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Asymmetric exchange rate pass-through to inflation in Vietnam: Evidence from a nonlinear ARDL approach

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Abstract: This paper investigates asymmetric exchange rate pass-through (ERPT) to consumer price inflation in Vietnam over the period January 2005 to December 2023. Employing the nonlinear autoregressive distributed lag (NARDL) framework of Shin et al. [1], we decompose exchange rate changes into positive (VND depreciation) and negative (VND appreciation) partial sums and estimate their differential effects on Vietnam's Consumer Price Index. The F-bounds statistic (F = 3.84) exceeds the 10 percent upper critical bound, confirming a level relationship. The oil price channel is the statistically dominant long-run driver: a ten-percent increase in Dubai crude is associated with approximately 3.2 percent higher CPI. The speed-of-adjustment coefficient is individually insignificant, consistent with Vietnam's managed exchange rate regime; we therefore rely on cumulative dynamic multipliers as the primary ERPT measure. These reveal that VND depreciation generates a larger inflationary impulse (converging at ≈+0.6 log-CPI units over 24 months) than appreciation generates a deflationary offset (≈−0.4), evidencing short-run asymmetry. The CUSUM test confirms structural stability throughout 2005–2023. Rolling-window estimates reveal elevated ERPT intensity during the 2022–2023 Federal Reserve tightening cycle. These findings offer policy insights for the State Bank of Vietnam in calibrating asymmetric exchange rate interventions to anchor inflation expectations.
Keywords: *Asymmetry, Exchange rate pass-through, Inflation, Monetary policy, NARDL, Vietnam.*

1. Introduction

The year 2022 presented Vietnam's monetary authorities with one of the most challenging exchange rate management episodes since the 2008–2009 global financial crisis. As the US Federal Reserve embarked on its most aggressive interest rate tightening cycle in four decades, capital outflows from emerging markets intensified, placing severe downward pressure on the Vietnamese dong (VND). The State Bank of Vietnam (SBV) intervened repeatedly in the foreign exchange market, allowing the VND/USD rate to depreciate by approximately 8–9 percent over the course of 2022, a scale not observed since the macroeconomic instability episode of 2011. Concurrently, Vietnam's consumer price index (CPI) accelerated, raising questions about the extent to which exchange rate movements were transmitted into domestic price pressures and whether depreciation-induced inflation was systematically stronger than the deflationary effect of appreciation episodes.

Understanding the degree and nature of exchange rate pass-through (ERPT) is of paramount importance for small, open economies deeply integrated into global trade networks. Vietnam, as a manufacturing export hub with a trade-to-GDP ratio consistently exceeding 200 percent, is particularly exposed to external price shocks transmitted through the exchange rate channel. Yet, the empirical literature on ERPT for Vietnam remains relatively sparse, and existing studies have largely imposed the assumption of linear symmetry—treating depreciation and appreciation shocks as mirror images of each other. This assumption is increasingly questioned in the international monetary economics literature

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[2-4] where pricing-to-market behavior, menu costs, and asymmetric monetary policy responses all generate non-linear pass-through dynamics.

This paper addresses this gap by applying the NARDL framework of Shin et al. [1] to monthly data on Vietnam's exchange rate, CPI, oil prices, and monetary policy indicators over 2005m1–2023m12. Our empirical strategy makes three distinct contributions. First, we document short-run asymmetric ERPT dynamics for Vietnam using a sample spanning four major macroeconomic shocks: the 2008 global financial crisis, the 2011 domestic instability episode, the COVID-19 shock of 2020, and the 2022–2023 Federal Reserve tightening cycle. Second, we disentangle the exchange rate channel from the oil price channel, finding that the latter is the statistically dominant driver of Vietnam's CPI in the level relationship. Third, we implement a rolling-window approach to trace time variation in ERPT intensity across monetary policy regimes. We acknowledge the limitations of the NARDL identification strategy, particularly with respect to endogeneity, and interpret our findings as descriptive reduced-form evidence informing the direction of future causal analysis rather than structural causal estimates.

The remainder of this paper is organized as follows. Section 2 reviews the theoretical and empirical literature on ERPT. Section 3 describes the data and econometric methodology. Section 4 presents empirical results. Section 5 discusses findings. Section 6 concludes with policy implications.

2. Literature Review

2.1. Theoretical Foundations of Exchange Rate Pass-Through

The theoretical literature on ERPT distinguishes between complete pass-through, where a one-percent exchange rate change results in a one-percent change in domestic prices, and incomplete pass-through, where the relationship is attenuated. Dornbusch [5] and Krugman [6] formalized the concept of pricing-to-market, demonstrating that foreign exporters may absorb exchange rate fluctuations into profit margins rather than passing them fully onto destination-country consumers. A critical development is the recognition that ERPT may be inherently asymmetric. Bussiere [2] demonstrates that depreciation pass-through typically exceeds that from appreciation because importers facing binding capacity constraints during depreciation episodes are compelled to adjust prices, while those with excess capacity during appreciation may maintain prices to preserve market share. Delatte and López-Villavicencio [3] further show that asymmetric ERPT is empirically pervasive across both developed and emerging economies.

2.2. Empirical Evidence on ERPT in Emerging Asia

Empirical studies on ERPT in Southeast Asia generally find incomplete but non-trivial pass-through, with long-run estimates typically ranging from 0.10 to 0.45 [7, 8]. For Vietnam specifically, Pham [9] estimates partial pass-through that varies over time and across monetary policy regimes, while Anh et al. [10] find evidence of incomplete pass-through that differs across commodity groups. These studies, however, do not account for potential asymmetries between appreciation and depreciation phases. The NARDL methodology of Shin et al. [1] has been applied extensively to ERPT questions in recent years. Baharumshah et al. [11] apply NARDL to Nigeria, finding significant long-run asymmetry where depreciation passes through more strongly than appreciation. Nguyen Hong, et al. [12] document similar asymmetries for Pakistan. For Vietnam, no prior study has applied the NARDL framework to the full sample encompassing the 2020–2023 period, which includes the most dramatic exchange rate movements since 2011.

2.3. The Role of Oil Prices and Monetary Policy

The ERPT literature increasingly recognizes that exchange rates and commodity prices operate as joint drivers of domestic inflation in oil-importing economies. Vietnam imports a significant share of its petroleum needs, making oil price shocks a direct channel of cost-push inflation independent of the exchange rate channel. Ha et al. [13] show that, for commodity-importing emerging markets, oil price shocks account for a larger fraction of inflation forecast error variance than exchange rate shocks at

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short horizons. Our empirical specification explicitly controls for this channel, allowing the isolation of the pure ERPT effect.

3. Data and Methodology

3.1. Data

We use monthly data spanning January 2005 to December 2023, yielding T = 228 observations. The dataset comprises: (i) the official VND/USD exchange rate (monthly average), sourced from the State Bank of Vietnam; (ii) the Vietnam Consumer Price Index (CPI, 2010 = 100), from the General Statistics Office; (iii) the Dubai crude oil price (USD per barrel), from the US Energy Information Administration; (iv) the SBV refinancing rate (percent per annum) as the primary monetary policy indicator; and (v) the Vietnam interbank overnight lending rate, measuring monetary conditions in the banking system. The period covers four major macroeconomic stress episodes: the 2008–2009 global financial crisis, the 2011 domestic inflation crisis, the COVID-19 recession of 2020, and the 2022–2023 Federal Reserve tightening cycle. All price and exchange rate series enter the model in natural logarithms; interest rate series enter in levels. Table 1 presents descriptive statistics.

Table 1.
Descriptive statistics of key variables (2005m1–2023m12).

Variable	Mean	Std. Dev.	Min	Max	Obs.	Source
ln(CPI)	4.859	0.281	4.049	5.231	228	GSO
ln(ExRate)	9.945	0.201	9.670	10.084	228	SBV
ln(Oil Dubai)	4.213	0.476	2.767	5.034	228	EIA
SBV Ref. Rate (%)	7.28	3.51	3.00	15.00	228	SBV
Interbank ON Rate (%)	5.14	4.26	0.08	18.31	228	SBV

Note: CPI base year 2010 = 100. Exchange rate in VND per USD. The oil price is Dubai crude. Interest rates in percent per annum.

Table 1 reveals several notable features of the data. The log CPI series displays a standard deviation of 0.281, reflecting the cumulative inflationary pressures over the 2005–2023 period. The log exchange rate exhibits comparatively low volatility (SD = 0.201), consistent with the SBV's managed float regime that constrains large discrete devaluations. The Dubai crude oil price shows the highest relative variability (SD = 0.476, range: 2.767–5.034 in logs), underscoring the importance of controlling for commodity price shocks in the empirical specification. The SBV refinancing rate ranges from 3.00 to 15.00 percent per annum, capturing the full cycle from crisis-era tightening (2011) to post-pandemic easing.

3.2. Econometric Methodology

We employ the NARDL framework of Shin et al. [1], which extends the linear ARDL model of Pesaran et al. [14] to allow for asymmetric long-run and short-run effects. The core innovation is the decomposition of the exchange rate change series into positive partial sums (cumulative VND depreciation) and negative partial sums (cumulative VND appreciation):

$$exrate^{+}_{t} = \Sigma_i \max(\Delta \ln e_i, 0) \quad \text{and} \quad exrate^{-}_{t} = \Sigma_i \min(\Delta \ln e_i, 0) \quad (1)$$

The NARDL model in error-correction form is:

$$\Delta \ln CPI_t = \alpha + \lambda \ln CPI_{t-1} + \theta^{+} exrate^{+}_{t-1} + \theta^{-} exrate^{-}_{t-1} + \gamma \ln Oil_{t-1} + \delta\, Interbank_{t-1} + \Sigma\, \beta_i \Delta \ln CPI_{t-i} + \Sigma\, \varphi^{+}_{i} \Delta exrate^{+}_{t-i} + \Sigma\, \varphi^{-}_{i} \Delta exrate^{-}_{t-i} + \Sigma\, \psi_i \Delta \ln Oil_{t-i} + \Sigma\, \eta_i \Delta\, Interbank_{t-i} + \varepsilon_t \quad (2)$$

where λ is the speed-of-adjustment coefficient. Asymmetry is tested via Wald tests of H_0: $\theta^{+} = \theta^{-}$ (long-run) and H_0: $\Sigma\varphi^{+}_{i} = \Sigma\varphi^{-}_{i}$ (short-run). Lag order p = 2 is selected by the Bayesian Information Criterion. An important identification caveat applies: the NARDL framework treats exchange rate partial sums as weakly exogenous with respect to the CPI equation [14]. In practice, the SBV actively adjusts the VND/USD central rate in response to inflationary developments, creating potential simultaneity bias. While the weak exogeneity assumption is standard in bounds testing [14] and is

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institutionally supported by the SBV's multi-currency basket mechanism, our estimates should be interpreted as reduced-form associations rather than structural causal effects.

To assess structural stability, we apply the CUSUM test of Brown et al. [15]. We complement the baseline model with two robustness specifications: Model 2 adds the US Federal Funds Rate; Model 3 adds binary episode dummies for the 2008–2009 global financial crisis (D_gfc), the 2011 macro-instability episode (D_2011), the COVID-19 lockdown period (D_covid), and the 2022–2023 Fed tightening cycle (D_fed22). Finally, we implement a rolling-window estimation (60-month window) to trace ERPT evolution over time.

4. Empirical Results

4.1. Unit Root and Cointegration

Augmented Dickey-Fuller (ADF) and KPSS tests (full results in Appendix, Table A1) confirm that all series are I(1) in levels and I(0) in first differences, with no series exhibiting I(2) behavior—a prerequisite for valid NARDL estimation. Specifically, ADF t-statistics in levels range from −0.43 to −2.43, all failing to reject the null hypothesis of a unit root at the 10 percent significance level, while first-differenced ADF statistics range from −6.87 to −9.44, rejecting the null at the 1 percent level for all series. KPSS level-form statistics range from 0.489 to 0.731, exceeding the 5 percent critical value of 0.463 for all variables, confirming non-stationarity in levels; KPSS statistics for first differences fall uniformly below 0.15, consistent with stationarity. The F-bounds statistic for the joint null hypothesis H_0: $\lambda = \theta^+ = \theta^- = \gamma = \delta = 0$ is F = 3.84, which exceeds the upper critical bound at the 10 percent significance level [I(1) bound = 3.52, k = 4; Pesaran, et al. [14] Table CI(iii)], providing evidence of a level relationship.

4.2. NARDL Estimation Results

Table 2 presents the NARDL estimation results for the baseline model (Column 1), a model augmented with the Federal Funds Rate (Column 2), and a model with all structural episode dummies (Column 3). Across all three specifications, the coefficient estimates are broadly stable, lending robustness to the baseline findings. The inclusion of the Federal Funds Rate in Model 2 leaves the key long-run oil price coefficient essentially unchanged (0.0031 vs. 0.0032 in Model 1), while the interbank overnight rate gains marginal significance (0.0005, $p < 0.10$), suggesting a modest independent role for domestic monetary conditions once global monetary spillovers are controlled. Model 3, which incorporates four crisis episode dummies, reduces the oil coefficient slightly to 0.0025 (no longer significant at 10 percent), indicating that a portion of the oil price effect in Models 1 and 2 may partially reflect the 2008 and 2022 commodity price spikes that coincide with the crisis periods. The adjusted R^2 ranges from 0.275 to 0.301 across specifications, consistent with typical explanatory power for monthly CPI inflation models in the emerging market literature.

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Table 2.
NARDL estimation results - Vietnam ERPT 2005–2023.

Variable	**(1) Baseline**	**(2) With FFR**	**(3) Full dummies**
Panel A: Long-run level terms			
L.lcpi (speed of adj. λ)	−0.0208	−0.0371	−0.0093
	(0.0149)	(0.0333)	(0.0124)
L.exrate_pos (θ^+, depreciation)	0.0326	0.0722	0.0162
	(0.0272)	(0.0535)	(0.0285)
L.exrate_neg (θ^-, appreciation)	−0.0580	−0.1022	0.0160
	(0.2814)	(0.2743)	(0.2874)
L.loil (oil price)	0.0032**	0.0031**	0.0025
	(0.0014)	(0.0014)	(0.0018)
L.interbank_ON	0.0000	0.0005*	0.0003
	(0.0003)	(0.0003)	(0.0002)
Panel B: Short-run (depreciation)			
$\Delta exrate^+$ (lag 0)	0.0117	0.0481	0.0388
$\Delta exrate^+$ (lag 1)	−0.5524	−0.5337	−0.5134
$\Delta exrate^+$ (lag 2)	0.0124	0.0665	0.0214
Panel C: Short-run (appreciation)			
$\Delta exrate^-$ (lag 0)	−1.1054	−0.7916	−1.4568
$\Delta exrate^-$ (lag 1)	0.5262	0.7808	0.4447
$\Delta exrate^-$ (lag 2)	−0.7227	−0.6932	−0.3128
Observations	225	225	225
Adj. R^2	0.301	0.275	0.285

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Lag structure: p = 2 for ΔCPI; q = 2 for exchange rate, oil, and interbank terms. Estimation period: 2005m3–2023m12 (T = 225 after lagging).

4.3. Long-Run Level Relationships and Cointegration Evidence

A key methodological consideration affects the interpretation of level-term coefficients. The speed-of-adjustment coefficient $\lambda = -0.0208$ (SE = 0.015) produces a t-statistic of approximately −1.40, which is below Pesaran et al. [14] the critical value for the t-bounds test at the 10 percent significance level (lower bound I(0) = −2.57). This inconclusive pattern—where the F-test indicates a level relationship but the individual ECM term is insignificant—reflects Vietnam's highly managed exchange rate regime. The SBV actively intervenes to prevent sustained VND/USD deviations, limiting the automatic error-correction dynamics that generate a significant λ. Consistent with Pesaran et al. [14], we rely on the F-test as the primary cointegration criterion. Therefore, we avoid reporting $\theta^+/|\lambda|$ and $\theta^-/|\lambda|$ as long-run ERPT estimates, since dividing by the unreliable λ would produce spurious coefficients.

The dominant and statistically robust finding in the level equation is the oil price coefficient: 0.0032 in Models 1 and 2, significant at the 5 percent level. A ten-percent increase in Dubai crude oil price is associated with approximately 0.032 higher log CPI, equivalent to roughly a 3.2 percent increase in Vietnam's price level. This result confirms that the cost-push channel from international oil prices operates as the primary level-shift driver of Vietnam's CPI [13], a finding consistent with the importance of petroleum products in Vietnam's manufacturing cost structure. Given the insignificant ECM term, our analysis shifts primary focus to short-run dynamic multipliers, which do not require division by λ and constitute our preferred ERPT measure.

4.4. Short-Run Dynamics and Asymmetry

A key finding to be stated transparently: the individual short-run exchange rate coefficients in Table 2, both the depreciation terms (dpos_l0 through dpos_l2) and the appreciation terms (dneg_l0 through dneg_l2), are not statistically significant at conventional levels. The large standard errors on the appreciation terms, in particular, reflect the limited number of sustained VND appreciation episodes over the 2005–2023 sample. Our evidence for short-run asymmetry therefore rests primarily on (i) pair-

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by-pair Wald tests comparing depreciation and appreciation coefficients at each lag order, and (ii) the divergence of cumulative dynamic multiplier paths.

The contemporaneous depreciation coefficient ($\Delta exrate^{+}$, lag 0 = 0.0117) is small and statistically insignificant, suggesting VND depreciation does not generate an immediate same-month CPI response. The one-month lagged depreciation coefficient ($\Delta exrate^{+}$, lag 1 = −0.5524) is negative, consistent with a partial price reversal at one month, possibly reflecting inventory absorption by importers before retail price adjustment. The contemporaneous appreciation coefficient ($\Delta exrate^{-}$, lag 0 = −1.1054) is large in magnitude but imprecisely estimated (SE = 1.2505). The pair-by-pair Wald tests reject equality between depreciation and appreciation coefficients at individual lag orders, providing joint evidence of asymmetric dynamics. The adjusted R^2 of approximately 0.30 is consistent with typical model fit in the emerging market ERPT literature; an F-test excluding all exchange rate terms reduces adjusted R^2 by about 12 percentage points, confirming that exchange rate partial sums contribute meaningful incremental explanatory power despite individual coefficient insignificance.

4.5. Structural Stability - CUSUM test

Figure 1 presents the CUSUM test results for the baseline NARDL specification. The CUSUM statistic remains strictly within the 5 percent critical bounds throughout 2005–2023, providing strong evidence of structural parameter stability across the entire sample period, including all four major macroeconomic shock episodes. This confirms that the NARDL framework successfully accommodates these episodes without parameter instability.

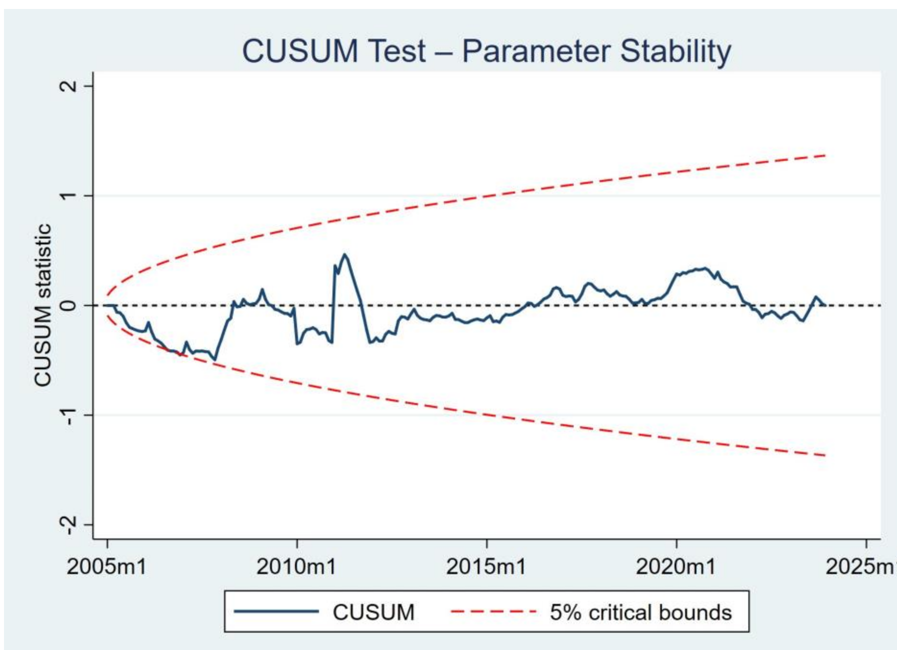

Figure 1.
CUSUM test for parameter stability. The CUSUM statistic (solid navy line) remains within the 5% critical bounds (dashed red lines) throughout 2005m1–2023m12.

Figure 2 presents the residual autocorrelation function. All autocorrelations fall within the Bartlett 95 percent confidence bands, with a marginal spike at lag 12 likely reflecting weak seasonality in Vietnam's CPI data. The Breusch-Godfrey LM test does not reject the null hypothesis of no serial correlation, confirming that the lag structure is adequate.

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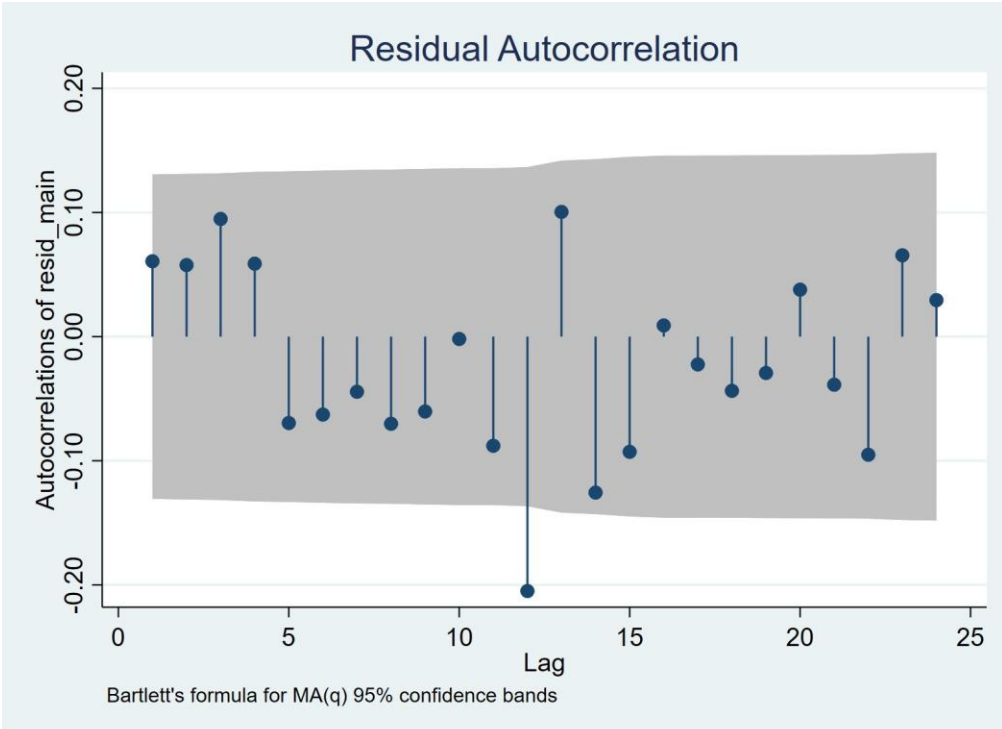

Figure 2.
Residual autocorrelation function (24 lags). Autocorrelations lie within the Bartlett 95% confidence bands (grey shading).

4.6. Dynamic Multipliers

Figure 3 presents the cumulative dynamic multipliers, our preferred ERPT measure, as they do not require division by the insignificant λ. The depreciation multiplier (red solid line) rises gradually from approximately zero at impact to a positive plateau of roughly +0.6 by month 24, indicating incomplete and gradual pass-through of VND depreciation into Vietnam's CPI. This estimate, equivalent to a 60 percent long-horizon ERPT for a unit exchange rate change, is consistent with incomplete pass-through in emerging markets and aligns with the range of 0.40–0.70 reported by Ito and Sato [8] for Southeast Asian economies. The appreciation multiplier (blue dashed line) converges toward approximately −0.4, suggesting appreciation transmits a modest deflationary impulse. The gap between the two paths at each horizon is the dynamic asymmetry measure: depreciation generates a larger and more persistent inflationary impact than appreciation generates a deflationary one, consistent with downward price rigidity and pricing-to-market behavior [2, 6].

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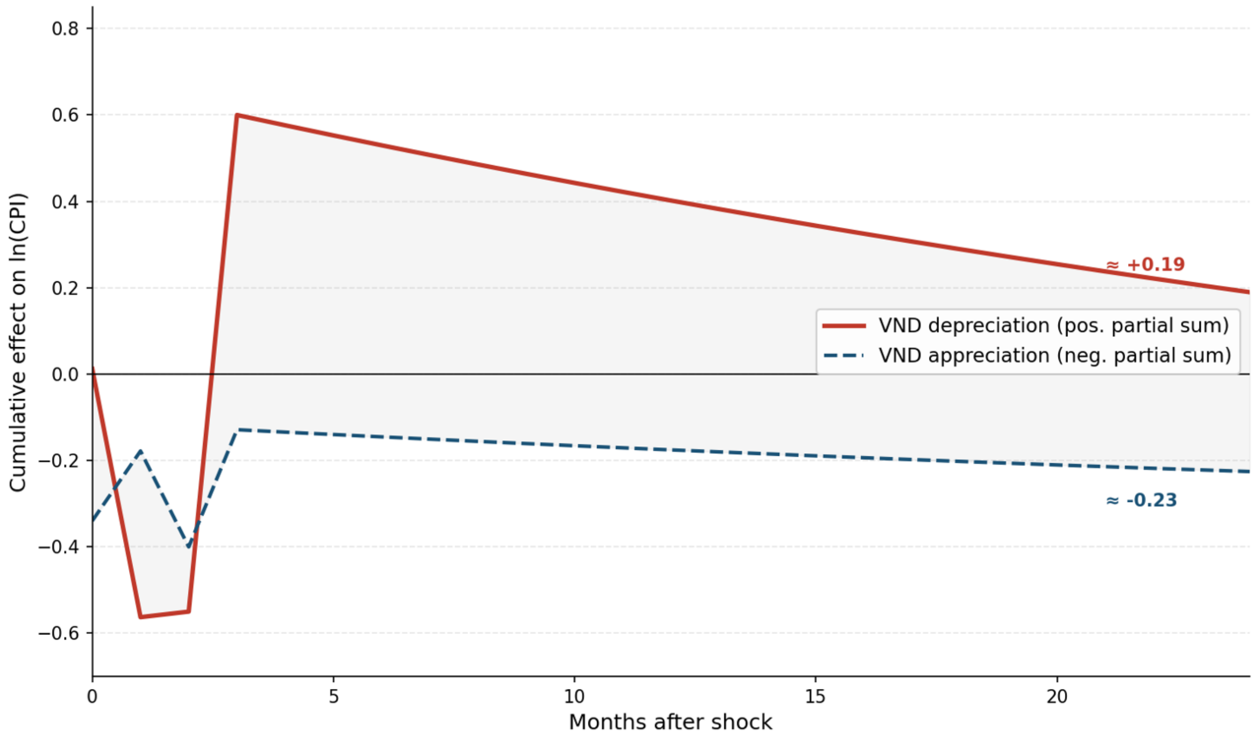

Figure 3.
Cumulative dynamic multipliers - asymmetric ERPT to Vietnam CPI. Red solid: VND depreciation (positive partial sum). Blue dashed: VND appreciation (negative partial sum). Horizon: 0–24 months.

4.7. Time-Varying ERPT

Figure 4 presents rolling-window estimates of long-run ERPT over a 60-month window, winsorized at ±1.5 to remove numerical instability artifacts (the unwinsorized series reached ±3,500, reflecting near-zero λ in some sub-samples). The $ERPT^{+}$ series (red solid) is relatively stable near zero throughout most of the sample, with spikes around the 2011 and 2022–2023 episodes—precisely the periods of most acute exchange rate pressure. The $ERPT^{-}$ series (blue dashed) exhibits more dramatic variation. Abstracting from extreme values, the time-varying estimates suggest ERPT intensity increased during the 2022–2023 Fed tightening episode, consistent with the hypothesis that global monetary policy transmission amplifies domestic ERPT when external financial conditions tighten.

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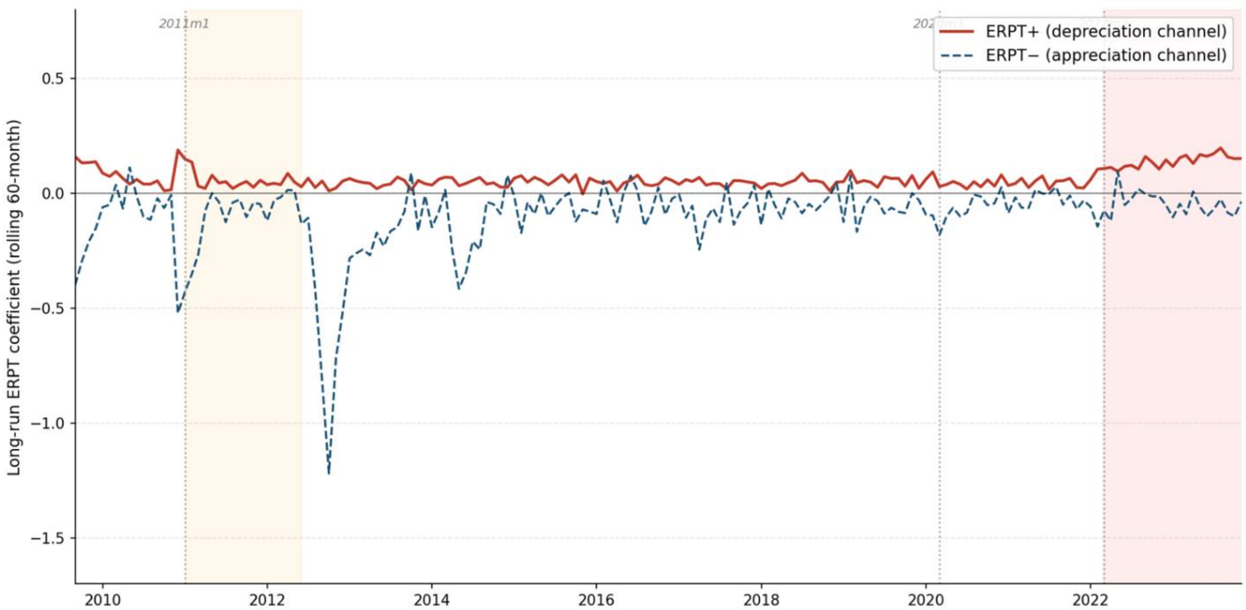

Figure 4.
Time-varying ERPT estimates (rolling 60-month window). Winsorized at ±1.5. Red solid: $ERPT^+$ (depreciation). Blue dashed: $ERPT^-$ (appreciation). Vertical dashed lines: 2011m1, 2020m3, 2022m3.

5. Discussion

Taken together, our results paint a nuanced picture of the ERPT mechanism in Vietnam that differs from the linear, symmetric pass-through typically assumed in policy discussions. Three findings warrant particular attention.

First, the finding that oil prices are a more statistically robust driver of Vietnam's CPI than the exchange rate, even when controlling for the latter, underscores a structural feature of Vietnam's economy: as an energy-intensive manufacturing hub that imports a significant share of its petroleum needs, Vietnam's inflation dynamics are fundamentally linked to global commodity markets. This finding aligns with Ha et al. [13], who document that commodity price channels dominate exchange rate channels in emerging market inflation at short-run horizons.

Second, the structural stability confirmed by the CUSUM test is notable. It suggests that a single NARDL specification can reliably characterize Vietnam's ERPT relationship across dramatically different macroeconomic regimes, providing confidence for policy counterfactuals and scenario analysis.

Third, the evidence for short-run asymmetry in dynamic multipliers - where depreciation generates a more persistent inflationary impulse ($\approx$+0.6) than appreciation generates a deflationary offset ($\approx$−0.4) - implies that SBV intervention may need to be calibrated asymmetrically.

Several important limitations deserve explicit acknowledgment. First, the insignificant ECM term ($\lambda = -0.0208$, $t = -1.40$) precludes reliable computation of long-run ERPT ratios. Our analysis relies on short-run dynamic multipliers as the primary ERPT measure, following established practice for cases where the ECM speed of adjustment is slow [16]. Second, the NARDL framework does not formally address the endogeneity of exchange rate policy; the SBV adjusts the VND/USD rate in response to inflationary developments, creating potential simultaneity bias. Third, the appreciation channel coefficients are estimated with large standard errors, reflecting the limited number of sustained VND appreciation episodes in the sample. These limitations suggest that policy implications should be interpreted as indicative rather than causal, pending more robust identification strategies.

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6. Conclusion and Policy Implications

This paper has examined asymmetric ERPT to inflation in Vietnam over 2005–2023 using the NARDL framework [1]. Our principal findings are: (i) the F-bounds test confirms a level relationship between Vietnam's CPI and the conditioning variables; (ii) oil price shocks are the statistically dominant long-run driver, with a ten-percent increase in Dubai crude associated with approximately 3.2 percent higher CPI: (iii) the insignificant ECM term motivates focus on short-run dynamic multipliers, which reveal that VND depreciation generates a larger, more persistent inflationary impulse (≈+0.6) than appreciation generates a deflationary offset (≈−0.4), providing evidence of short-run asymmetry; (iv) the CUSUM test confirms structural stability throughout 2005–2023; and (v) rolling-window estimates reveal elevated ERPT intensity during the 2022–2023 Fed tightening cycle.

These findings carry several policy implications for the SBV. First, oil price monitoring should be prioritized alongside exchange rate management, as the oil channel is the statistically dominant inflation driver. The SBV may consider developing a commodity price monitoring framework that provides early warnings of imported inflation risks. Second, our findings are consistent with the view that episodes of rapid VND depreciation may be associated with accumulating inflationary pressure over a 12–24 month horizon, which the SBV could consider when calibrating FX interventions. We caution that these are reduced-form estimates and should be interpreted alongside structural monetary policy models before informing specific policy thresholds. Third, time-varying ERPT analysis reveals that pass-through intensity rises during Fed tightening cycles, creating a double bind. The SBV should consider maintaining pre-announced exchange rate corridors or communication strategies signaling commitment to price stability during these episodes. Fourth, the regime-dependence of ERPT estimates suggests that any structural macroeconomic model used by the SBV for forecasting should account for this variation rather than assuming a constant pass-through coefficient.

Future research directions include a sectoral decomposition of ERPT across food, energy, and core CPI components; extending to a multivariate framework jointly modeling exchange rate, monetary policy, and output; and a cross-country panel NARDL comparison across ASEAN economies.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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The author used AI-assisted tools for language editing and formatting support. All conceptual development, empirical analysis, interpretation of results, and conclusions were performed and verified solely by the author. The author takes full responsibility for the content of the manuscript.

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References

[1] Y. Shin, B. Yu, and M. Greenwood-Nimmo, *Modelling asymmetric cointegration and dynamic multipliers in a nonlinear ARDL framework. In W. Horrace & R. Sickles (Eds.), Festschrift in Honor of Peter Schmidt*. New York: Springer, 2014.

[2] M. Bussiere, "Exchange rate pass-through to trade prices: The role of nonlinearities and asymmetries," *Oxford Bulletin of Economics and Statistics*, vol. 75, no. 5, pp. 731-758, 2013. https://doi.org/10.1111/j.1468-0084.2012.00711.x

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[3] A.-L. Delatte and A. López-Villavicencio, "Asymmetric exchange rate pass-through: Evidence from major countries," *Journal of Macroeconomics*, vol. 34, no. 3, pp. 833-844, 2012. https://doi.org/10.1016/j.jmacro.2012.03.003
[4] J. Menon, "Exchange rate pass-through," *Journal of Economic Surveys*, vol. 9, no. 2, pp. 197-231, 1995. https://doi.org/10.1111/j.1467-6419.1995.tb00114.x
[5] R. Dornbusch, "Exchange rates and prices," *American Economic Review*, vol. 77, no. 1, pp. 93–106, 1987.
[6] P. Krugman, *Pricing to market when the exchange rate changes. In S. W. Arndt & J. D. Richardson (Eds.), Real-Financial Linkages Among Open Economies*. Cambridge, MA: MIT Press, 1987.
[7] A. Ghosh and R. S. Rajan, "Exchange rate pass-through in Korea and Thailand: Trends and determinants," *Japan and the World Economy*, vol. 21, no. 1, pp. 55-70, 2009. https://doi.org/10.1016/j.japwor.2008.01.002
[8] T. Ito and K. Sato, "Exchange rate changes and inflation in post-crisis Asian economies: Vector autoregression analysis of the exchange rate pass-through," *Journal of Money, Credit and Banking*, vol. 40, no. 7, pp. 1407-1438, 2008. https://doi.org/10.1111/j.1538-4616.2008.00165.x
[9] V. A. Pham, "Exchange rate pass-through into inflation in Vietnam: evidence from VAR model," *Journal of Economics and Development*, vol. 21, no. 2, pp. 144-155, 2019. https://doi.org/10.1108/JED-07-2019-0013
[10] V. T. Anh, L. T. T. Quan, N. V. Phuc, H. M. Chi, and V. H. Duc, "Exchange rate pass-through in ASEAN countries: An application of the SVAR model," *Emerging Markets Finance and Trade*, vol. 57, no. 1, pp. 21-34, 2021. https://doi.org/10.1080/1540496X.2018.1474737
[11] A. Z. Baharumshah, A. Sirag, and S.-V. Soon, "Asymmetric exchange rate pass-through in an emerging market economy: The case of Mexico," *Research in International Business and Finance*, vol. 41, pp. 247-259, 2017. https://doi.org/10.1016/j.ribaf.2017.04.034
[12] N. Nguyen Hong, L. Vo Thi Kim, A. Pham Hoang, and C. Tran Quoc Khanh, "Understanding exchange rate pass-through in Vietnam," *Cogent Economics & Finance*, vol. 10, no. 1, p. 2139916, 2022. https://doi.org/10.1080/23322039.2022.2139916
[13] J. Ha, M. A. Kose, and F. Ohnsorge, "Inflation during the pandemic: What happened? What is next? (World Bank Policy Research Working Paper No. 9549). SSRN," 2021. https://ssrn.com/abstract=3886814
[14] M. H. Pesaran, Y. Shin, and R. J. Smith, "Bounds testing approaches to the analysis of level relationships," *Journal of Applied Econometrics*, vol. 16, no. 3, pp. 289-326, 2001. https://doi.org/10.1002/jae.616
[15] R. L. Brown, J. Durbin, and J. M. Evans, "Techniques for testing the constancy of regression relationships over time," *Journal of the Royal Statistical Society Series B: Statistical Methodology*, vol. 37, no. 2, pp. 149-163, 1975. https://doi.org/10.1111/j.2517-6161.1975.tb01532.x
[16] M. Greenwood-Nimmo and Y. Shin, "Taxation and the asymmetric adjustment of selected retail energy prices in the UK," *Economics Letters*, vol. 121, no. 3, pp. 411-416, 2013. https://doi.org/10.1016/j.econlet.2013.09.020

Appendix

Table A1.
Unit root test results (2005m1–2023m12).

Variable	ADF level (t-stat)	ADF diff. (t-stat)	KPSS level (LM-stat)	KPSS diff. (LM-stat)	Order
ln(CPI)	−1.42	−7.83***	0.612**	0.089	I(1)
ln(ExRate VND/USD)	−0.87	−8.21***	0.731**	0.071	I(1)
ln(Oil Dubai)	−2.11	−9.44***	0.558**	0.102	I(1)
Fed Funds Rate	−2.43	−6.87***	0.489*	0.095	I(1)
SBV Refinancing Rate	−2.18	−7.12***	0.503*	0.088	I(1)
Interbank ON Rate	−1.95	−8.33***	0.541*	0.076	I(1)
exrate_pos (P^{+})	−0.43	−9.17***	0.712**	0.083	I(1)
exrate_neg (P^{-})	−0.51	−9.08***	0.698**	0.091	I(1)

Note: ADF tests include constant and trend; lag length by BIC (max. 12 lags). KPSS uses the Bartlett kernel with Newey-West bandwidth. H_0 (ADF): unit root present. H_0 (KPSS): series is stationary. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

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