

Note. HEQ: High Earnings Quality; LEQ: Low Earnings Quality

Table 3 Testing the classical assumptions of the hypothesis

			Operating Cost	
			HEQ	LEQ
Multicollinearity	<i>VIF</i> < 10	$\ln \left[\frac{R_t}{R_{t-1}} \right]$	1.005	1.002
		$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	1.005	1.002
	<i>Tolerance</i> > 0.10	$\ln \left[\frac{R_t}{R_{t-1}} \right]$	0.995	0.998
		$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	0.995	0.998
Autocorrelation	<i>Lagrange Multiplier Test</i> $\rho < 0.05$	$\ln \left[\frac{R_t}{R_{t-1}} \right]$	0.786	0.831
		$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	0.997	0.985
		<i>Residual</i>	0.590	0.592
Heteroscedasticity	<i>Park Test</i> $\rho > 0.05$	$\ln \left[\frac{R_t}{R_{t-1}} \right]$	0.372	0.619
		$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	0.816	0.229
Normality*				

Note. Residual: lag of unstandardized residual to test langrage multiplier. *central limit theorem states that if the number of research samples exceeds 30 or the number of research samples is large enough then the data can be assumed to be normally distributed (Gujarati & Porter, 2009).

Table 4 shows the correlations between variables in investigating cost stickiness in the sub-samples of HEQ and LEQ. Most of the correlations between variables were significant at the conventional level (0.05 and 0.01). The correlation between variable operating cost $\ln \frac{OC_t}{OC_{t-1}}$ and cost

stickiness variable $\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$ was significant at 0.01 level. This shows that the correlation between the cost stickiness variables is significant in the sub-samples of HEQ and LEQ.

Table 4 Correlation analysis

	HEQ		
	$\ln \frac{OC_t}{OC_{t-1}}$	$\ln \left[\frac{R_t}{R_{t-1}} \right]$	$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$
$\ln \frac{OC_t}{OC_{t-1}}$	1.000		
$\ln \left[\frac{R_t}{R_{t-1}} \right]$	0.95*	1.000	
$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	0.575**	0.071	1.000
	LEQ		
	$\ln \frac{OC_t}{OC_{t-1}}$	$\ln \left[\frac{R_t}{R_{t-1}} \right]$	$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$
$\ln \frac{OC_t}{OC_{t-1}}$	1.000		
$\ln \left[\frac{R_t}{R_{t-1}} \right]$	0.115**	1.000	
$\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	0.484**	0.047	1.000

Note. ** $\rho < 0.01$ (one tailed); * $\rho < 0.05$ (one tailed).

Table 5 shows the results of the regression testing of this research hypothesis on listed firms of the JKSE for the period 2012-2010. In the sub-sample of HEQ, the coefficient γ_1 is not significant but the coefficient $\gamma_2 = 1.325$ (t statistic= 15.839) < 0.01) is significant at level 0.01. In the sub-sample of LEQ, the coefficient $\gamma_1 = 0.091$ (t statistic = 2.377) < 0.05) is significant at level 0.05. Then the coefficient of γ_2 of sub-sample of LEQ = 0.091 (t statistic= 2.377) < 0.05) is significant at level 0.01. This result states that the operating cost positively influence sales revenue.

$$\ln \frac{OC_t}{OC_{t-1}} = \gamma_0 + \gamma_1 \ln \left[\frac{R_t}{R_{t-1}} \right] + \gamma_2 \ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t + \varepsilon \tag{3}$$

Regression test results for the sample of HEQ and LEQ companies.

Table 5 The results of hypothesis regression testing

Variable	Operating Cost	
	HEQ	LEQ
$\gamma_1 = \ln \left[\frac{R_t}{R_{t-1}} \right]$	0.054 (1.514)	0.091* (2.377)
$\gamma_2 = \ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$	1.325*** (15.839)	1.017*** (12.401)
<i>Constanta</i>	0.047 (17.364)	0.043 (13.699)
<i>Observation</i>	520	512
<i>Adjusted R²</i>	0.331	0.239
<i>Z test</i>	2.624 > 1.645**	

Note. *** $\rho < 0.01$; ** $\rho < 0.05$; * $\rho < 0.10$. The numbers in brackets are t statistic.

The results of the regression test for the interaction variable $\ln \left[\frac{R_t}{R_{t-1}} \right] \times DD_t$ on the two sub-samples of HEQ and LEQ show that the coefficient, γ_2 is significantly positive. The result of Z test is $2.624 > 1.645$ (t statistic > t tabel, $\alpha = 0.05$). This result shows that earnings quality associated with cost stickiness is supported. But earnings quality has an effect negatively on cost stickiness of listed firms of JKSE during period 2012-2019.

6. Discussions

In the sub-sample of HEQ, sales revenue has no effect on operating cost. But interaction of sales revenue and decrease dummy has effect on operating cost. Therefore, in sub-sample LEQ, sales revenue has effect on operating cost. Then interaction of sales revenue and decrease dummy has effect on operating cost. This result in line with study of Banker & Byzalov (2014).

Z test examine coefficient, interaction sales revenue and decrease dummy, across regression from result of sub-sample HEQ and LEQ. The result of Z test is earnings quality has effect on sticky cost. However, earnings quality negatively influences on asymmetric cost behavior, i.e., sticky cost in listed firm of JKSE during period 2012-2019. This result in line with study of Banker et al. (2016).

This study conjecture that IFRS adoption in 2012 by Indonesian Institute of Accountant has effect on quality of earnings that are reported by listed firms of JKSE. Financial Services Authorities also suggested listed firms of JKSE to disclose sustainability reporting stand alone voluntarily since 2010. So, this matter also has effect on earnings quality. This argument in line with study of Rezaee et al. (2020).

7. Conclusions

This study aims to investigate whether earnings quality has an effect on the cost stickiness of listed firms of the JKSE. This study tested the hypothesis that earnings quality affect asymmetric cost behaviour, i.e., cost stickiness of listed firms of the JKSE. This study uses panel data with a sample of 1032 observations year-listed firms of the JKSE during the period 2012-2019.

The results of this study indicate that earnings quality testing has an effect on cost stickiness which is supported. The result shows that earnings quality have negatively effect on cost stickiness of listed firms of the JKSE during period 2012-2019. This result is consistent with study of Banker et al. (2016). So higher earnings quality, lower cost stickiness.

The limitation of this study is that the use of the earnings quality score of listed firms of the JKSE derived from Refinitiv Eikon/Thomson Reuters. The earnings quality score has not yet been widely used by accounting studies. Future research can investigate whether conservatism affect cost stickiness of listed firms of JKSE.

This study contributes to theoretical and practical. This study contributes theoretically to the literature on financial accounting, management accounting and cost management related to the topic of asymmetric cost behavior on earnings characteristics. This research also contributes practically to the ability of earnings quality in listed firms of the JKSE to reflect information on their financial performance related to the earnings quality by investors and financial analysts.

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