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Islamic Bank Financing Behavior:

A Survey in Asia

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***Abstract*—This paper aims to analyze how is the Islamic Banks provided financing behavior in Asia. This financing behavior is interesting to study because economic conditions do not influence it and even contribute to the stability of the financial system and the economy. Currently, Islamic Banks are still relied on to provide financing to their customers, most of whom are in the real business sector, according to Islamic principles in the halal business sector. Using a sample of Islamic Banks in 7 Asian countries, based on the 2013 - 2019 period we find that Islamic Bank financing (OC) in Asia is influenced by the capital adequacy ratio (CAR), the level of non-performing financing (NPF) and economic growth (GDP). Cointegration testing through the Johansen Cointegration Test shows that in the four variables, namely OC, CAR, NPF, and GDP, there is a long-term or cointegrated relationship, so we use VECM analysis to see the effect between variables. In the long term, CAR, NPF and GDP significantly influence OC. The biggest variable contributions to OC are CAR, GDP, and NPF.**

Keywords—Islamic bank, financing, NPF

I. INTRODUCTION

The practice of Islamic finance begins with implementing Islamic Economics principles in the Middle East, North Africa, and South East of Asia. Coordination between Islamic and conventional regulations will contribute to integrating conventional and Islamic financial systems, providing economic benefits regardless of individual trust issues. Islamic Banks are also required to be more adaptive to financial technology trends to have a competitive advantage compared to Conventional Banks [1]. Islamic Banks have no impact on profitability but make the banking industry more stable. Islamic Banks have developed a system of financing and deposit growth in the banking system and prove that Islamic Banks contribute to stability through assets and liabilities [2].

Financing behavior at Islamic Banks does not depend on the business and seasonal cycles. Islamic Banks can play a stable role in the economy [3]. Islamic Banks' capital financing is also influenced by the Shariah Supervisory [4]. An interesting phenomenon is the financing ratings by Conventional Banks are better than Islamic Banks, but the Conventional Banks risks are higher than Islamic Banks due to the uniqueness of the characteristics of Islamic Banks principles [5].

Other research on non-financial companies shows that Muslim CEOs provide more Islamic financing than non-Muslim CEOs, it is supported by the upper echelons theory. On the other hand, sociological pressure from Muslim stakeholders does not have an impact on Islamic Financing [6]. Compared to Conventional Banks, the growth rate of Islamic Bank financing is higher, accompanied by a deposit rate which indicates their ability to increase financing [7].

Many types of research on the characteristics of Islamic Bank financing behavior have been carried out. Islamic Banks provide more financing to small businesses as a form of portfolio and have less capital [8]. The greater the financing of Islamic Banks, the greater the credit risk, especially for Islamic Banks with high capitalization rates. To minimize moral hazard and maintain prudential principles, it is necessary to strengthen Islamic Banks prudential instruments and supervision [9]. Another research shows that larger banks tend to have less risk for financing with small liquidity risks [10].

Research carried out on CAR in Islamic Bank financing shows that the CAR concept in Islamic Banks also includes a unique type of deposit that Conventional Banks do not offer, namely, hybrid Profit Sharing Investment Accounts, it is Bank's debt and equity. Islamic Banks have a good capital performance if they have a good Profit Sharing Investment Accounts but have a high Displaced Commercial Risk if their capital is too large or too small [11]. In Islamic Bank, the liquidity ratio has a positive relationship with CAR. The bigger the Bank's size, the higher the Loan Loss Reserve Ratio, the lower the CAR of an Islamic Bank [12]. Other studies have found that the regulation of the amount of CAR has a positive impact on Islamic Banks and Conventional Banks' financing behavior. However, deposit changes for Islamic Banks are no longer affected by the CAR rate. This is explained by the fact that the CAR level of Islamic Banks is influenced by assets owned and not influenced by deposits. Islamic Banks' behavior is not influenced by the level of capital, market competition,

and interest rates but rather due to interest prohibition [13]. Islamic Banks better know the response of capital to an increase in insolvency risk compared to Conventional Banks [14]. In Islamic Banks there is a positive relationship between capital and risk, changes in liquidity positively affect risk, and accumulation of liquid assets will increase portfolio risk [15].

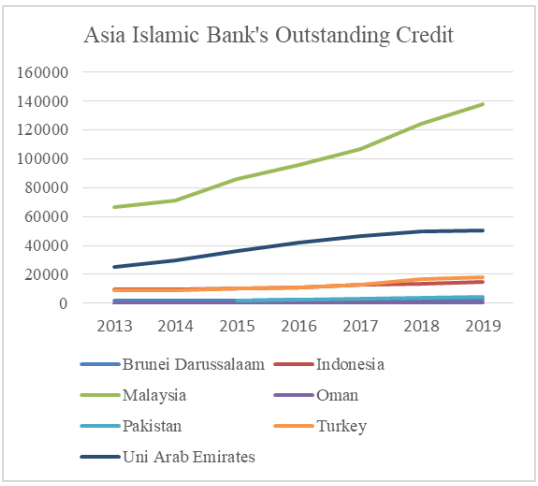
Other research shows that Islamic Bank financing has an impact on the risk of non performing loans. The risk of Islamic Banks financing is lower than Conventional Banks due to the principle of profit-loss sharing [16]. Research on the relationship between Islamic Banks and GDP shows that a financial system's development can stimulate economic growth. The development of an Islamic financial system can encourage economic growth. The government should consider proactive economic and institutional policies for the growth of the Islamic financial system [17].

II. Review Literature

A. *Islamic Bank Financing*

During the period 2013 to 2019, there was an increase in Islamic Bank financing in 7 Asian countries, namely Indonesia, Malaysia, Brunei Darussalam, United Arab Emirates, Turkey, Oman, and Pakistan. This phenomenon shows that the growth of Islamic banks is increasing in all Asian countries.

According to Ernst and Young, 2016 Islamic Bank has confirmed its presence in the global financial system, with total assets of around $ 1.7 trillion while maintaining its annual double-digit growth despite the financial crisis. Islamic Banks play a very significant role with assets of more than 20% of the entire Bank system in the financial markets of North Africa, Central, and East Asia. In Saudi Arabia and Malaysia, Islamic Bank assets reached 51.2% and 21.3% [18]. Asia Islamic Banks financing is represented by their outstanding credit, can be shown in the figure 1 below.



ifsb.org/psifi_03.php Islamic Financial Services Board

Fig. 1. Islamic Bank Financing in Asia.

As seen in Figure 1, the highest Islamic Banks financing in Asian countries is Malaysia, followed by the United Arab Emirates, Turkey, Indonesia, Brunei Darussalam, Pakistan, and Oman. Islamic Banks play an important role in financial and economic stability. With 88 Islamic Banks from all 510 banks during 1995 - 2009, Islamic Banks could maintain high financing compared to the number of deposits, compared to Conventional Banks during the crisis period [19]. Consequently, the Islamic Bank financing behavior is less affected by the economic downturn compared to Conventional Banks [3].

B. *Influence Factors of Islamic Bank Financing Behavior*

Islamic Bank financing behavior is stable in uncertain situations because it does not adhere to an interesting system and uses profit-sharing between creditors and borrowers based on Islamic principles. In the global financial market, Islamic Banks are more resilient in situations of uncertainty than Conventional Banks. A bad economic situation has a different impact on Islamic Banks and Conventional Banks. Islamic Bank financing is not influenced by the business cycle. Islamic Bank plays a role in stabilizing the economy. There is no significant difference in the growth of Islamic and Conventional Banks during the normal period. However, during the crisis period, the growth of Conventional Bank financing decreased more than Islamic Banks, which were not affected by the crisis. Fluctuation of economic do not influence Islamic Bank financing behavior [3,20].

Other studies show that Islamic Banks are better than Conventional Banks in managing liquidity and credit risk [21]. Any decline in the quality of financing conditions the Bank to harm and increase credit risk [22].

In Conventional Banks, the risk of non-performing loans correlates with financing behavior [23–25]. In Islamic Bank, financing behavior is also influenced by non-performing financing risk, because non-performing financing harms financing. The greater the borrower's inability to pay, the lower Islamic banks' ability to provide financing [26]. Minimizing the value of non-performing loans and provisions is a management strategy and an effort to minimize the risk of Islamic Banks financing; in many cases, Islamic Banks are riskier than Conventional Banks [27].

Islamic Bank financing is greater than Conventional Banks during the crisis period; Islamic banks provide a role in economic and financial stability [7]. Islamic Bank Financing provides less response than Conventional Banks to interest rates in low or high growth situations. Islamic Bank Financing is influenced by situations of economic growth in situations of slow economic growth [28].

There are peculiarities in Islamic Bank customers' behavior, as shown by the theoretical model of Islamic Bank intermediation; Islamic Banks accept funds from religious customers because the customers have a motive to provide benefits to the Bank when depositing their funds [29]. Islamic Bank financing is influenced by loan portfolio diversification;

managers tend not to save capital but expect income from loan portfolios. There are differences in the portfolios of Islamic Banks and Conventional Banks [19]. Islamic Banks lack expertise in generating income from other sources outside the Bank's operations [8]. There is a positive correlation between capital, bank deposits and Islamic and Conventional Banks financing. The higher the CAR, the greater the contraction of assets and liabilities of Islamic Bank. The higher the growth of an Islamic Bank, the more diversified the assets. Islamic Bank do many diversification, especially for Murabahah and Bai Bithamin Ajil products. The bigger the bank size, hence the growth of deposits and financing is getting slower [30–32]. The smaller the Bank's capital, the more responsive it will be to the CAR to harm financing [31]. The availability of capital influences the supply of financing [30]. The greater the capital of Islamic Bank, the higher the growth in financing. Financing is influenced by capital, so an increase in capital (CAR) is expected to impact increasing deposits and loans [33]. The supply-side theory states that financing behavior is influenced by bank's capital. Time deposits are the main source of bank financing. In Islamic Bank, CAR has a positive impact on financing behavior; the greater the Bank's deposit and capital, the greater the financing [30,31,34,35]. Islamic Banks face more capital constraints, especially when capital is low, and must control intensively the portfolio. It can be concluded that if the Bank is in a good capital condition, it will not be constrained by CAR regulations, and financing will not change drastically. Thus strengthening capital becomes important for the Islamic Banking system because Islamic Banks are very sensitive to portfolio changes. This happened because Islamic Bank operates with a profit-sharing investment system. Using liquidity as a control variable, the Bank's behavior is controlled by the level of capital, not by the level of liquidity. This condition has resulted in banks using liquid assets rather than liabilities (deposits) to meet capital adequacy (CAR).

Other research shows that bank financing is influenced by economic activity. This research refers to the impact of CAR on a bank's characteristics, which is procyclical, and shows that economic growth positively impacts bank financing. The procyclical effect causes financial institutions to reduce financing when the economy is down and increase financing when the economy is rising. The level of the economy is indicated by changes in real Gross Domestic Product (GDP). GDP has a positive impact on Islamic Banks financing in good capital ownership conditions. Islamic Banks with good capital ownership have more opportunities to develop portfolios and are more resistant to macroeconomic situations [36].

III. METHODOLOGY

This research was tested with Johansen-Juselius Multivariate cointegration test and Vector Error Correction Model (VECM). Islamic Bank variables in this study are Financing (OC), Non-Performing Financing (NPF), Capital Adequacy Ratio (CAR), and Gross Domestic Product (GDP).

The out-of-sample analysis involves Impulse Response Function (IRF) and Variance Decomposition (VDC). To specifically examine the causal-effect relationship between Financing and the other exogenous factors, our theoretical model is developed as follows:

$$OC=f(CAR,NPF,GDP) \quad (1)$$

Where:

OC = Islamic Bank financing

NPF = Islamic Bank Non-Performing Financing

CAR = Islamic Bank Capital Adequacy Ratio

GDP = Gross Domestic Product

This study uses Islamic Bank data in 7 countries in Asia published by Prudential and Structural Islamic Financial Services Board from 2013 to 2019. The mathematical equation of the model can be formulated as follows:

$$OC = \beta_0 + \beta_1 CAR + \beta_2 NPF + \beta_3 GDP + \mu_1$$

Where:

μ_1 = Error Term

β_0 = Intercept

A. *Justification of the Model Variables*

Islamic Banks financing can play a stabilizing role in the economy [2,3]. Islamic Bank financing's growth rate is higher than Conventional Banks; however, Islamic Banks currently seem to have a higher risk than Conventional Banks. The risk of non-performing loans determines Islamic bank financing behavior [26,27], also determined by the Capital Adequacy Ratio [7,13,27]. Apart from being influenced by internal factors, Islamic Bank financing is also influenced by macroeconomic factors. Proactive economic and institutional policies can encourage economic growth as indicated by GDP, and GDP growth can spur the Islamic financial system's growth [17].

B. *Model Specifications*

Schumpeter's Theory of Economic Development's key pillar is the Bank's financing of entrepreneurial activities to finance innovative investment activities. The financing determines the financing of production factors by the financial institution. According to Wicksell's view, the disruption of economic equilibrium is caused more by choice to increase the returns on technology investment rather than a decrease in bank interest rates. Economic development through financial institutions' development can be done because of savings; in this condition, the money supply becomes elastic following financing's great demand. Schumpeter's Theory of Economic Development states that financing innovation is important to finance innovation in investment activities. Thus the financing of the production process can be done because of the Bank's financing. Furthermore, Hahn developed Schumpeter's theory with the Economic Theory of Bank Credit, which states that

capital is not a result of savings but is due to financing. Hahn stated that any growth in financing that causes expansion of goods could occur due to changes in distribution channels. Financing that impacts the procurement of goods will not have an impact when an expansion of financing does not accompany it [37]. *Referring to this theory, this study's model aims to analyze the variables that affect Islamic Bank financing and the relationship between the independent and dependent variables in the long and short term.*

This model uses the Johansen-Juselius Cointegration Test (1990) to test for vector cointegration and the Engle-Granger Cointegration Test (1987) to test the correlation between non-stationary time series variables. In this model, the components vector Xt are cointegrated at d, b degree if every component in Xt is I (d). Given that d is the number of differences, and b the number of cointegration vector exists a nonzero vector β = (β1, β2,…, βn) such that the linear combination of βXt =β1X1t + β2X2t +… + βnXnt is cointegrated at d, b degree, where b> 0. The vector β is called the cointegration vector.

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The Augmented Dickey-Fuller (ADF) unit root test is used to determine whether the time series data is stationary, as formulated as follows:

$$\Delta Xt = \lambda 0 + \lambda 1T + \lambda 2Xt\text{-}1 + \Sigma \lambda i \Delta Xt\text{-}i + \varepsilon t \quad (2)$$

where i = 1, 2, 3… k

The hypotheses being tested are:

H0: λ2 = 0 (the data is not stationary, it contains unit root)

H1: λ2 <0 (data is stationary, it does not contain unit root)

If stationary conditions apply, it is assumed that there is cointegration between variables; thus, the Vector Error Correction Model (VECM) equation can be used. The VAR model can be formulated as follows:

$$X_t = A_0 + \sum_{k=1}^{p} A_k X_{t-k} + e_t \quad (3)$$

where:

Xt is in the form of n × 1 vector of variables

A0 is n× 1 vector of constant terms

Ak is n × n matrix of coefficients

et is n× 1 vector of error terms

Impulse Response Function (IRF) and Variance Decomposition (VDC) are used to analyze the pattern of relations between independent and dependent variables, and Variance Decomposition (VDC) is used to see the pattern of relationships with samples outside the unit of analysis. The first test carried out is the unit root test on all-time series variables, followed by the Johanses-Juselius cointegration test. The Granger Causality test on the Vector Error Correction Modeling.and Variave Decomposition (VDC) from the analysis sample.

IV. Discussion and Finding

This section discusses inter-variable testing results, unit root test or data stationarity (prerequisite test), and the estimation results used with VECM due to cointegration. The results of the Impulse Response estimation and the estimation results of Variance Decomposition are described as follows.

A. Unit Root Test, Optimum Lag Test, Model Stability Test

The unit root test is carried out to see at what level the panel data is stationary. The unit root test can be done with the common Root method - Levin, Lin & Chu, namely by comparing the probability value of Levin, Lin & Chu t * with a value of α (0.05) if the p-Value <0.05, the data is said to be stationary. This test is needed so that the model produces unbiased or skewed regression. Based on the results of the unit root test, the four variables, namely Financing (OC), Capital Adequate Ratio (CAR), Non-Performing Financing (NPF), and Gross Domestic Product Constant (GDP), are stationary at difference level 1.

TABLE I. Test results Levin, Lin & Chu at Difference Level 1

Variable	p-Value Levin, Lin & Chu t *	95% confidence level (α = 5%)	Information
OC	0.0000	0.05	Stationary in Difference I
CAR	0.0000	0.05	Stationary in Difference I
NPF	0.0000	0.05	Stationary in Difference I
GDP	0.0000	0.05	Stationary in Difference I

The determination of the amount of lag in the model is determined on the recommended information criteria by the smallest value of the Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn (HQ). The Eviews program has indicated an asterisk for the lag, which is determined as the optimum lag. The optimum lag test results show that almost all asterisks are at lag 1.Thus, lag 1 is determined as the optimum lag and is used at all stages in the subsequent analysis.

TABLE II. Optimum Lag Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	99.35411	NA	1.34e-09	-9.081344	-8.882387	-9.038165
1	138.6222	59.83715 *	1.51e-10 *	-11.29736 *	-10.30257 *	-11.08146 *
2	152.6479	16.02935	2.23e-10	-11.10933	-9.318716	-10.72072
3	168,4079	12.00764	4.15e-10	-11.08647	-8.500034	-10.52515

After performing the optimum lag test, it is continued with the VAR stability test to analyze further because if the VAR estimation results are combined with an unstable error correction model, the Impulse Response Function and Variance Decomposition will be invalid. To test whether the VAR estimate is stable or not, the VAR stability condition is checked

in the form of characteristic polynomial roots. According to Gujarati (2003) [38], a VAR system is stable if all of its roots have a modulus less than one.

TABLE III. MODEL STABILITY TEST RESULTS

Root	Modulus
0.838358	0.838358
-0.563994	0.563994
0.488312 - 0.166555i	0.515935
0.488312 + 0.166555i	0.515935
-0.098913 - 0.379302i	0.391987
-0.098913 + 0.379302i	0.391987
-0.036308 - 0.098826i	0.105284
-0.036308 + 0.098826i	0.105284

In addition to looking at the root and modulus numbers, to see the model's stability can also be seen in the distribution of roots shown in figure 1. The stability of the model is shown by the distribution of points in a circle.

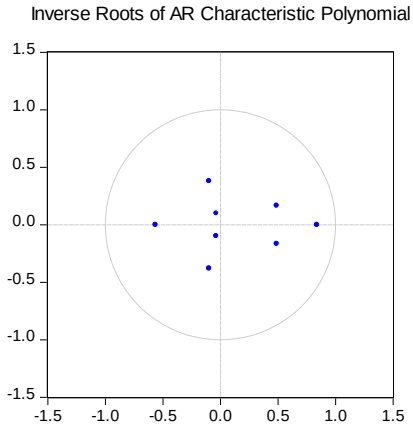

Fig. 2. Model stability.

B. *Granger Causality Test*

The Granger Causality Test is used to see the relationship between OC, CAR, NPF, and GDP. A relationship can be seen from the probability value of each causality test which is then compared with alpha 0.05 and alpha 0.1. From the Ganger quality test, it can be seen that there are variables that have a causal relationship (p-value> α). This means that the variable can become the dependent variable (the variable that is affected) (Table 4).

TABLE IV. NULL HYPOTHESIS, P-VALUE, TEST RESULT, AND CAUSALITY CORRELATION

Null Hypothesis (Ho)	P-value	Test result	Causality Correlation
CAR does not Granger Cause OC	0.6720	Thank Ho	No correlation
OC does not Granger Cause CAR	0.6860	Thank Ho	No correlation
NPF does not Granger Cause OC	0.4189	Thank Ho	No correlation
OC does not Granger Cause NPF	0.6534	Thank Ho	No correlation
EG does not Granger Cause OC	0.0098	Reject Ho	There is correlation
OC does not Granger Cause GDP	0.7252	Thank Ho	No correlation
NPF does not Granger Cause CAR	0.0366	Reject Ho	There is correlation
CAR does not Granger Cause NPF	0.9455	Thank Ho	No correlation
GDP does not Granger Cause CAR	0.0818	Reject Ho	There is correlation
CAR does not Granger Cause EG	0.6281	Thank Ho	No correlation
GDP does not Granger Cause NPF	0.7403	Thank Ho	No correlation
NPF does not Granger Cause GDP	0.3624	Thank Ho	No correlation

C. *Cointegration Test*

The cointegration test can be done using the Johansen method. Based on the Johansen Test results, the Trace Statistics' value from the Trace test is equal to 89.16310, greater than the critical value at alpha 0.05 of 55.24578, which means that in the system, there is one cointegrated equation. Trace Statistic value of 40.29689, which is greater than the critical value at an alpha of 0.05 equal to 35.01090, shows at least one cointegrated equation. Then from the Maximum Eigenvalue test, the Trace Statistic value is equal to 48.86622 which is greater than the critical value of 0.05 equal to 30.81507shows that in the system, there is one cointegrated equation. The Trace Statistics value is equal to 26.23195 which is greater than the critical value of 0.05 equal to 24.25202 shows that there is one cointegrated equation in the system (Table 5).

TABLE V. JOHANSEN RESULTS IN COINTEGRATION TEST BETWEEN OC, CAR, NPF, AND GDP

Unrestricted Cointegration Rank Test (Trace)					
Hypothesized No. of CE (s)	***Eigenvalue***	***Trace Statistics***	***0.05 Critical Value***	Prob. **	***Cointegration Test Results***
None *	0.902408	89,16310	55,24578	0.0000	There is Cointegration
At most 1 *	0.713249	40.29689	35.01090	0.0124	There is Cointegration
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)					
Hypothesized No. of CE (s)	***Eigenvalue***	***Max-Eigen Statistics***	***0.05 Critical Value***	***Prob. *****	***Cointegration Test Results***
None *	0.902408	48,86622	30.81507	0.0001	There is Cointegration
At most 1 *	0.713249	26.23195	24.25202	0.0270	There is Cointegration

Cointegration testing through the Johansen Cointegration Test shows that the four variables, namely OC, CAR, NPF, and GDP, have a long-term or cointegrated relationship. Thus in this study, the VECM analysis was used.

D. Estimation Result of Vector Error Correction Model between OC, CAR, NPF and GDP

TABLE VI. ESTIMATION RESULT OF VECTOR ERROR CORRECTION MODEL BETWEEN OC, CAR, NPF AND GDP

Variable	Coefficient	t-Statistics	t-Table (α = 5%)	t-Table (α = 10%)	Estimation Results
Long-term					
D (OC (-1))	1,000000				
D (CAR (-1))	0.338330	**[2.87256]**	2.02107539	1.683851	**Significant**
D (NPF (-1))	-0.238680	**[-3.00604]**	2.02107539	1.683851	**Significant**
D (GDP (-1))	-1.850866	**[-3.58946]**	2.02107539	1.683851	**Significant**
C	-0.096147				
Short-term					
Proxy D (OC, 2)					
CointEq1	0.024259	[-2.79759]	2.02107539	1.683851	Significant
D (OC (-1), 2)	0.007903	[0.91666]	2.02107539	1.683851	Not significant
D (OC (-2), 2)	0.227810	[0.69613]	2.02107539	1.683851	Not significant
D (CAR (-1), 2)	0.125896	[1,82697]	2.02107539	1.683851	Not significant
D (CAR (-2), 2)	-0.194159	[1,21560]	2.02107539	1.683851	Not significant
D (NPF (-1), 2)	-0.107235	[-1.66521]	2.02107539	1.683851	Not significant
D (NPF (-2), 2)	1.129450	[-1.20653]	2.02107539	1.683851	Not significant
D (GDP (-1), 2)	0.876448	[1.02006]	2.02107539	1.683851	Not significant
D (GDP (-2), 2)	0.024259	[0.65050]	2.02107539	1.683851	Not significant
D (OC (-1), 2)	0.007903	[-2.69406]	2.02107539	1.683851	Significant
C	-0.050146	[-2.79759]	2.02107539	1.683851	Significant
ProxyD (CAR, 2)					
CointEq1	-0.146320	[-0.30358]	2.02107539	1.683851	Not significant
D (OC (-1), 2)	-0.011233	[-0.20283]	2.02107539	1.683851	Not significant
D (OC (-2), 2)	0.000782	[0.03293]	2.02107539	1.683851	Not significant
D (CAR (-1), 2)	-0.644053	[-2.46826]	2.02107539	1.683851	**Significant**
D (CAR (-2), 2)	-0.179809	[-0.82966]	2.02107539	1.683851	Not significant
D (NPF (-1), 2)	-0.185624	[-0.76078]	2.02107539	1.683851	Not significant
D (NPF (-2), 2)	0.022587	[0.12144]	2.02107539	1.683851	Not significant
D (GDP (-1), 2)	-2.400701	[-1.03612]	2.02107539	1.683851	Not significant
D (GDP (-2), 2)	-0.878729	[-0.31166]	2.02107539	1.683851	Not significant
C	0.026587	[0.68256]	2.02107539	1.683851	Not significant
ProxyD (NPF, 2)					
CointEq1	2.539028	[4,81042]	2.02107539	1.683851	**Significant**
D (OC (-1), 2)	-0.161604	**[-2.66462]**	2.02107539	1.683851	**Significant**
D (OC (-2), 2)	-0.044856	**[-1.72415]**	2.02107539	1.683851	**Significant**
D (CAR (-1), 2)	-0.458397	[-1.60420]	2.02107539	1.683851	Not significant
D (CAR (-2), 2)	-0.334858	[-1.41090]	2.02107539	1.683851	Not significant
D (NPF (-1), 2)	0.282583	[1.05758]	2.02107539	1.683851	Not significant
D (NPF (-2), 2)	0.038862	[0.19080]	2.02107539	1.683851	Not significant
D (GDP (-1), 2)	7.643388	[3.**01233**]	2.02107539	1.683851	**Significant**
D (GDP (-2), 2)	-1.506976	[-0.48807]	2.02107539	1.683851	Not significant
D (OC (-1), 2)	0.072917	[1.70945]	2.02107539	1.683851	**Significant**
C	2.539028	[4,81042]	2.02107539	1.683851	Significant
ProxyD (GDP, 2)					
CointEq1	-0.183103	[-3.30432]	2.02107539	1.683851	Significant
D (OC (-1), 2)	0.015112	[2,37350]	2.02107539	1.683851	**Significant**
D (OC (-2), 2)	0.003937	[1.44132]	2.02107539	1.683851	Not significant
D (CAR (-1), 2)	0.039987	[1.33293]	2.02107539	1.683851	Not significant
D (CAR (-2), 2)	0.006718	[0.26962]	2.02107539	1.683851	**Significant**
D (NPF (-1), 2)	0.002544	[0.09068]	2.02107539	1.683851	Not significant
D (NPF (-2), 2)	-0.022872	[-1.06965]	2.02107539	1.683851	Not significant
D (GDP (-1), 2)	-0.653690	[-2.45391]	2.02107539	1.683851	**Significant**
D (GDP (-2), 2)	-0.091531	[-0.28237]	2.02107539	1.683851	Not significant
C	-0.010578	[-2.36214]	2.02107539	1.683851	Significant

The variable significance test was carried out by comparing the t-count statistical value of the VECM estimation results with the t table value at the 90% and 95% confidence levels. In the long term, CAR, NPF and GDP significantly influence OC. In the short-term analysis, eight variables influence reciprocally (Table 6).

The validity of this VECM model can be accepted as seen from the Portmanteau test results where the p-value> o.o5 can be seen in the following table 7.

TABLE VII. MODEL FEASIBILITY TEST RESULTS

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	12.24870	---	12.86114	---	---
2	16,05745	---	17.07080	---	---
3	16,05745	0.9650	17.07080	0.9472	28
4	16,05745	1.0000	17.07080	0.9999	44
5	19,73097	1.0000	21,89230	1.0000	60
6	28.11095	1.0000	33,62428	1.0000	76
7	40,28021	1.0000	51.87817	0.9998	92
8	47,80566	1.0000	64.03465	0.9998	108
9	51,70217	1.0000	70.85355	1.0000	124
10	51,70217	1.0000	70.85355	1.0000	140

E. Impulse Response Analysis

IRF analysis is needed to determine how a variable's shock affects the variable itself and other variables in the system. IRF describes how to estimate the impact of a variable's shock on other variables. It can be seen how long the effect of shock or shock of a variable on other variables is felt and which variable will give the greatest response to the shock. The vertical axis shows the standard deviation value that measures how much response a variable will give in the event of a shock to other variables. Meanwhile, the horizontal axis shows the length of the period (years) of the shock response. The response given above the horizontal axis indicates that the shock will have a positive effect. Conversely, if the response given is below the horizontal axis, it indicates that the shock will negatively affect. The following figure 3 illustrates the IRF graph of each variable as a response.

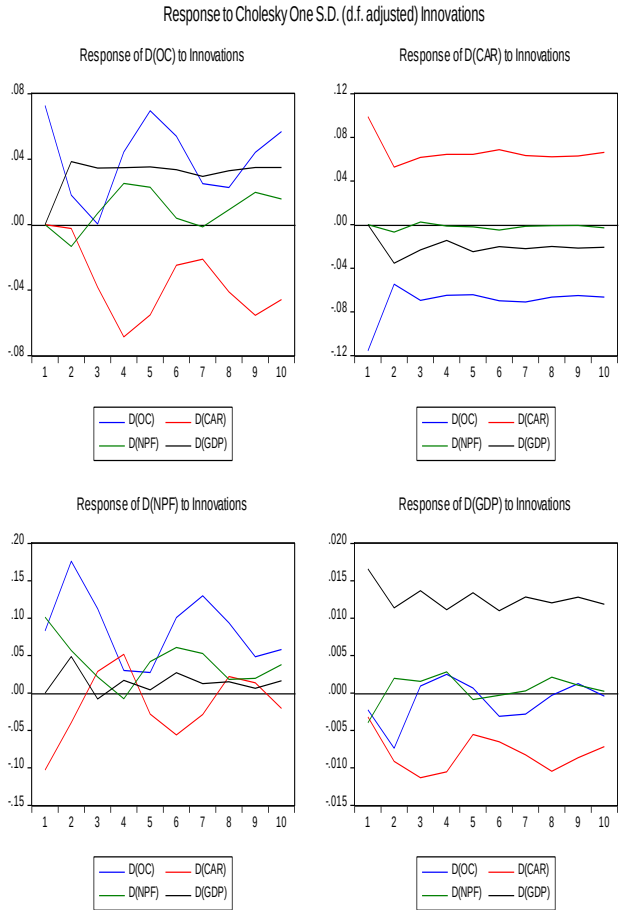

Fig. 3. Response to Cholesky One S.D. (d.f. adjusted) Innovations.

- IRF analysis with OC as a response concludes that OC response to CAR, NPF, and GDP will fluctuate in the next ten years, OC response to CAR is negative.
- IRF analysis with CAR as a response concludes that CAR response to OC, NPF, and GDP tends to be stable but negative in the next ten years.
- IRF analysis with NPF as a response concludes that the NPF response to OC, CAR, and GDP will fluctuate in the next ten years.
- IRF analysis with GDP as a response concludes that GDP's response to OC, CAR, and NPF will fluctuate in the next ten years.

F. Analysis of Variance Decomposition (VD)

Variance decomposition (VD) is part of the VECM analysis, which supports the results of the previous analysis. VD provides an estimate of how much a variable contributes to changes in the variable itself and other variables in future periods, the value of which is measured in percentage terms. Thus, which variable is estimated to have the greatest contribution to a particular variable will be known.

1) The results of the variance decomposition of the OC variable: VD analysis of the OC variable shows that OC fluctuation was influenced by the OC contribution itself in the first period, which was 100 percent. Then in the next period, it appears that the OC contribution begins to be explained by other variables. Other variable contributions to OC began to appear in the second to tenth periods. Based on the average value per year, the order of the contribution of other variables from largest to smallest to OC is CAR (23.83%), GDP (18.91%), and NPF (3.47%) (Table 8).

TABLE VIII. THE RESULTS OF THE VARIANCE DECOMPOSITION OF THE OC VARIABLE

Period	SE	D (OC)	D (CAR)	D (NPF)	D (GDP)
1	0.072743	100.0000	0.000000	0.000000	0.000000
2	0.085329	77.10333	0.072746	2.447767	20.37616
3	0.099901	56.25308	14.67909	2.268226	26,79960
4	0.135972	41.03801	33.32549	4,634370	21.00213
5	0.167709	44.15889	32,69838	4.905471	18.23726
6	0.181114	46.78473	29.90321	4.253088	19.05897
7	0.186393	45,97066	29.51006	4.021139	20.49815
8	0.195226	43.25857	31.32645	3.884923	21.53006
9	0.211534	41,21431	33.55393	4.178732	21.05302
10	0.227030	42.05621	33.19856	4.106452	20.63878
	Average	53.78378	23.82679	3.470017	18,91941

2) Results of the variance decomposition of the CAR variable: VD analysis of the CAR variable shows that fluctuations in CAR are influenced by other variables starting from the first period. Based on the average value per year, the order of the contribution of other variables from the largest to the smallest to OC is OC (42.14%), GDP (4.04%), and NPF (0.1%) (Table 9).

TABLE IX. RESULTS OF THE VARIANCE DECOMPOSITION OF THE CAR VARIABLE

Period	SE	D (OC)	D (CAR)	D (NPF)	D (GDP)
1	0.152223	57,69833	42.30167	0.000000	0.000000
2	0.173858	54,10736	41,61048	0.152705	4.129450
3	0.198412	53.75889	41,57027	0.131000	4.539838
4	0.218856	52,92320	42,80232	0.110695	4.163791
5	0.238301	51.90601	43.39624	0.100207	4.597551
6	0.258474	51,41712	43,94528	0.121813	4.515797
7	0.276298	51,58420	43.71803	0.109240	4.588529
8	0.291560	51,51412	43.79552	0.099216	4.591152
9	0.306010	51.25802	43,98740	0.090645	4.663927
10	0.320746	50.95237	44,29413	0.091421	4.662083
	Average	52.71196	43.14213	0.100694	4.045212

3) Results of the variance decomposition of the NPF variable: VD analysis of the NPF variable shows that other variables from the first period influence the NPF fluctuation. Based on the average value per year, the order of the contribution of other variables from largest to smallest to NPF is OC (58.49%), CAR (19.08%), and GDP (2.79%) (Table 10).

TABLE X. RESULTS OF THE VARIANCE DECOMPOSITION OF THE NPF VARIABLE

Period	SE	D (OC)	D (CAR)	D (NPF)	D (GDP)
1	0.166699	24,78480	38.19976	37.01544	0.000000
2	0.256915	57.45959	18.44173	20.48573	3.612957
3	0.282955	63.24503	16,23055	17.46863	3.055798
4	0.289793	61.37589	18,64787	16,72227	3.253976
5	0.295460	59.89835	18.84704	18.10454	3.150062
6	0.324128	59.46609	18.64755	18.56209	3,324267
7	0.354590	63.12093	16,23927	17,73510	2.904694
8	0.368242	65.03297	15,41894	16.68751	2.860573
9	0.372255	65.34110	15.22409	16.60642	2.828391
10	0.379596	65.18700	14,93687	16,96857	2.907569
	Average	58.49118	19.08337	19,63563	2.789829

4) Results of the variance decomposition of the GDP variable: VD analysis of the GDP variable shows that the NPF fluctuation is influenced by other variables from the first period. Based on the average value per year, the order of the contribution of other variables from the largest to the smallest to the NPF is CAR (24.01%), OC (5.07%), and NPF (2.46%) (Table 11).

TABLE XI. RESULTS OF THE VARIANCE DECOMPOSITION OF THE GDP VARIABLE

Period	SE	D (OC)	D (CAR)	D (NPF)	D (GDP)
1	0.017501	1.633883	3.343571	5.187958	89.83459
2	0.024023	10.29328	16,22480	3,418390	70.06353
3	0.029929	6.731254	24.77658	2.469301	66.02286
4	0.033837	5.807535	29.08811	2.628829	62.47552
5	0.036830	4,935675	26,81095	2.273577	65.97979
6	0.039111	5.014053	26.54357	2.022633	66.41974
7	0.042082	4.774720	26,79019	1.752182	66.68291
8	0.045056	4.169838	28.75879	1.749413	65.32196
9	0.047656	3.796598	28.99266	1.611550	65,59920
10	0.049632	3.507080	28,81029	1.487990	66,19464
	Average	5.066392	24.01395	2.460182	68,45947

V. CONCLUSIONS

Islamic Banks financing in Asia countries play an important role in financial and economic stability. Islamic Banks can still maintain high financing than the number of deposits, compared to Conventional Banks even during crisis periods. Islamic Bank financing behavior is only slightly affected by the downturn in economic conditions. As a bank that plays an important role in financial and economic stability, the continuity of Islamic Bank financing must be maintained. Factors strongly suspected of influencing Islamic Bank financing are economic growth, credit risk, and capital. This study proposes a hypothesis on the effect of economic growth, credit risk, and capital in the short and long term in 7 Asian countries during the 2013 – 2019 period. Cointegration testing through the Johansen Cointegration Test shows that there is a long-term or cointegrated relationship in the four variables, namely OC, CAR, NPF, and GDP. Thus VECM analysis is used in this study. The results show that in the long run, namely CAR, NPF and GDP significantly affect OC. The OC response to CAR, NPF, and GDP fluctuates in the next ten years, and the OC response to CAR is negative. This finding reinforces the previous finding that the greater the capital of Islamic Banks, the more likely it is to diversify products and the smaller the Financing [30–32]. In the short term, eight variables influence reciprocally. Variable contributions from the largest to the smallest to OC are CAR (23.83%), GDP (18.91%), and NPF (3.47%). Short period and number of countries are the limitations of this research. Further research must be extended with a longer period and larger size of the countries.

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