

ISLAMIC BANKING PROFITABILITY AND THE ROLE PLAYED BY THE PHILIPPINE ECONOMY: A VECTOR AUTOREGRESSION (VAR) MODEL APPROACH

Najeeb Razul A. Sali,^{1, a*} Weni Hawariyuni,^{2, b} Zulfikri,^{3, c} and, Halima A. Sahim-Sali^d

¹College of Islamic and Arabic Studies, Mindanao State University – Tawi-Tawi College of Technology and Oceanography, Tawi-Tawi, Philippines

²Department of Management, Faculty of Economics and Business, Universitas Muhammadiyah Sumatra Utara, Medan, Indonesia

³College of Business, University of Buraimi, Oman

najeebrazulsali@msutawi-tawi.edu.ph

zulfikri@umsu.ac.id

weni.h@uob.edu.om

salisahim.halima@gmail.com

*Corresponding Author: najeebrazulsali@msutawi-tawi.edu.ph

Abstract: *This study presents the rise and fall of Islamic banking in the Philippines and the role the economy plays as reflected in its economic history. It used econometric analysis of the past financial data of both Islamic banking as proxied by its Return on Asset (ROA) values and its host economy proxied by inflation, population, and the Gross Domestic Product or the real GDP. With EViews10 software used to perform the ADF Dickey-Fuller stationarity test, Johansen Cointegration tests the Vector Autoregressive (VAR) model, and it found that there was a short-run relationship between the economy and Islamic banking in the country. Granger causality test ascertained that the association found was unidirectional, running only from the economy to Islamic banking and that there was not enough evidence to show the reverse causal effect from the latter to the former. The impulse response function found that economic growth is positively associated with the Islamic banks' profitability in the country, while changes in the bank's profitability do not impact the economy. This study concludes that the Philippine economy plays a major role in Islamic banking profitability, while the same cannot be said the other way around.*

Keywords: Philippine Islamic Banking; Econometrics; Macroeconomy

1. Introduction

The relationship between Islamic banking and the Philippine economy is complex and multifaceted. On the one hand, Islamic banking can stimulate economic growth and development by financing businesses and individuals who cannot obtain credit. It can also promote financial stability by encouraging responsible lending practices and minimizing the risks associated with excessive leverage.

At the same time, Islamic banking also challenges the Philippine economy. One of the most significant challenges is harmonizing Islamic finance principles with existing regulatory frameworks and financial systems. This complex process requires careful planning and

coordination between stakeholders, including policymakers, regulators, financial institutions, and investors.

To fully understand the relationship between Islamic banking and the Philippine economy, studying the various factors shaping the industry's growth and development is essential. These factors include regulatory frameworks, market demand, investor sentiment, and macroeconomic trends. By studying these factors, researchers and policymakers can better understand the challenges and opportunities facing the Islamic banking industry in the Philippines and develop strategies to promote its continued growth and development.

This study focused on one of the factors affecting Islamic banking performance, in this case, its relationship with the Philippine economy. Economic growth is justified as a consideration in an Islamic banking industry research due to its major influence on the sector's expansion and development. As the economy grows, there are more investment opportunities available, and Islamic banks can capitalize on these opportunities by offering Sharia-compliant financing solutions as it is hoped to contribute to the body of Islamic banking literature to help understand how Islamic banking behaved in a non-Muslim country like the Philippines.

This paper discusses the synopsis of the situation of the Islamic banking in the Philippines as well the development of the Philippine economy as a prelude to the study of the causal relationship between the development of the former and the later. This study uses econometric analysis that traces the effect of one variable to the other while taking into consideration the reverse causal effect between the variables.

2. Review of Related Literature

Despite various challenges, the Republic of the Philippines, a Southeast Asian archipelago republic, has a robust economy noted for its rapid growth. Traditionally fuelled by agriculture, trade, and remittances from overseas Filipino workers, the country has seen substantial growth in areas like as business process outsourcing (BPO), tourism, manufacturing, and construction. Internal and external pressures have influenced the country's economic policies and progress, including political and economic instability and global economic trends. The Philippine government's economic reforms aim to attract foreign investment, foster local entrepreneurship, and achieve long-term growth, which is aided by the country's membership in regional and international economic organizations such as ASEAN and APEC, which open up new channels of trade and cooperation.

Over the last few decades, the Philippines' Islamic banking business has grown significantly. Islamic banks, which follow Sharia rules, forgo interest-based transactions in favor of profit-sharing partnerships. The sector began in the 1970s, when Islamic financial institutions were created in the Bangsamoro area to serve the Muslim community's requirements. The government passed Republic Act No. 6848 in 1995, which paved the path for Al-Amanah, a government-owned Islamic bank. Later, the Bangko Sentral ng Pilipinas (BSP) regulated Islamic banking activities to guarantee Sharia compliance and local banking requirements. Both Islamic and conventional banks currently provide Sharia-compliant goods and services in the Philippines as a consequence of rising demand from the Muslim community for Sharia-compliant products, government efforts, and involvement in ASEAN Islamic banking projects. Islamic savings accounts, time deposits, finance solutions, and takaful services are among the options available.

The relationship between Islamic banking and its host economy can be summarized into four main types:

The first is the supply-leading, "finance causes [economic] growth" concept. It was expanded by McKinnon (1973), whose paradigm was originated by Schumpeter (1934) followed by Shaw (1973) who discussed the complementarity hypothesis, and the theory of debt intermediation. They based their reasoning on the financial liberalization and financial intermediation of the banks, where increasing financial transactions with banks is helpful to the growth and development of the economy (Ang, 2007). In the Islamic banking system, a similar effect was also observed where the growth and development of Islamic banking was found to have led to the growth and development of its host economy. This was ascertained by Abduh & Chowdhury (2012) in the case of Bangladesh, Saleem (2007) in Pakistan, Atallah Aldalaïen (2019) in Dubai, and, M. Tabash & Dhankar (2014) in Qatari Islamic banks.

The second hypothesis is of the opposite of the first one, Robinson, (1952) claimed that economic growth produces a financial positive growth rate on the part of the banks. This hypothesis on the connection between financial development and economic growth was established together with the "demand-following" hypothesis. He believed that enhanced financial development results from economic expansion having a positive impact on financial activity inside the banks. Similar effects, where economic growth led to Islamic banking profitability were found by Elhachemi & Othman (2016) in Iran and also, Hasan & Dridi, (2010) in the case of Islamic banks in Bahrain, Jordan, Kuwait, Malaysia, Qatar, Saudi Arabia, Turkey, and UAE.

Following the second hypothesis, Patrick (1966) came up with the third possible scenario "bi-directional" hypothesis. In light of this, he argued that there is a mutual dependency between finance and economic growth, which implies that they both cause the development of each other. According to Patrick's theory, financial activities in rich countries drive growth but in less developed nations, it is growth that drives financial activity. The presence of a reciprocating relationship between banking performance and the economy in Islamic banking and the economy was also found by AL-Oqool et al. (2014), while Islamic banking development was found positively correlated with economic growth, the growth of its host economy was also found helpful to the growth and development of Islamic banking in the case of Jordanian Islamic banks, Abduh & Azmi Omar (2012) also found the same kind of relationship in the case of Indonesia and Furqani & Mulyany (2009) in the case of Malaysia's Islamic banks.

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Last but not least, Lucas (1988) advanced the idea that there is no connection between finance and growth (the "neutrality" hypothesis"). According to this theory, financing is not required for economic growth. This nature of relationship is also found Sassi & Goaid, (2011) in Middle East and North Africa's Islamic banking and its host economy.

3. Methodology

In order to determine the relationship between the Philippine Islamic banks and the national economy, this study used quantitative analysis of their historical data. Known locally as the Amanah bank, the Al-Amanah Islamic Investment Bank of the Philippines (AAIIBP) is the first and only Islamic bank in the country. This study used its recorded net income and the inflation rate of the Philippines to illustrate the nation's economic development. There was a total of 80 data points in the set ranged from the first quarter of 2002 to the fourth quarter of 2022 downloaded as made publicly available from the website of the bank and for this reason, the dataset from the Philippine GDP, population and inflation rate was also limited to that which started from the first quarter of 2002 to the last quarter of 2022 for better comparison. In the analysis of the data gathered, the Augmented Dickey-Fuller (ADF) test for unit root testing, the Johansen Cointegration test for appropriate econometrics analysis tool to be used, the Vector Autoregressive (VAR) for short-run relationship test, the Granger Causality for test of reverse causal effect between variables and lastly Impulse Response Function (IRF) for the test of impact of one variable on the innovation introduced to the other.

3.1. Unit Root Testing

A Vector Autoregression also known as VAR, is just like any other statistical tool, it yields reliable and consistent results only if its assumptions are complied with. One of them is the non-stationarity of the time series data at a level and becomes stationary after performing first level differencing method (Dungey & Pagan, 2000). Table 1 shows the result of the stationary test performed for the variables Return on Asset, the GDP per capita, and inflation rate.

Table 1. Stationary Tests
Series: IB Net Income, Philippine Real GDP, Inflation Rate

Method Statistic	At level			At 1 st Differencing		
	Statistic	<i>p</i> -value	Remarks	Statistic	<i>p</i> -value	Remarks
ADF - Fisher Chi-square	4.75408	0.5757	Not stationary	35.4043	0.0000**	Stationary
PP - Fisher Chi-square	8.54091	0.2011	Not stationary	20.5019	0.0023**	Stationary
** Probabilities for Fisher tests are computed using an asymptotic Chi						
-square distribution. All other tests assume asymptotic normality.						

Table 1 reveals that the variables' statistic value using the Augmented Dickey-Fuller (ADF) Fisher Chi-square was 4.75, whereas the value using the Philips-Perron - Fisher Chi-square was 8.54. With respective *p*-values of 0.57 and 0.20, both tests showed that t-he result was above the 0.05 alpha level. This indicates that the variables were not level stationary. The table also showed that at the first level of differencing, the statistic value using the ADF test grew from 4.75 to 35.40 and from the PP test value of 8.54 to 20.50 with a *p*-value of 0.000 and 0.002 respectively, suggesting that the variables were already stationary after such

differencing method was performed. It suggests that the data can be used to measure the short-run and possibly, long-run relationship between them.

3.2. Optimal Lag Section

This study used all available lag selection criteria in Eviews10 software which were composed of sequential modified (LR). The Final Prediction Error (FPE) the Akaike Information Criterion (AIC) the Schwarz Information Criterion (SC) and the Hannan-Quinn Information Criterion (HQ). This study used the specified number of lags indicated a “*” sign to reveal the optimal lag selected by such lag selection criteria (AL-Oqool et al., 2014).

Table 2. VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-958.6029	NA	5.95e+09	31.01945	31.12237	31.05986
1	-650.1745	577.0596	379789.9	21.36047	21.77217	21.52211
2	-522.7992	225.9883	8359.721	17.54191	18.26239	17.82479
3	-477.9731	75.19230	2646.840	16.38623	17.41549*	16.79034
4	-475.1994	4.384099	3269.481	16.58708	17.92511	17.11243
5	-469.6550	8.227240	3717.224	16.69855	18.34536	17.34513
6	-444.2117	35.29233	2242.901	16.16812	18.12371	16.93593
7	-413.3220	39.85772	1147.278	15.46200	17.72637	16.35105*
8	-406.5667	8.062750	1295.165	15.53441	18.10756	16.54469
9	-399.7593	7.466146	1483.527	15.60514	18.48706	16.73666
10	-379.7897	19.96958*	1133.978*	15.25128*	18.44198	16.50403

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Table no. 2 indicates that the LR: sequential modified LR test statistic criteria suggested lag no. 10 as indicated by the presence of star sign “*” in the specified Eviews-generated no. of lags. Along with this, the FPE or Final prediction error method and the AIC or the Akaike information criterion also suggested the same no. of lags can be used while conversely, the HQ or the Hannan-Quinn information criterion, suggested lag no. 7. This study will use lag no. 7 as suggested by HQ lag selection criteria as it turns out to be the only lag that produces no issue with autocorrelation which will be further explained in the diagnostic tests at the end part of this paper.

3.3. Cointegration test

Two the most widely used econometric tool to test for short-run and long-run relationship between or among variables are the Vector Error Correction Model (VECM) and the Vector Autoregressive (VAR). The difference between them is that while the former has the capability to ascertain the short-run relationship it also has the capability to measure the long-run relationship in the variables specified. The latter on the other hand, was designed only to look into the short-run or the immediate causal relationship between or among the variables

(Maulia et al., 2018). Much as it is interesting to see the long-run along with the short-run relationship, the data has to present indications of cointegrating variable to be able to use VECM for long-run relationship test otherwise VAR must be utilized to perform the analyze which is designed only for short-run relationship tests. To identify the presence or absence of at least cointegrating vector, Johansen cointegration test was performed.

Table 3. Johansen Cointegration Test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.259151	28.35976	29.79707	0.0725
At most 1	0.082478	7.662628	15.49471	0.5022
At most 2	0.024665	1.723199	3.841466	0.1893

Trace test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) *p*-values

Table 3 demonstrates that the Trace Statistic value was at 28.35 whereas the Crucial Value was only at 29.79 when the hypothesized number of cointegrating equations (CE) was set to none. With a *p*-value of 0.07, it became clear that the alternative hypothesis—that there is only one cointegrating equation—is rejected and the null hypothesis—that there is no cointegration—is accepted. This indicates that there is no cointegrating vector exists between the study's dependent and independent variables. Additionally, the test showed that the null hypothesis was accepted for having a relatively lower trace statistic value of only 28.35 against a higher Critical Value of 29.79 with a *p*-value of 0.07 indicating that there is no cointegrating vector present in the variables from hypothesized “none”, “At most 1” more so with “At most 2”. With *p*-values 0.07, 0.50 and 0.18 respectively.

4. Results and Discussion

The Vector Autoregression (VAR) yields two main findings, the short-run via Granger Causality Test that analyzes the immediate relationship between or among time series data and impulse response function that projects the response or impact of the specified variable on the other.

4.1. Granger Causality Test

As briefly stated earlier, Granger Causality Test analyzes the short-run or the immediate relationship between or among variables. One of the many strengths of this tool is that it has the capability not only of ascertaining the presence or absence of causal relationship running from variable *x* to variable *y* but interestingly it can also be used to identify the reverse causation or reverse effect meaning, the presence or absence of causal relationship from variable *y* to *x*. below is the result of the Granger causality test.

Table 3. VAR Granger Causality/Block Exogeneity Wald Tests

Dependent variable: ROA			
Excluded	Chi-sq	df	Prob.

INFLATION	19.11811	7	0.0078
REAL_GDP	13.38291	7	0.0633
All	31.55210	14	0.0046

Table 3. shows that when Islamic banking in the country was placed as dependent variable, it revealed that with inflation rate's Chi-sq value of 19.11 at 7 degrees of freedom and a probability value of 0.00. Being $p < 0.05$ alpha level of significance, it means that the null hypothesis of no Granger causal effect running from the country's inflation rate to the Islamic banking in the country is rejected. This means there is a presence of short-run relationship running from inflation to Islamic banking in the country. Meaning changes in inflation rate is associated with changes with Islamic banking profitability. There is no similar study conducted about the same subject matter hence it cannot affirm nor refute any findings about Islamic banking profitability in relation to the Philippine economy. But the link between inflation rate and Islamic banking profitability in other countries were also found in Zarrouk et al., (2016) and Abusharbeh, (2020). More income on the part of Islamic banking during high inflation rate could be explained by the fact that increasing inflation rate entails higher baking transaction costs making the bank earns more. This observation is also true in the case of developing countries as found by Demirguc-kunt et al., (1998).

Conversely, table 3 also revealed that with real GDP's Chi-sq Value of 13.38, on 7 degrees of freedom and a p -value of 0.06, being $p > 0.05$ alpha level, it suggested that the null hypothesis of no Granger causal effect running from the country's real GDP to the Islamic banking in the country is accepted. It suggested that there was no short-run relationship running from real GDP to Islamic banking performance in the country. Lastly, the overall effect of the Philippine macroeconomic variables used in study yielded a Chi-sq Value of 31.55, 14 degree of freedom and a p -value of 0.00, being $p < 0.05$ level of significance it means that the null hypothesis of no Granger causal effect of economic growth on Islamic bank profitability is rejected. This means that there is a presence of casual effect of the economy on Islamic banking in the country. The presence of causal effect of economic growth on Islamic banking profitability was also found by Elhachemi & Othman, (2016) in Iran, Ali et al., (2018) in Brunei, and also by Yousfi, (2016) in Jordan.

Table 4. Dependent Variable: Inflation Rate

Excluded	Chi-sq	df	Prob.
ROA	9.160888	7	0.2413

Table no 4 indicates that when inflation was set as the dependent variable tested against the Islamic banking variable as the independent variable, it shows that with Chi-sq value of 9.16 at 7 degrees of freedom and a p -value of 0.24, being $p > 0.05$ alpha level of significance, it suggested that Islamic banking profitability does not granger cause inflation rate to behave in particular way. That means fluctuation in the inflation rate is independent of the rise and fall of Islamic banking profitability. In the Philippine context, there is no study conducted investigating similar variables but this finding is in conformity with the case of Indonesian Islamic banking proxied by; Islamic financing, profit-loss sharing, interbank profit-loss sharing, and Islamic Certificate of Bank Indonesia. In the study, it is found that Islamic banking performances do not affect inflation rate in Indonesia (Ascarya, 2012).

Table 5. Dependent variable: Real GDP

Chi-sq	df	Prob.
2.017632	7	0.9589

Table no 5 shows that when the real GDP was positioned the dependent variable tested against the independent variable Islamic bank’s Return on Asset (ROA), it revealed that with Chi-sq value of 2.01 at 7 degrees of freedom and a p -value of 0.96, being $p > 0.05$ level of significance, it means that there was not enough evidence to suggest that Islamic banking profitability in the Philippines affected the real GDP of the country. The result of this particular analysis is contradicting to the case found in UAE (M. I. Tabash & Anagreh, 2017), Pakistan (Saleem, 2007), Bangladesh (Abduh & Chowdhury, 2012) and, in Qatar (M. Tabash & Dhankar, 2014). This could be explained by the fact the asset value or bank size of the Islamic banking in the Philippines is too tiny compared to the GDP of the Philippines. Hence, it is understandable if the performance of Islamic banking in the country can not significantly affect the Philippine GDP.

4.2. Impulse Response

Impulse response as stated earlier shows the response of one variable on the impulse or innovation introduced to the other. Specifically, the innovation introduced to the independent variable is present to one positive standard deviation shock to check how the Islamic banking and Philippine economy are reacting to each other.

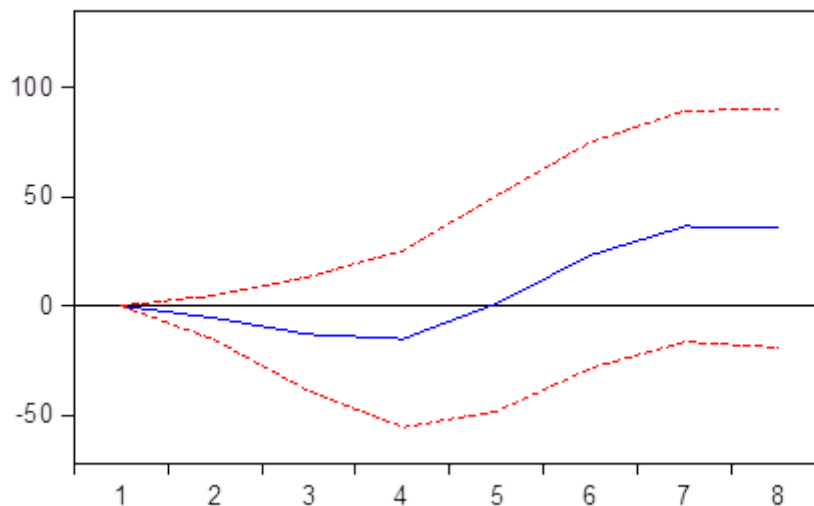


Figure 1. Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E: Response of ROA to Inflation

Figure no. 1 shows that the impulse response of the Islamic bank’s Return on Asset (ROA) on 1 positive standard deviation shock to the inflation rate variable. It reveals that the Islamic bank initially reacted negatively on the first 4 quarters (1 year) then begun to rise in the graph indicating positive reaction of the bank on increasing inflation rate in the country. This suggested that apart from the earlier findings of this study that there was a significant effect of inflation on Islamic banking profitability, it revealed that the effect was positive. This

suggest that an increase in inflation rate was associated with an increase in Islamic banking profitability.

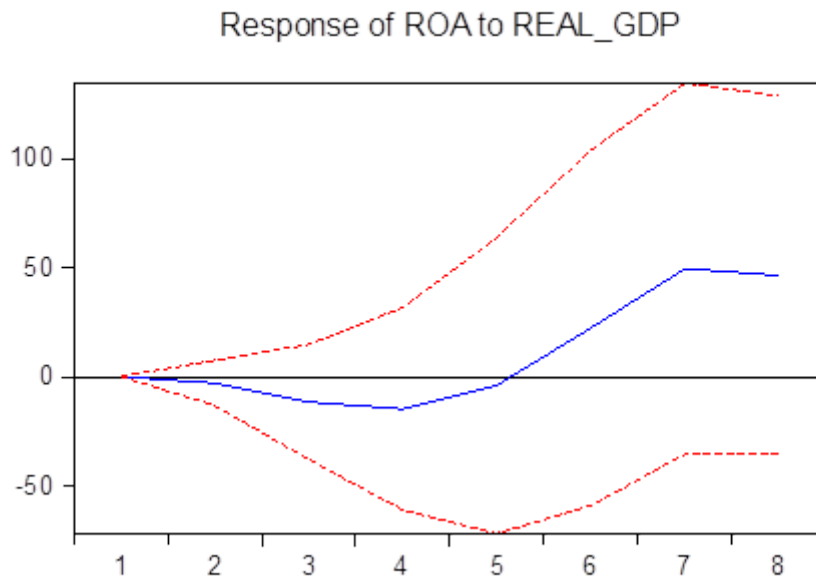


Figure 2. Response to Cholesky One S.D. (d.f. adjusted) Innovations \pm 2 S.E: Response of ROA to Real GDP

Figure 2 shows the response of Islamic banking profitability on the innovation introduced. Particularly, a 1 positive standard deviation shock to the real GDP and the response of Islamic banking profitability on such introduced innovation. The data showed that the first four quarters of the Islamic banking was associated with negative response to the positive innovation but it soon turned positive too specially on the fifth quarter and so on. This indicated that in the long run, Islamic banking will be positively correlated with the country's real GDP. It suggested sometimes in the future, economic growth of the Philippines will bear positive outcome on the Islamic banking profitability in the country

5. Conclusion

The relationship between Islamic banking and the Philippine economy is a complex one that requires careful consideration of various factors. While Islamic banking has the potential to promote economic growth and development in the Philippines, its impact on the overall economy may be limited due to its relatively small market share.

Despite this, the growth of Islamic banking in the Philippines is still significant, and it is important to continue studying its potential impact on the economy. As the industry continues to evolve and expand, there may be new opportunities to leverage Islamic finance principles to promote financial inclusion and support sustainable economic growth.

At the same time, it is important to recognize the challenges associated with Islamic banking, including the need to harmonize Islamic finance principles with existing regulatory frameworks and financial systems. By addressing these challenges in a thoughtful and collaborative manner, we can create an environment that supports the continued growth and development of Islamic banking in the Philippines.

Considering that there not much study conducted about Islamic banking in the Philippines, it is viewed that future studies about the effects of regulatory frameworks, market demand, investor sentiment, and macroeconomic trends on the financial performance of Islamic banking in the country is highly suggested to provide more data about how Islamic banking performed in a non-Muslim country like the Philippines.

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