MODERATE TRACTION AND DELAYED EFFECTS: A VAR ANALYSIS OF MALAYSIA'S MONETARY POLICY CHANNELS AMIDST GLOBAL VOLATILITY

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ABSTRACT

This study provides a comprehensive empirical assessment of Malaysia's monetary policy transmission mechanism in the context of a small open economy. Amidst rising global uncertainty, trade protectionism, and commodity price volatility, Bank Negara Malaysia (BNM) faces the dual challenge of supporting economic recovery and controlling inflation. Using a five-variable Vector Autoregression (VAR) model with 84 monthly observations from 2016 to 2022, the analysis examines the dynamic interactions among the Overnight Policy Rate (OPR), GDP growth, inflation, M2 money supply growth, and the exchange rate. Impulse response functions (IRFs) and forecast error variance decomposition (FEVD) reveal that the interest rate channel is operative but moderate in magnitude: policy rate shocks explain approximately 11% of GDP variance and 5.5% of inflation variance at a one-year horizon, with peak effects materializing after a four-to six-month lag. The money supply channel shows limited but consistent influence, while the exchange rate channel is muted, reflecting Malaysia's managed float regime and heavy exposure to external shocks. Case studies of the COVID-19 pandemic (2020–2021) and the global inflation surge (2021–2022) demonstrate that monetary policy primarily functioned as a stabilizing instrument during crises, with limited traction against supply-driven inflation. The findings enrich the literature on monetary policy in small open economies and yield practical implications for BNM, specifically recommending enhanced expectations management, deeper financial markets, and strengthened macroprudential coordination to improve policy traction.

Keywords: Monetary Policy Transmission, Small Open Economy, VAR Model, Bank Negara Malaysia, Inflation Control, Economic Growth.

Introduction

Financial stability and sustainable economic growth are paramount objectives for central banks globally, particularly in small open economies (SOEs) like Malaysia. As a nation highly exposed to global trade and financial fluctuations, Malaysia's economic trajectory is significantly influenced by external shocks, ranging from geopolitical conflicts to volatile commodity markets. In recent years, the complex interplay of the COVID-19 pandemic, the Russia–Ukraine war, and global monetary tightening has complicated the design and implementation of domestic monetary policy. For instance, disruptions in global supply chains raised Malaysia's food and energy import bills by significant margins in 2022, exerting severe inflationary pressures that domestic instruments alone struggle to counteract (World Bank, 2025).

The structural features of Malaysia's economy add to this complexity. With manufacturing contributing over 30% of total exports and a heavy reliance on commodities like palm oil and rubber, different sectors exhibit heterogeneous responses to monetary shocks. In response to these challenges, Bank Negara Malaysia (BNM) has navigated a delicate path, raising the Overnight Policy Rate (OPR) by 125 basis points in 2022–2023 to curb inflation, before shifting to a more accommodative stance in 2025 to support growth (Reuters, 2025). These shifts highlight the central policy dilemma: achieving stable growth while keeping inflation within the projected target range amidst dominant external forces.

Previous research on monetary policy transmission has predominantly focused on developed economies or utilized outdated data for emerging markets. While studies have established the existence of interest rate and exchange rate channels in Malaysia, there is a paucity of integrated empirical evidence covering the post-2018 period, which includes unprecedented shocks like the pandemic and the 2025 policy pivot. Furthermore, the relative importance of different transmission channels—interest rates, money supply, and exchange rates—under conditions of extreme external volatility remains under-explored.

Guided by this gap, this study aims to systematically evaluate the effectiveness of Malaysia's recent monetary policy under the dual mandate of growth and inflation stability. Specifically, it addresses three core research questions: (1) How does Malaysia's monetary policy affect economic growth? (2) How effective is monetary policy in controlling inflation, particularly when driven by supply-side factors? (3) What is the relative importance of different transmission channels in the current economic landscape?

To answer these questions, this research employs a robust time-series econometric approach, utilizing a Vector Autoregression (VAR) framework. By analyzing impulse response functions and variance decomposition, the study quantifies the dynamic effects and lags of policy shocks. The contribution of this paper is twofold: theoretically, it updates the evidence base for monetary transmission in SOEs by integrating recent crisis periods; practically, it offers timely

policy recommendations for BNM to enhance the traction of its policy tools in a volatile global environment.

Literature Review

2.1 Theoretical Foundations of Monetary Policy

The intellectual roots of monetary policy lie in the Quantity Theory of Money, which posits a direct relationship between money supply and price levels. However, the Keynesian revolution introduced the liquidity preference theory, emphasizing the role of interest rates in influencing investment and aggregate demand. In the modern era, the New Keynesian framework, anchored by the Taylor Rule, has become the cornerstone of central banking, advocating for rule-based adjustments of policy rates in response to deviations in inflation and output (Taylor, 1993). For small open economies, the Mundell–Fleming model further formalizes the constraints imposed by the "impossible trinity," suggesting that high capital mobility and exchange rate management limit monetary independence. Empirical evidence suggests that many emerging markets exhibit a "fear of floating," actively smoothing exchange rate fluctuations, which amplifies the salience of the exchange rate channel while complicating inflation control (Calvo & Reinhart, 2002).

2.2 Transmission Mechanisms

Monetary policy operates through multiple, sometimes state-dependent, channels. The interest rate channel remains the traditional core mechanism, where lower policy rates reduce borrowing costs, stimulating investment and consumption. Its effectiveness depends on the sensitivity of aggregate demand to interest rate changes and the depth of financial markets. The credit channel, encompassing bank-lending and balance-sheet mechanisms, links policy to financing constraints, often playing a dominant role in bank-based systems like Malaysia’s (Bernanke & Gertler, 1995; Kashyap & Stein, 2000). The exchange rate channel is particularly critical for open economies; policy tightening can attract capital inflows, leading to currency appreciation and cheaper imports, thereby dampening inflation (Obstfeld & Rogoff, 1995). However, pass-through to consumer prices is often incomplete and time-varying. Additionally, the expectations channel and the risk-taking channel have gained prominence, highlighting how credible forward guidance and prolonged low rates can shape behavior and financial stability (Mishkin, 2009).

2.3 Empirical Evidence in Emerging Markets

Empirical studies in emerging markets often highlight higher inflation volatility and weaker policy credibility compared to advanced economies. Research on ASEAN countries reveals distinct dynamics: in Indonesia, exchange rate pass-through is relatively high, making inflation sensitive to currency movements, while in Thailand, the bank lending channel remains dominant due to SME reliance on bank credit. For Malaysia, earlier studies established that

policy shocks affect output and prices with lags, but much of this evidence is based on pre-2015 data (Akalpler & Duhok, 2018; Zulkhibri, 2018). Recent analyses suggest that while the interest rate channel is operative, its magnitude is moderate, and external shocks dominate domestic fluctuations (IMF, 2023). There is a consensus that the exchange rate channel's strength varies with the global financial cycle, and the effectiveness of monetary policy is often constrained by supply-side shocks, such as those witnessed during the pandemic and the recent commodity price surge.

Methodologically, identifying pure monetary policy shocks has evolved from simple recursive identification to more sophisticated narrative approaches (Romer & Romer, 2004). The VAR framework, pioneered by scholars such as Christiano et al. (1998), remains a standard tool for tracing these dynamic interactions, though it requires careful handling of identification assumptions.

2.4 Research Gaps

Despite the rich literature, several gaps persist. First, few studies comprehensively assess Malaysia's monetary policy effectiveness using data that covers the full spectrum of recent shocks (2016–2022), including the pandemic and the 2025 policy shift. Second, existing research often examines individual channels in isolation rather than adopting an integrated framework to compare their relative importance simultaneously. Third, there is insufficient analysis of the specific trade-offs between growth stabilization and inflation control in the face of dominant external supply shocks. This study seeks to fill these gaps by providing updated, holistic empirical evidence.

Methodology

3.1 Research Design and Model Specification

This study adopts a quantitative time-series approach, utilizing the Vector Autoregression (VAR) model. The VAR framework is selected for its ability to capture the complex dynamic interactions among multiple endogenous variables without imposing strong theoretical restrictions a priori. It effectively handles endogeneity concerns and provides rich tools for policy analysis, such as Impulse Response Functions (IRFs) and Forecast Error Variance Decomposition (FEVD).

The baseline model is specified as:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \ldots + A_p Y_{t-p} + u_t$$

where Y_t is a vector of five endogenous variables:

$$Y_t = [\Delta PolicyRate_t, \Delta GDPGrowth_t, \Delta Inflation_t, \Delta M2Growth_t, \Delta ExchangeRate_t]'$$

The variable ordering follows a Cholesky decomposition based on economic logic: the policy rate (exogenous decision by BNM) affects real activity (GDP) and prices (Inflation) with a lag, while money supply (M2) and the exchange rate respond more rapidly to financial market conditions.

3.2 Data Sources and Variable Construction

The study utilizes monthly data spanning from January 2016 to December 2022, yielding 84 observations. This period captures steady growth, the COVID-19 shock, and the subsequent recovery and inflation surge.

Policy Rate: Overnight Policy Rate (OPR) sourced from Bank Negara Malaysia (BNM).

GDP Growth: Real GDP year-on-year growth rate from the Department of Statistics Malaysia (2025), interpolated to monthly frequency.

Inflation: Consumer Price Index (CPI) year-on-year growth rate from the Department of Statistics Malaysia (2025).

Money Supply: Broad money (M2) year-on-year growth rate from BNM.

Exchange Rate: USD/MYR monthly average exchange rate from Thomson Reuters/BNM.

Table 1: Descriptive Statistics of Key Variables (2016M01–2022M12)

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
Policy Rate (%)	2.554	0.619	1.750	3.250	-0.429	1.801
GDP Growth Rate (%)	2.015	7.537	-16.900	16.300	-1.224	7.233
Inflation Rate (%)	1.692	1.736	-2.900	4.900	-0.194	2.901
M2 Growth Rate (%)	5.081	2.544	0.900	10.500	0.451	2.156
Exchange Rate (MYR/USD)	4.246	0.133	3.951	4.577	0.782	3.041

All variables are transformed into first differences to ensure stationarity, confirmed by Augmented Dickey-Fuller (ADF) tests. The optimal lag length for the VAR model was determined to be 3 based on Akaike Information Criterion (AIC) and Hannan-Quinn (HQ) criteria. Diagnostic tests, including stability checks (inverse roots within the unit circle), serial correlation tests (Breusch-Godfrey), and heteroskedasticity tests (White), confirm the model's robustness and reliability.

3.3 Analytical Approach

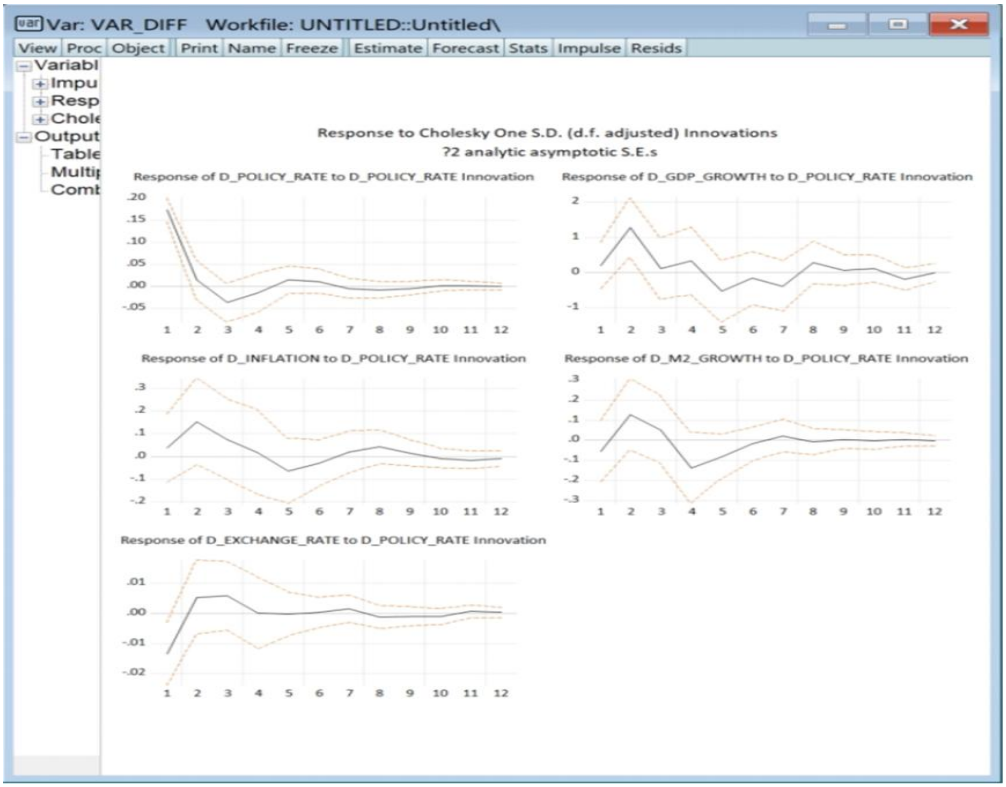
The analysis proceeds in two stages. First, IRFs are generated to trace the dynamic response of each variable to a one-standard-deviation shock in the policy rate over a 12-month horizon. This reveals the direction, magnitude, and duration of policy effects. Second, FEVD is employed to quantify the proportion of the forecast error variance of each variable attributable to its own shocks versus shocks from other variables in the system. This allows for a precise assessment of the relative importance of the interest rate, money supply, and exchange rate channels.

Results and Discussion

4.1 Impulse Response Analysis

The impulse response functions reveal distinct dynamic patterns following a contractionary monetary policy shock (an increase in the OPR).

Figure 1: Impulse Responses to a Contractionary OPR Shock (2016M01–2022M12)



GDP Growth: The response of GDP growth exhibits a lagged negative effect. Initially, there is a mild positive blip in the first two months, likely reflecting anticipatory behavior, but from the fourth month onward, GDP growth turns negative, persisting for approximately six months. This confirms the theoretical expectation that tighter monetary policy compresses aggregate demand, but with a significant transmission lag of 4–6 months.

Inflation: Inflation displays the classic "price puzzle" in the short run, rising modestly for the first three periods before declining. This phenomenon is attributed to cost-push factors and supply-side shocks (e.g., imported energy and food prices) that temporarily outweigh the demand-reducing effects of rate hikes. Over the medium term, however, the disinflationary impact of weaker demand becomes dominant.
Money Supply (M2): M2 growth responds with an initial uptick followed by a sustained decline, indicating that tighter policy effectively absorbs liquidity and dampens credit expansion. This supports the presence of a functioning money-supply channel, albeit with moderate magnitude.
Exchange Rate: The exchange rate response is minimal, with fluctuations confined within narrow bands. This muted reaction reflects Malaysia's managed float regime and the dominance of external global factors over domestic interest rate differentials in driving currency movements.

4.2 Variance Decomposition
The forecast error variance decomposition at a 12-month horizon provides quantitative insights into channel importance:
Interest Rate Channel: Policy rate shocks explain approximately 11.04% of the variance in GDP growth and 5.51% of the variance in inflation. While statistically significant, these figures indicate a moderate economic impact, suggesting that domestic monetary policy is just one of several drivers of macroeconomic outcomes.
Money Supply Channel: M2 growth is largely autonomous, with roughly 63.69% of its variance explained by its own shocks. Policy rate shocks account for about 7.76%, indicating a consistent but secondary role.

Table 2: Variance Decomposition of Key Variables (at Period 12)

Dependent Variable	Own Shock (%)	Policy Rate (%)	GDP Growth (%)	Inflation (%)	M2 Growth (%)	Exchange Rate (%)
d_policy_rate	67.84	-	8.92	15.41	4.25	3.58
d_gdp_growth	54.23	11.04	-	12.87	8.76	13.10
d_inflation	63.82	5.51	19.34	-	6.33	4.82
d_m2_growth	63.69	7.76	11.89	9.68	-	6.98
d_exchange_rate	78.22	2.31	8.45	7.12	4.03	-

Exchange Rate Channel: The exchange rate is highly self-driven (78.22% own shocks), with policy rate innovations explaining only 2.31% of its variance. Similarly, exchange rate shocks explain only 4.82% of inflation variance, lower than often assumed, highlighting the limited

pass-through in the recent low-inflation environment.
Dominance of External Shocks: A striking finding is that "own shocks" (which in an SOE context often proxy for external global shocks) account for the majority of fluctuations in all variables (ranging from 54% to 78%). This underscores the vulnerability of Malaysia's economy to external forces.

4.3 Case Analyses: Crisis and Normalization
COVID-19 Pandemic (2020–2021): During the pandemic, BNM's aggressive rate cuts (from 3.25% to 1.75%) acted primarily as a stabilization tool. The empirical results show that while policy prevented a deeper financial crisis, the subsequent "V-shaped" recovery was driven more by reopening dynamics and fiscal support than by monetary stimulus alone.
Inflation Surge (2021–2022): In the face of global supply chain disruptions and commodity price spikes, the effectiveness of rate hikes in controlling inflation was limited. Sub-sample analysis indicates that the contribution of exchange rate and external supply shocks to inflation variance increased significantly during this period, while the contribution of domestic policy rates diminished. This confirms that monetary policy is less effective against supply-driven inflation.

4.4 Discussion
The results collectively suggest that Malaysia's monetary policy transmission mechanism is operative but constrained. The interest rate channel is the most effective tool, yet its impact is moderate and delayed. The exchange rate channel is weaker than in some peer emerging markets, likely due to active management by BNM. Crucially, the dominance of external shocks implies that domestic policy alone cannot fully insulate the economy from global volatility. This necessitates a policy mix that combines well-telegraphed monetary actions with supportive fiscal and structural measures.

Conclusion and Policy Recommendations

5.1 Summary of Findings
This study empirically assessed the impact of Malaysia's monetary policy on economic growth and inflation from 2016 to 2022 using a VAR framework. The key findings are: (1) The interest rate channel is effective but moderate, explaining about 11% of GDP variance and 5.5% of inflation variance with a 4–6 month lag. (2) The money supply and exchange rate channels are present but comparatively weak. (3) External shocks dominate domestic macroeconomic fluctuations, limiting the standalone effectiveness of monetary policy. (4) A short-run "price puzzle" exists, highlighting the complexity of managing supply-driven inflation.

5.2 Policy Recommendations
Based on these findings, the following recommendations are proposed for Bank Negara

Malaysia:
Strengthen Expectations Management: Given the transmission lags and the price puzzle, BNM should enhance forward guidance. Publishing fan charts for inflation and growth can help anchor expectations and reduce market overreaction to noisy data.
Deepen Financial Markets: To amplify the interest rate channel, efforts should be made to deepen domestic bond and money markets, ensuring tighter pass-through from the OPR to retail lending and deposit rates.
Enhance Policy Coordination: Since monetary policy is less effective against supply shocks, closer coordination with fiscal authorities is essential. Targeted fiscal buffers (e.g., subsidies for energy and food) should be deployed during supply crises to relieve the burden on monetary policy.
Macroprudential Integration: Counter-cyclical macroprudential tools should be used alongside interest rate adjustments to manage financial stability and credit growth more precisely, especially in the housing and SME sectors.
Build Resilience to External Shocks: Long-term strategies should focus on reducing structural exposure to imported inflation by diversifying export markets, upgrading value chains, and investing in domestic food and energy security.

5.3 Limitations and Future Research
While this study provides robust evidence, it is limited by the linear VAR specification and the sample period ending in 2022. Future research could employ non-linear models (e.g., TVP-VAR) to capture regime shifts during crises and extend the data to include the post-2022 global tightening cycle. Additionally, incorporating micro-level data could shed light on heterogeneous effects across different sectors and income groups.

In conclusion, Malaysia's monetary policy works in the right direction but requires a broader macro-financial strategy to maximize its effectiveness. By combining transparent communication, targeted macroprudential tools, and coordinated fiscal support, BNM can better navigate the challenges of a small open economy in a volatile global landscape.

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