

Income Smoothing, Displaced Commercial Risk and Bankruptcy in Indonesian Islamic Banks During COVID-19

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Abstract

This research seeks to examine how the COVID-19 pandemic has influenced shifts in income smoothing practices within Islamic banks in Indonesia. It also investigates the effect of income smoothing on displaced commercial risk (DCR) and the influence of DCR on the potential for bankruptcy in Islamic banks. Using a quantitative approach, the study employs a mean difference test and panel data regression through path analysis in relation to 13 Islamic banks over two 21-month periods before the pandemic (July 2017 to March 2019) and during the pandemic (April 2019 to December 2020). The findings reveal significant differences in income smoothing behavior between the pre-pandemic and pandemic periods, with income smoothing negatively affecting DCR. Furthermore, a lower DCR leads to a lower bankruptcy risk, as measured by the z-score. These results highlight the interconnectedness of income smoothing, commercial risk management, and financial stability in Islamic banks during periods of economic uncertainty. The study concludes that Islamic banks need to enhance risk management strategies to mitigate the effects of external economic shocks.

Keywords: Bankruptcy Risk, COVID-19 Pandemic, Displaced Commercial Risk, Income Smoothing, Indonesia Islamic Banking, Z-Score.

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INTRODUCTION

The COVID-19 pandemic has triggered more than just a global health emergency but has also significantly disrupted the global economy, inducing widespread financial instability across all sectors, including banking. The pandemic created global economic uncertainty, leading to stagnation, unemployment, social unrest, and increased poverty. It also caused disruptions in business activities, impacting both macroeconomic and microeconomic levels, thus exacerbating financial risks and uncertainties (Peng et al., 2020; Yeganeh, 2021). For the banking sector, including both conventional and Islamic banks, the pandemic presented unique challenges, notably in terms of declining liquidity, increased credit risk, and growing concerns over the stability of financial systems (Karim et al., 2021; Miah et al., 2021; Hassan et al., 2022).

In the case of Islamic banking, while third-party funds increased during the pandemic, liquidity decreased due to various factors, including credit relaxation measures for businesses affected by the pandemic. This posed a challenge to Islamic banks in maintaining profitability and competitiveness, as they are governed by Shariah principles that prohibit interest-based transactions. Consequently, to stabilize returns and reduce potential risks such as DCR, Islamic banks often employ income smoothing, a technique used to reduce income volatility (Khzer & Jaf, 2023) by managing earnings to ensure more predictable and stable financial performance (Ozili, 2023).

Income smoothing is an essential tool in the context of Islamic banking, especially in the face of external shocks such as the COVID-19 pandemic. The practice helps to mitigate DCR, which arises when Islamic banks fail to offer competitive returns, leading to withdrawals from customers. According to the DSN-MUI fatwa No. 87 of 2012, Islamic banks can utilize income smoothing, either with or without forming a profit adjustment reserve, to reduce the risk of customer withdrawals. Previous studies have demonstrated that income smoothing is often employed during periods of financial instability and uncertainty (Ozili, 2024) to enhance investor confidence, reduce perceived risk, and maintain stable returns (Drissi & Angade, 2019; Kusuma, 2023). However, there is limited research specifically addressing the relationship between income smoothing, DCR, and bankruptcy risk in Islamic banks during crises, particularly amidst the COVID-19 crisis.

This research seeks to address this gap by examining the effects of the COVID-19 pandemic on income smoothing practices in Islamic banks in Indonesia and its subsequent effects on DCR and bankruptcy risk. The study will address the following research questions: (1) Is there a difference in income smoothing practices before and during the COVID-19 pandemic? (2) How does income smoothing affect DCR in Islamic banks? (3) How does DCR impact the bankruptcy risk in Islamic banks? (4) Does DCR mediate the relationship between income smoothing and bankruptcy risk in Islamic banks? This research employs a quantitative method, analyzing data from 13 Islamic commercial banks in Indonesia over a period of 21 months before and 21 months during the pandemic.

The study is grounded in several key theories. First, agency theory is used to explain how conflicts of interest between bank management and stakeholders may influence decisions to smooth earnings, thus presenting a more stable financial picture. Second, signalling theory posits that income smoothing serves as a signal to investors, indicating the bank's financial health and reducing uncertainty about future performance. Third, the Altman Z-score model, a commonly used method for forecasting bankruptcy, will be utilized to evaluate the financial condition and bankruptcy risk of Islamic banks during the pandemic. Prior research has highlighted the importance of income smoothing in mitigating financial risks during crises. Studies such as those by Biswas et al., (2024), Santos et al., (2024), and Drissi and Angade (2019) suggest that economic crises often lead to increased volatility in earnings, making income smoothing an effective strategy for firms. However, these studies mainly focus on conventional banking, and little attention has been paid to Islamic banks, particularly during the COVID-19 period. This research seeks to bridge this gap by focusing on the specific dynamics of income smoothing within the context of Islamic banking during a global health and economic crisis.

The research will contribute to the understanding of how Islamic banks navigate financial uncertainty, with a particular focus on the role of income smoothing in managing DCR and mitigating bankruptcy risk. From a policy perspective, the findings can support the development of regulatory frameworks that encourage transparent and prudent financial reporting in Islamic banks. Policymakers can use these insights to design guidelines that balance income-smoothing practices with the need for accurate disclosure, thereby enhancing the resilience of Islamic banks during economic downturns. The findings are expected to provide valuable insights into improving risk management strategies in Islamic banks and enhancing their ability to withstand future financial crises.

The effects of the COVID-19 pandemic on income smoothing behavior in Islamic banks is significant due to the increased economic uncertainty. Previous research on earnings management during economic crises suggests that firms, including banks, often resort to income smoothing to reduce earnings volatility and maintain a stable financial outlook (Monjed et al., 2022; Ozili, 2023). The pandemic, as a global economic shock, is expected to increase the need for income smoothing as Islamic banks seek to manage the financial uncertainties caused by declining liquidity and increased credit risk. This hypothesis is grounded in Agency Theory, which posits that managers, acting as agents, seek to minimize information asymmetry between themselves and stakeholders by stabilizing reported earnings. In times of crisis, income smoothing can help reassure stakeholders and preserve confidence in the Islamic bank's financial stability. Thus, the following hypothesis is proposed:

H1: There are differences in income smoothing practices in Islamic banks prior to and during the COVID-19 pandemic.

Income smoothing is also closely related to DCR, as Islamic banks must maintain competitive returns to avoid customer withdrawals. Previous studies have found that income smoothing can mitigate DCR by ensuring more predictable returns, thereby reducing the likelihood of customers switching to conventional banks (Toumi et al., 2019; Kurniasari et al., 2023; Rouetbi et al., 2023). This aligns with Signaling Theory, which suggests that firms use income smoothing

as a tool to signal financial stability and resilience to stakeholders. Smoothing practices are regarded as a way for managers to convey private information to investors, suggesting that income smoothing is viewed from an informational perspective rather than as a tool for managerial opportunism (Abogun et al., 2021). The ability to smooth income allows Islamic banks to offer stable and competitive returns, which can reduce the risk of DCR. Based on this, the following hypothesis 2 is formulated:

H2: Income smoothing negatively impacts DCR in Islamic banks.

DCR poses a significant threat to the stability of Islamic banks. When banks fail to provide competitive returns, customers may withdraw their funds. Returns affect customer behavior in investing their funds in a place (Hati et al., 2022). If the yield is not as agreed upon, the customer/investor will withdraw large amounts of funds (Widarjono et al., 2022), increasing the risk of insolvency and potentially leading to bankruptcy (Ismal, 2012; IMF, 2020). This is best explained by the financial distress theory by Altman (2016), which emphasizes that firms facing volatility in earnings or increasing liabilities are more likely to experience insolvency. Given this, the study proposed hypothesis 3 as follows:

H3: DCR has a positive impact on the bankruptcy risk of Islamic banks.

The COVID-19 pandemic has introduced unprecedented economic uncertainty, significantly impacting the financial stability of Islamic banks. To navigate these challenges, banks may rely on Income Smoothing to maintain stable returns and mitigate the adverse effects of fluctuating earnings. However, the impact of IS on the risk of bankruptcy in Islamic banks does not occur directly. Instead, it is mediated by DCR, a unique risk in Islamic banking where banks must offer competitive returns to retain depositors and prevent massive fund withdrawals, especially by the dominant group of rational customers (Rismayani & Nanda, 2020). Previous studies, such as those by Rosman et al., (2014) and Toumi et al., (2019), emphasize that managing DCR effectively can reduce the likelihood of insolvency by ensuring depositor confidence. Additionally, Altman's (2016) Financial Distress Theory suggests that financial distress is often triggered by increased risk exposure and declining liquidity. In this context, DCR acts as a conduit through which Income Smoothing influences the stability of Islamic banks. Thus, the following hypothesis is proposed:

H4: DCR mediates the relationship between Income Smoothing and Bankruptcy risk in Islamic banks.

In conclusion, this research offers a comprehensive analysis of the effects of the COVID-19 pandemic on Islamic banks' income smoothing practices, DCR, and bankruptcy risk. Integrating existing theories and empirical evidence contributes to the broader understanding of how Islamic banks can effectively manage financial instability during global crises. The study's findings have practical implications for Islamic banking managers and policymakers, offering guidance on risk management strategies to safeguard Islamic financial institutions' long-term stability and sustainability.

RESEARCH METHOD

Sample Selection

This research targeted all Islamic commercial banks operating in Indonesia. The sample included 13 Islamic banks, such as Bank Aceh Syariah, Bank Muamalat Indonesia, Bank Victoria Syariah, Bank BRI Syariah, Bank Jabar Banten Syariah, Bank BNI Syariah, Bank Syariah Mandiri, Bank Mega Syariah, Bank Panin Dubai Syariah, Bank Syariah Bukopin, BCA Syariah, Bank Tabungan Pensiun Nasional Syariah, and Maybank Syariah Indonesia. The research period covered 21 months before and 21 months during the COVID-19 pandemic, from July 2017 to December 2020. This period allowed for a comparative analysis of the banks' performance and earnings management strategies before and during the pandemic. Secondary data were utilized in this study, gathered from reputable sources, including the official websites the selected Islamic commercial banks.

Variable Measurement

This study consisted of three key variables: income smoothing, DCR, and bankruptcy risk. Each variable was measured using the following methods.

1. Income Smoothing represents managerial efforts to stabilize reported earnings, which is measured using Discretionary Loan Loss Provisions (DLLP), following the approach by Riahi (2020) and Gupta (2024). DLLP represents the discretionary component of loan loss provisions, reflecting management's efforts to smooth earnings. A higher DLLP indicates greater income smoothing behavior

$$DLLP_{i,t} = LLP_{i,t} - NDLLP_{i,t}$$

Notes:

- a) $LLP_{i,t}$: Total Loan Loss Provisions for Islamic Bank i in Year t

$$LLP_{i,t} = \beta_0 + \beta_1 NPL_{(it-1)} + \beta_2 \Delta NPL_{(it)} + \beta_3 \Delta TL_{(it)} + \varepsilon_{(it)}$$

Then, using the estimated coefficients ($\hat{\beta}_0, \hat{\beta}_1, \hat{\beta}_2, \hat{\beta}_3$) from equation a), we evaluate the non-discretionary component of LLP:

- b) $NDLLP_{i,t}$: Non-discretionary Loan Loss Provisions estimated as:

$$NDLLP_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 NPL_{(it-1)} + \hat{\beta}_2 \Delta NPL_{(it)} + \hat{\beta}_3 \Delta TL_{(it)}$$

The discretionary component of LLP is derived by subtracting the estimated non-discretionary LLP from the total LLP.

- c) $NPL_{(it-1)}$: Non-performing financing Islamic Bank i in Year $t - 1$
d) $\Delta TL_{(it)}$: Change in Total Financing

2. DCR measures the risk of customer fund withdrawals due to uncompetitive returns. It is estimated using the variance in Return on Equity (ROE) (Toumi et al., 2019; Barau, 2023), based on the Islamic Financial Services Board (IFSB) model:

$$DCR = UL_1 - UL_0$$

Notes:

- a) UL_1 : Unexpected Loss when Profit-Sharing Investment Account (PSIA) is treated as a pure investment product
 - b) UL_0 : Unexpected Loss when PSIA as a hybrid investment / savings product
Unexpected Losses are derived from the standard deviation of ROE
3. Bankruptcy risk evaluates the financial stability of Islamic banks throughout the COVID-19 pandemic and is measured using the Altman Z-score (Karim et al., 2021; Jan et al., 2023), adapted for Islamic banks by replacing market value with book value of equity.

$$Z = 6.56(X1) + 3.26(X2) + 6.72(X3) + 1.05(X4)$$

- X1: Working Capital to Total Assets
- X2: Retained Earnings to Total Assets
- X3: Earnings Before Interest and Taxes to Total Assets
- X4: Book Value of Equity to Total Liabilities

Z-scores are categorized as follows:

- a) $Z < 1.81$: Bankruptcy
- b) $1.81 < Z < 2.99$: Grey Area
- c) $Z > 2.99$: No Bankruptcy

Techniques of Analysis

To test the differences in income smoothing behavior before and during the COVID-19 pandemic (Hypothesis 1), a two-sample mean difference test was employed. A parametric t-test was utilized when the data followed a normal distribution; otherwise, the Wilcoxon signed-rank test, a non-parametric alternative, was employed. Regression analysis was performed to investigate the effect of income smoothing on DCR (Hypothesis 2) and the effect of DCR on bankruptcy risk (Hypothesis 3). As hypothesized, income smoothing negatively affected DCR, while DCR positively impacted bankruptcy risk. To analyze the mediation role of DCR (Hypothesis 4), the direct and indirect regression coefficients were examined using a path model, as illustrated in Figure 1.

Referring to the Figure 1, two mathematical equations are derived:

- 1) $Y = \rho_{yx}X + \epsilon_1$
 ρ_{yx} : The path coefficient showing the direct effect of income smoothing on DCR.
 ϵ_1 : The error term representing the variance in DCR not explained by income smoothing.
- 2) $Z = \rho_{zx}X + \rho_{zy}Y + \epsilon_2$

ρ_{zx} : The direct effect of income smoothing on bankruptcy risk.
 ρ_{zy} : The effect of DCR on bankruptcy risk.
 ϵ_2 : The error term representing the variance in bankruptcy risk not explained by the independent variables

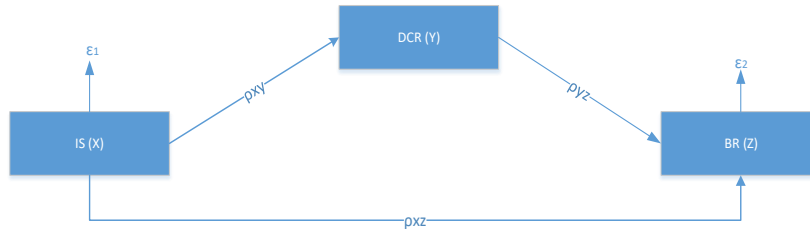


Figure 1: Path Analysis

Notes:

IS: Income smoothing
 DCR: Displaced Commercial Risk
 BR: Bankruptcy risk

Each equation is tested using the coefficient of determination, an F-test to evaluate the overall effect, and a t-test to assess individual effects. To determine if displaced commercial risk mediates the relationship between Income smoothing and bankruptcy risk, the Sobel test is applied. A variable is considered as intervening variable if it significantly mediates the effect of the independent variable (X) on dependent variable (Z) as described by Gonzales and MacKinnon (2021).

RESULTS AND DISCUSSION

Results

Table 1 demonstrates that the average Non-Performing Financing in Islamic banks in Indonesia rose from 7.93% before the COVID-19 pandemic to 9.71% during the pandemic. This increase was attributed to large-scale social restrictions imposed on various sectors, including tourism (Correa-martínez et al., 2020); insurance (Wang et al., 2020), and MSMEs (Cerd & Segu, 2021; Aftab & Naveed, 2021) which significantly affected the financial health of businesses. The disruptions caused by large-scale social restrictions led to decreased cash flow and revenue, thereby increasing the risk of defaults on financing, which contributed to the higher Non-Performing Financing during this period. A decline was also observed in Total Financing (TF), which fell from 3.75% to 3.15%, possibly due to stricter financing application procedures implemented by Islamic banks.

On the other hand, Discretionary Loan Loss Provisions, a key indicator of income smoothing, increased significantly from -0.068 to 0.0625. This rise in income smoothing behavior was aimed at mitigating DCR, which could otherwise prompt investors to withdraw their funds,

increasing the risk of bankruptcy. Meanwhile, DCR and bankruptcy risk showed a decline. DCR decreased from 16,428 to 11,428, and bankruptcy risk (measured by the Z-score) fell from 4.188 to 3.885. The decline in DCR can be attributed to increased income smoothing behavior, which helped Islamic banks maintain reasonable and competitive returns (Chattha et al., 2020; Chattha & Alhabshi, 2020). Similarly, the reduction in bankruptcy risk was likely a consequence of the decreasing DCR levels in Islamic banks.

Table 1. Descriptive Statistic of Variables

Variables	Minimum	Maximum	Mean
NPF Before Covid-19	5.895	9.815	7.930
NPF During Covid-19	7.130	11.818	9.718
Δ NPF Before Covid-19	0.003	1.985	0.462
Δ NPF During Covid-19	0.000	3.838	0.338
Δ TF Before Covid-19	1.837	21.229	3.751
Δ TF During Covid19	1.844	23.173	3.158
DLLP Before Covid-19	-0.888	0.517	-0.068
DLLP During Covid-19	-1.124	2.278	0.063

Notes:

NPF: Non-Performing Financing

TF: Total Financing

DLLP: Discretionary Loan Loss Provision, as a measure of Income Smoothing

To test Hypothesis 1, which investigates whether there is a difference in income smoothing practices before and during the COVID-19 pandemic, a non-parametric test, the Wilcoxon signed-rank test, was conducted due to the non-normal distribution of the data, as confirmed by the Shapiro-Wilk test. The Wilcoxon signed-rank test produced a significance value of 0.000, which is less than 0.05, as shown in Table 2. *This indicates that Hypothesis 1 is accepted*, confirming that there are significant differences in income-smoothing behaviour before and during the COVID-19 pandemic.

Table 2. Wilcoxon Signed Ranks Test Income Smoothing Before – During Covid-19

Z	-.054*	*Based on positive ranks
Asymp.Sig. (2-tailed)	.000	

After passing the normality and classical assumption tests, regression analysis was conducted to examine the effect of income smoothing on DCR. The results of the F-test in Table 3 showed an F-statistic of 19.155, which was greater than the F-table value of 2.84. This indicated that income smoothing had a significant effect on Displace Commercial Risk, contributing 16.6% to its variation, as shown in Table 4.

Table 3. F Test - The Effect of Income Smoothing on DCR

Model		Sum of Squares	df	Mean Square	F	Sig
1	Regression	27.495	1	27.495	19.155	.000 ^b
	Residual	137.793	37	1.435		
	Total	165.287	38			

a. Dependent Variable: DCR

b. Predictors: (Constant), Income Smoothing

Table 4. R Square - The Effect of Income Smoothing on DCR

Model	R	R Square	Adjusted R Square	Std.Error of the Estimate	Durbin-Watson
1	.408 ^a	.166	.158	1.19806	1.855

a. Predictors: (Constant), Income Smoothing

b. Dependent Variable: DCR

The t-test in Table 5 further revealed a t-statistic of -4.337, which was lower than the t-table value of -2.026, indicating a significant negative effect of income smoothing on DCR. *These findings support Hypothesis 2*, confirming that income smoothing, negatively affects DCR in Islamic banks in Indonesia. This suggests that increased income smoothing reduces DCR, ensuring competitive returns and minimizing the likelihood of fund withdrawals by customers.

Table 5: T-Test - The Effect of Income Smoothing on DCR

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig
		B	Std. Error			
1	(Constant)	1.442	.136		10.575	.000
	IS	-1.187	.271	-.408	-4.377	.000

a. Dependent Variable: DCR

To test Hypothesis 3, regression analysis was also employed to examine the impact of Income Smoothing and DCR on Bankruptcy Risk. The goodness-of fit test produced an F-statistic of 5.092, which exceeded the F-table value of 2.84, indicating a significant combined influence of Income Smoothing and DCR on Bankruptcy, with a contribution of 22.9%.

Table 6: F Test - The Effect of Income Smoothing and DCR on Bankruptcy Risk

Model		Sum of Squares	df	Mean Square	F	Sig
1	Regression	.301	2	.151	5.092	.011 ^b
	Residual	1.064	36	.030		
	Total	1.365	38			

a. Dependent Variable: Bankruptcy

b. Predictors: (Constant), DCR, Income Smoothing

The hypothesis test results showed that Income Smoothing had a t-statistic of 2.160, exceeding the t-table value of 2.028, indicating a positive effect of income smoothing on Bankruptcy. Conversely, DCR had a t-statistic of -3.556, less than the critical value of -2.028, indicating a negative effect on Bankruptcy. These results suggest that higher income smoothing behavior increases the likelihood of bankruptcy, whereas lower DCR reduces the risk of bankruptcy.

Table 7: T Test - The Effect of Income Smoothing and DCR on Bankruptcy Risk

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig
		B	Std. Error			
1	(Constant)	4.158	.022		187.173	.000
	IS	.071	.033	.213	2.160	.033
	DCR	-.040	.011	-.351	-3.556	.001

a. Dependent Variable: Bankruptcy

Path analysis was used to test the mediating effect of DCR on the relationship between Income Smoothing and Bankruptcy (see Figure 2). The direct effect of Income Smoothing on DCR was -0.408, while the direct effect of DCR on Bankruptcy was -0.351. The direct effect of Income Smoothing on Bankruptcy was 0.213, and the indirect effect through DCR was 0.143 (-0.408 multiply by -0.351). The Sobel test yielded a Z-value of 2.79, which is greater than the critical value of 1.96 at a 5% significance level, confirming that DCR partially mediates the relationship between Income Smoothing and Bankruptcy. However, since the direct effect of Income Smoothing on Bankruptcy (0.213) is greater than the indirect effect (0.143), it can be concluded that the influence is primarily direct, with DCR acting as a partial mediator in the relationship between Income Smoothing and Bankruptcy in Islamic banking in Indonesia.

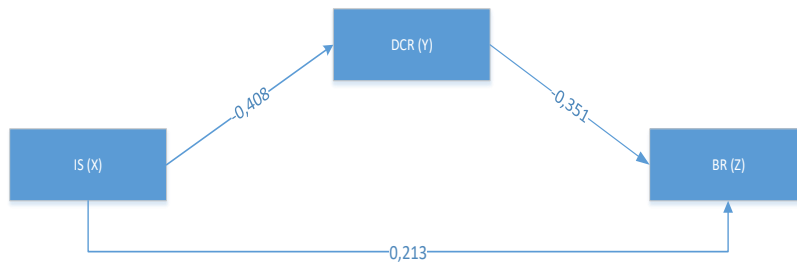


Figure 2: Path Analysis of Income Smoothing – DCR – Bankruptcy Risk

Notes:

IS: Income Smoothing, measured by Discretionary Loan Loss Provision (DLLP)

DCR: DCR, measured by the standard deviation of Return on Equity

BR: Bankruptcy Risk, measured by Altman Z-Score

Discussion

The Differences in Income Smoothing Behavior in Islamic Banks Before and During the COVID-19 Pandemic

The first finding indicates that income smoothing behavior differs significantly before and during the COVID-19 pandemic, as evidenced by the statistical results in Table 2, supporting the acceptance of H1. This difference is reflected in the Discretionary Loan Loss Provisions (DLLP) ratio in Table 1. Before the pandemic, the average DLLP was negative (-0.068), indicating that Islamic banks were optimistic, believing that potential financing losses were lower than anticipated. However, during the pandemic, the average DLLP turned positive (0.063), signaling increased caution as Islamic banks anticipated higher financing risks due to the economic disruption caused by COVID-19. The pandemic disrupted economic activity across various sectors, directly impacting household incomes and business liquidity. Sectors such as tourism and MSMEs experienced a sharp decline in demand and revenue due to mobility restrictions, business closures, and reduced consumer purchasing power. As MSMEs are a critical segment for Islamic banks, many struggled to meet their financial obligations (UNDP Indonesia & UI, 2020; Banna et al., 2022; Gunadi et al., 2022); resulting in increased loan defaults and non-performing financing.

In response, Islamic banks likely intensified income smoothing practices to stabilize reported earnings and maintain investor and customer confidence (AlShattarat & Atmeh, 2016; Ozili, 2023). Income smoothing, often measured by Discretionary Loan Loss Provisions, enables banks to absorb financial shocks by adjusting loan loss provisions, thereby presenting more stable financial performance to stakeholders. Income smoothing is a rational earnings management practice aimed at reducing fluctuations in reported income, especially during periods of economic distress (Bugshan et al., 2022). This aligns with the findings Peterson & Arun (2018), who suggest that earnings management helps convey stability and mitigate the adverse effects of economic downturns. During the COVID-19 pandemic, large-scale social restrictions and the decline in economic activity forced Islamic banks to adopt more aggressive income smoothing strategies to protect profit-sharing returns and avoid DCR, which could lead to customer withdrawals.

The increased use of income smoothing during crises is further supported by agency theory, which posits that managers may act opportunistically to ensure reported earnings meet market expectations. Baik et al., (2020) emphasize that during heightened uncertainty, including economic policy (Jin et al., 2019; Lee & Jeong, 2023) banks may manipulate earnings to avoid losing investor trust and maintain financial stability. Furthermore, the results also align with Signaling Theory, which posits that income smoothing serves as a signal to investors and other stakeholders regarding the Islamic bank's financial stability and resilience. Islamic banks disclosed risk information to outsiders to reduce information asymmetry, particularly concerning uncertainties about future prospects. Serdaneh (2018) found that Islamic banks use provisions as a signal to indicate future positive changes in earnings. Although Monjed et al., (2022) argue that income smoothing in Islamic banking is primarily used to mask the bank's true underlying risk.

In summary, the significant differences in income smoothing behavior before and during the COVID-19 pandemic underscore the critical role of income smoothing in mitigating financial risks. These findings are consistent with prior research, suggesting that income smoothing is a

defensive strategy employed by Islamic banks during crises to ensure financial stability and maintain competitive returns.

The Effect of Income Smoothing on DCR in Islamic Banks

The significant negative effect of income smoothing on DCR found in this study indicates that Hypothesis 2 is accepted. This can be explained by the strategic role of earnings management in stabilizing financial outcomes, particularly during periods of economic uncertainty. The pandemic presented unprecedented challenges for the banking sector, including increased loan defaults and liquidity pressures. In response, Islamic banks likely intensified income smoothing practices to shield their financial statements from the crisis's adverse effects. Income smoothing enables Islamic banks to manage fluctuations in reported earnings, ensuring that profit-sharing returns remain competitive with those offered by conventional banks (Kurniasari et al., 2023). This practice is crucial in mitigating the risk of customer fund withdrawals, known as DCR, which can occur if returns fall below customer expectations.

According to Acharya & Lambrecht (2015) and Butar (2020), one primary reason for income smoothing is to meet market expectations by demonstrating consistent financial performance, even during adverse economic conditions. During economic downturns, income smoothing becomes an essential tool for banks to manage risk perceptions and protect their reputations. This aligns with the findings of Rosman and Rahman (2014), who emphasize that Islamic banks utilize income smoothing to manage DCR effectively. By levelling out income fluctuations, Islamic banks can provide more stable returns, reducing the likelihood that investors will seek alternative banking options, thereby ensuring customer retention and financial stability. Thus, the findings of this study align with prior research, indicating that income smoothing serves as a defensive strategy to mitigate DCR by maintaining competitive returns.

The negative relationship between income smoothing and DCR found in this study suggests that income smoothing is not merely an opportunistic behavior but rather a strategic tool used to maintain market confidence and operational efficiency (Aboud et al., 2023). Income smoothing is an effective mechanism for managers to convey private information, which benefits both managers and investors (Mendes et al., 2019). Abbas et al., (2021) also found that managers in Islamic banking are efficient in their discretion while reporting their earnings. Furthermore, firms with higher income smoothing rankings tend to exhibit lower costs of debt, suggesting that the information signalling effect of income smoothing outweighs the potential distortion effect (Li & Richie, 2016).

In conclusion, the findings confirm that income smoothing plays a vital role in reducing DCR in Islamic banks in Indonesia. By stabilizing profit-sharing returns, Islamic banks can ensure competitive performance, minimize the risk of customer fund withdrawals, and enhance financial resilience during economic crises. This study reinforces the view that income smoothing is an essential practice for maintaining financial stability in the context of Islamic banking.

The Effect of DCR on Bankruptcy Risk in Islamic Banks

The significant negative effect of DCR on bankruptcy risk, as evidenced in Hypothesis 3, underscores the critical role of managing DCR in safeguarding the financial stability of Islamic banks. DCR, which measures the proportion of deposits relative to a bank's capital, can serve as an indicator of a bank's vulnerability to financial instability. When Islamic banks face the threat of fund withdrawals due to offering uncompetitive returns compared to conventional banks, DCR increases, reflecting potential liquidity issues. This can escalate the risk of insolvency, especially in highly competitive financial environments where both Islamic and conventional banks operate. According to Rosman and Rahman (2014), minimizing DCR improves investor confidence and stabilizes banking operations, particularly during economic downturns. A lower DCR signals that a bank is effectively managing customer expectations and liquidity, which contributes to greater financial resilience. Therefore, maintaining a balanced DCR is vital for Islamic banks to ensure that they are prepared for external financial shocks and market fluctuations.

Conversely, an increase in DCR poses significant risks to the financial stability of Islamic banks. As DCR rises, indicating an increase in depositor withdrawals or a disproportionate reliance on deposits, banks may face liquidity shortages, leading to a heightened risk of insolvency. This phenomenon is especially concerning when profit-motivated depositors, dissatisfied with the bank's returns, seek to transfer their funds to more rewarding investments offered by conventional banks (Aysan et al., 2018; Rouetbi et al., 2023). This shift exacerbates the bank's financial position by weakening its capital base and increasing the likelihood of bankruptcy. Study by Widarjono et al., (2022) also highlight that in times of economic stress or when banks offer lower returns, customers tend to withdraw their funds more rapidly, placing further strain on the bank's liquidity. These dynamics reflect a broader issue where an inflated DCR can lead to insufficient capital to support ongoing operations and long-term viability.

The potential for rising DCR to accelerate bankruptcy risk is particularly critical in the context of Islamic banks, where profit-sharing principles and risk-sharing mechanisms must align with Islamic law. The persistence of high DCR levels can signal that the bank is over-relying on deposit-based funding, which not only exposes it to liquidity risk but also undermines the bank's credibility in the eyes of depositors and investors. This vulnerability is further compounded in competitive environments, where depositors may transfer funds between institutions based on perceived financial performance. Thus, while a certain level of DCR may be necessary for liquidity, excessive reliance on deposit funding can undermine the stability of Islamic banks. In conclusion, effectively managing DCR is essential for Islamic banks to minimize bankruptcy risk, maintain investor confidence, and ensure their financial resilience in the face of market volatility and economic uncertainty.

The Mediating Effect of DCR on the Relationship Between Income Smoothing and Bankruptcy Risk

The path analysis indicates that DCR partially mediates the relationship between income smoothing and bankruptcy risk, as shown in Figure 2, suggesting that while DCR helps to reduce the direct impact of income smoothing on bankruptcy risk, the effect of income smoothing remains significant. Thus, the hypothesis 4 is accepted. The stronger direct effect of income smoothing on

bankruptcy risk (0.213) compared to its indirect effect through DCR (0.143) highlights that excessive income smoothing is still a critical factor in financial instability. This means that even though effective DCR management can mitigate some of the immediate risks associated with income smoothing, it cannot fully neutralize the long-term financial risks posed by aggressive earnings management practices.

Previous studies have consistently shown that income smoothing is employed by Islamic banks as a strategy to stabilize the profit-sharing returns received by customers and investors, thereby reducing the potential increase in DCR. For example, Brahim and Muhammad (2020), Khan et al., (2021), and Kurniasari et al., (2023) emphasize that income smoothing helps Islamic banks manage fluctuations in returns to maintain customer satisfaction and minimize fund withdrawals. Jallali and Zoghلامي (2022) further highlight that Islamic banks allocate approximately 0.8% of investment accounts are allocated to the profit equalization reserve to manage DCR. However, an increase in DCR places significant financial pressure on banks, potentially jeopardizing profitability and increasing the risk of insolvency (Rouetbi et al., 2023). Ismal (2012), as cited by Touri et al., (2024), notes that a sustained rise in DCR can lead to financial instability, further reinforcing the link between increased DCR and bankruptcy risk. Therefore, DCR indeed serves as a mediator in the relationship between income smoothing and bankruptcy risk, but it is not a complete safeguard.

The findings emphasize the necessity for Islamic banks to carefully balance the short-term advantages of income smoothing with the long-term requirement for transparency and prudent financial management. While income smoothing can stabilize earnings during periods of economic uncertainty, over-reliance on this practice can undermine the bank's financial sustainability by distorting financial reports and reducing transparency. In this context, DCR plays a crucial role in mitigating liquidity risks and maintaining depositor confidence. However, it is not a comprehensive solution to the challenges posed by aggressive income smoothing. Excessive reliance on income smoothing can erode the integrity of financial reporting and damage the bank's reputation.

CONCLUSION

This research aims to examine the effects of the COVID-19 pandemic on the income smoothing practices of Islamic banks in Indonesia and its influence on DCR and the potential for bankruptcy. The study yielded several key findings. First, income smoothing behaviour measured by Discretionary Loan Loss Provisions, exhibited significant differences between the pre-pandemic and pandemic periods. This indicates that the pandemic influenced how Islamic banks managed their earnings. Second, income smoothing was found to have a negative effect on DCR, meaning that increased income smoothing behavior led to a reduction in DCR. Third, DCR negatively affected the potential for bankruptcy, as measured by the Z-score. This suggests that lower DCR reduces the likelihood of bankruptcy in Islamic banks. Fourth, based on the comparison between

the direct and indirect effects of income smoothing on bankruptcy risk, it is evident that the direct impact is more pronounced. This suggests that while DCR plays a mediating role, the influence of income smoothing on financial stability remains significant on its own.

This research reveals significant implications for Islamic banking practices, regulators, and policymakers. While income smoothing is crucial in reducing DCR and mitigating bankruptcy risk by stabilizing financial performance and minimizing fund withdrawals, it also presents potential dangers when used excessively. The path analysis reveals that the direct effect of income smoothing on bankruptcy risk is stronger than its indirect effect through DCR. Signaling theory posits that organizations convey information to external stakeholders through certain actions or signals, which can be interpreted to infer the underlying quality or stability of the organization. In the context of this research on Islamic banking, income smoothing acts as a critical signal to stakeholders about a bank's financial health and stability. This research suggests that income smoothing plays a significant role in stabilizing financial performance and reducing bankruptcy risk by minimizing fund withdrawals and managing displaced commercial risk (DCR). According to signaling theory, these actions send positive signals to stakeholders—such as investors, depositors, and regulators—indicating that the bank is managing its financial performance prudently and is less likely to face financial instability or distress.

However, the research also reveals that the direct effect of income smoothing on bankruptcy risk is stronger than its indirect effect through DCR. This insight contributes to signaling theory by highlighting that while income smoothing can signal stability, the strength of this signal depends on how it is perceived and its actual impact on financial stability. Excessive income smoothing, although intended to present a stable financial outlook, can eventually send negative signals if stakeholders perceive it as a manipulation of financial results or a sign of underlying financial problems. Therefore, this research advances signaling theory by demonstrating its relationship in two ways. First, properly implemented income smoothing can effectively signal financial stability and reduce the perceived risk of bankruptcy, thereby gaining stakeholder confidence. Giving the investor a positive signal. Second, overuse or excessive reliance on income smoothing can backfire, sending negative signals that erode stakeholder trust and indicate potential financial manipulation. Therefore, signaling negatively. The study enhances the understanding of how income smoothing functions as a signal in Islamic banking and its dual role in both supporting and potentially undermining financial stability. This nuanced view of signaling enriches the theoretical framework, providing a deeper comprehension of balancing financial institutions to maintain stakeholder confidence while managing financial performance.

List of Abbreviations

1. **DCR:** Displaced Commercial Risk
Risk of fund withdrawals by depositors due to uncompetitive returns in Islamic banks.
2. **DLLP:** Discretionary Loan Loss Provisions
A measure of income smoothing that represents the discretionary component of loan loss provisions.

3. **IS:** Income Smoothing
Managerial practices aimed at stabilizing reported earnings over time.
4. **ROE:** Return on Equity
A financial ratio that measures the profitability of a bank relative to shareholders' equity.
5. **TF:** Total Financing
The total value of financing provided by Islamic banks to customers.
6. **NPF:** Non-Performing Financing
Financing provided by Islamic banks that is in default or close to being in default.
7. **BR:** Bankruptcy Risk
The risk of insolvency in Islamic banks, measured using the Altman Z-score.
8. **PSIA:** Profit-Sharing Investment Account
Investment accounts in Islamic banks that follow profit-sharing principles.
9. **DSN-MUI:** Dewan Syariah Nasional – Majelis Ulama Indonesia
Indonesia's National Sharia Council responsible for issuing fatwas related to Islamic finance.
10. **SEM:** Structural Equation Model
A statistical technique used for testing relationships between multiple variables.

Authors' Contribution

SFL developed the conceptual framework and research model, interpreted the results, refined the initial draft, and prepared the manuscript to meet submission requirements. *AL* wrote the initial draft, conducted the data collection, and performed the data analysis. Both authors reviewed and approved the final version of the manuscript.

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