



Article

Learning to Listen? Fed Communication, Global Risk Sentiment, and Emerging Market Capital Flows

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Abstract

This paper examines the relationship between Federal Open Market Committee (FOMC) communication surprises, global risk sentiment, and net portfolio debt inflows to twelve major emerging market economies over the period 2000–2024. Exploiting a high-frequency U.S. Monetary Policy Event-Study Database, we estimate panel fixed-effects regressions and local projections at quarterly frequency. We find that global risk sentiment, proxied by the VIX, is a robust and persistent driver of emerging market capital flows, while Fed communication surprises are statistically insignificant in normal times and in the 2022–2024 tightening cycle. A striking exception is the 2013 taper tantrum—the episode of severe capital outflow pressure triggered by Chairman Bernanke’s May 2013 congressional testimony signalling a possible tapering of asset purchases. Regime interaction tests reveal a large, highly significant negative effect of communication surprises on flows during this episode alone, with no comparable effect in 2022. Local projections confirm that the taper tantrum generated a sharp initial outflow followed by partial reversal, while VIX effects are contemporaneous but not persistent. We empirically test for market learning, finding that reduced sensitivity to Fed communication reflects a discrete recalibration after the 2013 shock rather than a gradual learning process. Regarding capital flows, the taper tantrum is clearly the exception, not the rule.

Keywords: emerging market capital flows; Federal Reserve communication; monetary policy surprises; taper tantrum; local projections

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1. Introduction

The Federal Reserve’s communication strategy has become much more sophisticated over the past three decades. From the terse, code-laden statements of the Greenspan era to the press conferences, forward guidance, and dot plots that now follow each Federal Open Market Committee (FOMC) meeting, the Fed has become one of the world’s most prolific and consequential communicators. For policymakers in emerging markets (EMs), this matters enormously: a surprise shift in the Fed’s tone can move exchange rates, compress bond spreads, and trigger capital outflows before a single dollar of policy action has changed hands. Yet whether EM capital flows respond systematically to the content of Fed communication—as opposed to the broader risk environment that communication partly shapes—remains an open empirical question.

This paper investigates that question directly. We examine the relationship between FOMC communication surprises, global risk sentiment, and net portfolio debt inflows

to a panel of twelve major emerging market economies over the period 2000 to 2024. Exploiting high-frequency monetary policy surprise data constructed around every FOMC communication event since 1994, we can separate the unanticipated component of Fed statements and press conferences (as reflected in intraday interest rate movements) from the level of global risk appetite with which it is correlated but far from identical.

Three main results emerge. First, global risk sentiment, as proxied by the VIX, is a robust and economically significant driver of EM portfolio debt inflows, consistent with a substantial body of work on push factors and the global financial cycle. Second, Fed communication surprises are largely irrelevant for EM flows in normal times: the coefficient on our FOMC surprise measure is statistically indistinguishable from zero in the baseline and in most sub-samples. Third, and most strikingly, the 2013 taper tantrum stands out as a singular exception: regime interaction tests reveal a large, highly significant negative effect of communication surprises on EM flows during this episode alone, with no comparable effect during the 2022 to 2024 tightening cycle. This pattern is consistent with a form of “market learning”: having absorbed the lessons of 2013, investors no longer respond to Fed communication with the same intensity of portfolio reallocation.

The remainder of the paper is organised as follows. Section 2 describes the existing literature, data and methodology. Sections 3–5 present the baseline results, regime analysis, and local projection evidence, respectively. Section 6 concludes.

2. Literature, Data and Methodology

2.1. Literature Context

Our paper sits at the intersection of three areas of study: the determinants of EM capital flows, the identification and measurement of monetary policy surprises, and the global financial cycle.

The classic push–pull framework for capital flows originates with Calvo et al. (1996), who showed that the 1990s wave of capital inflows to Latin America and Asia was driven as much by low U.S. interest rates and global liquidity conditions as by improving domestic fundamentals. Forbes and Warnock (2012) formalised this in an influential typology, finding that global risk (proxied by the VIX) is the most consistent predictor of extreme flow episodes. Fratzscher (2012) distinguished push from pull factors during the GFC, showing that common global shocks dominated during the crisis while domestic fundamentals re-asserted themselves in the recovery. Ghosh et al. (2014) identified thresholds of capital flow volatility associated with financial stability risks in a euro area context. Koepke (2019) provided a comprehensive meta-analysis across 48 empirical studies confirming the primacy of global risk appetite as a push factor. Ahmed and Zlate (2014) extended this to the post-GFC period, documenting growing EM sensitivity to U.S. interest rate differentials. Cerutti et al. (2019) showed that a single global factor accounted for a substantial share of variation in EM capital flows, and that countries with more open capital accounts are significantly more exposed to this global cycle.

The global financial cycle literature provides a macroeconomic interpretation of these push-factor results. Rey (2015) documented the existence of a single global factor in capital flows, asset prices, and credit growth, co-moving strongly with the VIX and driven in part by monetary policy at the centre of the international financial system. Miranda-Agrippino and Rey (2020) provided causal evidence, showing that a contractionary U.S. monetary policy shock leads to significant deleveraging of global financial intermediaries and a contraction of international credit flows. Bruno and Shin (2015) also identified the risk-taking channel as a key propagation mechanism, showing that tighter U.S. monetary conditions reduce the risk appetite of global banks, amplifying the transmission of Fed policy to EM capital flows.

The measurement of monetary policy surprises traces to [Gürkaynak et al. \(2005\)](#), who showed that Fed communication contains two distinct factors: a surprise in the current policy rate and a separate ‘path factor’ reflecting shifts in the expected future path of policy. [Kuttner \(2001\)](#) showed how changes in market yields from policy announcements depended on whether they were anticipated or not, and [Bernanke and Kuttner \(2005\)](#) extended this approach to examine equity prices. [Nakamura and Steinsson \(2018\)](#) also previously showed that FOMC announcements have important information effects—news about the economic outlook—that can partially offset the conventional contractionary channel of monetary policy. This ambiguity may help explain why communication surprises are not always associated with EM outflows in practice.

Building on this tradition, [Acosta et al. \(2025\)](#) introduce the U.S. Monetary Policy Event-Study Database (USMPD), which systematically tracks high-frequency market movements around FOMC events. [Acosta et al. \(2025\)](#) construct a comprehensive event-study database covering all FOMC communication events from 1994 to the present. The meeting-event (ME) factor represents the high-frequency surprise in the one-year Treasury yield around each FOMC event, aggregated to quarterly frequency by summing within each quarter. This measure captures the pure communication surprise: the component of interest rate movements reflecting unanticipated shifts in Fed language. Importantly, the ME factor does not strip out the aforementioned information effect identified by [Nakamura and Steinsson \(2018\)](#), whereby FOMC announcements can raise interest rates and equity prices simultaneously by conveying positive news about the economic outlook. This ambiguity is consequential for EM flows: a contractionary communication surprise accompanied by an upward revision to U.S. growth prospects may generate offsetting forces: higher U.S. rates can pull capital toward the U.S., but better global growth also supports EM risk appetite. The insignificance of ME in our full-sample baseline is consistent with these offsetting channels. The taper tantrum may have been distinctive precisely because it conveyed unambiguously bad news for EM asset holders: policy normalisation without any compensating improvement in the growth outlook. [Bauer and Rudebusch \(2014\)](#) and [Swanson \(2021\)](#) provide related decompositions of monetary policy surprises into target, path, and forward guidance components; [Jarociński and Karadi \(2020\)](#) offer sign-restriction identification of pure policy versus information shocks; and [Bowman et al. \(2015\)](#) directly examine U.S. monetary policy transmission to EM sovereign yields and exchange rates.

The transmission mechanism literature also informs our interpretation of time-varying effects. [Ellis et al. \(2014\)](#) used a time-varying factor-augmented VAR to show that the UK monetary transmission mechanism shifted substantially across regimes, with the channels operating through financial markets becoming more prominent in the post-liberalisation era. The analogous question for EM capital flows—whether the transmission of Fed communication has also changed across episodes—is precisely what our regime interaction tests address. [Eichengreen and Gupta \(2015\)](#) provide a close cross-sectional precedent, showing that the 2013 taper announcement had sharp and differentiated effects across emerging markets, with larger and more liquid markets experiencing more severe outflows.

Finally, the local projection framework of [Jordà \(2005\)](#) underpins our dynamic analysis. Local projections are robust to misspecification of the dynamic system, accommodate non-linear and state-dependent specifications naturally, and have become standard in the recent macroeconomic literature.

2.2. Data

Our measure of capital flows is net portfolio debt liabilities drawn from the IMF Balance of Payments Statistics portal, expressed as a share of GDP to facilitate cross-country comparability. The panel covers twelve major emerging market economies: Brazil,

Chile, Colombia, Hungary, India, Indonesia, Mexico, Philippines, Poland, South Africa, Thailand, and Turkey. These countries are selected on three criteria, ensuring the panel reflects the diversity of the major EM investable universe: (i) consistent IMF and major index-provider classification as emerging markets throughout the sample; (ii) continuous quarterly balance of payments data available from IMF Statistics from at least 2009Q1; and (iii) broad geographic coverage spanning Latin America, Emerging Europe, Asia, and Africa. Data are available at a quarterly frequency from 2000Q1 to 2024Q4. The panel is unbalanced, as India's balance of payments data begin in 2009Q1. GDP data are drawn from the IMF World Economic Outlook database (annual, in USD billions) and interpolated to quarterly frequency using a quadratic match-sum method. The exclusion of India from the pre-2009 sample could in principle bias the pre-taper sub-period coefficient if India's flow dynamics differ systematically from the other eleven countries: we address this directly in the results that follow.

The monetary policy surprise series is the meeting-event (ME) factor from the USMPD of Acosta et al. (2025). The ME series combines the statement and press conference surprises into a single measure normalised to reflect a one percentage point impact on the one-year Treasury yield, aggregated to quarterly frequency by summing within each quarter. Global risk sentiment is measured by the CBOE VIX (quarterly average). Exchange rate changes are log differences of bilateral USD rates from the IMF International Financial Statistics database, with positive values indicating depreciation.

2.3. Empirical Methodology

Our baseline specification is a panel fixed-effects regression:

$$flows_{it} = \alpha_i + \beta_1 VIX_t + \beta_2 ME_t + \beta_3 \Delta FX_{it} + \varepsilon_{it}$$

where country fixed effects α_i absorb time-invariant heterogeneity, and we use White cross-section robust estimates of standard errors, given the heteroskedasticity across countries. We exclude period fixed effects because the VIX and ME series are cross-sectionally invariant. To test for structural change, we estimate sub-period regressions and augment the baseline with regime interaction terms, testing incremental coefficients using Wald tests. Dynamic effects are traced using local projections at horizons from 1 to 8 quarters.

3. Baseline Results

Table 1 presents results from three panel specifications estimated over the full sample period 2000Q2–2024Q4. The three different specifications shown are as follows: (1) including only the VIX ; (2) including only the ME surprise; and (3) the full model.

Table 1. Baseline panel regressions. Dependent variable: Net portfolio debt inflows as % of GDP. Country fixed effects. White cross-section robust standard errors in parentheses.

	(1) VIX Only		(2) ME Only		(3) Full Model	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
VIX	−0.058 ***	(0.012)			−0.040 ***	(0.012)
ME Surprise			3.768 *	(1.563)	0.799	(1.563)
ΔFX					−0.071 ***	(0.016)
Observations	1157		1157		1157	
Countries	12		12		12	
R ²	0.076		0.052		0.087	

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All specifications include country fixed effects. Sample: 2000Q2–2024Q4 (unbalanced; India begins 2009Q1).

Three findings stand out. First, the VIX enters with a negative and highly significant coefficient of -0.040 ($p = 0.001$) in both the univariate and full specifications. Given the VIX has a standard deviation of roughly 10 index points over our sample, this implies that moving from calm to stressed market conditions reduces quarterly inflows by about 0.40 percentage points of GDP. This magnitude is sufficient to reverse the average country's quarterly inflow position. Second, the ME surprise is statistically insignificant in the full model (coefficient 0.799, $t = 0.51$), and only weakly significant on a univariate basis. This is a substantive finding: over the whole sample, the unanticipated component of Fed communication has no effect on EM portfolio debt flows in the main model. Third, the exchange rate change enters negatively and significantly (-0.071 , $p < 0.001$), consistent with a valuation and returns channel whereby domestic currency depreciation reduces dollar-denominated returns on local-currency assets.

The R^2 values in Table 1, ranging from 0.052 to 0.087, are modest in absolute terms but consistent with the panel capital flows literature. Koepke's (2019) meta-analysis reports median adjusted R^2 values of approximately 0.10–0.15 across comparable studies; the remaining variation reflects idiosyncratic country-level flow dynamics that a parsimonious set of global factors cannot capture. The economically significant and precisely estimated VIX coefficient, alongside the relatively low R^2 , reflects a well-documented feature of capital flow data: individual country flows are noisy, but their co-movement with global risk is both real and quantitatively important at the aggregate level.

A potential concern is whether the VIX can be treated as exogenous with respect to EM capital flows. We investigate this with pairwise Granger causality tests (using four lags) between the VIX and a cross-sectional average of EM flows. The null that VIX does not Granger-cause flows is strongly rejected ($F = 20.14$, $p < 0.0001$), confirming that VIX movements systematically precede flow responses. The reverse test, that flows Granger-cause VIX, is also statistically significant ($F = 3.91$, $p = 0.004$), but the magnitude is far smaller. Economically, global equity market volatility is driven primarily by U.S. and global financial conditions rather than by EM portfolio rebalancing. The panel regression coefficient can be interpreted as a predictive association—the VIX consistently leads EM flows—consistent with the push-factor literature (Fratzscher, 2012; Koepke, 2019). We also note that both ME and VIX Granger-cause each other ($F > 10$, $p < 0.0001$ in both directions), consistent with the well-known entanglement of communication surprises and risk sentiment. This further supports our baseline specification treating both as contemporaneous conditioning variables rather than assuming causal primacy for either.

3.1. Robustness Checks

It is important to check the robustness of these results to different factors and assumptions. Table 2 presents a battery of robustness checks on the baseline VIX and ME coefficients. The headline finding—VIX is negative and significant, ME is insignificant—is robust across all specifications. Panel A replicates the baseline. Panel B replaces the VIX with the Geopolitical Risk (GPR) index of Caldara and Iacoviello (2022): the GPR coefficient is insignificant across all specifications ($p = 0.51$ – 0.55) and economically negligible. This is a useful contrast: it is consistent with the VIX's effect on EM flows operating specifically through equity market uncertainty, namely the forward-looking risk dimension, rather than through geopolitical risk more broadly. Panel C extends the dependent variable to total portfolio flows (debt plus equity): VIX remains negative and highly significant (-0.055 , $p < 0.001$) while ME is insignificant ($p = 0.28$), confirming that results are not driven by the choice of debt flows. Panel D switches to White estimates of standard errors: the VIX coefficient is unchanged (-0.040 , $p < 0.01$) and ME remains insignificant. We note that period clustering produces substantially wider standard errors for the taper tantrum ME

interaction (SE = 61.6 versus 4.1 under cross-section clustering), reflecting the limited number of time periods in the taper window; cross-section clustering is the more appropriate approach given the cross-sectionally invariant nature of VIX and ME.

Table 2. Robustness checks for original analysis. Dependent variable as indicated. Country fixed effects throughout. Standard errors in parentheses.

Specification	VIX Coef.	(SE)	ME Coef.	(SE)	R ²
Panel A: Baseline (for reference)					
Debt flows—CX White SE	−0.040 ***	(0.012)	0.799	(1.563)	0.087
Panel B: Alternative risk measure (GPR)					
GPR index only	−0.001	(0.002)	—	—	0.042
GPR + ME + DFX	−0.001	(0.002)	2.203	(1.807)	0.077
Panel C: Alternative flow measure					
Total flows (debt + equity)—VIX only	−0.082 ***	(0.019)	—	—	0.068
Total flows—full model	−0.055 ***	(0.013)	1.841	(1.706)	0.101
Panel D: Alternative SE clustering					
Period White (cross-section cluster) SE	−0.040 ***	(0.011)	0.799	(0.980)	0.087
Panel E: Country exclusions					
Exclude Turkey (11 countries)	−0.037 ***	(0.013)	0.851	(1.596)	0.077
Exclude India from pre-taper	−0.043 ***	(0.013)	0.790	(1.640)	0.083

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All specifications include country fixed effects. Sample: 2000Q2–2024Q4 (unbalanced; India begins 2009Q1). GPR = Geopolitical Risk index of Caldara and Iacoviello (2022). Total flows = net portfolio liabilities (debt + equity) as % of GDP from IMF BOP Statistics. Period White SE clusters by cross-section; all other specifications cluster by time period (White cross-section). Country fixed effects are used throughout estimations.

Finally, Panel E confirms that country-specific issues are not biasing key results. Excluding Turkey leaves both the baseline and taper results essentially unchanged (taper ME interaction = -17.98 , $p < 0.001$ excluding Turkey vs. -14.70 , $p < 0.001$ in the full sample), ruling out Turkey as a driver of results. And re-estimating the pre-taper regression excluding India entirely yields a VIX coefficient of -0.043 (SE = 0.013 , $p = 0.002$) and an ME coefficient of 0.790 ($p = 0.631$). These are very close to the baseline estimates of -0.052 and 0.196 , indicating that India's shorter sample does not materially affect the results.

3.2. Country Heterogeneity

Table 2 confirms that the baseline VIX result is not driven by any single country or specification. We now examine whether the results mask systematic heterogeneity across different types of emerging market, focusing on two dimensions: exchange rate regime flexibility and reserve adequacy. For exchange rate regimes, we use the de facto classifications from the IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) to define a floating-regime dummy (data were available through 2023Q4). Restricting the sample to floating-regime observations yields a VIX coefficient of -0.034 (SE = 0.012 , $p = 0.004$), close to the full-sample baseline. The pegged/managed subsample collapses to a single cross-section after applying regime restrictions, reflecting the fact that the large majority of our twelve countries operated floating regimes throughout, which unfortunately precludes reliable separate estimation. Instead, we test regime heterogeneity through an interaction specification, augmenting the baseline with a floating-regime dummy and its interactions with VIX and ME. Neither the $[VIX \times \text{float}]$ interaction term (coefficient = $+0.235$, $p = 0.18$) nor the $[ME \times \text{float}]$ interaction term (coefficient = $+12.85$, $p = 0.29$) is statistically significant. Exchange rate regime flexibility does not, on average, alter the sensitivity of EM flows to global risk or Fed communication shocks in our panel. This may reflect the fact that all twelve countries operate sufficiently open capital accounts that the VIX channel operates regardless of the nominal regime.

To test for reserve adequacy, we combine VIX and ME with values for (the log of) international reserves, using data from the IMF's International Financial Statistics (IFS). Neither the $[VIX \times \log\text{-reserves}]$ interaction term ($p = 0.31$) nor the $[ME \times \log\text{-reserves}]$ interaction term ($p = 0.31$) is significant in the full sample, suggesting reserves do not systematically buffer EM flows from global risk shocks on average. However, splitting the panel at the sample median of log reserves reveals a suggestive pattern: the VIX coefficient is -0.057 ($SE = 0.022$, $p = 0.011$) for low-reserve countries versus -0.020 ($SE = 0.010$, $p = 0.066$) for high-reserve countries. This is consistent with a marginal buffering role for reserves: countries with larger cushions appear somewhat less sensitive to the VIX. While this is only a preliminary finding, it suggests that reserve accumulation may partially insulate EM economies from the global risk channel.

4. Has the Transmission Mechanism Changed?

4.1. Sub-Period Regressions

The results above are a useful benchmark across the whole data sample. But it is possible that economic and financial relationships have changed over time. To start investigating this, Table 3 reports the full-model specification estimated over four non-overlapping sub-periods. The VIX coefficient is negative and significant in the pre-taper and mid-period sub-samples but loses significance in the most recent period (2020Q1–2024Q4), where all three regressors become insignificant. The exchange rate coefficient is consistently negative and significant in the first three sub-periods and largest during the taper window (-0.159), when currency depreciation pressures were most acute. The ME coefficient remains insignificant in all four sub-periods. Figure 1 presents these VIX coefficients as a coefficient plot. There is clear evidence of time variation in the relationships between data series.

Table 3. Sub-period regressions. Dependent variable: Net portfolio debt inflows as % of GDP. Country fixed effects. White cross-section robust standard errors in parentheses.

Period	N	VIX Coef.	SE	ME Coef.	SE	ΔFX Coef.	SE	R ²
Pre-taper (2000Q2–2013Q1)	593	-0.052^{**}	(0.017)	0.196	(2.021)	-0.076^{***}	(0.023)	0.133
Taper window (2012Q1–2015Q4)	192	-0.078	(0.083)	0.116	(12.09)	-0.159^{***}	(0.045)	0.295
Mid-period (2016Q1–2019Q4)	192	-0.092^{**}	(0.044)	0.994	(2.114)	-0.066^{**}	(0.026)	0.366
Recent (2020Q1–2024Q4)	240	-0.041	(0.038)	1.614	(2.395)	-0.024	(0.038)	0.198

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All specifications include country fixed effects.

The choice of sub-periods reflects the major turning points in the global monetary policy cycle. Formal statistical tests for breakpoints were insignificant, likely reflecting the noise in the inflows data. But the different periods correspond to the specific Taper episode and the onset of the dramatic COVID-19 pandemic. From a narrative perspective, these are clearly different episodes in economic history.

4.2. Regime Interactions and the Taper Tantrum

We also construct formal checks of stability over time. The ‘taper tantrum’ is widely taken to refer to the sharp tightening of global financial conditions triggered by Chairman Bernanke’s 22 May 2013 congressional testimony, in which he first publicly indicated that the Federal Reserve might begin tapering its asset purchase programme if the economy continued to improve. The announcement caught markets off guard: U.S. ten-year Treasury yields rose by around 100 basis points over the following months, and a wave of capital outflows hit emerging markets as investors anticipated an earlier-than-expected end to

unconventional monetary policy. Based on these observed events, we defined the taper tantrum window as the 2013Q2–2013Q4 period, covering the three quarters of most acute market dislocation. Table 4 reports Wald results for tests of zero interaction coefficients for three episodes: the GFC, the taper tantrum window, and the 2022–2024 tightening cycle.

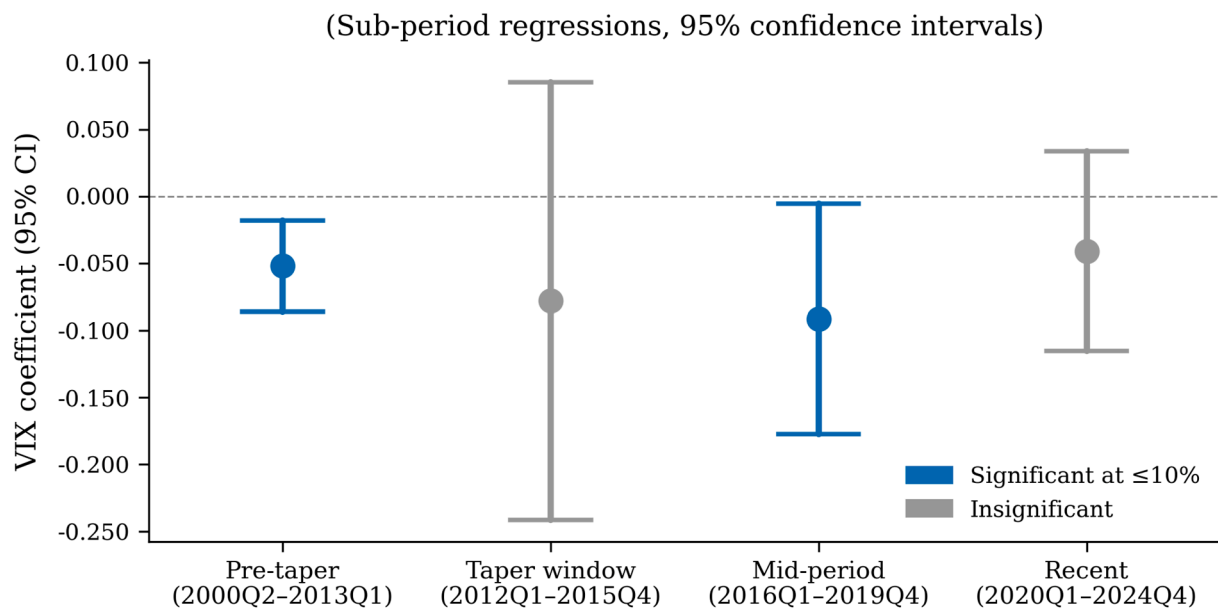


Figure 1. VIX coefficient across sub-periods. Notes: VIX coefficient estimates from the full-model sub-period regressions in Table 3. Error bars show 95% confidence intervals. Blue indicates significance at the 10% level or better; grey indicates insignificance.

Table 4. Regime interaction tests. Wald tests of zero interaction coefficients. Dependent variable: Net portfolio debt inflows as % of GDP. Country fixed effects and White cross-section robust standard errors throughout.

	Interaction Coef.	Std. Err.	F-Stat	p-Value	Significant?
Panel A: VIX × Episode					
VIX × Taper tantrum	−0.038	(0.161)	0.056	0.812	No
VIX × GFC	−0.051	(0.160)	0.101	0.751	No
VIX × Tightening 2022	−0.106	(0.160)	0.442	0.506	No
Panel B: ME × Episode					
ME × Taper tantrum	−14.70 ***	(4.11)	12.76	0.0004	Yes ***
ME × GFC	−0.612	(5.52)	0.012	0.912	No
ME × Tightening 2022	−3.851	(4.167)	0.854	0.356	No

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each episode tested by augmenting the baseline with the relevant interaction term and testing the coefficient via Wald F-test.

Panel A in Table 4 shows that VIX sensitivity does not change significantly in any of the three episodes (F-statistics of 0.056–0.442). Panel B presents the headline finding: the ME × Taper Tantrum interaction is large (−14.70), precisely estimated (SE = 4.11), and highly significant (F = 12.76, $p = 0.0004$). A contractionary FOMC communication surprise during the taper tantrum window reduced EM net portfolio debt inflows by an additional 14.70 percentage points of GDP. That is roughly twenty times the unconditional ME coefficient. By contrast, the ME × GFC ($p = 0.912$) and ME × Tightening 2022 ($p = 0.356$) interactions are both insignificant. The 2022 tightening cycle—despite featuring FOMC communication surprises of comparable magnitude to 2013—produced no measurable communication effect on EM flows. This asymmetry is the key empirical result from our analysis. The taper tantrum episode appears to be the exception, not the rule.

It is important to acknowledge that the 2022–2024 tightening cycle was characterised by several factors that may have independently dampened the sensitivity of EM flows to Fed communication. Three are particularly relevant. First, the Russia–Ukraine conflict from February 2022 introduced a dominant geopolitical risk premium that may have crowded out the marginal signal from Fed language in investors’ portfolio decisions. Second, inflationary pressures were globally synchronised in 2022, meaning that Fed tightening was widely anticipated and largely priced in before FOMC statements were made: this reduced the informational content of communication surprises. Third, many EM central banks pre-emptively tightened monetary policy ahead of the Fed, improving their interest rate differentials and reducing the relative attractiveness of retrenchment toward U.S. assets. While we cannot decompose the relative importance of these factors without relying on idiosyncratic assumptions, their presence means that the absence of a significant ME effect in 2022 may reflect a combination of market learning and contemporaneous confounders. Importantly, if anything, conditions in 2022 might have been expected to amplify sensitivity to Fed signals; the fact that no significant effect emerged strengthens rather than weakens the interpretation that the market had learned its lesson.

The changing impact of monetary policy news on financial flows begs an obvious question about the nature of any market learning. To explore this, we provide a more direct test of the market learning hypothesis. If markets learn continuously from accumulated experience, ME sensitivity should decline monotonically over time. We test this by augmenting the baseline with $[ME \times \text{Trend}]$, where Trend is a time trend equal to 1 in 2000Q1 and thereafter increases by one each quarter. A significant negative $[ME \times \text{Trend}]$ coefficient would provide direct evidence of declining sensitivity. However, the interaction term (and ME) are insignificant. This is important: it shows that the reduction in ME sensitivity is not a smooth continuous process. Markets did not gradually learn to discount Fed communication; instead, they were insensitive in normal periods both before and after 2013 and showed sharp sensitivity only during the taper tantrum episode itself. This is more consistent with a one-time belief update following a novel shock (consistent with Bayesian learning) than with a gradual adaptive process. It also clarifies why subsample comparisons—which show no ME effect before or after the taper window—are the appropriate lens for the learning hypothesis.

5. Dynamic Effects: Local Projections

The above analysis indicates a clear degree of time variation in the response of emerging market capital flows to changes in macro factors and monetary policy. We can investigate this further using rolling coefficient estimations.

Figure 2 plots the rolling VIX coefficient from 60-quarter windows across the sample. The coefficient is consistently negative and statistically significant throughout the pre-2013 windows, before becoming noisier as the taper tantrum period enters the rolling sample and then recovering towards zero in the most recent windows—providing continuous-time visual confirmation of the fading sensitivity story in Table 3.

We can also use local projections to explore response functions. Such local projections do not impose specific dynamics on the variables in the system analysed; as such, they have proven to be relatively robust to model misspecification, which is always a concern with time-varying relationships. Figure 3 plots the baseline VIX impulse response function from local projections at horizons from 1 to 8 quarters. Table 5 reports selected horizons with confidence intervals.

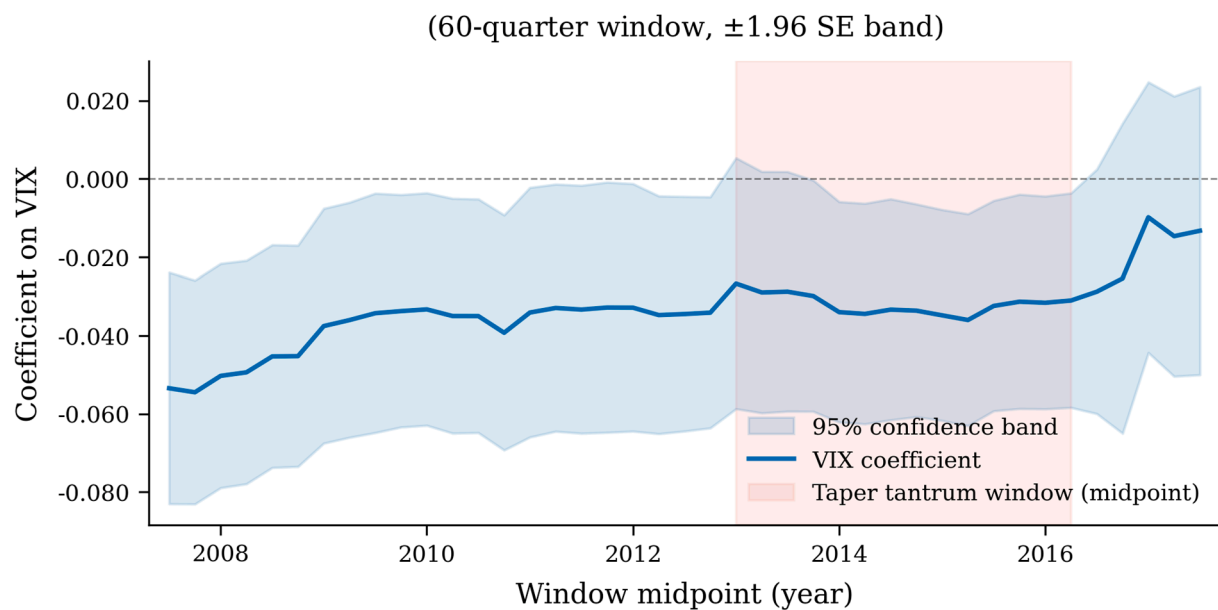


Figure 2. Rolling VIX coefficient. Notes: VIX coefficient from the full-model specification estimated in rolling 60-quarter windows (window midpoints: 2007Q3–2017Q3). Shaded band is ± 1.96 standard errors. Red shading indicates windows whose midpoints fall within the taper tantrum episode. The 2022 tightening cycle falls outside the rolling sample range and is not shown.

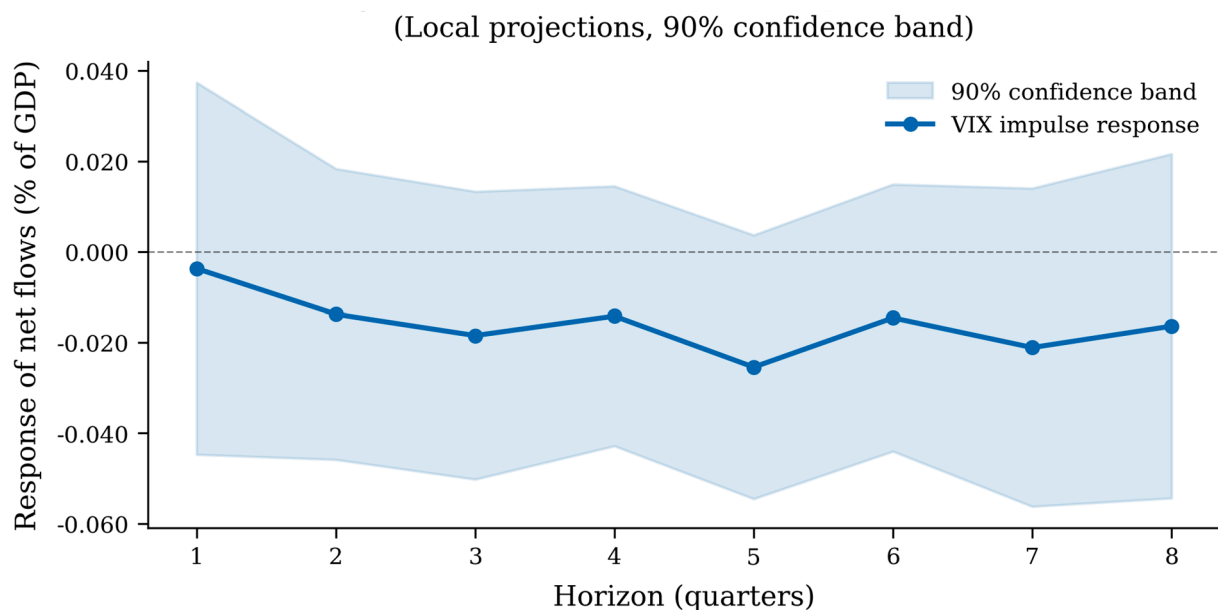


Figure 3. Baseline VIX impulse response function. Notes: Local projection impulse responses to a one-unit VIX shock. Shaded band is the 90% confidence interval. Country fixed effects; White cross-section robust standard errors. Sample: 2000Q2–2024Q4.

The results here are striking. The baseline VIX impulse response declines from -0.004 at $h = 1$ towards -0.016 by $h = 8$, although the 90% confidence intervals span zero at all horizons. The contemporaneous effect from the panel regressions does not therefore manifest as a persistent multi-quarter dynamic: VIX shocks appear to be absorbed in flows within the quarter of occurrence. This is consistent with a portfolio rebalancing model in which investors respond quickly to risk signals but do not engage in sustained multi-quarter retrenchment.

Table 5. Local projection impulse responses. Selected horizons from local projections ($h = 1, 2, 4, 8$). Baseline VIX IRF: response of cumulative flows to a one-unit VIX shock. Episode IRFs: incremental response during taper tantrum and 2022 tightening windows. Country fixed effects throughout.

Horizon (h)	Baseline VIX IRF		ME $\times$ Taper Tantrum		ME $\times$ Tightening 2022		(Sig.)
	Coef.	90% CI	Coef.	90% CI	Coef.	90% CI	
h = 1	−0.004	[−0.045, 0.037]	−2.263 **	[−2.698, −1.828]	0.002	[−0.107, 0.110]	No
h = 2	−0.014	[−0.046, 0.018]	−1.036 *	[−1.890, −0.182]	−0.029	[−0.136, 0.077]	No
h = 4	−0.014	[−0.043, 0.015]	2.237 **	[1.276, 3.199]	−0.077	[−0.190, 0.035]	No
h = 8	−0.016	[−0.054, 0.022]	−3.043 ***	[−3.484, −2.603]	0.072	[−0.127, 0.271]	No

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Country fixed effects included. Confidence intervals are 90% ($\pm 1.645 \times$ clustered SE). Baseline VIX IRF and tightening 2022 IRF are not significantly different from zero at any horizon.

As with our earlier results exploring time variation, the taper tantrum dynamic is strikingly different, as shown in Figure 4. The [ME $\times$ Taper Tantrum] response is large and significant at $h = 1$ (−2.26, 90% CI: −2.70 to −1.83), partially reverses at $h = 4$ (+2.24, significant at 5%), and then shows a further large significant outflow at $h = 8$ (−3.04, $p < 0.001$). This oscillating pattern is consistent with investor overshooting: an initial excessive re-trenchment, followed by partial corrective inflows as EM fundamentals proved resilient, and then renewed concern as the full implications of policy normalisation became apparent.

ME surprise — taper tantrum vs 2022 tightening (90% bands)

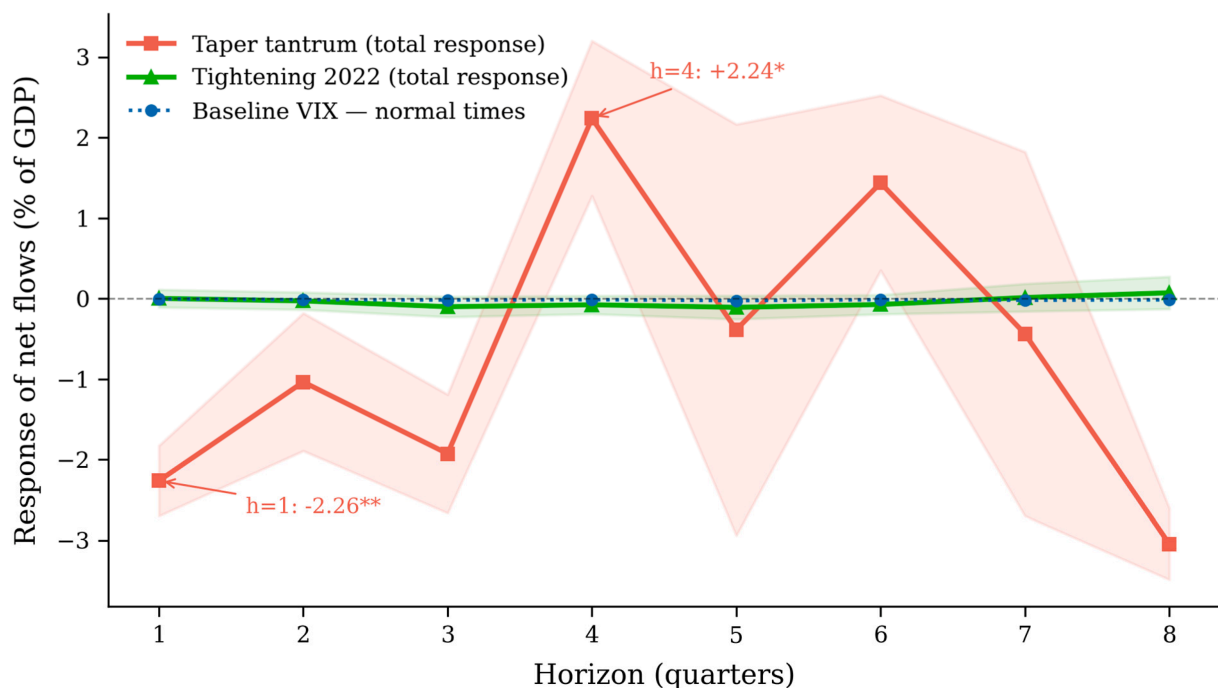


Figure 4. Interacted local projection IRFs. Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The figure plots the total ME impulse response for each episode (the sum of the baseline ME coefficient and the episode-specific interaction (ME + ME $\times$ Episode)) at horizons $h = 1$ to 8 quarters. Red squares: taper tantrum total ME response. Green triangles: 2022 tightening total ME response. Shaded bands: 90% confidence intervals. Blue dotted line: baseline VIX IRF for scale. During periods outside episode windows, the total ME response equals the baseline ME coefficient, which is statistically indistinguishable from zero at all horizons. The taper tantrum series therefore represents the full incremental effect of Fed communication during that episode.

In contrast, for the 2022 tightening cycle, responses are uniformly small (-0.10 to $+0.07$) and statistically indistinguishable from zero at all horizons. This is further evidence that the taper tantrum was the exception, not the norm.

6. Conclusions

This paper investigated whether Federal Reserve communication surprises drive portfolio debt inflows to emerging market economies and whether the transmission mechanism has changed across major monetary policy episodes. Drawing on a panel of twelve emerging market economies over 2000–2024, high-frequency FOMC communication surprises from the USMPD of [Acosta et al. \(2025\)](#), and local projection methods, we document four main findings.

First, global risk sentiment, as proxied by the VIX, is a robust and economically significant driver of EM portfolio debt flows. A one-standard-deviation increase in the VIX is sufficient to reverse the average country's quarterly inflow position, and this effect is stable across the pre-taper and mid-period sub-samples. Second, Fed communication surprises have no systematic effect on EM portfolio debt flows over the sample as a whole. The ME coefficient is statistically indistinguishable from zero in the full-sample baseline, in all four sub-period regressions, and in the 2022 tightening cycle episode. Third, the 2013 taper tantrum is the sole episode in our sample in which Fed communication surprises had a large and statistically significant effect on EM flows. No comparable effect emerges for the GFC or the 2022 tightening. Local projections confirm the taper tantrum's distinctive signature: a sharp initial outflow followed by partial reversal, consistent with investor overshooting and subsequent correction. Fourth, the sensitivity of EM flows to all external drivers has declined in the most recent sub-period, suggesting either a structural shift toward EM resilience or episode-specific dampening.

Taken together, these results are consistent with a learning process, whereby investors and markets have reassessed EM vulnerability to Fed communication signals within the sample. The taper tantrum was a genuinely novel shock, and markets responded with exceptional sensitivity. The 2022 tightening cycle, in contrast, unfolded in an environment where investors had spent nearly a decade processing the lessons of 2013. This parallels the finding of [Ellis et al. \(2014\)](#) on structural change in monetary transmission mechanisms; here, the relevant shift is in investor familiarity with the Fed's communication framework rather than in domestic financial structure.

The policy implications for emerging market authorities are threefold. First, in normal times, macro-prudential and capital flow management policies should be calibrated primarily to global equity market volatility (the VIX) rather than to the content of individual FOMC statements. Our Granger causality analysis confirms that VIX movements reliably precede EM flow responses, making the VIX a more actionable early warning indicator than real-time monitoring of Fed communication. Second, during genuinely novel monetary policy regime changes, when the Fed is doing something it has not done before, EM policymakers should treat communication surprises as potential systemic triggers and ensure that reserve buffers are in place in advance. The taper tantrum was distinctive because asset purchase tapering was genuinely unprecedented; future episodes of comparable novelty warrant similar pre-positioning. Our reserve heterogeneity results provide additional motivation: the VIX coefficient for low-reserve countries is nearly three times that for high-reserve countries, confirming that reserve adequacy materially reduces exposure to the global risk channel. Third, the fading sensitivity of the most recent period, if durable, would represent a significant improvement in EM financial stability; one that reflects hard-won market experience rather than structural change in EM fundamentals.

There are many potential extensions for future work, with two avenues standing out. First, the aggregate panel results may mask important heterogeneity: countries with higher reserve adequacy, more credible inflation-targeting frameworks, or deeper domestic capital markets may be systematically less exposed to both the VIX and communication channels. If these factors are quantifiable in some manner, we could explore the extent to which such heterogeneity impacts country-specific responses. Second, different forms of market learning would make specific predictions about the time-path of EM sensitivity to Fed communication. This is something that could be explored in further analysis to investigate any learning process, shedding further light on whether future tantrums are genuinely less likely or have simply just not happened yet.

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References

- Acosta, M., Ajello, A., Bauer, M., Loria, F., & Miranda-Agrippino, S. (2025). *Financial market effects of FOMC communication: Evidence from a new event-study database* (Federal Reserve Bank of San Francisco Working Paper 2025–2030). Available online: <https://www.frbsf.org/research-and-insights/publications/working-papers/2025/12/financial-market-effects-of-fomc-communication-evidence-from-a-new-event-study-database/> (accessed on 9 February 2026).
- Ahmed, S., & Zlate, A. (2014). Capital flows to emerging market economies: A brave new world? *Journal of International Money and Finance*, 48, 221–248. [CrossRef]
- Bauer, M. D., & Rudebusch, G. D. (2014). The signaling channel for Federal Reserve bond purchases. *International Journal of Central Banking*, 10(3), 233–289.
- Bernanke, B. S., & Kuttner, K. N. (2005). What explains the stock market's reaction to Federal Reserve policy? *Journal of Finance*, 60(3), 1221–1257. [CrossRef]
- Bowman, D., Londono, J. M., & Sapriza, H. (2015). U.S. unconventional monetary policy and transmission to emerging market economies. *Journal of International Money and Finance*, 55, 27–59. [CrossRef]
- Bruno, V., & Shin, H. S. (2015). Capital flows and the risk-taking channel of monetary policy. *Journal of Monetary Economics*, 71, 119–132. [CrossRef]
- Caldara, D., & Iacoviello, M. (2022). Measuring geopolitical risk. *American Economic Review*, 112(4), 1194–1225. [CrossRef]
- Calvo, G. A., Leiderman, L., & Reinhart, C. M. (1996). Inflows of capital to developing countries in the 1990s. *Journal of Economic Perspectives*, 10(2), 123–139. [CrossRef]
- Cerutti, E., Claessens, S., & Puy, D. (2019). Push factors and capital flows to emerging markets: Why knowing your lender matters more than fundamentals. *Journal of International Economics*, 119, 133–149. [CrossRef]
- Eichengreen, B., & Gupta, P. (2015). Tapering talk: The impact of expectations of reduced Federal Reserve security purchases on emerging markets. *Emerging Markets Review*, 25, 1–15. [CrossRef]
- Ellis, C., Mumtaz, H., & Zabczyk, P. (2014). What lies beneath? A time-varying FAVAR model for the UK transmission mechanism. *Economic Journal*, 124(576), 668–699. [CrossRef]
- Forbes, K. J., & Warnock, F. E. (2012). Capital flow waves: Surges, stops, flight, and retrenchment. *Journal of International Economics*, 88(2), 235–251. [CrossRef]
- Fratzsch, M. (2012). Capital flows, push versus pull factors and the global financial crisis. *Journal of International Economics*, 88(2), 341–356. [CrossRef]
- Ghosh, A. R., Ostry, J. D., & Qureshi, M. S. (2014). Fiscal space and sovereign risk pricing in a currency union. *Journal of International Money and Finance*, 34(1), 131–163.

- Gürkaynak, R. S., Sack, B., & Swanson, E. T. (2005). Do actions speak louder than words? The response of asset prices to monetary policy actions and statements. *International Journal of Central Banking*, 1(1), 55–93.
- Jarociński, M., & Karadi, P. (2020). Deconstructing monetary policy surprises—The role of information shocks. *American Economic Journal: Macroeconomics*, 12(2), 1–43. [CrossRef]
- Jordà, Ò. (2005). Estimation and inference of impulse responses by local projections. *American Economic Review*, 95(1), 161–182. [CrossRef]
- Koepke, R. (2019). What drives capital flows to emerging markets? A survey of the empirical literature. *Journal of Economic Surveys*, 33(2), 516–540. [CrossRef]
- Kuttner, K. N. (2001). Monetary policy surprises and interest rates: Evidence from the Fed funds futures market. *Journal of Monetary Economics*, 47(3), 523–544. [CrossRef]
- Miranda-Agrippino, S., & Rey, H. (2020). US monetary policy and the global financial cycle. *Review of Economic Studies*, 87(6), 2754–2776. [CrossRef]
- Nakamura, E., & Steinsson, J. (2018). High-frequency identification of monetary non-neutrality: The information effect. *Quarterly Journal of Economics*, 133(3), 1283–1330. [CrossRef]
- Rey, H. (2015). *Dilemma not trilemma: The global financial cycle and monetary policy independence* (NBER Working Paper 21162). Available online: <https://www.nber.org/papers/w21162> (accessed on 12 February 2026).
- Swanson, E. T. (2021). Measuring the effects of Federal Reserve forward guidance and asset purchases on financial markets. *Journal of Monetary Economics*, 118, 32–53. [CrossRef]

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