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Sharia Bank Deposits and Financing: Does Economic Turbulence Matter?

Lutfi Lutfi

Universitas Hayam Wuruk Perbanas, Surabaya, East Java, Indonesia

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ABSTRACT

The decline in national economic performance as a result of COVID-19 can cause a reduction in company and community income, which will reduce the availability of third-party funds and financing channeled by Sharia banks. This research aims to examine the determinants of third-party deposits and Sharia bank financing in Indonesia using a sample of ten Sharia banks from 2017-2022 that did not carry out mergers or acquisitions. Testing was also carried out on each type of deposit and financing contract because of the potential for different behavior between types of contracts. Data were analyzed using panel data techniques, where the selected model had a fixed effect. The test results prove that there is a positive reciprocal influence between third-party deposits and Sharia bank financing. Economic turbulence has a significant negative impact on deposits, but it is not significant on financing. This turbulence significantly only reduced profit-sharing deposits but not wadiah deposits. Likewise, this economic condition only has a negative impact on financing with receivables contracts but not on profit-sharing financing. This finding implies the importance of Sharia banks in maintaining adequate availability of third-party funds to support financing growth. The Government and Bank Indonesia are important to maintain economic stability. Furthermore, the Financial Services Authority needs to increase monitoring of banks with low capital because of the potential for moral hazard.

ABSTRAK

Terpuruknya kinerja ekonomi nasional sebagai dampak dari COVID-19 dapat menyebakan berkurangnya pendapatan perusahaan dan masyarakat yang akan menurunkan ketersediaan dana pihak ketiga dan pembiayaan yang disalurkan bank syariah. Penelitian ini bertujuan untuk mengkaji penentu simpanan dana pihak ketiga dan pembiayaan bank syariah di Indonesia dengan menggunakan sampel sepuluh bank syariah sejak 2017-2022 yang tidak melakukan merger atau akuisisi. Pengujian juga dilakukan terhadap setiap jenis akad dalam simpanan dana dan pembiayaan karena adanya potensi perilaku yang berbeda antar jenis akad. Data dianalisis dengan menggunakan teknik data panel, dimana model terpilih adalah fixed effect. Hasil pengujian membuktikan bahwa terjadi pengaruh timbal balik secara positif antara simpanan dana pihak ketiga dan pembiayaan bank syariah. Turbulansi ekonomi berdampak negatif secara signifikan terhadap simpanan dana, namun dampaknya tidak signifikan terhadap pembiayaan. Turbulansi ini secara signifikan menurunkan simpanan bersifat bagi hasil, namun tidak pada simpanan wadiah. Kondisi ekonomi ini juga hanya berdampak buruk pada pembiayaan dengan akad piutang, namun tidak pada pembiayaan bagi hasil. Temuan ini mengimplikasikan pentingnya bank syariah untuk menjaga ketersediaan dana pihak ketiga untuk mendukung pertumbuhan pembiayaan. Pemerintah dan Bank Indonesia penting untuk menjaga stabiitas ekonomi. Selanjutnya, Otoritas Jasa Keuangan perlu untuk meningkatkan pemantauan terhadap bank dengan permodalan yang rendah karena adanya potensi moral hazard.

* *Corresponding author, email address: lutfi@perbanas.ac.id*

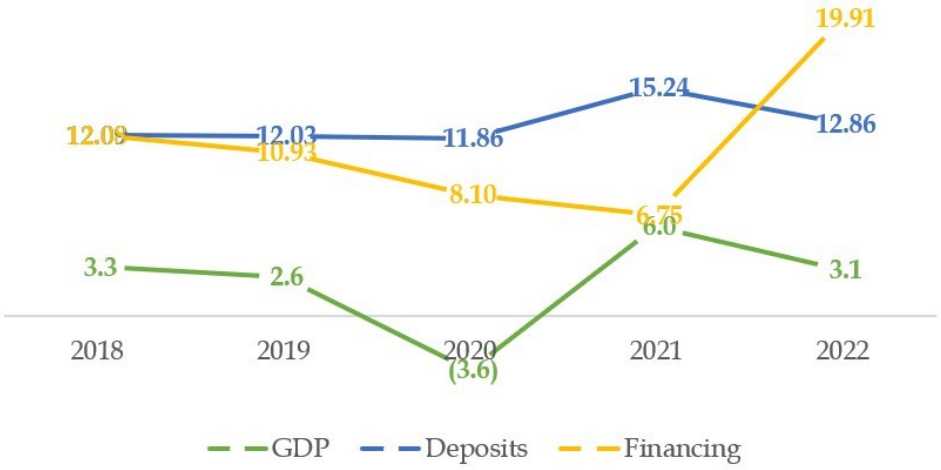
1. INTRODUCTION

The COVID-19 pandemic hitting many countries had a negative impact on the world economy. The World Bank (2020) reported that world economic activity contracted up to 90 percent. The Indonesian economy also experienced a huge contraction during the COVID-19 period. Gross Domestic Product (GDP) growth was -5.32 percent in the second quarter of 2020. Bank Indonesia (2021) revealed that this outbreak caused a shock to the Indonesian economy, reduced business activity, and increased the unemployment rate, especially in the second semester of 2020. Financial Services Authority (2020) also reported that national banking profitability decreased drastically from 2.47 percent in 2019 to 1.59 percent in 2020.

This decline in economic activity can affect the financing and third-party funding of Sharia banks. Figure 1 shows that fundraising activities and financing distribution continued to grow positively during economic turbulence. This picture also shows that although the accumulation of funds and distribution of financing continued to increase, growth slowed down. Sharia bank financing experienced a growth decline for two consecutive years, namely in 2020 and 2021. Data from the Financial Services Authority (2022) also revealed that during the 2020 economic turbulence, the type of financing that experienced the most significant growth decline was profit-sharing financing, while in terms of third-party deposits, funds of the *wadiah* contract experienced a very drastic growth increase, from 20.99 percent in 2019 to 37.38 percent in 2020.

Besides influencing each other, financing and third-party deposits are also affected by internal bank factors, namely bank liquidity, size, financing risk, capital, and profitability. Third-party fund deposits are the main source of bank financing, so the greater the third-party funds available, the greater the financing the bank can channel (Bakti, 2017; Ibrahim & Rizvi, 2018). On the other hand, the greater the financing the bank distributes, the higher the third-party funds need (Dursun-de Neef & Schandlbauer, 2021; Ibrahim & Rizvi, 2018).

Liquidity, capital, and asset size are important factors for bank business. When liquidity reflects the bank's soundness level, banks with greater liquidity can better collect public funds (Finger & Hesse, 2009). However, when a bank has too high liquidity, meaning there are too many less productive assets, the bank will reduce fund collection (Ibrahim & Rizvi, 2018; Ünvan & Yakubu, 2020) and increase financing distribution (Dursun-de Neef & Schandlbauer, 2022; Sarath & Pham, 2015). Meanwhile, capital is a substitute for third-party funds, so the greater the capital, the smaller the need for third-party funds (Ibrahim & Rizvi, 2018; Ünvan & Yakubu, 2020). Furthermore, large capital provides greater opportunities for banks to channel financing (Dursun-de Neef & Schandlbauer, 2021, 2022; Çolak & Öztekin, 2021). However, based on moral hazard theory, banks with low capital can channel more high-risk financing (Ibrahim & Rizvi, 2018). Large banks generally have wider access to funding and more diverse types of technology-based funding products so that they can attract more deposits (Finger & Hesse, 2009; He et al., 2022; Romānova & Kudinska, 2016; Ünvan & Yakubu, 2020). However, small banks with limited funding sources will channel more financing to be able to improve their profit performance (Ibrahim & Rizvi, 2018).



Sources: Financial Service Authority (2022)

Figure 1. The Growth of GDP, Deposits, & Financing of Sharia Banks

Lastly, the bank's ability to maintain financing quality is also important. Problematic financing indicates that the bank is unhealthy (Ghenimi et al., 2017), limiting its ability to collect public funds (Dursun-de Neef & Schandlbauer, 2022; Ibrahim & Rizvi, 2018). The already high financing risk will also encourage banks to limit further financing distribution so that financing problems do not worsen (Ibrahim & Rizvi, 2018; Sarath & Pham, 2015). Furthermore, high bank profitability can attract more fund owners to place their funds in the bank, hoping the profit sharing received will also be high (Finger & Hesse, 2009; Ibrahim & Rizvi, 2018). High profitability can also mean banks have large internal funds, requiring fewer third-party funds (Dursun-de Neef & Schandlbauer, 2022). Furthermore, demands for high profitability can encourage banks to take greater risks by channeling more financing (Dursun-de Neef & Schandlbauer, 2021; Ibrahim & Rizvi, 2018; Çolak & Öztekin, 2021). However, banks with low profitability in one period will be triggered to improve their profit performance in the next period by distributing more financing, which offers greater profits, even though the risks are also high (Dursun-de Neef & Schandlbauer, 2022).

This research examines the driving factors for changes in financing and deposits during the COVID-19 outbreak. This research contributes in three primary ways. First, previous research shows inconsistent results regarding the determinants of third-party deposits and bank financing, so it needs to be studied further to provide a deeper understanding. Second, there has been no research in Indonesia that jointly examines the determinants of bank financing and deposits during economic turbulence. Meanwhile, there are two studies abroad that examine bank financing and deposit funds together, namely Dursun-de Neef & Schandlbauer (2022) using a sample of conventional banks in America and Ibrahim & Rizvi (2018) which used a sample of conventional banks and Sharia banks. Finally, existing research generally examines bank financing or total Sharia bank deposits (Affandi et al., 2021; Bakti, 2017; Dursun-de Neef & Schandlbauer, 2021; Ibrahim, 2016; Ibrahim & Rizvi, 2018; Sarath & Pham, 2015; Ünvan & Yakubu, 2020; Vo, 2018; Çolak & Öztekin, 2021), or one of the contracts in Sharia bank financing or funding (Afkar, 2017; Juliana & Mulazid, 2017; Muhammad & Nugraheni, 2021; Setiawan, 2020). Apart from examining the determinants of financing and deposits of third-party funds, this research also examines these two variables based on the type of contract. From the financing side, studies were carried out on total financing, trade financing *(murabaha)*, and profit-sharing financing (*mudharabah* financing and *musyarakah* financing). Meanwhile, third-party fund deposits include total third-party funds *wadiah* deposits and investment *(mudharabah)* deposits. Therefore, the research is expected to be able to close research gaps that previous researchers have overlooked.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

2.1. Business Cycle Theory

The business cycle shows a recurring pattern of ups and downs in economic performance (Bodie et al., 2021). The business cycle generally includes four stages: expansion, peak, contraction, and trough (Sloman et al., 2023). Expansion is when output continues to increase and is above the long-term trend. This growth continues until it reaches its peak. After the peak phase, economic output continues to decline until it returns to the long-term output level, called the contraction phase. This contraction phase is followed by a deeper economic decline known as a recession, which occurs until it reaches its lowest point. Economic output continues to increase after reaching its lowest point until it reaches its long-term trend again, known as economic recovery. After this phase ends, the economy will return to the expansion phase.

The business cycle is often measured using gross domestic product (GDP) growth, which indicates a country's economic performance (Gambetti & Musso, 2017). The economy can grow quickly in certain years, but economic growth slows down in other years. In other words, the economy does not always grow consistently but experiences variations over time (Sloman et al., 2023). This business cycle reflects short-term economic fluctuations. However, long-term trends show steady economic growth. The influence of the business cycle on company performance differs depending on the industry. The consumer goods industry, which provides basic necessities (non-cyclical consumer goods), is not much affected by the business cycle. On the other hand, the business cycle greatly affects the secondary goods industry (cyclical goods), basic industry, capital goods, and finance (Bodie et al., 2021).

2.2. Economic Turbulences and Bank Activities

Generally, when the business cycle experiences contraction and recession or economic growth slows or is negative, the company's profitability will decrease (Bandyopadhyay & Barua, 2016). The business cycle is also related to the unemployment rate. Namely, when economic growth is negative, the unemployment rate

will be high (Foote & Ryan, 2015). The business cycle, reflected in worsening economic growth, impacts third-party deposits and bank financing.

Bank Indonesia (2021) revealed that the COVID-19 pandemic caused turbulence in the Indonesian economy, especially in Semester II of 2020, where the growth of Gross Domestic Income (GDP) experienced a contraction of up to -5.32 percent. This turbulence impacts decreasing company performance (Hu & Zhang, 2021; Shen et al., 2020) and high unemployment (Barbieri Góes & Gallo, 2021; Gezici & Ozay, 2020). This reduces third-party funds available for deposits (Li et al., 2020). However, an economic crisis can encourage households to reduce spending and increase bank savings (Dursun-de Neef & Schandlbauer, 2022). Furthermore, declining company performance and reduced household income during an economic crisis can cause banks to limit new loans. On the other hand, banks will also tighten or even delay providing new financing to avoid increasing the potential for problematic financing. Therefore, the economic turbulence caused by the COVID-19 outbreak will reduce demand for productive and consumptive financing (Ibrahim & Rizvi, 2018; Sarath & Pham, 2015; Çolak & Öztekin, 2021). At the same time, government-owned banks may function as development agents by continuing to distribute financing during economic crises to maintain financial stability (Bertay et al., 2015). Thus, the first two hypotheses are proposed as follows:
H_1: Economic turbulence negatively affects banks' third-party deposits.
H_2: Economic turbulence negatively affects Sharia banks' financing.

2.3. Bank Intermediation, Deposits, and Financing

Banks carry out their intermediation function by collecting funds from third parties through current accounts, savings, and time deposits and then channeling them back to them through financing (Werner, 2016). This intermediation theory implies that banks will always balance the amount of savings funds collected and the financing distributed (Bianco & Sardoni, 2018). It also aligns with data from the Financial Services Authority (2022), which reveals that Sharia banks maintain a financing-to-deposit ratio of 70-80 percent. This intermediation theory view aligns with the findings of Dursun-de Neef & Schandlbauer (2022), which proved the reciprocal influence between deposits and bank financing. The greater the third-party funds collected, the more financing is distributed by the bank (Aysan et al., 2018; Dursun-de Neef & Schandlbauer, 2022; Ibrahim, 2016; Ibrahim & Rizvi, 2018). Likewise, when banks distribute more financing, more third-party funds must be collected by banks (Finger & Hesse, 2009; Ibrahim & Rizvi, 2018; Ünvan & Yakubu, 2020; Yakubu & Abokor, 2020). The following are the third and fourth hypotheses:
H_3: Financing positively affects Sharia banks' third-party deposits.
H_4: Third-party deposits positively affect Sharia banks' financing.

2.4. Bank-Specific Determinants of Deposits and Financing

High liquidity reflects a healthier bank, making it easier for banks to attract more deposits. Depositors feel safer if their funds are placed in a bank with a high level of liquidity because they are not worried about bank failure. On one hand, as an impact, the higher the liquidity, the greater the third-party deposits collected by the bank (Finger & Hesse, 2009). On the other hand, too high liquid assets can also reflect that the bank has too many funds in less productive assets, such as placements in Bank Indonesia Certificates and Government Securities. This excess liquidity causes banks to reduce the collection of third-party funds. In other words, liquidity has a negative effect on deposit funds (Ibrahim & Rizvi, 2018; Ünvan & Yakubu, 2020). This excess liquidity also encourages banks to channel it into more productive assets, such as financing. Thus, the higher the liquidity, the greater the bank's financing will be distributed in the following period (Dursun-de Neef & Schandlbauer, 2022; Sarath & Pham, 2015). In sum, the two subsequent hypotheses are as follows:
H_5: Liquidity negatively affects Sharia banks' third-party deposits.
H_6: Liquidity positively affects Sharia banks' financing.

Banks depend on two sources of funds to finance their activities: internal sources of funds (equity) and third-party funds. Thus, equity substitutes third-party funds (Fu et al., 2016; Le, 2019). When a bank has large equity, the need for third-party funding becomes smaller. In other words, the higher the capital ratio, the lower the third-party funds ratio (Ibrahim & Rizvi, 2018; Ünvan & Yakubu, 2020). Apart from supporting growth, bank capital is also used to absorb risk. As an intermediary institution, the main risk banks face is financing risk (Lutfi et al., 2020). The greater the capital a bank has, the greater the potential for financing (Dursun-de Neef & Schandlbauer, 2021, 2022; Çolak & Öztekin, 2021). However, bank capital can also have a

negative impact on financing. Based on moral hazard theory, banks with small capital, especially those whose ratio is close to the minimum limit, will likely take more risks by channeling more financing (Schwert, 2018; Zhang et al., 2016). When the financing is successful, the bank will enjoy profits, which can be used to increase the company's capital. However, when the financing fails, causing the bank to go bankrupt, the losses borne by the bank are relatively small. That is, the value is only a maximum of its capital. Thus, banks with small capital tend to have larger financing ratios (Ibrahim & Rizvi, 2018). Therefore, the proposed seventh and eighth hypotheses are:
H_7: Capital negatively affects Sharia banks' third-party deposits.
H_8: Capital affects Sharia banks' financing.

Bank size shows the size of the assets owned by the bank, which also reflects the scale of its business. Large banks can attract more deposits because they have economies of scale and wider networks (Finger & Hesse, 2009; Ünvan & Yakubu, 2020). Large banks also generally invest more heavily in technology required for competition in the digital era (He et al., 2022; Romānova & Kudinska, 2016). As a result, large banks also provide more technology-based services required by depositors, increasing the savings funds collected (Stulz, 2019). However, small banks may require more third-party funds to support credit distribution. This is because small banks have limited internal sources of funds, both from profits and owner capital contributions. Therefore, the smaller the size of a bank, the greater the third-party funds required (Ibrahim & Rizvi, 2018). Based on too big to fail theory, large banks receive more protection from the state when they fail because if they are allowed to go bankrupt, the impact on the economy and financial system will be (Dávila & Walther, 2020; Laeven et al., 2016). This condition encourages large banks to take more risks by distributing financing rather than placing it in low-risk assets such as government bonds or *sukuk*. Thus, the size of bank assets positively affects the financing ratio (Çolak & Öztekin, 2021). However, the size of bank assets can also have a negative impact on financing. Small banks must channel more of their funds into financing to generate greater profits. This is mainly because small banks do not have sufficient sources to carry out non-traditional banking activities, such as fee-based income (Atellu, 2016). Thus, the smaller the bank size, the greater the financing ratio (Dursun-de Neef & Schandlbauer, 2022). The following are the proposed hypotheses:
H_9: Bank size affects Sharia banks' third-party deposits.
H_{10}: Bank size affects Sharia banks' financing.

Financing is the largest asset of a bank, namely around 75 percent. Therefore, the magnitude of financing risks, as measured using nonperforming financing, greatly determines the level of bank soundness (Ghenimi et al., 2017). High financing risk signals that the bank is unhealthy. This condition causes depositors to be reluctant to place their funds in the bank because of concerns about the bank's failure to return their funds. Thus, the greater the financing risk, the smaller the deposit funds the bank can collect (Dursun-de Neef & Schandlbauer, 2022; Ibrahim & Rizvi, 2018). The large amount of problematic financing in one period will cause banks to channel financing more carefully in the following period. It is done so that the level of nonperforming financing does not increase and ensures that it does not exceed the maximum limit set by the banking regulator. Therefore, the higher the nonperforming financing, the smaller the bank financing ratio will be in the following period (Dursun-de Neef & Schandlbauer, 2022; Ibrahim & Rizvi, 2018). The hypotheses below follow the above argumentation:
H_{11}: Financing risk negatively affects Sharia banks' third-party deposits.
H_{12}: Financing risk negatively affects Sharia banks' financing.

Profitability is an indicator of bank soundness. High profitability makes it easier for banks to attract more third-party funds (Finger & Hesse, 2009). In Sharia banking, high profitability also allows for greater profit sharing to fund owners (Ibrahim & Rizvi, 2018). However, profitability can also reduce the need for external funds. Profit is a source of internal bank capital and is a substitute for external funds from third parties. The higher the profit, the greater the bank's capital and, subsequently, the smaller the need for third-party funds to support bank activities (Dursun-de Neef & Schandlbauer, 2022). Furthermore, when a bank wants greater profits, the bank must also be willing to accept higher risks (Lutfi et al., 2020). This can be achieved when banks place more funds in financing with high risk but also provide the potential for high returns. Therefore, the higher the expected profitability, the greater the bank's financing ratio (Dursun-de

Neef & Schandlbauer, 2021; Ibrahim & Rizvi, 2018; Çolak & Öztekin, 2021). On the other hand, low profitability in one period can also encourage banks to carry out more financing in the following period to improve their performance (Dursun-de Neef & Schandlbauer, 2022). Thus, the last two hypotheses are:
H_{13}: Profitability affects Sharia banks' third-party deposits.
H_{14}: Profitability affects Sharia banks' financing.

3. RESEARCH METHOD

This research uses a sample of Sharia banks in Indonesia during the 2017-2022 period that did not carry out mergers or acquisitions. Ten Sharia banks meet these criteria. We use quarterly data to capture the dynamic developments of Sharia bank deposits and financing. Each dependent variable becomes the independent variable for the other dependent variable models. Namely, financing becomes the independent variable for the Sharia bank deposit model, and third-party deposit becomes the independent variable for the Sharia bank financing model. Meanwhile, independent variables include economic turbulence, liquidity, capital, asset size, financing risk, and bank profitability. Research variables and their definitions and measurements are presented in Table 1.

This study uses quarterly lags for all independent variables besides savings and financing. This is because the two decisions regarding these two variables are made simultaneously when the bank prepares its business plan (Yu et al., 2021). Bank-specific variable data consisting of deposits, financing, liquidity, capital, bank size, financing risk, and profitability are taken from bank-published reports from the Indonesia

Table 1. Research variables and the measurements

Variable	Definition	Measurement	Sources
Deposits (DEPTA)	Deposits are the ratio of total bank deposits (*wadiah* deposits and investment deposits) to total assets	$DEPTA = \frac{Total\ deposits}{Total\ Asset} x100$	Dursun-de Neef & Schandlbauer (2022), Ibrahim & Rizvi (2018)
Financing (FINTA)	Financing is the ratio of total bank financing (trade financing, investment financing, *qardh*) to total assets	$FINTA = \frac{Total\ Financing}{Total\ Assets} x100$	Dursun-de Neef & Schandlbauer (2022), Ibrahim & Rizvi (2018)
Economic Turbulence (CRISIS)	Economic Turbulence is reflected by fluctuation in the quarterly growth rate of Gross Domestic Product (GDP).	Dummy variable. It is equal to 1 when the quarter growth rate < the average growth rate of 24 quarters; otherwise, 0.	Yakubu & Abokor (2020), Çolak & Öztekin (2021)
Liquidity (LQTA)	Liquidity is the ratio of total liquid assets (cash, placements with central banks, securities measured at fair value and available for sale) to total assets.	$LQTA = \frac{Total\ Liquid\ Assets}{Total\ Assets} x100$	Lutfi et al. (2020), Spiegel (2022)
Bank Size (SIZE)	Bank size is measured using the natural logarithm of the bank's total assets	$SIZE = Ln(Total\ Assets)$	Dursun-de Neef & Schandlbauer (2022), Ibrahim & Rizvi (2018)
Capital (CAR)	Capital is measured using capital adequacy ratio, i.e., total bank equity (Tier 1 and Tier 2 equity) to risk-weighted assets (RWA)	$CAR = \frac{Total\ Equity}{Total\ Risk\ Weighted\ Assets} x100$	Dursun-de Neef & Schandlbauer (2022), Çolak & Öztekin (2021)
Financing Risk (NPF)	Financing risk is measured using nonperforming loans (NPF). It is the ratio of substandard, doubtful, and bad financing to total financing	$NPF = \frac{Problematic\ Financing}{Total\ Financing} x100$	Ibrahim & Rizvi (2018)
Profitability (NM)	It is measured using net margin (NM), i.e., the ratio of income from fund distribution after profit sharing to total earnings assets	$NM = \frac{Income\ after\ profit\ sharing}{Total\ Earnings\ Assets} x100$	Hidayat et al., (2021)

Financial Services Authority website (www.ojk.go.id), while domestic product data gross to measure economic turbulence from the National Statistics Agency (www.bps.g.id). This research removes outlier data, data for each outside the average value ± 3 standard deviations, to avoid undue influence from the data (Hair et al., 2019). This research uses the panel data analysis technique because it is considered more appropriate for overcoming problems of heteroscedasticity and multicollinearity, which are often found in financial ratio data that link one item to another in financial reports (Gujarati, 2021). There are three techniques in panel data analysis: common effect, fixed effect, and random effect. The selection of the best model between common effect and fixed effect is based on the Chow test, between common effect and random effect is based on the Lagrange Multiplier test, and between fixed effect and random effect is based on the Hausman test. Equations (1) and (2), respectively, present models for third-party fund deposits (DEPTA) and Sharia financing (FINTA).

$$DEPTA_{it} = \beta_0 + \beta_1 FINTA_{i,t} + \beta_2 CRISIS_{i,t-1} + \beta_3 LQTA_{i,t-1} + \beta_4 SIZE_{i,t-1} + \beta_5 CAR_{i,t-1} + \beta_6 NPF_{i,t-1} + \beta_5 NR_{i,t-1} + \varepsilon \quad (1)$$

$$FINTA_{it} = \beta_0 + \beta_1 DEPTA_{i,t} + \beta_2 CRISIS_{i,t-1} + \beta_3 LQTA_{i,t-1} + \beta_4 SIZE_{i,t-1} + \beta_5 CAR_{i,t-1} + \beta_6 NPF_{i,t-1} + \beta_5 NR_{i,t-1} + \varepsilon \quad (2)$$

4. DATA ANALYSIS AND DISCUSSION

4.1. Descriptive Statistics

Table 2 presents descriptive statistics of the research variables. This table shows that, on average, Sharia banks depend around 75 percent of their investment assets on third-party deposits (DEPTA). Meanwhile, the funds channeled in financing (FINTA) are around 63 percent. It reflects that around 12 percent of third-party funds were channeled into less productive assets, as reflected in the liquid assets ratio (LQTA). The economic turbulence, namely below-average economic growth, occurred from the 1st quarter of 2020 to the 1st quarter of 2021. All Sharia banks of this study are classified as small banks, with average assets of IDR 9.8 trillion. Based on their core capital, not a single bank has a core capital of at least IDR 6 trillion, according to Financial Services Authority Regulation No. 12/POJK.03/2021. Sharia banks' capital adequacy ratio (CAR) is relatively high, namely around 25 percent. This figure is over twice the minimum capital of 8 percent plus the maximum countercyclical buffer that applies to all banks of 2.5 percent (10.5 percent). This condition indicates that bank capital has not been optimally utilized to support Sharia bank financing. The financing risk of Sharia banks is generally quite low, although some have financing risks far exceeding the financial services authority's requirement of 5 percent. Based on their financing structure, Sharia banks in Indonesia distribute relatively balanced financing based on receivables (trade financing, TFTA) and profit-sharing-based financing (investment financing, INVTA). Furthermore, most third-party funding sources come from investment deposits using profit-sharing agreements (INVDTA). It implies that Sharia banks in Indonesia depend on third-party funding sources with relatively expensive funding costs.

4.2. Model Selection

Before testing the hypothesis, the best model is first selected to serve as the basis for subsequent analysis. Table 3 shows the test results for model selection using the Lagrange multiplier, Chow, and Hausman tests. The results show that the selected model has a fixed effect on the deposit and financing models. Therefore, the next discussion is based on the results of the fixed model.

4.3. Bank Deposits

Table 4 presents the test results on Sharia bank deposits. Economic turbulence (CRISIS) significantly negatively impacts banks' ability to raise third-party funds. This finding aligns with business cycle theory, which states that when economic growth decreases and is negative, company profitability will also decrease, especially in the cyclical consumer goods, basic industry, capital goods, and finance sectors (Bodie et al., 2021). When economic turbulence occurs, households postpone secondary consumption goods (such as cars and electronic goods). Likewise, demand for basic industrial output (such as chemicals and metals) and capital goods (such as machinery and heavy equipment) has also decreased because many companies have reduced or even stopped their business activities (Hu & Zhang, 2021).

Table 2. Descriptive statistics of research variables

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
DEPTA (%)	74.28	75.57	88.51	39.83	8.71
FINTA (%)	62.65	62.70	86.23	23.66	10.75
CRISIS	0.22	0.00	1.00	0.00	0.42
ASSET (million)	15,628,651	9,767,493	61,696,920	1,353,344	12,188,092
LQTA (%)	12.48	11.56	31.44	0.30	6.62
CAR (%)	25.40	22.93	58.10	10.16	10.06
NPF (%)	3.21	2.40	12.52	0.07	1.34
NM (%)	6.79	4.41	17.18	0.02	1.36
TFTA (%)	30.37	25.60	71.27	0.36	19.33
INVFTA (%)	31.44	32.06	74.27	0.00	20.76
WADTA (%)	7.75	7.22	23.91	0.62	4.82
INVDTA (%)	66.53	69.07	86.65	32.21	10.50

Sources: Eviews output, processed (2023)

Note:DEPTA: Deposit to total assets, FINTA: Financing to total assets, LQTA: Liquid assets to total assets, CAR: Capital adequacy ratio, NPF: Nonperforming financing, NM: Net margin, TFTA: Trade financing to total assets, INVTA: investment financing to total assets, WADTA: Wadiah financing to total asset, INVDTA: Investment deposits to total assets.

Table 3. Results of model selection

Test Type	Deposit Model			Financing Model		
	Statistics	Probability	Decision	Statistics	Statistics	Decision
Langrange Multiplier test						
Breusch-Pagan	81.4945	0.0000	Random	408.2523	0.0000	Random
Chow test						
Cross-section F	8.8424	0.0000	Fixed	22.5291	0.0000	Fixed
Hausman test						
Cross-section random	15.8865	0.0351	Fixed	19.5024	0.0182	Fixed

Sources: Eviews output, processed (2023)

The next impact of reducing or closing a business is a reduction in the number of working hours or even a reduction in employees (Barbieri Góes & Gallo, 2021). This condition will reduce the income of companies and households, which will further reduce the supply of funds to the Sharia banking sector. This study's results align with Li et al. (2020), who revealed that economic turbulence had a negative impact on bank deposits.

Financing distributed by Sharia banks has a significant positive impact on third-party funds of Sharia banks. This condition is very rational in the banking industry, which relies on third-party funds for financing. Data from the Financial Service Authority (2022) revealed that around 75 percent of third-party funds from Sharia banks are channeled into financing. This finding is under bank intermediation theory, which states that when carrying out the intermediation function, banks must channel most or almost all of the funds from third parties back to them for financing (Bianco & Sardoni, 2018; Werner, 2016). In addition, banks need to channel most third-party funds into financing to produce returns significantly greater than the cost of funding sources so that profits increase (Azad et al., 2023). These results also support previous research findings,

Table 4. Results of bank deposits

Variable	Coefficient	t-Statistics	Probability	Decision
FINTA	0.1339	2.4499	0.0152	Significant
CRISIS(-1)	-4.3989	-4.3568	0.0000	Significant
LQTA(-1)	0.3749	3.8968	0.0001	Significant
CAR(-1)	-0.2346	-2.8086	0.0055	Significant
SIZE(-1)	-0.1262	-0.0529	0.9578	Not Significant
NPF(-1)	0.2632	0.9585	0.3390	Not Significant
NM(-1)	0.0852	0.2609	0.7944	Not Significant
F-statistic	19.6710			
Prob. (F-statistic)	0.0000			
R-squared	0.6150			

Sources: Eviews output, processed (2023)

which have proved that financing distributed by banks is the main factor driving the amount of third-party funds that need to be collected (Finger & Hesse, 2009; Ibrahim & Rizvi, 2018; Ünvan & Yakubu, 2020; Yakubu & Abokor, 2020).

Bank liquidity, measured based on cash, placements with the central bank, and securities traded or available for sale, has a significantly positive impact on third-party funds of Sharia banks. Liquidity is an indicator of the soundness level of a bank, so when the ratio is high, companies and households believe that the bank is healthy and are willing to deposit more funds in the bank (Finger & Hesse, 2009). This finding contradicts Dursun-de Neef & Schandlbauer (2022), who stated that banks with high liquidity will reduce the collection of third-party funds because there are large amounts of idle funds. The different results from the current research are likely due to Indonesia's relatively low liquidity of Sharia banks. Table 2 shows that Sharia banks' liquidity assets are only around 12 percent of total assets, so there is little room for banks to channel these funds into financing. Banks must maintain their liquidity with a minimum statutory reserve of 9 percent (Bank Indonesia, 2022). With a liquid asset ratio slightly exceeding the minimum statutory reserves, Sharia banks will face compliance risks when increasing their financing. In addition, third parties may view a bank with a low liquidity ratio as a bank experiencing funding difficulties, so the bank has difficulty attracting third-party funds.

Bank capital, which is measured using the capital adequacy ratio, has a negative impact on raising third-party funds. Capital is a substitute for party funds (Le, 2019). It especially applies to Sharia banks, the research sample where none of the banks issue bonds as a source of funds. Table 2 shows that the average capital ratio of Sharia banks in Indonesia is relatively high, at around 25 percent. This negative influence of capital on third-party funds implies that banks reduce the collection of third-party funds when the capital adequacy ratio is high and use this excess capital to channel it into more productive assets, especially Sharia financing, which offers greater returns, thereby increasing bank profits. This finding aligns with previous research, proving that the higher the capital ratio, the lower the third-party funds ratio (Ibrahim & Rizvi, 2018; Ünvan & Yakubu, 2020).

The results of this study did not find significant evidence of the influence of bank size on third-party funds of Sharia banks. All Sharia banks in Indonesia, apart from Bank Syariah Indonesia, which was not part of the sample for this study because it was the result of a merger, are classified as small banks with average assets of less than IDR 16 trillion (Table 2) and core capital of less than IDR 6 trillion (Financial Service Authority, 2022). As small banks, their ability to raise funds is also relatively limited. Bank Muamalat as the bank with the largest assets, i.e., IDR 61.7 trillion in 2022, is currently experiencing financial performance problems, which are reflected in the low return on assets, i.e., less than 0.1 percent, over the last five years (Muamalat, 2022). So, even though large banks should be able to attract more funds because of poor financial performance, third parties are reluctant to place their funds in these banks. Nonperforming financing, calculated based on nonperforming financing, and profitability, based on net margins, also do not significantly impact third-party deposits. This finding contradicts previous research results, which stated that high levels of problematic financing and low bank profits, which reflect poor bank health, will make it difficult for banks to raise third-party funds (Dursun-de Neef & Schandlbauer, 2022; Ibrahim & Rizvi, 2018). The type of contract in Sharia banking could cause this difference in results. Depositors based on profit-loss sharing agreements (investment deposits) can be willing to place their funds in Sharia banks with high financing risks, provided that the profits offered are also high. However, for depositors with *wadiah* contracts, where the bank receiving the funds is not obliged to provide compensation, the bank's health aspect is important to maintain the security of the deposited funds.

Furthermore, to capture differences in the impact of economic turbulence on Sharia banks' third-party fund deposits, the test is separated between *wadiah* deposits and profit-loss sharing (investment) deposits. Table 5 shows that the economic crisis only significantly negatively impacted investment deposits. Depositors of investment contract types anticipate the negative impact of the economic turbulence caused by COVID-19 on the performance of Sharia banks by withdrawing some of their funds (Ari et al., 2021). It happens because when a bank's financial performance worsens, the value of profit sharing received by depositors decreases, and there is even the possibility of bearing losses. This table also shows the negative influence of problematic financing and the positive influence of capital and profitability on third-party funds for *wadiah* contracts. This type of contract is the safekeeping of funds in nature, and there is no obligation for Sharia banks to distribute profit sharing to *wadiah* depositors. Consequently, *wadiah* depositors will entrust their funds to healthy banks with strong capital and high profits. *Wadiah* depositors also avoid entrusting their

Table 5. Decomposing of bank deposits

Variable	*Wadiah* Deposit		Investment Deposit	
	Coefficient	Probability	Coefficient	Probability
FINTA	0.0089	0.6834	0.1636	0.0044
CRISIS(-1)	0.3413	0.4050	-4.6900	0.0000
LQTA(-1)	-0.0131	0.7357	0.3776	0.0003
CAR(-1)	0.0836	0.0131	-0.3794	0.0000
SIZE(-1)	1.4017	0.1396	0.6956	0.7773
NPF(-1)	-0.2382	0.0298	0.2844	0.3157
NM(-1)	0.5082	0.0002	-0.4234	0.2196
F-statistic	0.6834		30.8544	
Prob. (F-statistic)	0.4050		0.0000	
R-squared	0.7895		0.7137	

Sources: Eviews output, processed (2023)

funds to banks with high financing problems. Table 5 also reveals that the model's ability to explain deposit behavior, based on the coefficient of determination (R-square), is better when separated by contract. The explanatory power for total deposits is only 61.50 percent, while for *wadiah* deposits and investment deposits, it is 78.95 and 71.37 percent, respectively.

4.4. Bank Financing

Table 6 presents test results for Sharia bank financing in Indonesia. This table reveals that economic turbulence (CRISIS) significantly reduces the distribution of Sharia bank financing. Economic turbulence does not reduce the commitment of Sharia banks to provide financing to companies or individuals experiencing difficulties due to economic pressure. These findings imply that Sharia banks in Indonesia have implemented *maqasid* al-Shariah and that Sharia banks must provide benefits to society and the state (Ishak, 2019; Nugroho et al., 2020). When companies and individuals are experiencing economic difficulties, Sharia banks must help them recover by continuing to distribute financing to those who need it. However, the insignificant impact of the crisis on financing may depend on the type of contract. In receivables-based financing *(murabaha)*, the transaction requires a certain margin from the cost price (cost-plus basis). When economic performance worsens, which has a negative impact on company performance and individual income, the borrower will still bear the margin. As a result, companies and individuals tend to avoid financing with this *murabaha* contract. It differs from the concept of profit-loss sharing financing *(musharaka, mudaraba)*, where Sharia banks provide funds for borrowers *(mudharib)* and partners for these borrowers in developing their businesses. This condition could cause demand for profit-loss sharing-based financing to be unaffected by economic turbulence.

The test results prove that the availability of third-party funds (DEPTA) has a significant positive impact on Sharia bank financing. It implies the existence of a reciprocal influence between third-party deposits and bank financing. This finding is in line with intermediation theory, which states that banks function to collect funds from third parties and channel them back in the form of financing (Bianco & Sardoni, 2018). Therefore, the greater the third-party funds the bank collects, the more financing the bank will distribute (Aysan et al., 2018; Dursun-de Neef & Schandlbauer, 2022; Ibrahim & Rizvi, 2018).

Table 6. Results of bank financing

Variable	Coefficient	t-Statistics	Probability	Decision
DEPTA	0.2207	2.4499	0.0152	Significant
CRISIS(-1)	-0.0555	-0.0409	0.9674	Not Significant
LQTA(-1)	0.2267	1.7825	0.0762	Significant
CAR(-1)	-0.5460	-5.3400	0.0000	Significant
SIZE(-1)	-14.7145	-5.1175	0.0000	Significant
NPF(-1)	-0.3636	-1.0315	0.3036	Not Significant
NM(-1)	-0.9217	-2.2250	0.0272	Significant
F-statistic	16.8090			
Prob. (F-statistic)	0.0000			
R-squared	0.5772			

Sources: Eviews output, processed (2023)

Bank liquidity has been proven to affect Sharia bank financing positively. The greater the liquid assets of a Sharia bank in the form of cash, Bank Indonesia Syariah Certificates, and Sharia Government Securities that are traded or available for sale in one period, the greater the potential for funds to be channeled into financing in the following period. Investment in securities issued by the central bank or government is safe (free of default), but this investment also provides low returns. Table 2 shows that although the average liquid assets of Sharia banks are relatively low, namely around 12 percent, there are banks with liquid asset ratios exceeding 30 percent. To further optimize available funds to increase profitability, Sharia bank management needs to place these less productive funds into Sharia financing, which provides greater profit sharing even though this increases the risk of default. Thus, the higher the liquid asset ratio in one period, the greater the Sharia financing distributed by the bank in the following period (Dursun-de Neef & Schandlbauer, 2022; Sarath & Pham, 2015).

Bank capital absorbs risk and supports bank growth, such as financing expansion (Dávila & Walther, 2020; Çolak & Öztekin, 2021). In this context, bank capital should positively impact Sharia bank financing. However, the test results prove that bank capital ratios have a negative impact on Sharia bank financing. This finding supports the moral hazard theory, which states that banks with small capital, especially those approaching the minimum adequacy ratio, are more willing to take risks by channeling more financing (Ibrahim & Rizvi, 2018; Schwert, 2018; Zhang et al., 2016). Descriptive data shows that although the average capital adequacy ratio of Sharia banks is relatively high, namely around 25 percent, there are banks with a ratio of around 10 percent. This ratio exceeds the minimum capital requirement of 8 percent but is insufficient to cover the additional countercyclical buffer capital requirement of 2.5 percent.

The size of the bank is proven to have a significant negative impact on the financing ratio. It indicates that small Sharia banks are more expansive in distributing financing. Small banks generally have limited resources, both from their capital and third-party funds, so to generate large profits and compete with other banks, they need to increase financing, which provides the potential for more profits even though the risk is high (Atellu, 2016). This finding supports Dursun-de Neef & Schandlbauer (2022), which suggested that the smaller the bank size, the greater the financing ratio.

Bank profitability has also been proven to have a significant negative impact on Sharia bank financing. This research uses the lag of profitability. Thus, this negative influence on profitability indicates that Sharia banks with poor profit performance in one period will be more motivated to increase profits in the next period (Dursun-de Neef & Schandlbauer, 2022). Sharia bank management may face the risk of firing if they cannot increase the bank's profitability in the next period (Conyon & He, 2020; Elyasiani & Zhang, 2015). One option that can be made by bank management is to increase the distribution of financing, which offers greater returns than central banks and government securities. Furthermore, financing risk, which is measured using NP and F, does not have a significant impact on Sharia bank financing. All banks have a level of risk appetite and risk tolerance. When the financing risk is within these limits, the bank will likely continue providing financing without considering the risks taken. The bank realizes that the risk of lending is an inherent part of the bank's efforts to achieve targeted profits. This finding is in line with Vo (2018), proving that credit risk does not bank effect lending.

Table 7. Decomposing of bank financing

Variable	Trade Financing *(Murabaha)*		Investment Financing *(Mudharaba)*	
	Coefficient	Probability	Coefficient	Probability
DEPTA	0.1438	0.0406	0.1089	0.1432
CRISIS(-1)	-1.8321	0.0829	1.5039	0.1797
LQTA(-1)	-0.0544	0.5810	-0.1790	0.0888
CAR(-1)	-0.1559	0.0503	-0.4033	0.0000
SIZE(-1)	-28.1341	0.0000	13.4981	0.0000
NPF(-1)	-0.2686	0.3264	-0.0057	0.9841
NM(-1)	-0.8177	0.0116	-0.1775	0.6032
F-statistic	140.2924		145.6906	
Prob. (F-statistic)	0.0000		0.0000	
R-squared	0.9193		0.9220	

Sources: Eviews output, processed (2023)

The previous discussion stated that there is a possibility that economic turbulence will have different impacts on various types of financing contracts, especially trade financing *(murabaha)* and investment financing *(mudharaba)* contracts. Table 7 presents the impact of various research-independent variables on the two types of financing. Economic turbulence has been proven only to have a negative impact on trade financing that uses the margin concept (cost-plus basis). Economic turbulence causes a reduction in business activity, which has a negative impact on bank performance and household income. This condition reduces the borrower's ability to repay the financing and the financial costs. The margin concept requires borrowers to pay the financing costs even if their financial condition declines. As a result, demand for margin-based financing decreased when the economic crisis occurred. It is different from profit-loss sharing financing, where Sharia banks are not only providers of funds for borrowers *(mudharib)* but also partners for these borrowers in developing their businesses and, at the same time, participating in bearing the risk of loss. It can cause demand for profit-loss sharing-based financing to be relatively insensitive to changes in economic conditions. This finding could be proof that Sharia banking with the concept of profit-loss sharing financing can help the national economy, companies, and individuals be more resilient to external shocks, such as the economic crisis and COVID-19 (Ashraf, 2021; Hassan et al., 2020). As with the deposit model, the model's ability to explain financing behavior based on R-square is better when financing is separated based on the contract. The explanatory power is only 57.72 percent for total financing, 91.93 percent for trade financing, and 92.20 percent for investment financing.

4.5. Robustness Check

This research focuses on the impact of economic turbulence on Sharia bank deposits and financing so that a robustness check is carried out by replacing the dummy crisis variable with GDP growth, the results of which are presented in Table 8. The economic crisis is hypothesized to have a negative impact on bank deposits and financing. In that case, economic growth will impact these two endogenous variables positively. Table 8 shows that GDP growth (GDPg) has a positive impact on deposits, so this finding is in line with the results of Table 4, which proves that the economic crisis has a negative impact on deposits. Furthermore, this table shows that GDP growth does not significantly impact Sharia financing, and this result is consistent with the findings in Table 6. Thus, the influence of economic conditions on Sharia bank deposits and financing is not sensitive to the proxies used to measure economic conditions.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This research examines the determinants of deposit funds and financing during economic turbulence using a sample of Sharia banks in Indonesia during 2017-2022. The research results reveal that economic turbulence only significantly negatively impacts third-party funds of Sharia banks. However, this factor does not have a significant impact on the financing. There is a positive reciprocal influence between third-party deposits and Sharia bank financing. The impact of economic turbulence on the deposits and financing of Sharia banks is robust to the proxy used to measure it, namely the crisis dummies or GDP growth. This research suggests new findings when examining the impact of economic turbulence on the dependent variable based on the contract used. Economic turbulence only has a negative impact on investment deposits that use the profit-loss sharing concept but has no impact on *wadiah* deposits. On the other hand, this economic shock only had a negative impact on trade financing that uses the margin concept.

The above findings have several practical implications. The insignificant impact of the economic crisis on *wadiah* deposits and the negative significant impact of it on investment deposits suggest that Sharia banks strengthen their *wadiah* contract-based funding sources where depositors continue to entrust their funds to the bank even though the economic crisis is occurring. The average Sharia bank financing ratio is still low (around 63 percent), and the capital ratio, based on the capital adequacy ratio, is relatively high (25 percent). Therefore, Sharia bank executives need to increase their financing further so that the bank's intermediation function works well. The type of financing contract that should be more distributed is the profit-loss sharing *(mudharabah)* contract because this type of contract has been proven to be more resistant to economic shocks. The negative impact of the capital adequacy ratio on deposits may suggest the need for bank management to maintain its capital as it reflects bank soundness. Furthermore, this negative influence may indicate the possibility of moral hazard behavior by bank management with small capital by disbursing more risky financing. Therefore, the Financial Services Authority needs to better supervise banks with low capital ratios, especially those close to the minimum capital requirement.

Table 8. Robustness check for bank deposit and financing

Variable	Bank Deposit		Bank Financing	
	Coefficient	Probability	Coefficient	Probability
DEPTA			0.2099	0.0197
FINTA	0.1300	0.0836		
GDPg(-1)	0.5134	0.0103	-0.1346	0.1654
LQTA(-1)	0.3981	0.0054	-0.5567	0.0000
CAR(-1)	-0.2479	0.0037	-14.8650	0.0000
SIZE(-1)	-0.4747	0.9025	-0.3638	0.3024
NPF(-1)	0.2097	0.6226	-0.9804	0.0197
NM(-1)	0.1001	0.6948	-0.2346	0.0654

Sources: Eviews output, processed (2023)

This research is subject to several limitations. First, the research covers a relatively short period, namely only six years. To see the dynamics of the relationship between financing, deposits, and economic conditions, research should be expanded to cover a minimum period of ten years and use dynamic panel data analysis techniques. Second, this research did not conduct robustness tests on the endogenous variables and techniques. Rather than the ratio of these variables to total assets, the use of deposit and financing growth may provide a more in-depth picture of the dynamics of Sharia bank deposit and financing behavior. In addition, quantile regression may better reveal the deposit and financing behavior of Sharia banks based on deposit and financing clusters.

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