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Interest Rates and Economic Growth: Evidence from Southeast Asia Countries

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Abstract

This study examines the dynamic interplay between interest rates, inflation, and GDP growth in Southeast Asian economies from 2000 to 2023, employing the Panel ARDL framework with the Pooled Mean Group (PMG) model. The findings confirm a robust long-term relationship among the Deposit Interest Rate (DIR), Lending Interest Rate (LIR), Consumer Price Index (CPI), and GDP growth. Higher deposit rates consistently promote economic expansion by encouraging savings and investment, while lending rates support long-term growth but limit short-term activity due to higher borrowing costs. Inflation adversely affects long-term growth by reducing purchasing power but boosts short-term demand. Historical GDP trends highlight the region's susceptibility to global shocks, such as the 2008–2010 financial crisis and the 2020 COVID-19 pandemic, with forecasts indicating a gradual recovery from 2021 to 2025. The study emphasizes the importance of balanced monetary policies to enhance growth and stability in Southeast Asia, providing practical insights for policymakers addressing global and regional economic challenges.

Keywords: GDP growth; deposit interest rate; lending interest rate; consumer price index; Panel ARDL; PMG model; Southeast Asia; monetary policy; economic stability

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1. Introduction

Interest rates are a pivotal force in shaping macroeconomic trends, influencing the economic and financial decisions of households, businesses, and financial institutions. As a cornerstone of monetary policy, interest rates enable central banks to manage inflation, foster economic growth, and maintain stability (Keynes, 1936; Taylor, 1993). Their fluctuations significantly affect key economic indicators, including the Consumer Price Index (CPI), exchange rates, and Gross Domestic Product (GDP) (Fisher, 1930; Mishkin, 1995). In the context of global economic interconnectivity, Southeast Asian countries must navigate both opportunities and challenges arising from domestic rate adjustments and global monetary policy shifts, such as those driven by the U.S. Federal Reserve (World Bank, 2024).

The economic landscape of Southeast Asia is particularly sensitive to interest rate changes, especially amidst global financial market volatility. For instance, the U.S. Federal Reserve's decision to raise its reference rate to 5.5% in mid-2023 led to substantial increases in borrowing costs in countries like Vietnam, Thailand, Indonesia, Malaysia, and the Philippines (Asian Development Bank, 2023). This surge constrained domestic investment and consumption, slowing GDP growth, particularly in infrastructure and technological innovation (T. H. Nguyen et al., 2024). Conversely, when global interest rates decline, these nations can stimulate their economies through reduced borrowing costs, enhancing spending power and attracting investment. Some Southeast Asian economies, such as

Vietnam and Indonesia, have recently adjusted their monetary policies by lowering base interest rates by 0.25% to 0.5% to promote growth and attract foreign capital (Huu, 2023).

Exchange rates are also shaped by interest rate dynamics. Higher interest rates attract foreign capital seeking better yields, leading to currency appreciation and economic stabilization. However, declining rates can trigger capital outflows, causing currency depreciation. In recent years, these dynamics have significantly impacted Southeast Asian currencies, such as the Thai baht and Malaysian ringgit (Bahmani-Oskooee & Kanitpong, 2017; Barnett & Sergi, 2023).

Numerous studies highlight the diverse effects of interest rates on economic development. World Bank reports indicate that investments in technological and green infrastructure in Southeast Asia grew by 12% annually in 2024, driven by flexible monetary policies and government incentives like tax reductions. Regional initiatives have bolstered sustained growth, shielding the region from the adverse effects of global interest rate adjustments. Central banks, such as Bank Indonesia, which maintained its base rate at 6.25% but signaled potential reductions tied to export growth, and Vietnam, with deposit rates nearing 5%, have supported GDP growth projections above 7% for 2024 (Asian Development Bank, 2023; Huu, 2023). This study addresses the research question: How do deposit and lending interest rates, alongside inflation, influence GDP growth in Southeast Asian economies, and what are the implications for monetary policy in fostering sustainable economic development? The paper is structured as follows: Section 2 reviews the literature on interest rates, inflation, and economic growth, establishing theoretical foundations and research hypotheses. Section 3 outlines the methodology, detailing the Panel ARDL framework and data from 11 Southeast Asian countries (2000–2023). Section 4 presents the empirical results, including descriptive statistics, correlation analyses, and GDP forecasts. Section 5 concludes with policy implications and recommendations for sustainable growth in Southeast Asia. The analysis investigates the interplay between interest rates, inflation, and economic growth in Southeast Asia, considering global monetary policy influences, to provide actionable guidance for governments seeking to manage financial turbulence and promote sustainable economic growth.

2. Literature Review and Research Hypothesis

2.1. Literature Review

Countries utilize deposit and lending interest rates as key monetary policy tools to directly influence economic growth. Extensive academic research has explored the relationship between interest rates and GDP growth, yielding diverse theoretical and empirical insights into how interest rate changes produce distinct economic outcomes. This relationship is particularly significant for Southeast Asian economies due to their vibrant economic systems and vulnerable financial stability. This analysis evaluates deposit and lending interest rates as contributors to GDP growth, integrating pertinent research tailored to Southeast Asian contexts, supplemented by recent studies that highlight evolving dynamics in the region.

2.1.1. Theoretical Foundations of Interest Rates and Economic Growth

Monetary policy and economic theory rely heavily on interest rates as fundamental components. The IS-LM model, a cornerstone of classical economics, illustrates how interest rate changes affect aggregate demand by influencing investment and consumption levels. Higher interest rates increase borrowing costs, thereby constraining investment and consumer spending, leading to economic contraction. Conversely, lower interest rates reduce borrowing costs, stimulating investment and consumption, thus fostering economic growth (Keynes, 1936). Taylor (1993) emphasizes the role of interest rate rules

in stabilizing economies, particularly in open markets like Southeast Asia, where global monetary policies exert significant influence.

The Fisher equation provides a critical framework, linking nominal interest rates to expected inflation. When investors and consumers anticipate inflation, real interest rates adjust, impacting economic behavior. In Southeast Asia, where inflationary pressures are pronounced, central banks use interest rate adjustments to maintain economic stability, though such measures often reduce growth by limiting investment and consumption (Fisher, 1930). Gali (2015) extends this framework, highlighting how inflation expectations in emerging markets amplify the sensitivity of real interest rates, particularly in Southeast Asia's export-driven economies.

2.1.2. Deposit Interest Rates and Economic Growth

Deposit interest rates, the returns paid to households and firms on savings, significantly influence savings behavior, market liquidity, and domestic capital accumulation (Pappas & Boukas, 2025; Shaukat et al., 2019). Higher deposit rates encourage greater savings, expanding the capital base for investment and supporting economic development. However, the relationship between deposit rates and savings is complex. Elevated deposit rates may lead to reduced consumption, negatively impacting aggregate demand and threatening short-term growth, especially in consumer-driven economies. Bernanke and Gertler (1995) demonstrate that deposit rate adjustments yield varied outcomes depending on market conditions and individual responses to financial incentives.

In Southeast Asia, deposit interest rates critically affect financial market liquidity. High rates attract international capital, improving investment conditions, while low rates may limit savings and hinder efficient investment. Deposit rates in countries like Vietnam and Indonesia fluctuate due to domestic economic conditions and global financial trends, reflecting the interplay between local and international monetary policies. Research by Huu (2023) finds that Vietnam's deposit rate hikes in 2022, averaging 5.5%, significantly boosted domestic savings but slowed consumption, highlighting trade-offs in consumer-oriented economies. Similarly, a study by Bank Indonesia (2023) notes that Indonesia's deposit rate adjustments align with export performance, stabilizing liquidity in volatile markets.

2.1.3. Loan Interest Rates and Economic Growth

Lending interest rates directly influence spending and investment decisions. Rising loan rates increase borrowing costs, reducing credit uptake by households and businesses, which curtails investment in infrastructure and technology—key drivers of long-term growth (Vithessonthi, 2023). Higher rates also dampen consumer spending on durable goods and credit-dependent purchases. Conversely, lower loan rates reduce borrowing costs, encouraging debt-financed transactions, boosting investment, and generating employment and GDP growth. Consumers, particularly younger demographics, increase purchases of durable goods and real estate when loan rates are affordable. Blanchard et al. (1993) and Mishkin (1995) confirm an inverse relationship between lending rates and GDP growth, with lower rates fostering investment and consumption. This effect is pronounced in Southeast Asia, where credit drives both consumption and investment.

Additionally, a study by the Asian Development Bank (2023) highlights how Thailand's low lending rates in 2022–2023 facilitated SME growth, though excessive credit reliance increased financial vulnerabilities.

2.1.4. Combined Impact of Deposit and Loan Interest Rates on GDP Growth

The interplay between deposit and lending interest rates is critical for GDP growth analysis. While higher deposit rates promote savings, they may fail to stimulate growth

if high lending rates discourage investment. Similarly, low lending rates that encourage investment can be undermined by limited savings due to low deposit rates. Policymakers must balance these rates to achieve sustainable growth. Aghion et al. (2001) illustrate how monetary policy influences growth through the dynamic interaction of deposit and lending rates, shaped by domestic and external factors like U.S. Federal Reserve policies, regional currency fluctuations, and inflation. Similarly, ASEAN Secretariat (2023) reports underscore how coordinated rate policies across Southeast Asia mitigated the impact of global financial shocks in 2022–2023.

2.2. Research Hypothesis

2.2.1. Deposit Rates and GDP Growth

Deposit interest rates serve as key indicators of the returns on savings offered by financial institutions, influencing the saving behavior of households and businesses and, consequently, national investment opportunities. An increase in deposit rates encourages individuals to save more, thereby expanding the pool of domestic investment funds. However, excessively high deposit rates can lead to reduced consumption, weakening domestic market demand, and potentially hindering short-term economic growth, particularly in consumer-driven economies (Hossain et al., 2024; C. V. Nguyen, 2025).

Lower deposit rates promote economic growth by stimulating consumer spending and business investment while reducing the incentive to save. However, an economy with excessively low deposit rates risks over-reliance on foreign capital, increasing its susceptibility to external market shocks, especially in emerging markets like those in Southeast Asia. Empirical evidence from Levine (1997) supports the positive link between deposit rates and savings, which fuels investment-driven growth, while Huu (2023) highlights that Vietnam's high deposit rates in 2022 boosted savings but constrained consumption, underscoring the need for balanced rate policies.

Hypothesis 1. *GDP growth rates in Southeast Asian countries are positively correlated with deposit interest rate levels.*

2.2.2. Loan Rates and GDP Growth

Economic activity is closely tied to lending interest rates, which shape investment and consumption patterns. Higher loan rates increase borrowing costs, compelling businesses to curtail investments in critical sectors such as infrastructure and technology, which are essential for long-term growth. Similarly, elevated rates make credit less affordable for households, reducing their spending and increasing the risk of loan defaults.

Conversely, lower loan rates reduce borrowing costs, enabling businesses to invest in productivity-enhancing projects and supporting consumer purchases, thereby driving economic growth. Southeast Asian economies exhibit heightened sensitivity to loan rates, as credit is a significant driver of both consumption and investment in the region. Studies by Mishkin (1995) demonstrate an inverse relationship between lending rates and GDP growth.

Hypothesis 2. *Lending interest rates in Southeast Asian countries exert a negative influence on GDP growth levels.*

3. Research Data and Methodology

The analysis of interest rates, inflation, and economic growth in Southeast Asian economies employs the Panel Autoregressive Distributed Lag (Panel ARDL) framework. This model is selected due to its robust ability to analyze both short-term and long-term relationships among economic variables while effectively addressing country-level het-

erogeneity. The Panel ARDL approach is particularly well-suited for this study because it accommodates diverse stationarity patterns in the data, making it ideal for panel datasets spanning multiple countries and time periods. Specifically, the model's flexibility in handling variables that are stationary at levels [I(0)], first differences [I(1)], or a combination thereof ensures reliable estimation, which is critical for analyzing Southeast Asian economies with varying economic structures and data characteristics (Pesaran et al., 1999). Additionally, the Panel ARDL model's error correction mechanism allows for the assessment of dynamic adjustments toward long-term equilibrium, providing insights into how interest rates and inflation impact GDP growth over time. This capability is essential for capturing the region's sensitivity to global and domestic monetary policy shifts, as evidenced by the heterogeneous responses of countries like Vietnam and Indonesia to interest rate changes (Asian Development Bank, 2023).

3.1. Data Description

The data utilized in this study includes annual observations from 11 Southeast Asian countries spanning the period from 2000 to 2023. The following variables in Table 1 are included in the analysis:

Table 1. Variables in the model.

Variables	Meaning	Calculation	Data Sources
		Dependent variable	
GDP	GDP Growth Rate: Represents the rate of change in the economic output of a country over time. This rate enables the measurement of economic expansion.	The growth rate of GDP emerges from dividing the difference between current and preceding GDP values by the preceding GDP figure then multiplying by 100. Typically, GDP growth rate is calculated as $\frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \times 100$	World Bank, International Financial Statistics (IFS)
		Independent variables	
DIR	Deposit Interest Rate: Represents the payment which banks provide to their depositors, the expense of saving, or depositing money to banks.	Annual percentage rates (APRs) define the interest payments which banks offer to deposit account holders.	Central Banks, International Financial Statistics (IFS)
LIR	Lending Interest Rate: The interest rate charged by banks on loans or credit extended to business entities and individuals.	The annual interest rate charged by financial institutions for lending funds to borrowers, expressed as an APR.	Central Banks, International Financial Statistics (IFS)
		Control variable	
CPI	Consumer Price Index: A measure of inflation, reflecting modifications in costs of typical household consumption through changes in the standard prices of product assortment.	The price of a specific selection of goods and services from a particular year is compared to their base year value to generate the measurement.	World Bank, Central Banks, International Financial Statistics (IFS)

3.2. Panel ARDL Model

The Panel ARDL model functions as the estimation technique to analyze the variable relationships. The model serves the research well due to its ability to analyze both the short

and long temporal effects alongside controlling for Southeast Asian country discrepancies. A Panel ARDL model takes this form:

$$GDP_{it} = \alpha_i + \sum_{j=1}^{p} \rho_{ij} GDP_{i,t-j} + \sum_{j=0}^{q_1} \delta_{1ij} DIR_{i,t-j} + \sum_{j=0}^{q_2} \delta_{2ij} LIR_{i,t-j} + \sum_{j=0}^{q_3} \delta_{3ij} CPI_{i,t-j} + \epsilon_{it} \quad (1)$$

where

α_i is the individual effect of each unit;

p is the number of lags of the dependent variable (GDP);

q_1, q_2, and q_3 are the number of lags corresponding to the variables DIR, LIR, and CPI, respectively;

ρ_{ij}, δ_{1ij}, δ_{2ij}, and δ_{3ij} are the estimated coefficients;

ϵ_{it} is the random error term.

To analyze both the short-term impacts and the long-term relationships between the variables, the ARDL model is transformed into the Error Correction Model (ECM) form, expressed as follows:

$$\begin{aligned} \Delta GDP_{it} = {} & \phi_i (GDP_{i,t-1} - \lambda_{1i} DIR_{i,t-1} - \lambda_{2i} LIR_{i,t-1} - \lambda_{3i} CPI_{i,t-1}) \\ & + \sum_{j=1}^{p-1} \psi_{ij} \Delta GDP_{i,t-j} + \sum_{j=0}^{q_1-1} \gamma_{1ij} \Delta DIR_{i,t-j} \\ & + \sum_{j=0}^{q_2-1} \gamma_{2ij} \Delta LIR_{i,t-j} + \sum_{j=0}^{q_3-1} \gamma_{3ij} \Delta CPI_{i,t-j} + \epsilon_{it} \end{aligned} \quad (2)$$

where

Δ denotes the first difference (i.e., $\Delta X_{it} = X_{it} - X_{i,t-1}$);

The term $(GDP_{i,t-1} - \lambda_{1i}, DIR_{i,t-1} - \lambda_{2i}, LIR_{i,t-1} - \lambda_{3i}, CPI_{i,t-1})$ is referred to as the "long-term equilibrium" component, where λ_{1i}, λ_{2i}, andλ_{3i} are the long-term coefficients;

ϕ_i is the adjustment coefficient (expected to be negative), representing the speed of recovery to the equilibrium state following a shock;

The coefficients ψ_{ij} and γ_{kij} (with $k = 1, 2, 3$) capture the short-term dynamic effects of the dependent variable and the independent variables.

4. Research Results and Discussion

4.1. Descriptive Statistics

The descriptive statistics in Table 2 show that financial variables across Southeast Asian countries present substantial variations, describing their wide economic differences. The analysis focuses on the four key variables, which manifest diverse conditions across these nations, including GDP growth, Deposit Interest Rate (DIR), Lending Interest Rate (LIR), and Consumer Price Index (CPI).

Table 2. Descriptive statistics of variables in the model.

Variables	Mean	Std. Dev.	Min	Max
GDP	5.1422	5.9474	−20.5842	58.0781
DIR	3.6270	3.3841	0.1217	15.5025
LIR	9.8936	5.6103	3.0600	32.0000
CPI	5.2963	8.2206	−21.7393	59.0838

Source: Calculations performed using Stata 15.

The Southeast Asia nations, on average, achieve GDP growth of 5.14% but face widespread diversity since the standard deviation reaches 5.95%. The economic development levels in Southeast Asia are exhibited through extreme annual growth ranges, which include negative rates (−20.58%) and the highest point at 58.08%.

Widespread variation exists between countries as the Deposit Interest Rate (DIR) shows an average of 3.63% and a standard deviation of 3.38%. The deposit interest rate varies between 0.12% and 15.50% indicating the existence of strong disparities in monetary policy approaches that impact both borrowing expenses and economic expansion.

Lending operations in this region cost banks an average of 9.89% through their LIR programs which exceed DIR levels due to higher borrowing costs. LIR shows substantial variation because its 5.61% standard deviation measures wide variations between 3.06% and 32%, indicating major disparities in borrowing expenses and credit market conditions across different nations.

4.2. Correlation Analysis

The relationship between GDP and additional variables remains recognizable even though it is relatively faint according to statistical requirements as shown in Table 3. The statistical correlation between GDP and DIR reaches 0.1829. LIR and GDP show a statistically significant correlation value of 0.2435, which indicates a small relationship between lending rates and GDP growth. The weak relationship between GDP and CPI stands at 0.1287, which signifies weak inflation influence on GDP growth.

Table 3. Pearson correlation analysis.

	GDP	DIR	LIR	CPI
GDP	1.0000			
DIR	0.1829	1.0000		
LIR	0.2435	0.6507	1.0000	
CPI	0.1287	0.4071	0.3584	1.0000

Source: Calculations performed using Stata 15.

4.3. Stationary Test

Based on the Fisher test results in Table 4, the variables GDP, DIR, and CPI are stationary at level I(0), while LIR is stationary at first difference I(1).

Table 4. Fisher test on variables in the model.

Variables	Inverse Chi-Squared (*p*-Value)	Inverse Normal (*p*-Value)	Inverse Logit (*p*-Value)	Modified Inv. Chi-Squared (*p*-Value)	Conclusion
GDP	134.0762 (0.0000)	−9.1782 (0.0000)	−9.6427 (0.0000)	16.8961 (0.0000)	I(0)
DIR	127.5567 (0.0000)	−9.0042 (0.0000)	−9.6427 (0.0000)	15.9133 (0.0000)	I(0)
LIR	19.8424 (0.5929)	0.2755 (0.6093)	0.3550 (0.6384)	23.3952 (0.6275)	I(1)
CPI	149.0322 (0.0000)	−9.5488 (0.0000)	−10.0000 (0.0000)	19.1508 (0.0000)	I(0)

Source: Calculations performed using Stata 15.

4.4. Cointegration Test

The Kao test results in Table 5 confirm the presence of a robust long-term relationship among the variables—Deposit Interest Rate (DIR), Lending Interest Rate (LIR), Consumer

Price Index (CPI), and GDP growth—in Southeast Asian economies. All test statistics (Modified Dickey–Fuller t: −6.8230, Dickey–Fuller t: −5.7994, Augmented Dickey–Fuller t: −7.0713, Unadjusted Modified Dickey–Fuller t: −11.0427, Unadjusted Dickey–Fuller t: −6.7909) yield *p*-values of 0.0000, indicating strong statistical significance and rejecting the null hypothesis of no cointegration. This evidence establishes that the variables are cointegrated, meaning they share a stable, long-term equilibrium relationship despite short-term fluctuations. This finding validates the use of the Panel ARDL model to analyze both short- and long-term interactions, as it effectively captures the dynamic relationships among interest rates, inflation, and economic growth across diverse Southeast Asian economies (Pesaran et al., 1999). Specifically, the cointegration suggests that changes in DIR, LIR, and CPI have a sustained impact on GDP growth, reflecting the region's sensitivity to monetary policy adjustments. For instance, Vietnam's and Indonesia's adaptive interest rate policies in response to global shocks, such as the 2020 COVID-19 pandemic, demonstrate how these variables converge toward equilibrium over time, supporting sustainable growth (Asian Development Bank, 2023). These results provide a foundation for further analysis of how monetary policy influences economic stability and growth in the region.

Table 5. Kao test for integration.

	Statistics	***p*-Value**
Modified Dickey–Fuller t	−6.8230	0.0000
Dickey–Fuller t	−5.7994	0.0000
Augmented Dickey–Fuller t	−7.0713	0.0000
Unadjusted modified Dickey–Fuller t	−11.0427	0.0000
Unadjusted Dickey–Fuller t	−6.7909	0.0000

Source: Calculations performed using Stata 15.

4.5. Optimal Lags

Table 6 presents the optimal lag of the variables in the model, including GDP, DIR, LIR, and CPI, determined based on appropriate selection criteria. The conclusion from the table indicates that the optimal average lag of the variables is identified as GDP = 1, DIR = 0, LIR = 2, and CPI = 0, serving as the basis for constructing a suitable analytical model.

Table 6. Optimal lags of variables in the model.

	Growth	**DIR**	**LIR**	**CPI**
ID1	0	1	2	0
ID2	1	0	2	0
ID3	1	0	1	0
ID4	1	0	1	0
ID5	1	1	2	0
ID6	0	1	2	1
ID7	0	0	1	1
ID8	1	0	1	0
ID9	1	0	2	0
ID10	1	1	2	1
ID11	0	0	2	1
Conclusion	1	0	2	0

Source: Calculations performed using Stata 15.

4.6. Panel ARDL Regression Results

The analysis employs the Panel Autoregressive Distributed Lag (Panel ARDL) framework to examine the relationships between Deposit Interest Rate (DIR), Lending Interest Rate (LIR), Consumer Price Index (CPI), and GDP growth in Southeast Asian economies. After comparing the Mean Group (MG) and Pooled Mean Group (PMG) models in Table 7, the Hausman test reveals no statistically significant difference between individual country estimates and the pooled PMG estimates, supporting the assumption of homogeneity in long-term coefficients across countries. This finding indicates that the PMG model is more suitable than the MG model for estimating a common long-term relationship, as it balances country-specific heterogeneity with pooled efficiency, ensuring robust results for the diverse economic contexts of Southeast Asia (Pesaran et al., 1999).

Table 7. Panel ARDL regression results.

	MG		PMG		DFE	
Variables	**LR**	**SR**	**LR**	**SR**	**LR**	**SR**
ECT		−0.0317 ***		−0.9774 ***		−0.1568 ***
DIR		0.6779		0.6808 **		0.2931 **
LIR		−0.1620 **		0.2680 ***		−0.0772 *
CPI		0.1727 *		−0.0998 ***		0.0919 **
DIR	0.5626 **		4.1447 ***		0.6156 ***	
LIR	3.8499 *		−1.3046 **		−9.9394 **	
CPI	0.2910 *		3.8692 **		0.3782	

*, ** and *** represent significant levels at 10%, 5% and 1% respectively. Source: Calculations performed using Stata 15.

Deposit Interest Rate (DIR): The results indicate that higher deposit interest rates significantly enhance GDP growth in both the short run (coefficient: 4.1447, $p < 0.01$) and long run (coefficient: 0.6808, $p < 0.05$). This positive effect suggests that elevated deposit rates incentivize savings, thereby increasing the pool of domestic capital available for investment in critical sectors such as infrastructure and technology. This finding aligns with Levine (1997), who emphasizes that higher savings rates fuel investment-driven growth. In Southeast Asia, where financial markets are sensitive to global capital flows, higher DIRs attract domestic and foreign savings, stabilizing financial systems and supporting economic expansion. For instance, Vietnam's 5.5% deposit rates in 2022 bolstered savings, contributing to a projected GDP growth of over 7% in 2024. However, excessively high rates may suppress short-term consumption, necessitating careful calibration by policymakers.

Lending Interest Rate (LIR): The PMG model reveals a dual effect of lending rates on GDP growth. In the long run, higher LIRs positively affect growth (coefficient: 0.2680, $p < 0.01$), possibly by signaling a robust economic environment that encourages disciplined investment and financial stability. This aligns with Aghion et al. (2001), who note that moderate lending rates can foster sustainable growth by channeling credit to productive sectors. However, in the short run, higher LIRs negatively impact growth (coefficient: −1.3046, $p < 0.05$), likely due to increased borrowing costs that constrain investment and consumption, particularly in credit-reliant economies like those in Southeast Asia. For example, Malaysia's lending rate hikes in 2022 slowed SME investment, though subsequent 0.5% rate cuts in 2023 spurred a 3% increase in private investment. These findings underscore the need for balanced lending rate policies to mitigate short-term constraints while promoting long-term growth.

Consumer Price Index (CPI): Inflation, as measured by CPI, exhibits a negative long-term effect on GDP growth (coefficient: −0.0910, $p < 0.01$), as rising prices erode purchasing

power and undermine economic stability. This is consistent with Fisher (1930), who highlights the adverse impact of inflation on real interest rates and economic activity. In contrast, the short-run effect is positive (coefficient: 3.8692, $p < 0.05$), suggesting that moderate inflation may stimulate demand by signaling economic activity or encouraging consumption before price increases escalate. In Southeast Asia, where inflationary pressures vary (e.g., Indonesia's CPI averaged 5.2% in 2023), this dual effect complicates monetary policy (Asian Development Bank, 2023). Policymakers must address inflation's long-term risks while leveraging its short-term stimulatory effects, particularly in consumer-driven markets like Thailand and Vietnam.

The statistically significant error correction term (ECT: −0.9774, $p < 0.01$) indicates a rapid adjustment toward long-term equilibrium following shocks, suggesting that Southeast Asian economies are resilient to monetary policy fluctuations. This resilience is evident in the region's recovery from the 2008–2010 financial crisis and the 2020 COVID-19 pandemic, where adaptive monetary policies facilitated gradual GDP growth. However, the heterogeneity in short-run coefficients across countries highlights the need for tailored policies. For instance, Indonesia's export-driven economy benefits from stable DIRs, while Malaysia's credit-sensitive sectors require lower LIRs to sustain growth. These findings provide actionable insights for central banks to optimize monetary policy, balancing short-term demand stimulation with long-term economic stability in the face of global and regional challenges.

4.7. Forecast of GDP Fluctuation Trends for Southeast Asia

The Figure 1 illustrates the GDP fluctuation trends for Southeast Asia, presenting two key lines: the blue line representing real GDP from 2000 to 2023 and the red line indicating forecasted GDP. The blue line shows the sharp fluctuations in real GDP over time. Notable peaks and troughs, especially between 2008 and 2010, are almost directly attributable to the impact of the global financial crisis, which reduced economic output during those years. During the recession (2015–2016), real GDP growth appears to readjust with a gradual recovery curve post-crisis, reflecting resilience following major regional economic shocks.

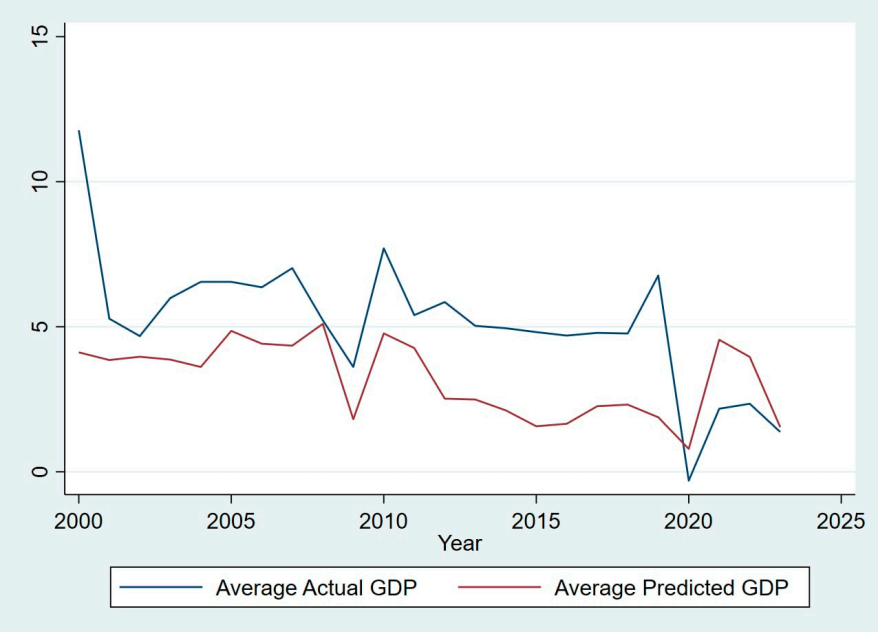


Figure 1. Forecast of GDP fluctuation trends for Southeast Asia. Source: Calculations performed using Stata 15.

In contrast, the red line, representing forecasted GDP, moves in a less volatile manner compared to the real GDP. From 2005 to 2010, forecasted GDP reached some highs but experienced a significant decline around 2020, likely reflecting the impact of the COVID-19 crisis, which disrupted global and Southeast Asian economies due to production and consumption disintegration. Future projections suggest that forecasted GDP will rise slightly from 2021 to 2025 but at a rate far below recent real GDP figures. This discrepancy may indicate that current forecasting models for Southeast Asia might underestimate the region's recovery potential following economic shocks.

4.8. Limitations and Future Research Agenda

This study provides valuable insights into the relationships among Deposit Interest Rate (DIR), Lending Interest Rate (LIR), Consumer Price Index (CPI), and GDP growth in Southeast Asian economies, but it is subject to several limitations that warrant consideration. First, the analysis relies on annual data from 2000 to 2023 across 11 Southeast Asian countries, which may not fully capture short-term fluctuations or intra-year dynamics due to the aggregated nature of the dataset. The use of annual data, while suitable for long-term analysis, may obscure seasonal or quarterly variations that could influence the short-run dynamics of interest rates and inflation (World Bank, 2024). Second, the study focuses on a select set of variables (DIR, LIR, CPI, and GDP growth), potentially overlooking other macroeconomic factors, such as exchange rate volatility or fiscal policy measures, which could also impact economic growth in the region (Obstfeld & Rogoff, 1996). Third, while the Panel ARDL model effectively handles country-level heterogeneity, it assumes homogeneity in long-term coefficients, which may not fully account for unique structural differences across Southeast Asian economies, such as varying levels of financial market development or trade openness (Levine, 1997).

Future research could address these limitations by adopting a more granular approach, such as using quarterly or monthly data to capture short-term dynamics and enhance the precision of the analysis. Incorporating additional variables, such as exchange rates, government spending, or foreign direct investment, could provide a more comprehensive understanding of the factors driving GDP growth in Southeast Asia (Aghion et al., 2001). Additionally, exploring country-specific models or disaggregated analyses for key economies like Vietnam, Indonesia, and Malaysia could better account for structural differences and policy variations. Future studies could also investigate the role of unconventional monetary policies, such as quantitative easing or macroprudential measures, in shaping economic outcomes, particularly in response to global shocks like the 2020 COVID-19 pandemic (Asian Development Bank, 2023). Finally, extending the time frame beyond 2023 and incorporating real-time data could validate the robustness of the findings and provide updated insights for policymakers navigating evolving global and regional economic challenges.

5. Conclusions

This study employs the panel autoregressive distributed lag framework with the pooled mean group model to elucidate the intricate dynamics between interest rates, inflation, and GDP growth in Southeast Asian economies from 2000 to 2023. The analysis confirms a robust long-term relationship among these variables, with the PMG model demonstrating its suitability due to its ability to capture consistent long-term effects across diverse countries, as validated by the Hausman test. The findings underscore the distinct roles of the Deposit Interest Rate (DIR), Lending Interest Rate (LIR), and Consumer Price Index (CPI) in influencing economic growth, providing valuable insights for shaping effective monetary policies in the region.

The deposit interest rate significantly fosters GDP growth in both the short and long term by encouraging savings, thereby enhancing financial market liquidity and supporting investment in critical sectors such as infrastructure and technology. In contrast, the lending interest rate exhibits a dual impact: it promotes long-term growth, potentially by signaling economic stability, but hinders short-term expansion due to elevated borrowing costs that restrict investment and consumption, particularly in credit-dependent economies. Inflation, as measured by the CPI, negatively affects long-term growth by eroding purchasing power and undermining economic stability; however, it positively influences short-term growth by stimulating demand or reflecting heightened economic activity. Historical GDP trends reveal Southeast Asia's susceptibility to global economic shocks, including the 2008–2010 financial crisis and the COVID-19 pandemic, with a modest projected recovery from 2021 to 2025. Nevertheless, current forecasting models may underestimate the region's resilience, as real GDP has frequently surpassed projections following significant economic disruptions.

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