Islamic Financial Inclusion and Economic Growth: a case study in East Kalimantan

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Article Info	Abstract
	Introduction: Stability in the financial system is a component that can stimulate economic expansion. However, this cannot be accomplished if only a minority of the population has access to the financial system's intermediation function. This may be due to a lack of access, information, or even public awareness of the use of financial services. The objective of this study is to ascertain the extent of inclusivity in East Kalimantan and examine how it influences the region's economic development. Therefore, financial inclusion plays a crucial role in fostering economic expansion by establishing stable financial conditions. **Research Methods:** The Vector Error Correction Model is applied to analyze data obtained from Sharia Banking Statistics (SPS OJK) and Central Statistics Agency (BPS) publications, in addition to other corroborating sources, for the purpose of this quantitative study. **Results:** The research findings indicate that the degree of Islamic financial inclusion in East Kalimantan was low in 2017 and 2018, but reached a high level in 2019, 2020, and 2021. **Conclusion:** The immediate impact of Islamic financial inclusion on economic growth in East Kalimantan is substantial. Nevertheless, over the 2017-2021 period, there is no substantial impact on the level of Islamic financial inclusion and economic growth in East Kalimantan in the long run.

INTRODUCTION

Poverty is a complex issue that affects countries worldwide, and efforts are being made by different nations to solve it (Bashir, 2018; Ruocco, 2021; Wijekoon et al., 2021). Indonesia is actively working to identify and address numerous issues to reduce poverty. The Sustainable Development Goals (SDGs), which seek to achieve equitable and sustainable economic growth, are one of the international initiatives aimed at resolving several issues facing the world, including poverty.

A healthy financial system is one of the variables that fosters economic growth (Umar, 2017). Financial institutions' intermediation function is one of the keys to achieving financial system stability, income equality, and economic growth (Adzimatinur & Manalu, 2021). Consequently, the primary values of Islam place a high value on social justice, inclusivity, and the equitable allocation of resources between rich and poor. Islamic finance approaches the issue of "financial inclusion" or "access to finance" from two perspectives: one by promoting risk-sharing contracts as a viable alternative to traditional debt-based financing, and the other by promoting specific instruments of wealth redistribution among society. One of the characteristics of Sharia companies, such as Sharia banks through financing for small and medium-sized businesses and microinsurance to enhance access to funding, is the use of risk-sharing financing instruments. Furthermore, redistributive instruments such as Zakat, Sadaqat, Waqf, and Qard-al-hassan supplement risk-sharing instruments to target vulnerable sectors of society to provide a complete strategy to alleviating poverty and establishing a healthy and dynamic economy. As a result, it has the potential to help reduce inequalities and poverty in the economy (Mohieldin et al., 2011).

The concept of financial inclusion has gained significance since the early 2000s and has emerged as a shared objective for numerous governments and central banks in developing nations. In the absence of an all-encompassing financial system, impoverished individuals and small enterprises must depend on their own personal assets or internal funds to finance their education, embark on entrepreneurial ventures, or capitalize on promising avenues for growth. Financial market flaws, including information asymmetries and transaction costs, have the potential to impede the progress of the skilled poor and micro and small companies that lack credit history, collateral, or contacts. This can lead to a chronic and steady increase in inequality by limiting their chances. Expansion. Nevertheless, the aspect of financial development pertaining to access is frequently disregarded, mostly due to significant deficiencies in data regarding the individuals who possess access to specific financial services and the obstacles preventing broader access. The unavoidable trade-off between amassing wealth and the existence of social inequality during the initial phases of economic progress also signifies the crucial significance of financial accessibility in promoting social equality (Mohieldin et al., 2011).

The newly established capital of the Republic of Indonesia is situated in East Kalimantan, the fourth most expansive province in Indonesia, encompassing an area of 129,100 km² (*Urutan Provinsi Terluas di Indonesia | Databoks*, 2021). Due to this and its abundant natural resources, particularly gas, oil, and coal, East Kalimantan has the seventh

greatest regional gross domestic product (GRDP) in Indonesia (*IPDRB 34 Provinsi di Indonesia pada 2018 | Databoks,* 2021). Even though this high income ought to reflect the prosperity of society, destitution and inequality remain comparatively elevated. Given these issues, the significance of Islamic Financial Inclusion in addressing these problems is recognized.

Research related to the impact of financial inclusion on economic growth has been carried out in various countries, such as Indian (Sharma, 2016), China (Ahmad et al., 2021), Sub-Saharan Africa (Chinoda & Kapingura, 2023; Takyi et al., 2023), or comparing several countries such as comparison of religious and secular countries (Ozili, 2021), developed and developing countries (Sethi & Acharya, 2018), OIC Countries (Van et al., 2021), ASEAN (Iramayasari & Adry, 2020; Rachmanto, 2023). In addition, extensive study on financial inclusion has been conducted in Indonesia (Anindyntha, 2020; Frita et al., 2021; Murtadlo & Sulhan, 2023), or comparing province (Yuliani, 2020) nevertheless, there has been no specific discussion on East Kalimantan province. Therefore, the objective of this study is to assess the influence of Islamic Financial Inclusion on the economy of East Kalimantan.

RESEARCH METHOD

This study employs a qualitative research approach and utilizes data obtained from the BPS website of the East Kalimantan province (https://kaltim.bps.go.id/) and the Financial Services Authority (OJK) Sharia Banking Statistics. The independent variable in this study is Islamic financial inclusion, while the dependent variable is economic growth. The Vector Error Correction Model approach was then applied to all acquired data in order to ascertain the short- and long-term influences between variables. Prior to doing the VECM test, the Islamic financial literacy index is computed modified from Sarma (Mandira Sarma, 2012).

Table 1. Research Data

Variable	Indicator	Data
Islamic Financial Inclusion Index (IFI)	Accessibilities (D_1)	$D_1 = \dfrac{Jumlah\ DPK\ Perbankan\ Syariah\ (Tahun-t)}{Jumlah\ Penduduk\ (Tahun-t)} \times 1.000$
	availability (D_2)	$D_2 = \dfrac{Jumlah\ kantor\ layanan\ bank\ syariah\ (Tahun-t)}{Jumlah\ Penduduk\ (Tahun-t)} \times 100.000$
	Usage (D_3)	$D_3 = \dfrac{Jumlah\ pembiayaan\ syariah\ (Tahun-t)}{nilai\ PDRB\ (Tahun-t)} \times 1.000$
Economic Growth		PDRB

Source: Modified form Sarma (2012)

RESULT AND DISCUSSION

Islamic Financial Inclusion Index in East Kalimantan

The Islamic Financial Inclusion Index is a metric that quantifies the extent of Islamic financial inclusion. This study aims to assess the degree of inclusiveness in East Kalimantan Province between 2017 and 2021, utilizing the calculation methodology for the Financial Inclusion Index developed by Sarma (Sarma, 2015).

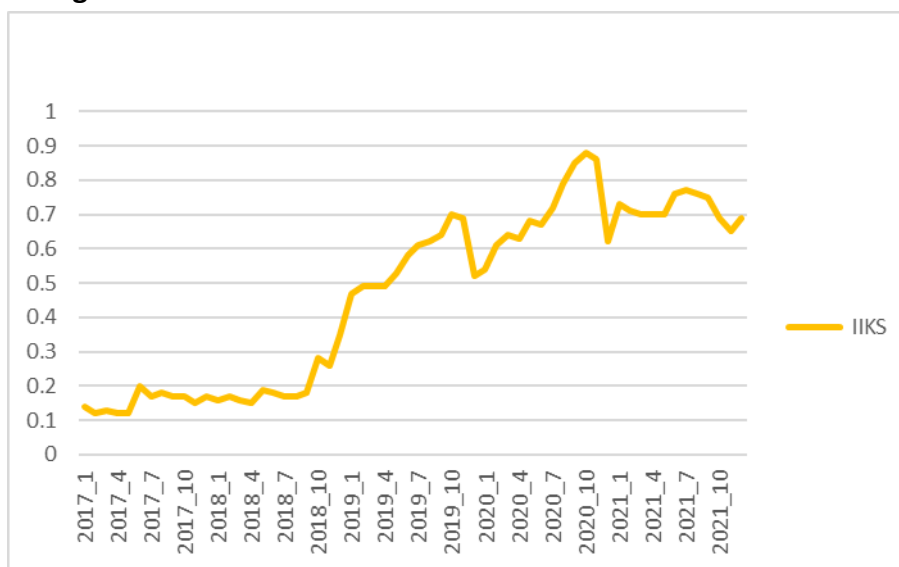**Figure 1. Trend of Islamic Finacial Inclusion in East Kalimantan**

Table 2.
Descriptive Statistics of the Islamic Financial Inclusion Index in East Kalimantan
Period 2017-2021

	2017	2018	2019	2020	2021
min	0,12	0,15	0,47	0,54	0,65
max	0,20	0,35	0,70	0,88	0,77
ave	0,15	0,20	0,57	0,71	0,72
stdev	0,025	0,062	0,083	0,112	0,035

Source: processed data, 2022

The correlation between the Islamic Financial Inclusion Index and Economic Growth

Root Test/ Data Stationarity Test

The stationarity test involved doing a unit root test utilizing the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) procedures. The process of determining whether data is steady or not involves making assumptions and comparing important numbers. If the statistical value exceeds the critical value, the data is considered stationary. Conversely, if the statistical value is lower than the critical value, the data is deemed non-stationary.

Table 3 displays a probability value of 0.0000, while table 4 displays a probability value of 0.0001. It is worth noting that all probability values are less than 0.05.   Therefore, it can be inferred that all variable data exhibits stationarity at varying degrees.

Table 3. Output of ADF Islamic Financial Inclusion

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.790020	**0.0000**
Test critical values	1% level	-3.548208	
	5% level	-2.912631	
	10% level	-2.594027	

Source: processed data, 2022

Tabel 4. Output ADF test of Economic Growth

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.017035	**0.0001**
Test critical values:	1% level	-3.548208	
	5% level	-2.912631	
	10% level	-2.594027	

Source: processed data, 2022

Lag Optimum Test

Table 5. Lag Optimum Output

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-414.1592	NA	16942.10	15.41330	15.48697*	15.44171
1	-406.5435	14.38512*	14821.95*	**15.27939***	15.50039	15.36462*
2	-403.2867	5.910549	15248.31	15.30691	15.67524	15.44896
3	-402.4634	1.433128	17184.28	15.42457	15.94023	15.62344
4	-401.7713	1.153465	19489.08	15.54709	16.21008	15.80278
5	-401.1390	1.007077	22194.93	15.67181	16.48214	15.98433

Source: processed data, 2022

The optimal lag is a crucial factor in VAR analysis, since it uncovers the interrelationship between variables.   The process of determining the optimal lag value in this study involves identifying the lag with the lowest Akaike Information Criteria (AIC) value, which is lag 1.

VAR Stability Test

Table 6.VAR Stability Output

Root	Modulus
0.261650	**0.261650**
0.046478	**0.046478**

Source: processed data, 2022

Prior to conducting any additional study, it is imperative to perform a VAR stability test in order to verify the stability of the utilized model.   A model is considered stable if the modulus value of the root is less than one.   Table 6 indicates that the modulus value of all roots is less than one.

Cointegration Test

According to the unit root test results, the variables are found to be non-stationary at the initial level. However, after conducting a stationarity test on the second difference, the variables become stationary. The next step is to perform a cointegration test to determine if there exists a long-term relationship between the variables.   According to the cointegration test findings in table 7, the probability value is 0.0036, which is less than 0.05.   This indicates the presence of a cointegration equation, signifying that the research model exhibits long-term equilibrium.

Table 7 Cointegration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.383361	36.02851	15.49471	0.0000
At most 1 *	0.138093	8.470663	3.841465	**0.0036**

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

VECM Estimation

To ascertain the level of significance in long-term and short-term analysis, see the t table. If the estimated t-value exceeds the critical t-value, it indicates that the data is statistically significant. The t table value utilized in this research is 2.001.

1) Long-term Impact

Based on the results of estimating the relationship between the Islamic financial inclusion index variable and economic growth in table 8, it shows that the t value is 0.51829, which is smaller than the t table of 2.001. This shows that in the long term the sharia financial inclusion index variable has no effect on the economic growth variable. So the null hypothesis (H0) is accepted and Ha is rejected.

Table 8. Long Term VECM Estimation

Cointegrating Eq:	CointEq1
D(IIKS(-1))	1.000000
D(PDRB(-1))	-1.91E-06
	(3.7E-06)
	[-0.51829]
C	-0.007828

Source: processed data, 2022

2) Short-Term Impact

Table 9. Short Term VECM Estimation

Error Correction:	D(IIKS,2)	D(PDRB,2)
CointEq1	-1.147559	4537.702
	(0.20974)	(7261.29)
	[-5.47139]	[0.62492]
D(IIKS(-1),2)	0.110587	8803.178
	(0.14465)	(5007.99)
	[0.76450]	[1.75783]
D(PDRB(-1),2)	-1.22E-06	-0.475661
	(3.2E-06)	(0.11245)
	[-0.37608]	[-4.23008]
C	0.000619	70.30097
	(0.00769)	(266.221)
	[0.08052]	[0.26407]

Source: processed data, 2022

Based on the VECM test, it shows that in the short term the Islamic financial inclusion index has a positive and significant effect on economic growth, as indicated by the tcount value of 1.575783 which is greater than the ttable of 2.001. So, it can be concluded that Ho is rejected and Ha is accepted. Meanwhile, the financing variable has a negative and insignificant effect.

3) *Impulse Response Function*

The VECM model exhibits its dynamic nature through the reaction of each variable to shock originating from that variable as well as from other endogenous variables.   The reaction model represents the time in the subsequent period following the occurrence of a shock on the horizontal axis, and the corresponding response value on the vertical axis.   Essentially, this study aims to determine the correlation between two variables by identifying their positive or negative relationship.   The impulse reaction characterizes a shock without considering the presence of the equilibrium level.   The impulse reaction offers insight into the future response of a variable when another variable experiences a disturbance.

Figure 2. IRF
Response to Cholesky One S.D. (d.f. adjusted) Innovations
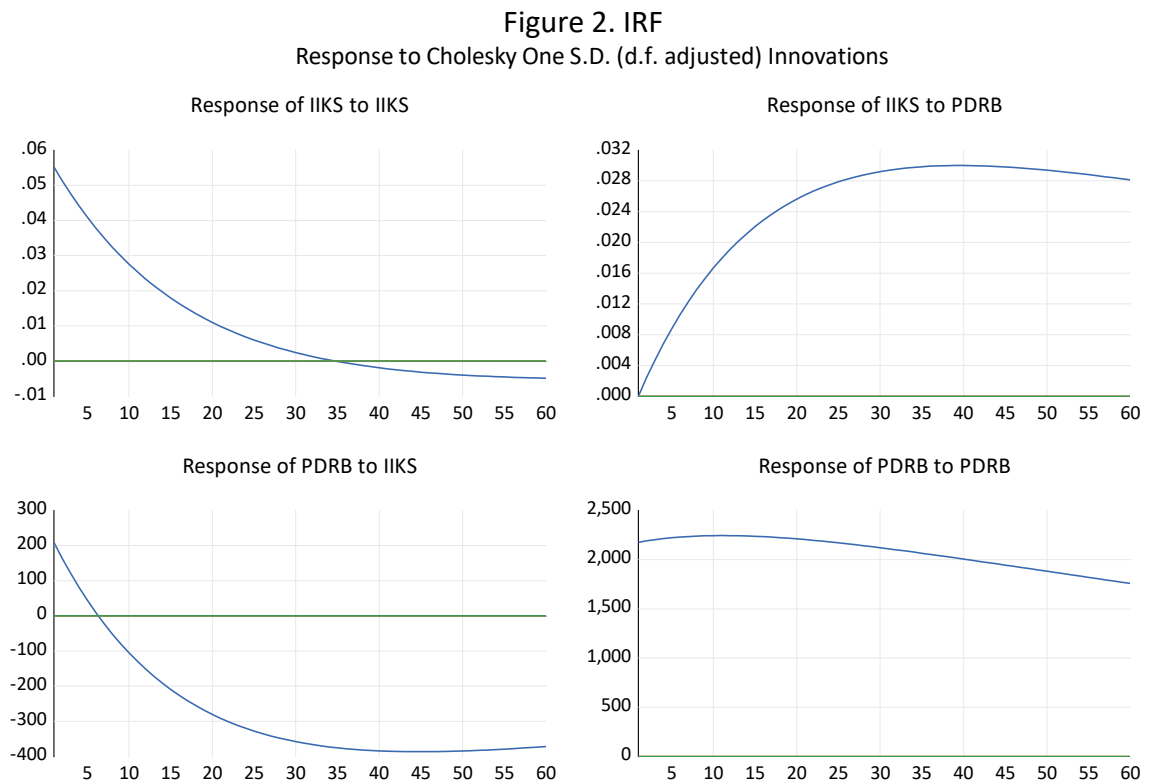
Islamic Financial inclusion in East Kalimantan

Figure 3 illustrates the fluctuating degree of inclusion in East Kalimantan over the years. However, according to the average value in table 4, it is evident that the level of sharia financial inclusion in East Kalimantan has consistently increased annually. According to the Financial Inclusion Index (IIK) category developed by Sarma, the level of inclusion in East Kalimantan in 2017 and 2018 was classified as low, with average values of 0.15 (2017) and

0.2 (2018). During the period from 2019 to 2021, it falls under the high level inclusion group, with an average value that is 0.06 or higher.

Table. 10 The Financial Inclusion level

Level	nilai
High	0,6 ≤ IIK ≤ 1
Moderate	0,3 ≤ IIK ≤ 0,6
Low	0,0 ≤ IIK ≤ 0,3

Souece: Sarma (2015)

The Impact of Islamic Financial Inclusion on East Kalimantan's Economic Growth

The results of the VECM test indicate that the Islamic Financial Inclusion Index (IIKS) has a statistically significant and positive impact on economic growth in the short term. This is supported by the t-value of 1.575783, which exceeds the critical t-value of 2.001. Therefore, Ha is approved and Ho is rejected, it can be concluded. Contrarily, the findings of this study contradict the research of Anas Iswanto (Anwar et al., 2016), which demonstrates that financial inclusion has no impact on economic development.

The analysis of the long-term relationship between the Islamic financial inclusion index variable and economic growth, as presented in table 12, indicates that the t value is 0.51829, which is less than the critical t value of 2.001. This indicates that the Islamic financial inclusion index does not have any impact on the economic growth variable in the long run. The null hypothesis (H0) is accepted whereas the alternative hypothesis (Ha) is rejected.

CONCLUSION

The financial inclusion index calculations indicate that East Kalimantan experienced a relatively low level of Islamic financial inclusion in 2017 and 2018. However, in the subsequent years of 2019, 2020, and 2021, this figure rose to the highest tier. Aside from that, the level of Islamic financial inclusion has a substantial impact on East Kalimantan's economic growth from 2017 to 2021 in the immediate term. In contrast, there is no statistically significant long-term correlation observed between the degree of Islamic financial inclusion and economic growth in East Kalimantan during the period of 2017-2021.

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