

# Earnings quality determinants in pre-corona crisis: another insight from bank core capital categories

Factors  
affecting  
earnings  
quality

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## Abstract

**Purpose** – Discretionary accruals are earnings quality proxies that illustrate that the greater the value of discretionary accruals, the greater the practice of earnings management and vice versa. High-quality financial reports (especially earnings quality) are expected to help investors and potential investors to make decisions. This study analyses the factors that affect earnings quality, such as pre-managed earnings, liquidity and efficiency. Furthermore, the authors identify the moderating effect of the governance mechanisms proxied by the proportion of independent commissioners in conventional commercial banks listed on the Indonesia Stock Exchange.

**Design/methodology/approach** – This study uses 226 banking data in the pre-corona crisis period 2013 until 2019. The data were analyzed using EViews 10 for hypothesis and MS Excel for a differential test.

**Findings** – The results show that pre-managed earnings, liquidity and efficiency affect earnings quality. The governance mechanisms can moderate liquidity and efficiency on earnings quality, while pre-managed earnings cannot be moderated. The different bank categories (BUKU) of earnings management mechanisms are shown for each BUKU (BUKU 1, 3 and 4 perform earnings management by increasing earnings, BUKU 2 lowering earnings). Another thing is information on the earnings quality between BUKU 2 with BUKU 3 and BUKU 4 because of differences in capital and bank operating coverage regulations.

**Research limitations/implications** – Further research expects to analyze the factors affecting banking earnings quality concerning applying IFRS 9 (PSAK 71) in Indonesia. Future researchers expect to apply mixed methods to verify the financial statement data and provide comprehensive discussion and genuine insight from their study. Future research requires more samples from companies or an international scale (cross country) to obtain maximum results and be generally accepted.

**Practical implications** – This study implies that managers should have more control over pre-managed earnings and bank liquidity as manager's incentive to do earnings smoothing. Managers should also pay attention to cost-efficiency and effective implementation of governance mechanisms to maximize earnings quality. This study also implies that policymakers can encourage commercial banks to apply more prudential principles in terms of a reserve for failed loans to minimize earnings management in banking.

**Originality/value** – The significance of this study revealed in the discussion of the difference test between bank core capital categories (BUKU) and its relation to earnings quality.

**Keywords** Earnings quality, Earnings management, Pre-managed earnings, Liquidity, Efficiency, Governance mechanisms, Bank core capital

**Paper type** Research paper

## 1. Introduction

Earnings quality is a significant concern for investors and contractual purposes on financial statement stakeholders. High-quality earnings are earnings that have a high ability to predict future earnings (Alhadab and Al-Own, 2017). Discretionary loan loss provision (DLLP), a

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proxy for earnings quality, is simply an adjustment in the profit and loss accounting rules by not involving direct cash outflows. The higher the DLLP value (the higher the bank's earnings management practice), the earnings quality worsens and vice versa.

The effect of significant loan loss provisions (LLPs) amount can reduce reported net income, retained earnings and shareholders' equity. LLP offers signals to users of financial statements about the collectibility of loans and investments disbursed by banks (Desta, 2017; Zoubi and Al-Khazali, 2007). As a result, managers usually increase (decrease) earnings when actual earnings are low (high) and do not adjust earnings when they are aligned with expectations (Kanagaretnam *et al.*, 2004).

In addition, liquidity management is essential in bank operations. Most of the funds managed by banks come from third parties or the public, which is deposited in several forms such as savings, deposits, checking accounts and other deposits that must be paid when due. Suppose the loan to deposits ratio (LDR) is high, which denotes that total loans are higher than deposits. Consequently, banks need to draw more deposits from customers, and as a result, bank managers have the idea to manipulate by reporting lower LLP (Moghaddam and Abbaspour, 2017; Kanagaretnam *et al.*, 2004). However, other studies show different results. Religiosa and Surjandari (2021), and Desta (2017) show a negative relationship between LDR and discretionary LLP. This arises because the need for liquidity is the main factor affecting the estimation of LLP by managers.

In the banking industry, cost efficiency is a critical aspect. Banking earnings will increase if the interest costs are low. In order to have a small interest fee, banks must choose a reliable third party. The increment of the efficiency ratio (BOPO) indicates that the company or the bank cannot manage its operational costs. In contrast, a smaller BOPO ratio implies that the company can manage more effective operational costs. It indicates that efficiency is reflected in a good performance which will motivate bank managers to reduce their overall earnings to smooth their earnings. On the other hand, when performance is relatively low, bank managers will lower their DLLP (Shawtari *et al.*, 2015).

Following the previous discussion, governance mechanisms is also critical in the banking industry. The governance has changed significantly (the 1990s to early 2000s), mainly caused by changes in bank ownership, such as mergers and acquisitions. The 2008 global financial (subprime mortgage) crisis, which began in the United States, was caused by excessive risk-taking by US banks. There are statements made by bankers, Central Bank officials and other relevant authorities, emphasizing the importance of effective corporate governance in the banking industry from 2008 until now (Peni and Vähämaa, 2011). Therefore, failure of bank governance explains any similar crises that (may) occur in the future. Several studies have focused on bank corporate governance (Bashir *et al.*, 2018; Sohail *et al.*, 2017).

The procyclical loan loss provision received significant attention after the global financial crisis in 2008–2009 and during the coronavirus disease 2019 (COVID-19) pandemic in early 2020 because banks tended to hold onto higher provisions due to the identification of non-performing loans during the economic slowdown. Using the pre-corona crisis period, it is hoped that stakeholders will be able to determine the factors that affect earnings quality in non-crisis conditions and determine other indicators that may affect the loan loss provision in times of crisis.

The expected contributions from this study are first, theoretical contributions. It provides information regarding variables that affect bank earnings quality and how governance mechanisms can improve earnings quality and reduce information asymmetry. Second, practical contributions. It is hoped that it can be used as information material to determine the effect of pre-managed earnings, liquidity and efficiency on earnings quality with governance mechanisms as a moderating variable in commercial banks in Indonesia. It is expected to trigger better banking earnings quality in the future. Third, policy contributions. This study is expected to provide an overview of the regulatory impact of bank lending that impacts

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earnings quality. Furthermore, the regulator can determine better regulations to regulate banking activities so that earnings are good and can support the Indonesian economy.

## 2. Literature review

### 2.1 Agency theory

Agency theory defines the agent–principal relationship as a contract when the principal authorizes the agent to decide (Jensen and Meckling, 1976). Agency theory explains management’s involvement in earnings management, considering the stewardship relationship and agency principles. By compromising the management relationship, the company’s management will protect their interests in front of investors. If shareholders, creditors, independent boards of directors and auditors fail to regulate appropriately use control mechanisms, management will use their power to fulfill their interests (Kirubel and Akmel, 2019).

Agency theory postulates that everyone is motivated by self-interest, leading to a conflict of interest between the principal and the agent. Managers who act as banking agents are encouraged to increase their financial and psychological demands to obtain investments, credits and benefit contracts. Shareholders as principals join the contracts to increase their wealth by generating ever-increasing earnings. Agency problems arise due to the opportunistic actions of agents, such as management behavior to increase their prosperity, which is different from interests (Scott, 2012).

### 2.2 Earnings management theory

Based on informative earnings management theory, managers will use their discretion to transmit their beliefs based on the information they have as insiders (personal information) about the prospects of the company’s profit in the future. Two intentions underlie managers in managing earnings. First, if management reports earnings are following investor expectations, the company’s performance will decline. Second, only companies with good prospects can maximize earnings this year at the risk of taking some of the earnings in the following year. Since, if the following year turns out to be lower, this action will become a drawback (Tucker dan Zarowin, 2006).

Earnings quality is defined as the earnings reported in the financial statements with a low level of earnings management. Some literature provides substantial evidence of the opportunistic allowance for impairment losses (LLP) to manipulate reported earnings (Danisman *et al.*, 2021; Tran *et al.*, 2020; Ozili and Arun, 2018). The literature shows that bank managers use their discretionary allowance for loan losses to manage reported earnings, which often takes the form of income smoothing or earnings management that increases earnings.

## 3. Hypothesis development

### 3.1 Effect of pre-managed earnings on earnings quality

The managers have motivations to do the earnings smoothing to lower the variability of reported earnings. Thus, bank managers can decrease perceived risk since the variability of the earnings is the primary sign of risk. The provision for loan losses (LLP) only adjusts the earnings accounting without direct cash expenses. LLP reduces net income, retained earnings and equity. LLP provides financial statements signals about credit and investment collection (Desta, 2017; Zoubi and Al-Khazali, 2007).

Pre-managed earnings are net income from earnings management behavior that will have the opposite effect on discretionary accruals. If the profit generated (pre-managed earnings) is already high, management will tend not to practice earnings management (Desta, 2017). However, other studies show different results. Bank managers will increase (decrease) the

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earnings when actual earnings are low (high) and take no action to correct earnings when they are aligned with actual earnings expectations (Kanagaretnam *et al.*, 2004). In addition, management reduced the provision for losses during the year under income before taxes and provisions (EBTP) and overestimated the provision for losses during the high earnings. Managers can reallocate earnings between phases to increase earnings across periods by allocating losses.

*H1. Pre-managed earnings negatively affect earnings quality.*

### *3.2 Effect of liquidity on earnings quality*

Loan to deposit (Liquidity) management is essential in bank operations because most of the funds managed by banks come from third parties or the public. They are deposit funding in several forms, such as savings, deposits, checking accounts and other deposits that must be paid when due. Several banks inform low DLLP to decrease perceived risk and boost earnings to increase the external funds.

Suppose the LDR is high, which denotes those total loans are higher than deposits. Consequently, banks need to draw more deposits from customers, and as a result, bank managers have the idea to manipulate by reporting lower LLP (Moghaddam and Abbaspour, 2017; Kanagaretnam *et al.*, 2004). However, other studies show different results. Religiosa and Surjandari (2021), Desta (2017) show a negative relationship between LDR and discretionary LLP. This arises because the need for liquidity is the main factor affecting the estimation of LLP by managers.

*H2. Liquidity positively affects earnings quality.*

### *3.3 Effect of efficiency on earnings quality*

Any increase in bank operating costs but not matched by an increase in bank operating income will result in reduced operating profit, which will reduce earnings. Earnings management carried out by banks is increasingly intensive in the opposite direction to the level of efficiency (BOPO), where banks that have an efficiency (BOPO) value higher than the minimum requirements of Bank Indonesia tend to be more intensive in practising earnings management and vice versa (Oktayanti and Murtanto, 2016).

To examine whether reducing (increasing) costs indicates better operating efficiency or dysfunctional short-run behavior of managers (Prior *et al.*, 2019), managers prefer to reduce (add) more operational costs under the pressure of healthy earnings reports. Therefore, efficiency is positively related to earnings management, so earnings quality deteriorates.

*H3. Efficiency positively affects earnings quality*

### *3.4 The moderation of the governance mechanisms on the effect of pre-managed earnings on earnings quality*

When the bank has a good performance in this period and predicts poor performance in the future (good-poor), managers tend to save this year's earnings from being used by reducing earnings by increasing DLLPs. When banks have poor performance in this period and predict poor performance in the future (poor-good), managers tend to increase earnings this year by borrowing earnings through decreasing DLLPs (Kanagaretnam *et al.*, 2004).

Theoretically, when the governance mechanisms are lacking, the incentives for the possibility of a manager's opportunistic behavior will increase. The governance mechanisms are seen to align the potential differences in interests between shareholders and management by informing earnings that are under actual conditions (Jensen and Meckling, 1976). Companies that implement suitable governance mechanisms will strictly supervise managers

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reporting earnings in the financial statements. Therefore, a suitable governance mechanism will reduce the impact of management performing earnings management on the earnings generated by the company (Kanagaretnam *et al.*, 2004).

H4. Governance mechanisms' weaknesses negatively affect pre-managed earnings on earnings quality.

### 3.5 *The moderation of the governance mechanisms on the effect of liquidity on earnings quality*

Corporate governance arises to overcome agency problems — corporate governance functions as a supervisory mechanism to show its performance to increase value for the company. Several banks inform low DLLP to decrease perceived risk and boost earnings to increase the external funds (Akbar and Lanjarsih, 2019).

Governance mechanisms are applied as a control mechanism to detect earnings management. Liquidity is one of the incentives owned by bank managers to smooth out earnings to reduce large fluctuations (Destia, 2017). With a good governance mechanism, managers will tend not to carry out earnings management because its objectives and effectiveness depend on information asymmetry between managers and other market participants (Consoni *et al.*, 2017). If the LDR is high, the total loan is higher than deposits. Therefore, since bank managers motivate to report lower DLLP, banks need to attract more deposits from customers. The existence of independent commissioners is expected to weaken the positive influence of liquidity on earnings quality. For these reasons, the researcher assumes that good governance will weaken the information asymmetry that arises due to liquidity and earnings management.

H5. Governance mechanisms' weaknesses positively affect liquidity on earnings quality.

### 3.6 *The moderation of the governance mechanisms on the effect of efficiency on earnings quality*

Due to the presence of board members, the corporate governance implementation is often linked to the size of the board. In some circumstances, the board may be too small or too large; board members who are too small will lack the skills or workforce to run the company productively. At the same time, a larger size will increase more skills and availability of resources in company management (Bin Khidmat *et al.*, 2020). Studies have also found that firms with more prominent board members do better (Rahman and Islam, 2018), although other findings suggest that smaller boards are more effective (Erena *et al.*, 2022; Mishra and Kapil, 2018). However, board sizes that are too large may be inefficient in making and executing decisions and waste resources and reduce individual productivity.

Earnings management carried out by banks is increasingly intensive in the opposite direction to the efficiency (BOPO) level, where banks that have an efficiency (BOPO) value higher than the minimum requirements of the Central Bank of the Republic of Indonesia tend to be more intensive in practising earnings management and vice versa (Oktayanti and Murtanto, 2016). The supervision of more independent commissioners is expected to reduce the negative effect of efficiency on earnings quality.

H6. Governance mechanisms strengthen and positively affect efficiency on earnings quality

## 4. Method

### 4.1 *Sampling method*

This study examines hypotheses and purposes of analyzing the consequence of pre-managed earnings, liquidity and efficiency on earnings quality with governance mechanisms as a

moderating variable at commercial banks in Indonesia for the 2013–2019 period with the purposive sampling method to produce a total of 34 banks with 226 data. The purposive sampling process in this study is described in [Table 1](#).

#### 4.2 Definition and variable measurement

The dependent variable in this study is earnings quality. The higher the value of discretionary accruals indicates the higher earnings management practice (lower earnings quality) contained in the financial statements ([Paiva et al., 2016](#)).

This accrual policy, which the discretionary accruals, is carried out by controlling accrual transactions so that earnings look high. However, these transactions do not affect cash flow so the accrual policy will affect the quality of a company's earnings. In conclusion, discretionary accruals can be interpreted as accrual policies carried out by management because of intentions, not because of the company conditions that require changes in judgment and accounting methods by shifting costs and revenues. The first step in calculating the value of discretionary accruals using the [Kanagaretnam et al. \(2004\)](#) model is to perform regression to get the coefficients 0, 1, 2 and 3 from the following formula:

$$LLP_{it} = \alpha_0 + \alpha_1 NPL_{it-1} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta TL_{it} + \varepsilon_{it} \quad (1)$$

Before regression, all variables ( $\alpha_1 NPL_{it-1}$ ,  $\alpha_2 \Delta NPL_{it}$ ,  $\alpha_3 \Delta TL_{it}$ ) are divided by the total outstanding loans in banking in one year to get the coefficient  $\alpha_1$ ,  $\alpha_2$ , dan  $\alpha_3$ . After getting the coefficient  $\alpha_1$ ,  $\alpha_2$ , dan  $\alpha_3$ , we can calculate the value of non-discretionary accruals (NDLLP<sub>it</sub>) for each company in each year of observation, using the following formula:

$$NDLLP_{it} = \alpha_1 NPL_{it-1} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta TL_{it} \quad (2)$$

NDLLP<sub>it</sub> is the value of non-discretionary accruals of the company *i* year *t*. However, the definition of other variables is the same as the information stated above. If the non-discretionary accruals (NDLLP<sub>it</sub>) and the discretionary accruals (DLLP<sub>it</sub>) are known, they can be calculated by subtracting the total accruals LLP<sub>it</sub> with NDLLP<sub>it</sub>. It can be formulated as follows:

$$DLLP_{it} = LLP_{it} - NDLLP_{it} \quad (3)$$

The higher the value of discretionary accruals indicates the more significant the earnings management practices in the financial statements ([Paiva et al., 2016](#)). Pre-managed earnings compare profit before income tax and allowance for impairment losses on earnings assets with total assets ([Desta, 2017](#); [Dong et al., 2012](#); [Kanagaretnam et al., 2004](#)). LDR measures the association between loans and customer deposits. The higher the LDR, the greater the

No	Sampling criteria	Number of banks	Total data
1	Conventional commercial banks registered on the Indonesia Stock Exchange period 2013–2019	42	294
2	Conventional commercial banks conducting initial public offering (IPO) after January 1, 2013	–4	–28
3	Conventional commercial banks period 2013–2019 that publish incomplete audited financial statements	–4	–28
Total		34	238
4	Outlier data		–12
	Total final data used as research samples		226

**Table 1.**  
Sampling method

perceived risk (i.e. the earnings inconsistency) and the greater the demand for external funding. To attract external funds, banks must ease perceived risk by reducing the allowance for losses (Destia, 2017; Kanagaretnam *et al.*, 2004; Zoubi and Al-Khazali, 2007).

The smaller the efficiency (BOPO) indicates the bank is more efficient in carrying out its business activities. According to Bank Indonesia regulations, operating efficiency is measured by BOPO. The operational cost ratio is used to calculate the bank's efficiency and competence in carrying out operations (Oktayanti and Murtanto, 2016).

Corporate governance is positioned as a moderator variable — this calculation looks at the proportion of independent commissioners in banking. Independent commissioners are part of the company, which has the task of supervising managers in carrying out their duties in reporting financial statements, to perform and implement the standards of the good corporate governance system within the company properly. This governance mechanisms variable seen through the composition of independent commissioners can be measured by dividing all members of the independent commissioners to the entire board of commissioners in the sample companies (Fauziyah and Rachmawati, 2018).

This study also adds a control variable (bank size, utilizing the log of total assets. The bigger the bank, the greater the information asymmetry and agency conflict the company faces, the greater the earnings management that may occur (Machdar *et al.*, 2017). Net Interest Margin (NIM) and Capital Adequacy Ratio (CAR), where a high CAR can indicate earnings management behavior, namely banks are trying to increase the bank's CAR value to attract customers and investors (Anwar and Murwaningsari, 2018). For more details, the measurement of variables can be seen in Table 2.

### 4.3 Research design

This study uses moderated regression analysis (MRA) which includes the interaction of the governance mechanisms and pre-managed earnings, liquidity and efficiency. The MRA equation can be formulated as follows:

$$DLLP = \alpha_0 + \alpha_1 EBTP + \alpha_2 LDR + \alpha_3 BOPO + \alpha_4 EBTP * CG + \alpha_5 LDR * CG + \alpha_6 BOPO * CG + \alpha_7 SIZE + \alpha_8 NIM + \alpha_9 CAR + \epsilon$$

Variable	Measurement
<i>Dependent variable</i>	
Earnings Quality	$LLP_{it} = \alpha_1 LOAN_{it} + \alpha_3 NPL_{it-1} + \alpha_4 \Delta NPL_{it} + E_{it}$ $NDLLP_{it} = \alpha_1 LOAN_{it} + \alpha_3 NPL_{it-1} + \alpha_4 \Delta NPL_{it}$ $DLLP_{it} = LLP_{it} - NDLLP_{it}$
<i>Independent variable</i>	
Pre-managed Earnings	$EBTP = \frac{\text{Earning before tax and provisions}}{\text{Lagged Total Assets}}$
Liquidity	$LDR = \frac{\text{Total Loan}}{\text{Total Deposit}}$
Efficiency	$BOPO = \frac{\text{Operational Expense}}{\text{Operational Income}}$
<i>Moderator variable</i>	
CG Mechanisms	$CG = \frac{\text{Number of Independence Commissioner}}{\text{Total number of Commissioner}}$
<i>Control variable</i>	
Bank Size	$SIZE = \text{Log}(\text{Total Aset})$
Net Interest Margin	$NIM = \frac{\text{Net Interest Income}}{\text{Average Earning Assets}}$
Capital Adequacy Ratio	$CAR = \frac{(\text{Tier 1 Capital} + \text{Tier 2 Capital})}{\text{Risk Weighted Assets}}$

**Table 2.**  
Variable measurements

Note: EBTP: Earnings Before Tax and Provision; LDR: Liquidity; BOPO: Efficiency; CG: Governance Mechanisms; SIZE: Bank Size; NIM: Net Interest Margin; CAR: Capital Adequacy Ratio.

## 5. Results and discussion

### 5.1 Descriptive statistics and effect model testing

Table 3 presents the descriptive statistical analysis of the data sampled in this study. The descriptive statistics table above shows the average score of DLLP is 0.0011 and has a positive value, which states that the average banking company performs earnings management by increasing earnings (positive value). Apart from the DLLP variable, the average value exceeds the standard deviation value, which states that the data reasonably interpret the actual data.

Before doing the classical assumption test (normality and correlation test) and hypothesis testing, we conducted a model test to determine the best model in the study. We compare the Fixed, Random or Common Effect models in Table 4.

After conducting the effect model testing (Chow test, Hausmann test and Lagrange Multiplier (LM) test), we find the fixed effect as the best model. The conditions for the fixed effect model were the best model seen from the value of the probability, Chow test as an indicator of the fixed-effect model (FEM) having a value of  $(0.0000) < 0.05$ , and the probability value of the Hausman test  $< 0.05$ , and the value of the LM test  $< 0.05$ . The selection of the fixed effects model in this study is in line with the opinion of Gujarati and Porter (2009), which states that when the number of cross-sectional units is significant, and the number of time-series data is insignificant, statistical inference on the cross-section of the units observed in the sample. This is applicable if we firmly consider that the individuals, or cross-sectional elements in the sample, are not random drawing from the larger sample.

### 5.2 Classical assumption test

In the first classical assumption test, we see the normality of the data used as the research sample. Normally distributed data can increase the objectivity of the results. In addition, data that are normally distributed will minimize bias in research.

	Mean	Median	Maximum	Minimum	Std. Dev
DLLP	0.0011	0.0005	0.1258	-0.0549	0.0160
EBTP	0.0242	0.0232	0.0685	-0.0564	0.0179
LDR	0.8677	0.8710	1.6310	0.4877	0.1384
BOPO	0.8790	0.8569	2.3520	0.5413	0.2053
CG	0.5817	0.5714	1.0000	0.3333	0.0975
NIM	0.0593	0.0488	0.7140	0.0039	0.0631
CAR	0.1987	0.1855	0.6643	0.0802	0.0672
SIZE	31.4745	31.2544	34.8872	27.9693	1.6828

**Table 3.** Descriptive statistics  
**Note(s):** EBTP: Pre-managed earnings; LDR: Liquidity; BOPO: Efficiency; CG: Governance mechanisms; NIM: Net Interest Margin; CAR: Capital Adequacy Ratio; SIZE: Company Size

Effect model	Chi-square	Prob
Chow test	121.299109	0.0000
Hausmann test	18.918901	0.0084
Lagrange multiplier test	33.40069	0.0000

**Table 4.** Effect Model testing  
**Source(s):** The results are processed using EViews 10



From Figure 1, the statistic obtains a Jarque–Bera probability value of 0.1626, which exceeds the standard normality of 0.05. These results indicate that this study is typically dispersed.

After knowing the normality test, the next step is to test collinearity to determine whether the regression model is free from correlations between independent variables. In this study, we used linearity tests to detect multicollinearity problems.

The results of the collinearity test in Table 5 show that there is no significant correlation (not exceeding 0.90) value between the independent variables, so it is concluded that there is no multicollinearity between the independent variables.

### 5.3 Hypothesis test

This study uses MRA as a hypothesis test because the previous assumption that the governance mechanisms has an interaction effect (strengthen/weaken) pre-managed earnings, liquidity and efficiency with earnings quality. In the following discussion, what needs to be considered is that in interpreting prediction signs, researchers provide information about prediction signs related to DLLP, which means that if it is concluded in earnings quality, it has the opposite interpretation. From the probability results in Table 6, some hypotheses significantly affect ( $p$ -value < 0.05), and some hypotheses do not significantly affect ( $p$ -value > 0.05).

In the first hypothesis, the influence of pre-managed earnings on earnings quality has a coefficient ( $p$ -value) is 1.2399 (0.0000). It is stated that pre-managed earnings positively affect

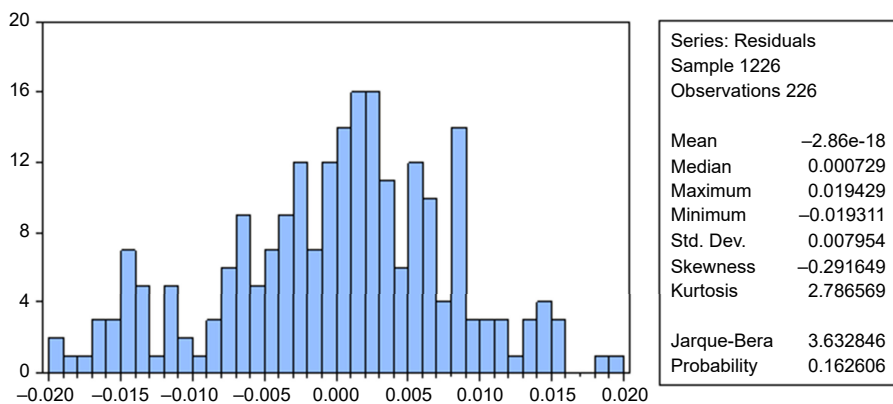


Figure 1. Normality test

Source(s): The results are processed using EViews 10

	DLLP	EBTP	LDR	BOPO	CG	CAR	NIM	SIZE
DLLP	1.0000							
EBTP	0.4604	1.0000						
LDR	0.0633	0.2118	1.0000					
BOPO	0.2182	-0.6844	-0.1372	1.0000				
CG	-0.1509	-0.0856	-0.0343	-0.0866	1.0000			
CAR	0.2640	0.2598	-0.0659	-0.0936	-0.0037	1.0000		
NIM	0.1484	0.2986	0.0939	-0.1816	-0.1041	0.0154	1.0000	
SIZE	0.2016	0.5632	0.2146	-0.4336	-0.2746	-0.2109	0.1222	1.0000

Source(s): The results are processed using EViews 10

Table 5. Collinearity test

Dependent variable: DLLP  
 Method: Least squares (NLS and ARMA)  
 Sample: 1 226  
 Included observations: 226

Variable	Pred. Sign	Coefficient	Std. Error	<i>t</i> -statistic	Prob	Remarks
C		-0.0976	0.0160	-6.1162	0.0000	
EBTP	+	1.2399	0.2200	5.6357	0.0000	Accepted
LDR	-	-0.0540	0.0208	-2.5972	0.0100	Accepted
BOPO	+	0.1113	0.0145	7.6942	0.0000	Accepted
CG*EBTP	-	-0.4226	0.3730	-1.1330	0.2585	Rejected
CG*LDR	+	0.0799	0.0329	2.4238	0.0162	Accepted
CG*BOPO	-	-0.0618	0.0264	-2.3437	0.0200	Accepted
CAR	+	0.0152	0.0094	1.6140	0.1080	
NIM	+	0.0003	0.0090	0.0352	0.9720	
SIZE	+	0.0004	0.0005	0.8186	0.4139	
<i>R</i> -squared		0.7606	Mean dependent var			0.0011
Adjusted <i>R</i> -squared		0.7506	S.D. dependent var			0.0160
SE of regression		0.0080	Akaike info criterion			-6.7729
Sum squared residual		0.0139	Schwarz criterion			-6.6216
Log likelihood		775.3391	Hannan–Quinn criteria			-6.7118
<i>F</i> -statistic		76.2377	Durbin–Watson stat			1.3661
Prob( <i>F</i> -statistic)		0.0000				

**Table 6.**  
 Moderating regression  
 analysis

**Note(s):** \*Significant *p*-value < 0.05; EBTP: Pre-managed earnings; LDR: Liquidity; BOPO: Efficiency; CG: Governance Mechanisms; CAR: Capital Adequacy Ratio; NIM: Net Interest Margin; SIZE: Bank Size; prediction signs have a correlation with DLLP, if it is concluded in earnings quality has the opposite interpretation

earnings management, so it negatively affects earnings quality. To increase the earnings, bank managers will increase (decrease) the earnings when actual earnings are low (high) and take no action when aligned with expectations (Kanagaretnam *et al.*, 2004). In addition, organizations decrease the loan loss provision when earnings before taxes and provisions (EBTP) are low and overstated the loan loss provision when the company produces high earnings. Managers can transform earnings between years to make earnings smoothing over LLPs. This result is consistent with a previous study (Simper *et al.*, 2019; Kanagaretnam *et al.*, 2004).

In the second hypothesis result (liquidity effect on earnings quality), the coefficient (*p*-value) is -0.0540 (0.0100). This value means that liquidity negatively affects earnings management or positively affects earnings quality. Consistent with a prior study (Religiosa and Surjandari, 2021; Desta, 2017), this study shows a negative relationship between LDR and DLLP but is inconsistent with Kanagaretnam *et al.* (2004). This arises because the need for liquidity is the main factor affecting the estimation of LLP by managers.

In testing the third hypothesis, the effect of efficiency on earnings quality, the coefficient (*p*-value) is 0.1113 (0.0000). The third hypothesis shows that efficiency negatively affects earnings management and positively affects earnings quality. Any increase in bank operating costs that did not match the increment of bank operating income will result in reduced operating profit, further reducing the earnings. The banks' earnings management is increasingly intensive in the opposite direction to efficiency (BOPO). The banks with a BOPO value higher than the minimum requirements of the Central Bank of Indonesia tend to be more intensive in practising earnings management and vice versa. The high BOPO value in this study indicates inefficiency (Prior *et al.*, 2019; Oktayanti and Murtanto, 2016).

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The fourth hypothesis's effect of pre-managed earnings moderated by governance mechanisms on earnings quality shows the coefficient ( $p$ -value)  $-0.4266$  ( $0.2585$ ). It is stated that the governance mechanisms cannot moderate the negative effect of pre-managed earnings on bank earnings quality. Theoretically, when the governance mechanisms are lacking, the incentives for the possibility of a manager's opportunistic behavior will increase (Jensen and Meckling, 1976). Companies that implement suitable governance mechanisms will strictly supervise managers reporting earnings in the financial statements. However, the existence of an independent commissioner as a form of good governance cannot anticipate these problems. Managers often manipulate earnings that the supervision of independent commissioners cannot detect.

In the fifth hypothesis, the liquidity effect is moderated by governance mechanisms on earnings quality. The coefficient ( $p$ -value) is  $0.0799$  ( $0.0162$ ). The governance mechanisms can strengthen the positive influence of liquidity on earnings quality. Corporate governance arises to overcome agency problems. The corporate governance function is the supervisory mechanisms with the aim of the management to increase the value for the company (Akbar and Lanjarsih, 2019). Furthermore, the banks inform lower DLLP to decrease perceived risk and increase earnings to attract more external funds. The results show that the existence of independent commissioners can weaken the positive influence of liquidity on earnings quality.

In testing the sixth hypothesis, the effect of efficiency moderated by governance mechanisms on earnings quality, the coefficient ( $p$ -value) is  $-0.0618$  ( $0.0200$ ). It demonstrates that the governance mechanism positively affects the efficiency of bank earnings. Corporate governance is an application used to improve industrial performance through management supervision. If this method is implemented correctly, the economy will improve, and proper management will benefit many people. When the company can implement good corporate governance, it can control earnings management activities, which are a form of opportunistic behavior (Kirubel and Akmel, 2019; Consoni *et al.*, 2017). The earnings management carried out by banks is increasingly intensive in the opposite direction to the level of efficiency (BOPO). Banks with a higher BOPO value than the minimum requirements from the Central Bank of Indonesia tend to be more intensive in practising earnings management and vice versa (Oktayanti and Murtanto, 2016). The supervision of more independent commissioners is expected to reduce the negative effect of efficiency on earnings quality.

#### 5.4 Robustness regression test

Table 7 tried a robust test using M-estimation to see whether the previously tested results with least-squares would have the same or different results. This method is an essential tool for analyzing data affected by outliers so that a robust model is produced against the effect of outliers (Naghshpour, 2016).

Robust regression is used to detect outliers and gives resistant results (Begashaw and Yohannes, 2020). In this study, robust regression requires a weighting function that can minimize the effect of outliers on the model so that the best model will be obtained. From the results of the robustness regression test in Table 7 when compared with the results in Table 6, it can be concluded that there is no significant difference from the overall results, both in terms of significant value and prediction sign. Pre-managed earnings and efficiency still negatively affect earnings quality, while liquidity has a positive effect. Likewise, the moderating effect of the governance mechanisms has no difference in results in Table 6.

#### 5.5 Supplemental analysis

In this study, we also conducted an additional test to determine if there was a difference in the bank earnings quality through bank core capital categories (BUKU). The additional tests

Dependent variable: DLLP  
 Method: Robust least squares  
 Sample 1: 226  
 Included observations: 226

Variable	Pred. Sign	Coefficient	Std. Error	t-statistic	Prob	Remarks
C		-0.0957	0.0160	-5.7658	0.0000	
EBTP	+	1.1141	0.2200	4.8670	0.0000	Accepted
LDR	-	-0.0528	0.0208	-2.4394	0.0147	Accepted
BOPO	+	0.1092	0.0145	7.2556	0.0000	Accepted
CG*EBTP	-	-0.2746	0.3730	-0.7077	0.4791	Rejected
CG*LDR	+	0.0764	0.0329	2.2283	0.0259	Accepted
CG*BOPO	-	-0.0622	0.0264	-2.2655	0.0235	Accepted
CAR	+	0.0159	0.0094	1.6221	0.1048	
NIM	+	0.0008	0.0090	0.0808	0.9356	
SIZE	+	0.0004	0.0005	0.9213	0.3569	
R-squared		0.4618	Mean dependent var			0.0011
Adjusted R-squared		0.7506	S.D. dependent var			0.0160
S.E. of regression		0.0080	Akaike info criterion			-6.7729
Sum squared residual		0.0139	Schwarz criterion			-6.6216
Log likelihood		775.3391	Hannan-Quinn criteria			-6.7118
F-statistic		76.2377	Durbin-Watson stat			1.3661
Prob(F-statistic)		0.0000				

**Table 7.**  
Robustness regression test

**Note(s):** \*Significant  $p$ -value < 0.05; EBTP: Pre-managed earnings; LDR: Liquidity; BOPO: Efficiency; CG: Governance Mechanisms; CAR: Capital Adequacy Ratio; NIM: Net Interest Margin; SIZE: Bank Size; prediction signs have a correlation with DLLP, if it is concluded in earnings quality has the opposite interpretation

conducted in this study used the differential test (one-way ANOVA). Similar to the regression test, the ANOVA test has to calculate the test statistic (in this case, the  $F$ -ratio) to test whether the comparing groups are similar or not.

Table 8 reveals the value of  $F > F_{crit}$ , which means that the different test hypothesis is accepted. The  $p$ -value < 0.05, which is 0.0006, means  $H_0$  is rejected, and  $H_a$  is accepted. It shows a significant difference between bank core capital categories (BUKU) 1, 2, 3 and 4.

From Table 9, it can be concluded that the average earnings quality as proxied through the highest earnings management value is in BUKU 4. The most negligible earnings occur in

Source of Variation	SS	Df	MS	F	p-value	F crit
Between groups	0.0044	3	0.0015	6.0410	0.0006	2.6453
Within groups	0.0535	222	0.0002			
Total	0.0579	225				

**Table 8.**  
One-way ANOVA test

Groups	Count	Sum	Average	Variance
Core capital (BUKU) 1	26	0.0089	0.0003	0.0009
Core capital (BUKU) 2	86	-0.3137	-0.0036	0.0002
Core capital (BUKU) 3	72	0.2046	0.0028	0.0002
Core capital (BUKU) 4	42	0.3500	0.0083	0.0000

**Table 9.**  
ANOVA single-factor

BUKU 2, which means the banking companies improve their earnings by manipulating earnings by increasing their earnings in BUKU 1, 3 and 4. In contrast, the banking companies improve their quality of the earnings by lowering earnings in BUKU 2.

The measurement of the significance of the Tukey's HSD post-hoc test by assuming the absolute value of the variation between the paired average score and dividing by the average value, standard error (SE) determined by the one-way ANOVA test. SE on support is the square root of variance divided by sample size (Salkind, 2010). After that, we further analyzed Tukey's HSD post-hoc test to determine which groups between samples are different. HSD test results in Table 10 show that BUKU 2 and BUKU 3 have a  $p$ -value of 0.0465, suggesting that BUKU 2 has a different earnings quality from BUKU 3. The same thing is also shown from the comparison between BUKU 2 and BUKU 4, which produces a  $p$ -value of 0.0010, suggesting that BUKU 2 has a different profit quality from BUKU 4.

This result is aligned with Central Bank of Indonesia Regulation No.14/26/PBI/2012, where BUKU 3 and BUKU 4 had a more significant core capital than BUKU 2 banks. Furthermore, BUKU 3 and BUKU 4 had operations domestically and overseas (BUKU 3-Asia and BUKU 4-worldwide). Due to this difference, automatically, the quality of profit generated from BUKU 2 banks is different from that of BUKU 3 and 4 banks.

## 6. Conclusions and further research

### 6.1 Conclusions and limitations

This study indicates that the quality of banking earnings in Indonesia before the corona crisis was still influenced by factors such as profitability, liquidity and efficiency in conducting earnings management practices. To smoothen earnings, bank managers take action to increase reported earnings when actual earnings are low, decrease reported earnings when actual earnings are high and do not take action to adjust earnings if they are in line with expectations by managing pre-managed earnings, liquidity and efficiency.

However, all these practices can be minimized with good governance. When the governance mechanisms are poor, the incentives for the possibility of a manager's opportunistic behavior will increase. Suitable corporate governance mechanisms are seen as harmonizing the potential differences in interests between shareholders and management by informing quality earnings following actual conditions (Jensen and Meckling, 1976).

In addition, this study also examines the differences between bank core capital categories (BUKU) and earnings quality. The different bank categories of earnings management mechanisms are shown for each bank core capital category (BUKU 1, 3 and 4 perform earnings management by increasing earnings, BUKU 2 lowering earnings). Another thing is information on the earnings quality between BUKU 2 with BUKU 3 and BUKU 4 because of differences in capital and bank operating coverage regulations.

However, the results of this study have several limitations. This study only tests conventional commercial banks listed on the Indonesian Stock Exchange period 2013–2019.

Pair	Q-stat	$p$ -value	Remarks
BUKU 1 vs BUKU 2	1.6233	0.6416377	Insignificant
BUKU 1 vs BUKU 3	0.9953	0.8902818	Insignificant
BUKU 1 vs BUKU 4	2.9170	0.1688663	Insignificant
BUKU 2 vs BUKU 3	3.7000	0.0465424*	Significant
BUKU 2 vs BUKU 4	5.7968	0.0010053**	Significant
BUKU 3 vs BUKU 4	2.5768	0.2660190	Insignificant

**Note(s):** \*Significant  $p$ -value < 0.05, \*\*Significant  $p$ -value < 0.01

**Table 10.**  
Tukey's HSD test

In contrast, many Indonesian banks are not listed on the stock exchange and contribute to the Indonesian economy. This study also uses the earnings quality measurements from previous studies (Kanagaretnam *et al.*, 2004), whereas we know that many other possible LLP discretionary measures can be tested by sensitivity testing.

*6.1.1 Implications and further research.* The implications of this study are beneficial for several parties such as management, regulators and further researchers. With this study, managers should have more control over pre-managed earnings and bank liquidity as manager's incentive to do earnings smoothing. Managers should also pay attention to cost efficiency and effective implementation of governance mechanisms to maximize earnings quality. Moreover, management can consider other accrual factors that influence the decision to reserve credit defaults before the corona crisis, especially those relating to credit risk assessment and credit loss provisions, to apply the principle of prudence. This result is expected to provide an overview of the regulatory impact of determining the allowance for impairment losses previously determined. In addition, policymakers are expected to be able to determine better regulations, such as determining the amount of reserve value for each indication of loan losses, risk disclosure obligations in the banking industry, and regulating the mechanisms of banking activities so that the risk of earnings management can be minimized so that it can support the country's economy.

Finally, further research expects to analyze the factors affecting the quality of banking earnings concerning the application of PSAK 71 that adopts IFRS 9 in Indonesia starting from 2020. Future researchers expect to apply mixed methods to verify the financial statement data and provide comprehensive discussion and genuine insight from their research. Future research requires more samples from companies or an international scale (cross country) to obtain maximum results and be generally accepted. This study proposes to be used as additional reference material for further research in the same field, such as financial accounting and banking, which will be improved.

## References

- Akbar, T. and Lanjarsih, L. (2019), "Determination of company profitability and value of banks in Indonesia based on risk profile, capital structure, corporate governance and asset structure", *Account and Financial Management Journal*, Vol. 4 No. 11, pp. 2041-2047, doi: [10.33826/afmj/v4i11.01](https://doi.org/10.33826/afmj/v4i11.01).
- Alhadab, M.M. and Al-Own, B. (2017), "Earnings management and banks performance: evidence from Europe", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 7, pp. 134-145, doi: [10.6007/ijarafms/v7-i4/3444](https://doi.org/10.6007/ijarafms/v7-i4/3444).
- Anwar, Y. and Murwaningsari, E. (2018), "The effect of credit risk and capital adequacy ratio upon return on asset (A Case Study at Banking Listed in Indonesia Stock Exchange)", *The Accounting Journal of Binaniaga*, Vol. 2, pp. 23-38, doi: [10.33062/ajb.v2i02.101](https://doi.org/10.33062/ajb.v2i02.101).
- Bashir, U., Fatimma, U., Sohail, S., Rasul, F. and Mehboob, R. (2018), "Internal corporate governance and financial performance Nexus; a case of banks of Pakistan", *Journal of Finance and Accounting*, Vol. 6 No. 1, pp. 11-17, doi: [10.11648/j.fja.20180601.12](https://doi.org/10.11648/j.fja.20180601.12).
- Begashaw, G. and Yohannes, Y. (2020), "Review of outlier detection and identifying using robust regression model", *International Journal of Systems Science and Applied Mathematics*, Vol. 5 No. 4, doi: [10.11648/j.ijssam.20200501.12](https://doi.org/10.11648/j.ijssam.20200501.12).
- Bin Khidmat, W., Ayub Khan, M.N. and Ullah, H. (2020), "The effect of board diversity on firm performance: evidence from Chinese listed companies", *Indian Journal of Corporate Governance*, Vol. 13, pp. 33-39, doi: [10.1177/0974686220923793](https://doi.org/10.1177/0974686220923793).
- Consoni, S., Colauto, R.D. and De Lima, G.A.S.F. (2017), "Voluntary disclosure and earnings management: evidence from the Brazilian capital market", *Revista Contabilidade e Financas*, Vol. 28 No. 74, pp. 249-263, doi: [10.1590/1808-057x201703360](https://doi.org/10.1590/1808-057x201703360).

- Danisman, G.O., Demir, E. and Ozili, P. (2021), "Loan loss provisioning of US banks: economic policy uncertainty and discretionary behavior", *International Review of Economics and Finance*, Vol. 71, pp. 923-935, doi: [10.1016/j.iref.2020.10.016](https://doi.org/10.1016/j.iref.2020.10.016).
- Desta, T.S. (2017), "Consequence of loan loss provisions on earnings management behaviour: a study on the best African commercial banks", *South African Journal of Business Management*, Vol. 48 No. 3, pp. 1-11, doi: [10.4102/sajbm.v48i3.31](https://doi.org/10.4102/sajbm.v48i3.31).
- Dong, X., Liu, J. and Hu, B. (2012), "Research on the relationship of commercial bank's loan loss provision and earnings management and capital management", *Journal of Service Science and Management*, Vol. 5, pp. 171-179, doi: [10.4236/jssm.2012.52021](https://doi.org/10.4236/jssm.2012.52021).
- Erena, O.T., Kalko, M.M. and Debele, S.A. (2022), "Corporate governance mechanisms and firm performance: empirical evidence from medium and large-scale manufacturing firms in Ethiopia", *Corporate Governance*, Vol. 22 No. 2, pp. 213-242, doi: [10.1108/CG-11-2020-0527](https://doi.org/10.1108/CG-11-2020-0527).
- Fauziyyah, R. and Rachmawati, S. (2018), "The effect of number meeting of the board of commissioners, independent commissioners, audit committee, and ownership structure upon the extent of CSR disclosure", *The Accounting Journal of Binaniaga*, Vol. 3 No. 2, doi: [10.33062/ajb.v3i2.232](https://doi.org/10.33062/ajb.v3i2.232).
- Gujarati, D.N. and Porter, D.C. (2009), *Basic Econometrics*, McGraw-Hill, Boston, MA.
- Jensen, M., C. and Meckling, W. (1976), "Theory of the firm: managerial behavior, agency cost and ownership structure", *Journal of Finance Economic*, Vol. 3, pp. 305-360, doi: [10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X).
- Kanagaretnam, K., Lobo, G.J. and Mathieu, R. (2004), "Earnings management to reduce earnings variability: evidence from bank loan loss provisions", *Review of Accounting and Finance*, Vol. 3 No. 1, pp. 128-148, doi: [10.1108/eb043399](https://doi.org/10.1108/eb043399).
- Kirubel, A. and Akmel, S. (2019), "Earnings management: from agency and signalling theory perspective in Ethiopia", *Journal of Economics, Management and Trade*, Vol. 24, pp. 1-12, doi: [10.9734/JEMT/2019/v24i630181](https://doi.org/10.9734/JEMT/2019/v24i630181).
- Machdar, N., Manurung, A.H. and Murwaningsari, E. (2017), "The effect of earnings quality, conservatism and real earnings management on the company's performance and information asymmetry as a moderating variable", *International Journal of Economics and Financial Issues, Econjournals*, Vol. 7 No. 2, pp. 309-318.
- Mishra, R.K. and Kapil, S. (2018), "Effect of board characteristics on firm value: evidence from India", *South Asian Journal of Business Studies*, Vol. 7 No. 1, pp. 41-72, doi: [10.1108/SAJBS-08-2016-0073](https://doi.org/10.1108/SAJBS-08-2016-0073).
- Moghaddam, A. and Abbaspour, N. (2017), "The effect of leverage and liquidity ratios on earnings management and capital of banks listed on the tehran stock exchange", *International Review of Management and Marketing*, Vol. 7, pp. 99-107.
- Naghshpour, S. (2016), *Regression for Economics*, 2nd ed., Business Expert Press, New York.
- Oktayanti, N. and Murtanto, M. (2016), "Analisis Pengaruh Tingkat Kesehatan Bank Terhadap Kualitas Laba Dengan Pendekatan Resiko Pada Bank BUMN di Indonesia", *Jurnal Akuntansi Trisakti*, Vol. 3 No. 1, doi: [10.25105/jat.v3i1.4912](https://doi.org/10.25105/jat.v3i1.4912).
- Ozili, P.K. and Arun, T.G. (2018), "Income smoothing among European systemic and non-systemic banks", *The British Accounting Review*, Vol. 50 No. 5, pp. 539-558, doi: [10.1016/j.bar.2018.03.001](https://doi.org/10.1016/j.bar.2018.03.001).
- Paiva, I., Lourenço, I. and Branco, M. (2016), "Earnings management in family firms: current state of knowledge and opportunities for future research", *Review of Accounting and Finance*, Vol. 15, pp. 85-100, doi: [10.1108/RAF-06-2014-0065](https://doi.org/10.1108/RAF-06-2014-0065).
- Peni, E. and Vähämaa, S. (2011), "Did good corporate governance improve bank performance during the financial crisis?", *SSRN Electronic Journal*, Vol. 41 Nos 1-2, pp. 19-35, doi: [10.2139/ssrn.1740547](https://doi.org/10.2139/ssrn.1740547).
- Prior, D., Tortosa-Ausina, E., García-Alcober, M.P. and Illueca, M. (2019), "Profit efficiency and earnings quality: evidence from the Spanish banking industry", *Journal of Productivity Analysis*, Vol. 51, pp. 153-174, doi: [10.1007/s11123-019-00553-w](https://doi.org/10.1007/s11123-019-00553-w).

- 
- Rahman, M.A. and Islam, J. (2018), "The impact of corporate governance on bank performance: empirical evidence from Bangladesh", *Global Journal of Management and Business Research*, Vol. 18, pp. 49-54.
- Religiosa, M. and Surjandari, D. (2021), "The relation of company risk, liquidity, leverage, capital adequacy and earnings management: evidence from Indonesia banking companies", *Mediterranean Journal of Social Sciences*, Vol. 12 No. 1, p. 1, doi: [10.36941/mjss-2021-0001](https://doi.org/10.36941/mjss-2021-0001).
- Salkind, N.J. (2010), *Encyclopedia of Research Design*, Vols 1-0, SAGE Publications, Thousand Oaks, CA, doi: [10.4135/9781412961288](https://doi.org/10.4135/9781412961288).
- Scott, W.R. (2012), *Financial Accounting Theory*, 6th ed., Pearson Prentice Hall, Toronto.
- Shawtari, F.A., Saiti, B., Razak, S. and Ariff, M. (2015), "The impact of efficiency on discretionary loans/finance loss provision: a comparative study of Islamic and conventional banks", *Borsa Istanbul Review*, Vol. 15, pp. 272-282, doi: [10.1016/j.bir.2015.06.002](https://doi.org/10.1016/j.bir.2015.06.002).
- Simper, R., Dadoukis, A. and Bryce, C. (2019), "European bank loan loss provisioning and technological innovative progress", *International Review of Financial Analysis*, Elsevier, Vol. 63 No. C, pp. 119-130, doi: [10.1016/j.irfa.2019.03.001](https://doi.org/10.1016/j.irfa.2019.03.001).
- Sohail, S., Rasul, F. and Fatima, U. (2017), "Is internal and external mechanisms of governance enriching the performance of the banking sector of Pakistan?", *Corporate Governance*, Vol. 17 No. 4, pp. 629-642, doi: [10.1108/CG-05-2016-0116](https://doi.org/10.1108/CG-05-2016-0116).
- Tran, D.V., Hassan, M.K. and Houston, R. (2020), "Discretionary loan loss provision behavior in the US banking industry", *Review of Quantitative Finance and Accounting*, Vol. 55 No. 2, pp. 605-645, doi: [10.1007/s11156-019-00854-z](https://doi.org/10.1007/s11156-019-00854-z).
- Tucker, J.W. and Zarowin, P.A. (2006), "Does income smoothing improve earnings informativeness?", *The Accounting Review*, Vol. 81 No. 1, pp. 251-270, doi: [10.2308/accr.2006.81.1.251](https://doi.org/10.2308/accr.2006.81.1.251).
- Zoubi, T.A. and Al-Khazali, O. (2007), "Empirical testing of the loss provisions of banks in the GCC region", *Managerial Finance*, Vol. 33 No. 7, pp. 500-511, doi: [10.1108/03074350710753771](https://doi.org/10.1108/03074350710753771).

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