

Theoretical and Practical Research in Economic Fields

Quarterly

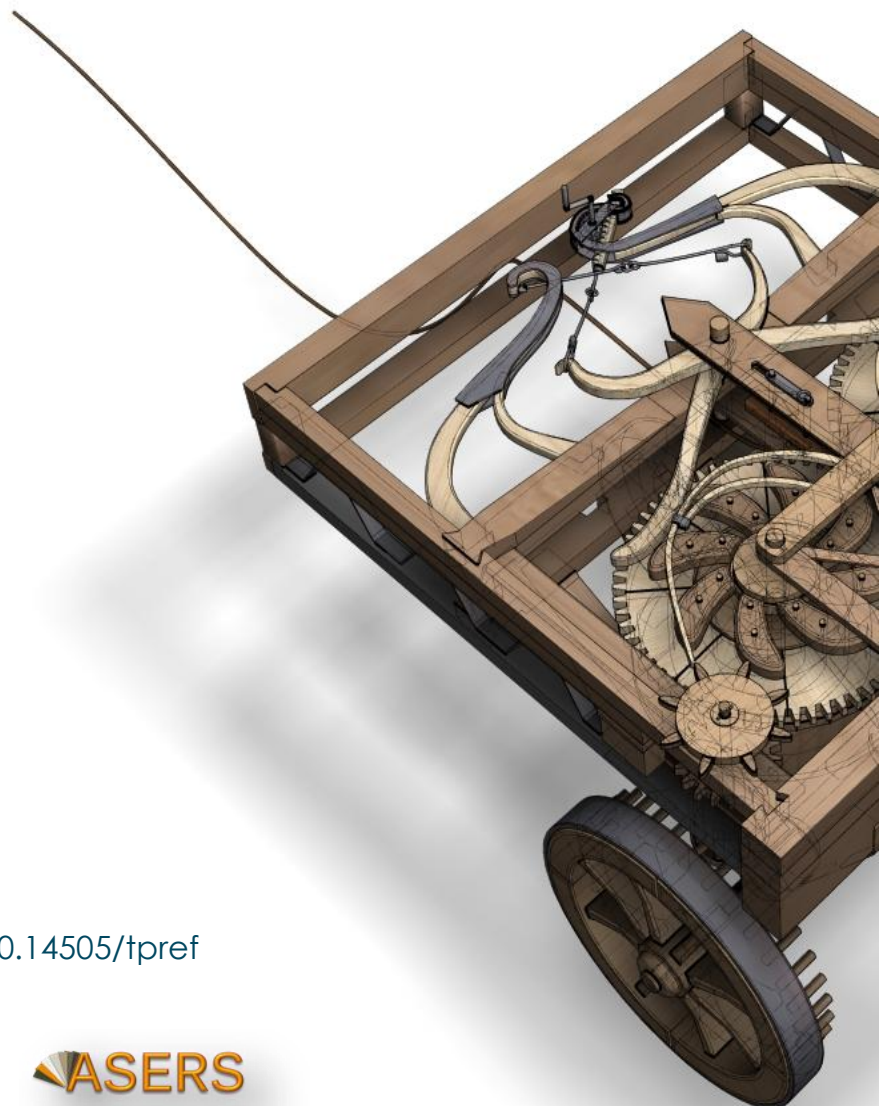
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Many economists today are concerned by the proliferation of journals and the concomitant labyrinth of research to be conquered in order to reach the specific information they require. To combat this tendency, **Theoretical and Practical Research in Economic Fields** has been conceived and designed outside the realm of the traditional economics journal. It consists of concise communications that provide a means of rapid and efficient dissemination of new results, models, and methods in all fields of economic research.

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Economic Stability and Financing Quality: Key Determinants of Islamic Bank Growth

Muhammad IQBAL

Islamic Economics Department, Faculty of Economics and Business
Perbanas Institute, Indonesia
ORCID: 0000-0002-3736-5412
iqbal@perbanas.id

Dian KURNIAWATI

Accounting Department, Faculty of Economics and Business
Perbanas Institute, Indonesia
ORCID: 0000-0001-9406-2381
dian.kurniawati@perbanas.id

RIDARMELLI

Accounting Department, Faculty of Economics and Business
Perbanas Institute, Indonesia
ORCID: 0000-0002-5619-3580
ridarmelli@perbanas.id

Irawati JUNAENI

Management Department, Faculty of Economics and Business
Perbanas Institute, Indonesia
ORCID: 0000-0001-9851-6571
irawati@perbanas.id

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Abstract: The significant increase in Islamic bank financing indicates a positive outlook for Islamic banks. The expansion of Islamic bank financing within a country should be analyzed independently from the country's overall economic climate. It is believed that uncertain economic conditions, such as economic growth, inflation, exchange rates, and interest rates, substantially impact financing disbursement in Islamic banks. This study aims to examine this relationship using Islamic banking data from Indonesia. The research utilizes time series data from January 2005 to December 2023 and employs VAR and VECM data analysis techniques. The research findings show that the primary factor driving the growth of Islamic bank financing is the quality of Islamic bank financing itself. In addition, the research findings also show that shocks in macroeconomic indicators, including economic growth, exchange rates, inflation, and interest rates, affect the growth of Islamic bank financing. Consistent economic growth supports the expansion of Islamic bank financing, while high volatility in economic growth hinders it. Likewise, a strong exchange rate and stable inflation are conducive to the growth of Islamic bank financing, thus accelerating the financing prospects. Therefore, the government plays a vital role in maintaining the growth of Islamic bank financing through financial stability, such as economic growth, exchange rates, and inflation.

Keywords: Islamic bank financing; economic growth; inflation; exchange rates; interest.

JEL Classification: G21; O43; E31; E43; C10.

Introduction

The Indonesian economy has experienced significant developments in recent years. External and internal factors, including macroeconomic variables, profoundly impact the dynamics of the country's economy. In this context, the

Islamic banking sector is also experiencing changes that align with the overall economic transformation. Islamic banks in Indonesia have become essential players in the national financial system, making significant contributions to financing and fund allocation in various sectors. However, the sustainability of the growth and stability of this sector depends on various factors, including the dynamics of macroeconomic variables that impact demand, supply, and risks in the Islamic banking business (Butt *et al.* 2023).

Macroeconomic variables, including the rate of economic growth, prevailing interest rates, levels of inflation, and fluctuations in exchange rates, can substantially impact the operations and performance of Islamic banks, mainly their financing activities. Stable economic change can positively impact people's income and their ability to invest, thereby potentially increasing demand for financing (Hafizh *et al.* 2020; Riyadi *et al.* 2021). Economic growth is reciprocal with Islamic bank financing in the long term (Anwar *et al.* 2020; Naz and Gulzar 2022). The growth in economic activity will encourage demand for financing offered by Islamic banking (Ayyubi *et al.* 2017). Meanwhile, interest rates influence the financing level, ultimately impacting the financing itself (Hafizh *et al.* 2020; Rahmayanti *et al.* 2023). Inflation as an indicator of the value of money also impacts existing financing. Controlled inflation cannot encourage growth in Islamic bank financing (Mubarok *et al.* 2020; Nastiti and Kasri 2019). As a measure of economic competitiveness, exchange rates can also impact capital and investment flows, affecting Islamic bank financing (Mubarok *et al.* 2020).

However, the uncertainty and volatility in these macroeconomic variables can challenge the stability of Islamic bank financing growth. External and internal fluctuations can trigger the Islamic banking business's credit, liquidity, and operational risks (Kusnandar 2022). Therefore, it is crucial to analyze the impact of macroeconomic variables' volatility on the stability of Islamic bank financing growth to identify efforts that can be made to minimize risk and improve efficiency in this sector.

Within this specific framework, the primary objective of this comprehensive study is to delve into the intricate effects of various macroeconomic variables, including but not limited to economic growth, interest rates, inflation, and exchange rates, on the landscape of Islamic bank financing in the dynamic economic environment of Indonesia. A key focus of this investigation is to gain a profound understanding of how fluctuations in these macroeconomic factors influence the overall stability and trajectory of Islamic bank financing growth. The resultant findings from this rigorous analysis are anticipated to furnish invaluable insights that can be instrumental in shaping strategic risk management protocols and facilitating robust business expansion strategies for Islamic financial institutions, particularly in adapting to the continually evolving economic milieu.

This research endeavor will significantly contribute to the broader comprehension of the intricate interplay between macroeconomic variables and the domain of Islamic banking. With a heightened grasp of the multifaceted impacts exerted by these pivotal factors, key stakeholders, including regulatory bodies, industry practitioners, and scholarly researchers, can collaboratively explore and implement tailored measures to effectively combat risks and foster sustainable progress within the Islamic banking sector in Indonesia. The Indonesian economy has experienced significant developments in recent years. External and internal factors, including macroeconomic variables, profoundly impact the dynamics of the country's economy. In this context, the Islamic banking sector is also experiencing changes that align with the overall economic transformation. Islamic banks in Indonesia have become essential players in the national financial system, making significant contributions to financing and fund allocation in various sectors. However, the sustainability of the growth and stability of this sector depends on various factors, including the dynamics of macroeconomic variables that impact demand, supply, and risks in the Islamic banking business (Butt *et al.* 2023).

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The novelty of this study lies in the focus of the study to identify the volatility of macroeconomic variables on financing growth, which is the main activity of Islamic banks. The speed of financing growth in Islamic banks is the main determinant of Islamic bank growth. The complexity of the interaction between macroeconomic variables and the quality of financing on future financing is also one of the novelties of this study. The findings of this study are important for predicting the growth of Islamic banks in the future and their resilience to the economic conditions of a nation.

1. Literature Review

1.1. Islamic Bank Financing

Distribution of financing to Islamic banks should be the main activity in their operations. The primary nature of banks in the Islamic economic concept is financial intermediaries from those who have excess/surplus capital to those who lack/deficit capital (Junaeni *et al.* 2023). This intermediary function is also a form of responsibility of Islamic banks in encouraging the growth of the real sector in society. According to Amelia & Hardini (2017), the critical role of Islamic banks in channeling financing to the community is to create jobs for the small people who receive them and ultimately reduce the high unemployment rate. The greater the distribution of financing by Islamic banks, the more small people will be helped by their economy, thereby increasing community welfare (Dyatama and Yuliadi 2015).

Karim (2016) explains that existing financing in Islamic banks can be grouped into four (based on their objectives). First, financing is based on buying and selling principles, which usually use murabahah, qardh, and istishna contracts. Second, financing is based on the principle of profit sharing, which usually uses mudharabah and musyarakah. Third, financing is based on the rental principle, which usually uses an ijarah contract. Fourth is financing with complementary contracts, which Indonesian banking often uses salam contracts. Various Islamic bank financing schemes are considered fairer than conventional banks, encourages the growth of productive sectors in society (Saleem *et al.* 2025).

1.2. Economic Growth

A rise in economic activity can boost the production of goods and services, promoting economic expansion within a nation. Yearly economic growth can be assessed using a key indicator, Gross Domestic Product (GDP). GDP represents the value of the additional output of all producers in a country. It measures the worth of goods and services manufactured and bought by end users (final goods and services) during a specific time frame (Callen *et al.* 2020). GDP also shows economic growth from overall economic activity and describes the total monetary value of goods and services produced within a country's territory during a certain period, usually measured annually or quarterly. GDP can be measured using current (nominal) or constant (actual) prices. GDP at current prices reflects a country's economic resources and is used to identify shifts and changes in the economic structure.

Conversely, GDP at constant prices signifies the overall sector's economic growth rate yearly and is utilized to determine economic expansion. An increase in a country's economic output implies a growth in production activities, indicating expansion in the business sector with rising production levels. As production increases, there is a greater need for financial support, particularly from the banking sector, in the form of credit and financing. Therefore, higher production levels require increased financing. Consequently, the growth in

financing also increases. This illustrates the positive impact of economic growth on the growth of Islamic bank financing (Farah *et al.* 2025; Büyükbaşaran *et al.* 2022; Anwar *et al.* 2020). Economic growth has an impact on the ability of Islamic banks to carry out their role as financial intermediary institutions through financing and productive investment in the real sector (Saleem *et al.* 2025).

1.3. Inflation

Inflation is one of the essential factors to pay attention to in monetary policy. When inflation rates increase, monetary authorities often respond by raising interest rates. This monetary policy aims to control the inflation rate by increasing borrowing costs. The impact of this increase in interest rates is not limited to the conventional banking sector but applies to Islamic banks (Mubarok *et al.* 2020). This increase in interest rates increases financing costs for individuals, businesses, and investment projects. An increase in inflation followed by an increase in interest rates will impact decreasing financing in Islamic banks (Bareut 2024; Rahmayanti *et al.* 2023).

Per research conducted by Nastiti and Kasri (2019), a rise in the inflation rate can lead to a decrease in the volume of profit-sharing financing. This impact occurs because inflation indirectly influences the growth of financing. The volatility of inflation, manifested in changes in commodity and service prices, can diminish people's purchasing power, leading to reduced demand for financing. Consequently, an increase in inflation can cause shifts in the financial sector. This includes heightened financing costs and reduced demand for profit-sharing financing. Considering the impact of inflation is crucial when making decisions related to monetary and banking policies, particularly in the context of Islamic banking.

1.4. Exchange Rate

Exchange rates, which reflect how much one currency can be exchanged for another, are essential in the global economic context Chien *et al.* (2020). In the context of the exchange rate between the Indonesian rupiah and the United States dollar, fluctuations in this exchange rate have the potential to have a substantial impact on the total financing available within the Islamic banking sector (Mubarok *et al.* 2020; Rifai *et al.* 2017). The significance of currency exchange rates in financing agreements is also clarified by Lin *et al.* (2018). They point out that financing has the potential to impact trade outcomes and the volatility of exchange rates. On the other hand, Zeev (2019) explains that exchange rate depreciation can create opportunities for increasing access to profitable loans.

However, there are also exciting findings from Magud & Vesperoni (2015), which show that the level of flexibility in exchange rates can play an essential role in reducing the impact of financing changes. However, it is important to remember that exchange rate flexibility cannot always fully protect the economy from fluctuations in credit. Therefore, policies focusing on more flexible exchange rate settings can help regulate financing cycles by imposing additional capital charges. On the other hand, in the context of a more rigid exchange rate policy, measures to control excessive financing growth could provide more significant benefits. Thus, the exchange rate is an essential indicator in economic calculations and impacts how financing and economic growth can develop in Islamic banking.

1.5. Interest Rate

The reference interest rate of a bank is the rate that needs to be paid when exchanging one unit of currency for the same currency in the future. If interest rates increase substantially, this can cause additional financial burdens for the banking sector regarding interest payments. This can lead to a reduction in financial institutions' profits. However, the upside is that a rise in interest rates can lead to increased demand for financing from Islamic banks. When interest rates on loans increase in traditional commercial banks, customers may seek alternative financing options with more competitive costs, such as the profit-sharing rate offered by Islamic banks (Elkamiliati and Ibrahim 2014). An increase in interest rates can ultimately be advantageous to Islamic banks by increasing the amount of financing they provide (Bareut 2024; Citra and Suman 2022). A rise in the benchmark interest rates of banks may put pressure on the banking sector by increasing interest costs. Nevertheless, it may also present opportunities for Islamic banks to attract more customers seeking affordable financing. This illustrates market dynamics related to changes in interest rates within the banking industry.

On 19 August 2016, Bank Indonesia enhanced the monetary operations framework by introducing a new reference rate or policy interest rate called the BI 7-Day (Reverse) Repo Rate, replacing the BI Rate. According to the findings of Priyanto *et al.* (2016), interest rates impact Islamic bank financing. Pragmatically, Islamic banks continue to rely on conventional market interest rates as they lack specific references to determine profit-sharing levels. Conversely, Islamic banks still have to compete with traditional banks.

2. Method

This research employed a quantitative approach to analyze the impact of macroeconomic variables on the growth of Islamic bank financing in Indonesia. The study used Vector Autoregression (VAR) and Vector Error Correction Model (VECM) analysis methods. The secondary data used in this study included Islamic banking statistics from Bank Indonesia (Central Bank) and the Financial Services Authority, and macroeconomic variable data from the Central Bureau of Statistics. The data spanned a monthly period from 2005 to 2023.

The Islamic bank financing data (FIN) comprised Sharia Commercial Banks and Sharia Business Units. Additionally, economic growth (GDP) and inflation (INF) data were sourced from the Central Statistics Agency, with the periods of economic growth and inflation considered on a year-on-year basis. The interest rate (RATE) data used was the reference interest rate issued by the Central Bank, and the exchange rate (EXC) data represented the rupiah exchange rate against the American dollar, both obtained from Bank Indonesia.

The VAR/VECM analysis method sought to assess the influence of macroeconomic conditions on changes in Islamic bank financing in Indonesia over the short and long term (Engle and Granger 1987). The analysis process involved several stages, beginning with testing the stationarity of the data and determining the optimal lag for building an accurate VAR. Subsequent stages included stability testing, cointegration testing to establish long-term relationships between variables, and Granger causality testing to confirm two-way relationships between variables. The analysis was capped off by evaluating the Impulse Response Function (IRF) and Variance Decomposition (VD). The VECM equation used in this research is:

$$\Delta \text{LnFIN}_t = \rho_0 + \sum_{i=1}^n \rho_i \Delta \text{LnFIN}_{t-i} + \sum_{i=1}^n \sigma_i \Delta \text{LnGDP}_{t-i} + \sum_{i=1}^n \tau_i \Delta \text{LnEXC}_{t-i} + \sum_{i=1}^n \varphi_i \Delta \text{INF}_{t-i} + \sum_{i=1}^n \omega_i \Delta \text{RATE}_{t-i} + e_t$$

Where:

- LnFIN = natural logarithm of Islamic bank financing
- LnGDP = natural logarithm of gross domestic product
- LnEXC = natural logarithm of exchange rates
- INF = inflation rate
- RATE = interest rate

3. Research Results

According to the data calculations, Table 1 provides descriptive statistics for Islamic bank financing (FIN), economic growth (GDP), exchange rate (EXCR), inflation rate (INF), and interest rate (RATE). The research results' descriptive statistics indicate that the lowest Islamic bank financing variable was observed at the start of the research period in January 2005, while the highest occurred in December 2023. Financing data describes the accumulated financing distributed by all Sharia banks in Indonesia. The average growth in Islamic bank financing distribution in Indonesia reached 1.74% monthly, and annual growth reached 23.43%. Sharia bank financing growth of this magnitude shows extraordinary results compared to banking credit growth in Indonesia, which was only 11.35% (year-on-year) until the end of December 2022 (Bank Indonesia 2023). The advancement of Islamic bank funding is double that of conventional bank loans, indicating substantial potential for growth in Islamic bank financing in Indonesia and suggesting that the market potential continues to expand.

Table 1. Statistic Descriptif

Variable	Mean	Std. Dev.	Max.	Min.
LnFIN	4.82363	1.13885	6.34300	2.46000
LnGDP	6.64096	0.59598	7.47900	5.33200
LnEXC	2.45348	0.20451	2.79500	2.14100
INF	5.52351	3.44908	18.38000	1.32000
RATE	6.54140	2.09684	12.75000	3.50000

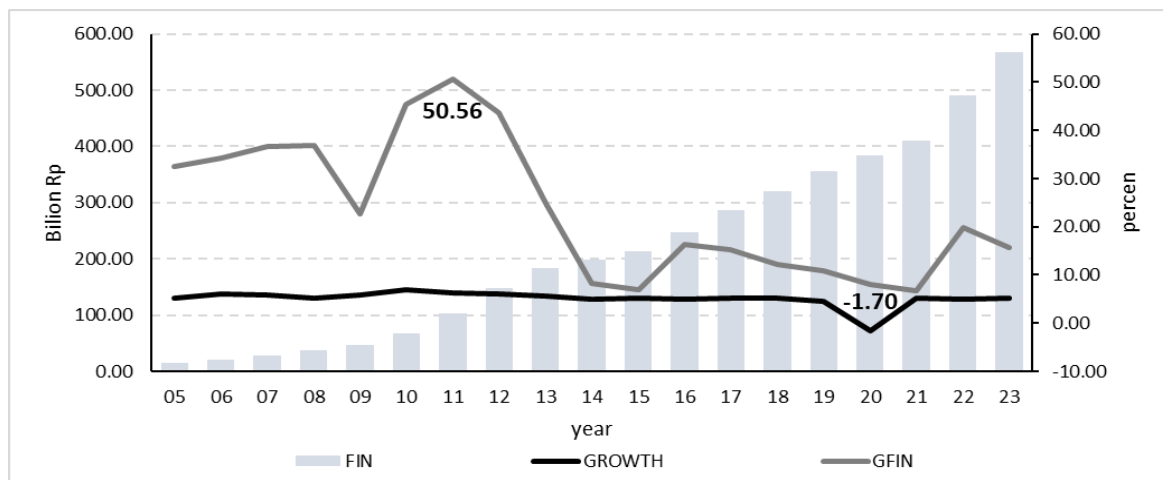
Source: calculated by authors based on (Financial Services Authority & Central Bureau of Statistics)

The growth and development of Islamic bank financing in Indonesia must be balanced with Indonesia's macroeconomic conditions. The growth movement in Islamic bank financing is more or less in line with trends in macroeconomic indicators (Figure 1). In the early 2010s, relatively high economic growth encouraged the growth

of sharia bank financing. Likewise, with stable economic growth in the mid-2010s, the development of sharia bank financing, although not as high as at the beginning, still shows a progressive increase. At the beginning of 2020, which coincided with the COVID-19 pandemic, Indonesia's economic growth was negative, and growth in Islamic bank financing reached its lowest point (8.6% in 2020 and 7.0% in 2021). Data movements of other macroeconomic indicators, such as inflation (INF), exchange rates (EXC), and interest rates (RATE), move almost in tandem with the other two variables (financing and economic growth). The highest inflation occurred at the end of 2005 and the lowest at the beginning of the Covid-19 period (August 2020).

Meanwhile, the highest exchange rate of the rupiah against the US dollar occurred at the start of COVID-19 (March 2020). At that time, the rupiah depreciated quite significantly against the US dollar. The rupiah exchange rate was still strong in the early 2010s, with the exchange rate per one USD reaching around 8,500. Meanwhile, the Indonesian government reduced interest rates to 3.5% during the COVID-19 pandemic, which is one form of government policy during times of crisis.

Figure 1. Economic Growth, Financing and Growth of Islamic Bank Financing



Source: Financial Services Authority (2005-2023)

Once the distinctive characteristics of each research variable during the observation period are comprehended, it becomes essential to conduct a stationarity test to ensure that the data does not demonstrate a definite pattern for each variable (Gujarati *et al.* 2017). The findings of the stationarity test, performed using the unit root test, are presented in Table 2. The unit root test utilized two methods, namely Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP). The t-statistical probability values from the two methods exhibit varying outcomes at the level and the first differential. The stationarity test utilizing the ADF method reveals that nearly all variables are non-stationary at the level, with only inflation (INF) demonstrating stationarity (probability value less than α).

Meanwhile, in the PP method stationarity test, only financing (LnFIN) and economic growth (LnGDP) are stationary. The stationary tests using the ADF and PP methods at the first differential level show different results. In the ADF method, the financing variables (LnFIN) and economic growth (LnGDP) are still not stationary, whereas in the PP method, all variables are stationary. Even though they are different, these results are enough to prove that all research variables have stationarity in the first differentiation (Gujarati *et al.* 2017).

Table 2. Results for the Stationarity Test

Variable	Level				First Difference			
	ADF		PP		ADF		PP	
	t-Stat	Prob.	t-Stat	Prob.	t-Stat	Prob.	t-Stat	Prob.
LnFIN	-2.4167	0.1383	-4.3111**	0.0005	-1.4272	0.5685	-12.923**	0.0000
LnGDP	-2.4201	0.1374	-3.5799**	0.0069	-2.3590	0.1548	-6.6233**	0.0000
LnEXC	-0.8843	0.7920	-0.8772	0.7941	-12.026**	0.0000	-14.284**	0.0000
INF	-3.1595*	0.0239	-2.5927	0.0959	-9.6313**	0.0000	-12.378**	0.0000
RATE	-2.4884	0.1196	-1.8236	0.3684	-4.8196**	0.0001	-6.5472**	0.0000

Notes: *significant at 5 percent; **significant at 1 percent

Source: developed by authors

The results in Table 2 illustrate that all research variables have reached the same level of stationarity, namely at the first difference level. This finding has important implications in the data analysis process because a consistent level of stationarity facilitates further interpretation and analysis of the data. Data analysis at the first difference level can avoid the complexity that may arise in the analysis process with different levels of stationarity. The first level of difference follows the (Engle and Granger 1987) approach, making it easier to estimate the VAR model more precisely. This is because the first level of difference eliminates trends or non-stationary patterns in the data so that analysis can focus more on the relationship between variables and their impact without being distorted by time trends. In other words, using the first level of difference in the data allows a more in-depth and accurate analysis of the relationships between variables in the VAR model. Before carrying out a stability test, the model with the optimum lag will be selected first.

Table 3. Selection of Optimal Lag in VAR

Lag	AIC	SC	HQ	LR	FPE
1	-14.11400	-13.72712*	-13.95775	-	5.11E-13
2	-14.32919	-13.55543	-14.01669	92.69234	4.12E-13
3	-14.62510*	-13.46446	-14.15635*	106.9407	3.07E-13*
4	-14.58459	-13.03707	-13.95960	37.37341	3.20E-13
5	-14.47443	-12.54003	-13.69318	22.92037	3.58E-13
6	-14.49264	-12.17136	-13.55514	46.59212	3.53E-13
7	-14.53443	-11.82627	-13.44068	49.69847*	3.40E-13
8	-14.50123	-11.40619	-13.25123	34.92501	3.54E-13

Source: developed by authors

After identifying the model with the most suitable lag, the subsequent stage involves conducting a stability assessment on the chosen optimal lag model. The findings of the optimal lag test from VAR estimation are presented in Table 3. The lag three yields the lowest Akaike information criterion (AIC), Hannan-Quinn information criterion (HQ), and final prediction error (FPE) values, while the tiniest Schwarz information (SC) values are observed at lag one, and the lowest likelihood ratio (LR) values are detected at lag seven. Of the five indicators, three reveal the optimal lag to be three, leading to the selection of lag three as the optimal lag length for VAR equation estimation (Widarjono 2017). The outcomes of the stability test at lag three are displayed in Table 4. The highest modulus value of the VAR model at lag three does not exceed one, indicating that the chosen model has successfully passed the stability test, meaning the VAR model at lag three is stable.

Table 4. VAR Optimal Lag Stability Test

Root	Modulus
0.922448	0.922448
0.767175	0.767175
0.582801 - 0.483656i	0.757351
0.582801 + 0.483656i	0.757351
-0.387885 - 0.607879i	0.721090
-0.387885 + 0.607879i	0.721090
-0.650469	0.650469
-0.061810 - 0.472979i	0.477001
-0.061810 + 0.472979i	0.477001
-0.331540 - 0.286951i	0.438474
-0.331540 + 0.286951i	0.438474
0.406031	0.406031
0.121793 - 0.352453i	0.372903
0.121793 + 0.352453i	0.372903
0.092072	0.092072

Source: developed by authors

The next step is determining which VAR or VECM model will be selected. The cointegration test is carried out to see whether there is a long-term relationship. However, before carrying out a cointegration test, it is necessary to test causality between variables. The causality test is carried out to determine whether each pair of research variables is related (Granger 1986). The causality test uses the Granger Causality test, the results of which can be seen in Table 5. Initial identification shows that economic growth, exchange rates, and interest rates influence Islamic bank financing. Even exchange rates and interest rates have a reciprocal influence on Islamic bank financing. Only inflation does not have a reciprocal influence on Islamic bank financing. Sharia bank financing does not affect economic growth, but economic growth influences Sharia bank financing. In this research, all macroeconomic variables do not have a reciprocal relationship. Economic growth has a unidirectional influence on exchange rates, inflation, and interest rates. Interest rates also affect inflation. The exchange rate does not influence inflation and interest rates.

The test results obtained using the Johansen test (Johansen 1988), which are documented in Table 6, provide valuable insight into the relationship between the variable Islamic bank financing (FIN) and the variables economic growth (GROWTH), inflation (INF), exchange rate (EXCR), and interest rates (RATE). In this context, the value of the trace statistic and the maximum eigenvalue at $r = 0$ (None) indicate the extent to which the variables are cointegrated. A result much greater than the relevant critical value indicates a strong relationship between these variables in the long run. In this case, cointegration shows that these variables influence each other over a long period. It is also essential to look at the p-values recorded in the table. A p-value more minor than the 1% significance level indicates that this cointegration did not occur by chance.

Table 5. Test Pairwise Causality: Granger

Null Hypothesis:	Obs	F-Statistic	Prob.
LNGDP \rightarrow LNFIN	225	3.1857*	0.0247
LNFIN \rightarrow LNGDP		0.8611	0.4621
LNEXC \rightarrow LNFIN	225	13.093**	0.0000
LNFIN \rightarrow LNEXC		4.3397**	0.0054
INF \rightarrow LNFIN	225	1.4354	0.2334
LNFIN \rightarrow INF		1.9493	0.1226
RATE \rightarrow LNFIN	225	2.6346*	0.0507
LNFIN \rightarrow RATE		4.8849**	0.0026
LNEXC \rightarrow LNGDP	225	2.1610	0.0936
LNGDP \rightarrow LNEXC		3.7773**	0.0113
INF \rightarrow LNGDP	225	1.0977	0.3510
LNGDP \rightarrow INF		2.7533*	0.0435
RATE \rightarrow LNGDP	225	1.1573	0.3270
LNGDP \rightarrow RATE		6.1262**	0.0005
INF \rightarrow LNEXC	225	0.1970	0.8984
LNEXC \rightarrow INF		2.1453	0.0955
RATE \rightarrow LNEXC	225	1.0932	0.3529
LNEXC \rightarrow RATE		2.2198	0.0868
RATE \rightarrow INF	225	22.057**	0.0000
INF \rightarrow RATE		2.3158	0.0767

Notes: *significant at 5 percent; **significant at 1 percent

Source: developed by authors

The available statistical evidence convincingly supports a robust and enduring connection between Islamic bank financing factors and key economic indicators such as economic growth, inflation, exchange rates, and interest rates. These findings form a robust foundation for further examination of how macroeconomic variables like economic growth, inflation, exchange rates, interest rates, and Islamic bank financing interact over the long term. Identifying long-term effects through cointegration tests confirms that the model used transitions from the VAR model to the VECM model, which can effectively account for both long-term and short-term effects simultaneously. The upcoming section will delve into a detailed analysis of macroeconomic variables' long-term and short-term impact on Islamic bank financing.

Table 6. Co-Integration Test: Johansen

Rank Test	Hipotesis: r	Eigen Value	Trace/Max Eigenvalue	Critical Value	p-value
Trace	None	0.2313	199.9864	69.8189	0.0000**
	1	0.2208	141.3321	47.8561	0.0000**
	2	0.1865	85.7031	29.7971	0.0000**
	3	0.0933	39.6853	15.4947	0.0000**
	4	0.0769	17.8447	3.84150	0.0000**
Maximum Eigenvalue	None	0.2313	58.6544	33.8769	0.0000**
	1	0.2208	55.6290	27.5843	0.0000**
	2	0.1865	46.0178	21.1316	0.0000**
	3	0.0933	21.8406	14.2646	0.0027**
	4	0.0769	17.8447	3.84150	0.0000**

Notes: *significant at 5 percent; **significant at 1 percent

Source: developed by authors

4. Discussions

The long-term VECM equation model of the influence of macroeconomic variables on Islamic bank financing is shown in Table 7. Three macroeconomic variables are economic growth, exchange rates, and inflation, which influence Islamic bank financing. The research results show that in the long term, economic growth, exchange rates, and inflation in the previous period will influence the growth of Islamic bank financing in the current period.

Table 7. Vector Error Correction Model: Long-Term Equations

Variable	Coefficient	t-Statistik
LNFIN(-1)	1.0000	
LNGDP(-1)	-3.030848	-10.6970**
LNEXC(-1)	2.865736	4.12417**
INF(-1)	-0.142619	-3.4579**
RATE(-1)	-0.005047	-0.0617
C	9.103165	

Notes: *significant at 5 percent; **significant at 1 percent

Source: developed by authors

The negative coefficient of the economic growth variable suggests that over the long term, the previous period's economic growth dampens the growth of Islamic bank financing. These results indicate that rapid economic growth slows the growth of Islamic bank financing, emphasizing that stability in economic growth has a more significant impact on the growth of Islamic bank financing than high economic growth volatility. These findings corroborate the research of Anwar *et al.* (2020), Butt *et al.* (2023), Naz & Gulzar (2022), and Riyadi *et al.* (2021), particularly in the long term.

The research suggests that fluctuations in exchange rates significantly impact the growth of Islamic bank financing. A strengthening exchange rate in the preceding period will spur growth in Islamic bank financing. In contrast, a weakening rupiah exchange rate against the dollar would likely slow down this growth. The study underscores the importance of exchange rate stability in supporting the movement of Islamic bank financing. These findings are consistent with previous research by Zeev (2019) and (Mubarok *et al.* 2020), indicating that exchange rate movements are pivotal in shaping financing dynamics. However, it is essential to note that the findings diverge from those of (Nastiti and Kasri 2019), who posited that the exchange rate does not significantly impact Islamic bank financing.

Like economic growth, prolonged inflation from previous periods negatively impacts the growth of Islamic bank financing in subsequent periods. Continual price increases can instill reluctance among market players to invest in the real sector, consequently impeding the growth of Islamic bank financing, which relies on the real sector. Rahmayanti *et al.* (2023) corroborate these findings by indicating that an inflation upsurge is typically followed by an increase in reference interest rate, ultimately affecting customers who postpone their financing applications. Moreover, inflation influences a reduction in the volume of profit-sharing financing in Islamic banks, particularly those based on the real sector. Such financing is highly sensitive to price fluctuations, as inflation-

induced decreases in purchasing power lead to diminished demand for profit-sharing financing (Priyanto *et al.* 2016; Nastiti and Kasri 2019).

Table 8. Vector Error Correction Model: Short-Term Equations

Error Correction:	D(FIN)	
	Coefficient	t-Statistics
CointEq1	-0.0063	-2.4352**
D(LNFIN(-1))	-0.0011	-0.0174
D(LNFIN(-2))	0.1038	1.76213
D(LNFIN(-3))	0.3694	6.29238**
D(LNGDP(-1))	0.0922	1.03655
D(LNGDP(-2))	-0.0504	-0.4854
D(LNGDP(-3))	0.2614	2.86468**
D(LNEXC(-1))	-0.0554	-1.6434
D(LNEXC(-2))	-0.1044	-3.1534**
D(LNEXC(-3))	-0.0514	-1.4745
D(INF(-1))	-0.0005	-0.4885
D(INF(-2))	0.0012	1.16591
D(INF(-3))	0.0002	0.17161
D(RATE(-1))	-0.0053	-0.9289
D(RATE(-2))	-0.0028	-0.4580
D(RATE(-3))	-0.0058	-0.9909
C	0.0062	3.28529**
R-squared	0.4233	
Adj. R-squared	0.3787	
F-statistic	9.49630**	

Notes: *significant at 5 percent; **significant at 1 percent

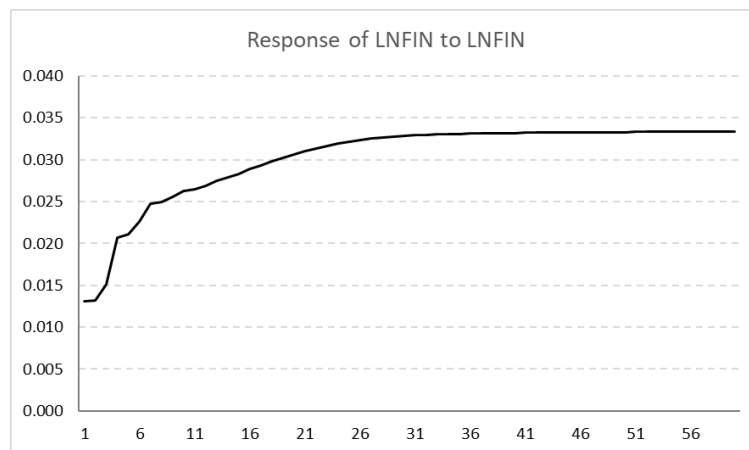
Source: developed by authors

The VECM model was used to analyze the short-term influence of macroeconomic variables on Islamic bank financing. The results, presented in Table 8, indicated a significant cointegration coefficient value of up to one percent, confirming the suitability of the VECM model for explaining the interaction of macroeconomic variables on Islamic bank financing growth in the short term. The model revealed that the growth of Islamic bank financing in the current period is influenced by the growth of Islamic bank financing in the three previous periods. However, the influence of Islamic bank financing on itself is short-term, as previous Islamic bank financing takes at least three months to influence future Islamic bank financing. The short-term effect of Islamic bank financing in the previous three months on Islamic bank financing in the current period was found to be significantly positive, indicating that an increase in financing in the previous three months results in a boost in financing in the current period.

Furthermore, it was observed that the positive impacts that occur do not last continuously. In the long term, financing growth will decline, ultimately leading to stability. Figure 2 illustrates the stability of the influence of Islamic bank financing on itself after 26 months, suggesting that after more than two years of volatility in financing growth, financing growth itself will stabilize.

This model also reveals that economic growth and exchange rate volatility significantly influence financing growth in the short term. Meanwhile, inflation and interest rates do not influence the growth of Islamic bank financing in the short term. This condition illustrates how macroeconomic variables contribute to changes in Islamic bank financing over a shorter period. This provides a deeper understanding of the dynamics of the relationship between these variables and can be used as a basis for designing more effective policy strategies in the future.

Figure 2. Impulse Response Function FIN against FIN



Source: developed by authors

The lag of economic growth's influence on financing growth is the same as that of financing's influence on financing itself in the short term. The influence of economic growth has the same duration of time in influencing Islamic bank financing as Islamic bank financing itself. At least economic growth will affect Islamic bank financing after three months. Economic growth influences the growth of Islamic bank financing significantly positively in the short term. The improving economic conditions in the last three months will encourage financing growth. Conversely, slowing economic growth will also reduce the distribution of financing to Islamic banks.

Changes influence the growth of Islamic bank financing in the short term in the exchange rate. Unlike economic growth, the exchange rate hurt financing in the previous period. If the dollar exchange rate strengthens against the rupiah, it will decrease the distribution of Islamic bank financing. In simple terms, a weaker domestic currency leads to reduced distribution of Islamic bank financing. Conversely, a more robust domestic currency will promote the growth of financing distribution to Islamic banks in the short term. The short-term influence of the exchange rate indicates that fluctuations strongly affect the domestic market in terms of currency exchange. This is mainly due to the high consumption of imported goods domestically. Therefore, when the exchange rate weakens, the demand for financing also decreases.

Conversely, inflation does not impact the growth of Islamic bank financing in the short term but does have an effect in the long term. The effects of inflation are only realized after a certain period. Fluctuations in the prices of new goods are typically experienced over a period longer than three months.

Furthermore, interest rates do not impact Islamic bank financing in the short or long term. The lack of influence of interest rates on Islamic bank financing indicates that customers do not consider interest rates a deciding factor when seeking credit at Islamic banks. This finding aligns with Hafizh *et al.* (2020) and Mubarak *et al.* (2020) conclusions. However, it contradicts the findings of Priyanto *et al.* (2016) and Šeho *et al.* (2020), suggesting that interest rates influence Islamic bank financing.

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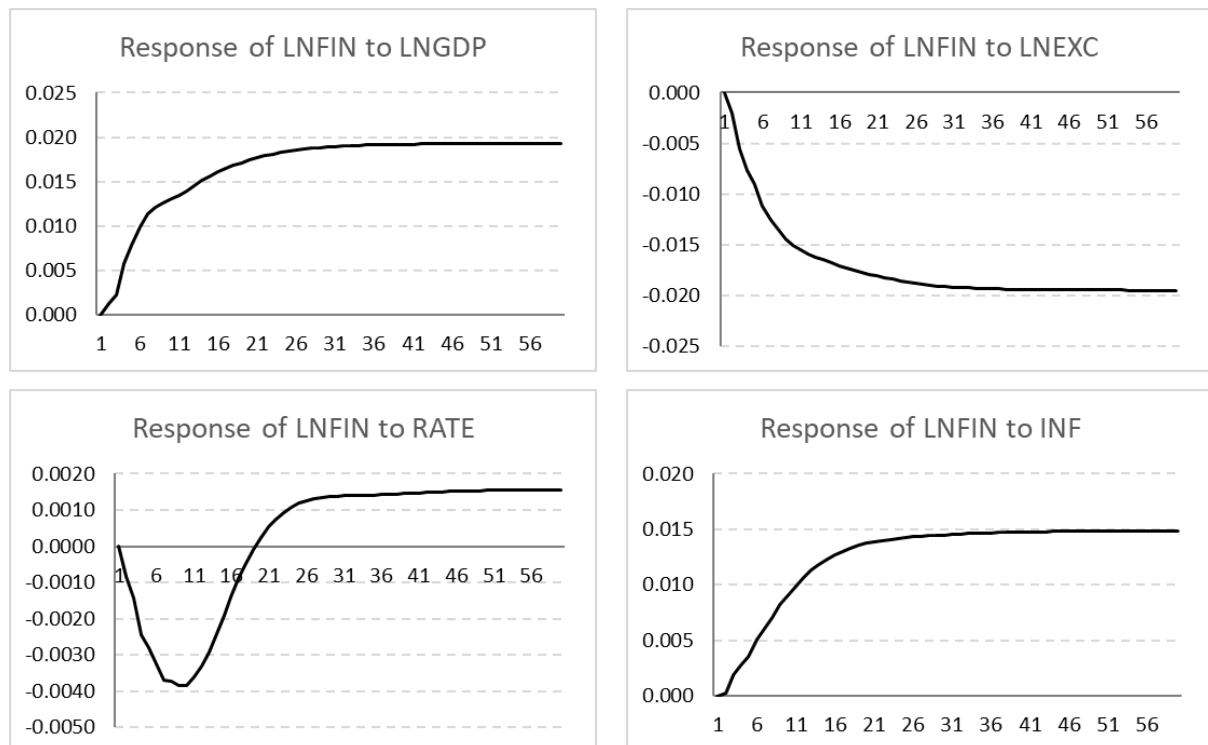
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Figure 3. Impulse Response Function GDP, EXCR, RATE, and INF against FIN



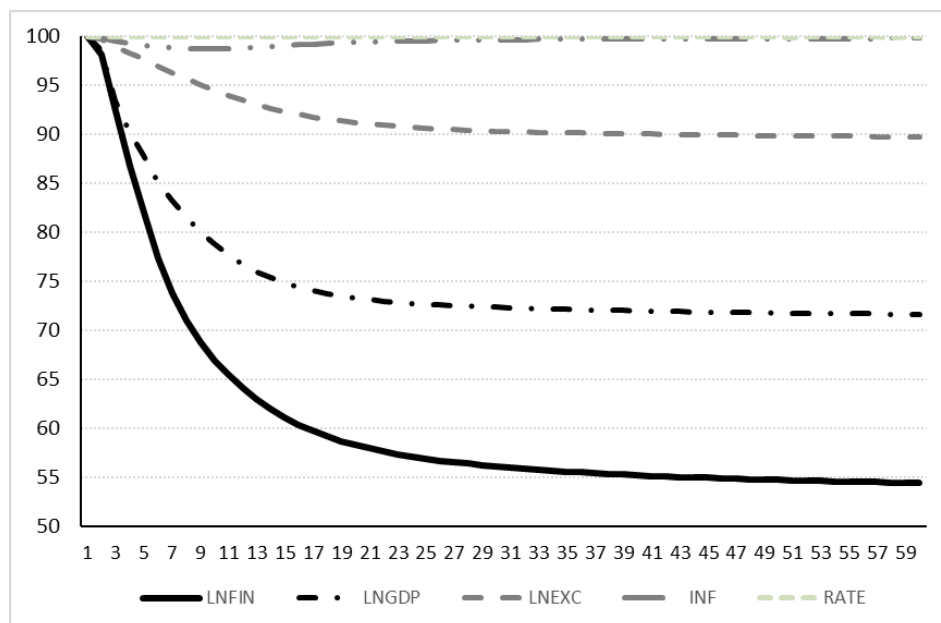
Source: developed by authors

The response of Islamic bank financing (FIN) to shocks that occur in economic growth (GDP), exchange rates (EXCR), interest rates (RATE), and inflation (INF) is illustrated in Figure 3. Based on the results of the impulse response function (IRF) analysis, the response of Islamic bank financing (FIN) to economic growth (GDP) has a relatively similar pattern to the response of Islamic bank financing itself. The response to economic growth was only visible within three months, with a relatively slow upward trend. The shocks resulting from the volatility of economic growth on Islamic bank financing within two years will still be high and stabilize after two years. This means that after two years of volatility, economic growth will constantly influence financing growth. Other macroeconomic variables also have relatively similar patterns to economic growth in terms of the duration of shock stability. Shocks that occur in all macroeconomic variables will stabilize after two years.

In general, the percentage influence of growth in Islamic bank financing is still dominated by growth in Islamic bank financing itself in previous periods. This means that the quality and quantity of Islamic bank financing in the future is determined by the quality and quantity of Islamic bank financing in the past. The better the quality of Islamic bank financing, the better the quality will be in the future, and the quantity will continue to increase. This is from the percentage bar chart of the financing variable (LNFIN) in Figure 4. The Variance Decomposition of LNFIN is consistently above 54%. Gradually, in the following months, economic and exchange rate growth took relatively the same role in influencing the growth of Islamic bank financing. Both remained at the end of the observation period at 17% - 18%. The composition of the influence of interest rates compared to other macroeconomic variables is the smallest. The percentage does not reach 1%. Overall, the variance decomposition illustration in Figure 4 is consistent with the results of previous data analysis. This result also

confirms that successive growth in financing in Islamic banks is influenced by financing growth, economic growth, exchange rate growth, inflation, and ending with the reference interest rate.

Figure 4. Variance Decomposition of FIN



Source: developed by authors

Conclusions and Further Research

Shocks from macroeconomic variables such as economic growth, exchange rate fluctuations, and inflation tend to disrupt increases in Islamic bank financing. Economic growth shocks positively impact the growth of Islamic bank financing in the short term and tend to suppress the growth of Islamic bank financing in the long term. Exchange rate fluctuations disrupt the growth of Islamic bank financing both in the long and short term. Strengthening exchange rate stability will encourage growth in Islamic bank financing, while a weakening exchange rate will hamper growth in Islamic bank financing. Stable inflation will encourage Islamic bank financing in the long term, but inflation fluctuations in the short term do not affect the growth of Islamic bank financing.

Apart from macroeconomic variables, the quality of Islamic bank financing itself is also a determining factor in the growth of Islamic bank financing. The influence is higher than macroeconomic variables. The better the quality of Islamic bank financing distribution is, the better the future development of Islamic bank financing will be. However, the impact on the quality of this financing will be positive in the long term. In the short term, the funding quality will be detrimental to the financing itself.

One of the policy recommendations that refers to the results of this research is the need for the government's role in maintaining economic stability. Several indicators that can reflect financial stability, such as economic growth, exchange rates, and inflation, need to receive more attention to encourage the development of Islamic bank financing. If an economic shock occurs, government intervention must be carried out through a stability policy, as was done during the COVID-19 pandemic. One thing that has proven effective is the Indonesian banking financing/credit restructuring policy package.

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Credit Authorship Contribution Statement

Muhammad Iqbal: Conceptualization, Methodology, Software, Formal analysis, Writing – original draft, Validation, Visualization.

Dian Kurniawati: Conceptualization, Project administration, Data curation, Validation, Visualization, Funding acquisition.

Ridarmelli: Investigation, Project administration, Data curation, Validation, Writing – review and editing, Funding acquisition.

Irawati Junaeni: Investigation, Formal analysis, Supervision, Writing – review and editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of Use of Generative AI and AI-Assisted Technologies

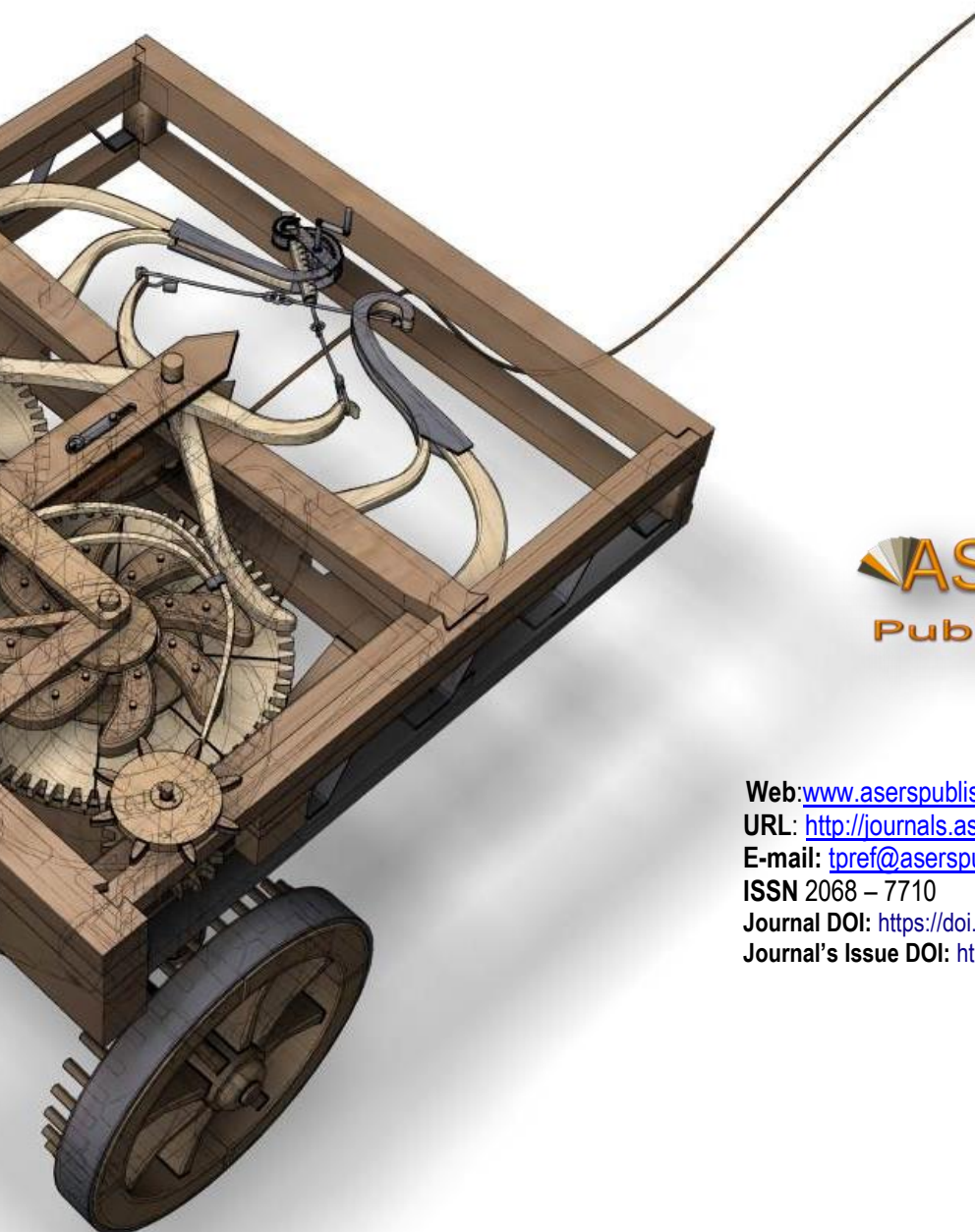
The authors declare that they have not used generative AI and AI-assisted technologies during the preparation of this work.

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