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Monetary Policy Transmission in Sub-Saharan Africa: Evidence from Emerging and Frontier Markets

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Monetary Policy Transmission in Sub-Saharan Africa: Evidence from Emerging and Frontier Markets

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ABSTRACT: This paper empirically reassesses monetary policy transmission in emerging and frontier market economies in Sub-Saharan Africa (SSA EFMs). Using the identification approach of Romer and Romer (2004), we construct measures of monetary policy shocks and provide evidence on transmission mechanisms in the region. We show that monetary policy shocks pass through quickly to short-term market interest rates and lead to persistent increases in bank deposit and lending rates in most economies, indicating an operative bank-based interest rate channel. By contrast, exchange rates generally do not appreciate and, in many cases, depreciate following monetary tightening, consistent with the exchange rate puzzle—suggesting that interest rate hikes alone may be insufficient to systematically influence exchange rate movements. We also find that contractionary monetary policy reduces both output and inflation, with effects that are modest and notably weaker than in more developed economies. In addition, we find that transmission is stronger in economies that have adopted, or are transitioning toward, inflation-targeting regimes. Finally, we show that cross-country heterogeneity in transmission largely reflects differences in monetary policy transparency, financial development, and, to a lesser extent, fiscal dominance.

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WORKING PAPERS

Monetary Policy Transmission in Sub-Saharan Africa: Evidence from Emerging and Frontier Markets

Prepared by Johanna Tiedemann, Olivier Bizimana and Kiswendsida Tougouma [1]

[1] The authors thank Geneviève Verdier and Roland Kpodar for their guidance and support, Mika Saito, Justin Tyson, participants at the IMF AFR seminar series, IMF Departmental reviewers and other IMF colleagues for helpful comments and suggestions.

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I. Introduction

Considerable uncertainty surrounds the effects of monetary policy on macroeconomic aggregates generally, and even more so in developing economies—particularly in sub-Saharan Africa (SSA) where reliable data are often lacking. It is a well-established stylized fact that monetary policy operates with long and variable lags, and that both the speed and magnitude of transmission become more uncertain during periods of exceptional economic disruption, such as the COVID-19 pandemic and the subsequent inflation surge following Russia's invasion of Ukraine. These global shocks, and the strong monetary policy responses they prompted, have renewed interest in key aspects of the transmission process, including the timing, magnitude, and channels through which policy affects output and prices, as well as the factors that shape its effectiveness. Although decades of empirical research have yielded important insights into these issues, the evidence remains highly context-specific and sensitive to methodological choices.

Most existing empirical work has focused on advanced economies (AEs) and major emerging market economies (EMEs), where richer data and more sophisticated analytical tools are available. By contrast, evidence for low-income countries (LICs)—and for SSA in particular—remains scarce. Monetary transmission mechanisms in these economies are generally presumed to be weaker and structurally different from those observed in more financially developed economies, reflecting the reduced effectiveness of conventional channels, including interest rates, bank lending, asset prices, exchange rates, and expectations. Structural factors commonly cited as explanations for weak monetary policy transmission include underdeveloped financial systems, fiscal dominance, weak institutions, limited banking competition (Mishra et al., 2010, 2014; Mishra and Montiel, 2012; Christensen, 2011), and persistently high excess reserves (Saxegaard, 2006). Yet, despite these longstanding views, to our knowledge, no recent cross-country study has systematically revisited monetary policy transmission in SSA using comparable methods and more recent data.[2]

This paper contributes to filling this gap by empirically reassessing monetary policy transmission in a group of sub-Saharan African emerging and frontier market economies (SSA EFMs). These small, open economies have undergone substantial macro-financial transformation over the past two decades. Central banks have strengthened their operational frameworks, increased reliance on policy rates as signaling instruments, and placed greater emphasis on price stability. Financial systems have deepened, and financial openness has increased. However, progress in monetary policy frameworks and financial development has been uneven across countries, pointing to heterogeneity in the strength and effectiveness of monetary policy transmission (IMF, 2015). In addition, banking systems dominate the financial landscape (IMF, 2016). Accordingly, the bank lending channel may play a relatively more important role than other transmission channels, reflecting the reliance on deposit funding and the central role of banks in financial intermediation (Mishra et al., 2012).

To shed light on monetary policy transmission in SSA EFMs, this paper proceeds in three steps. First, it constructs monetary policy shocks using an identification strategy better suited to SSA economies, adapting the single-equation approach of Romer and Romer (2004), which purges the policy rate of systematic responses to observed and expected macroeconomic conditions, thereby isolating the unanticipated component of policy actions. Second, it uses these identified shocks to examine the

[2] For a broader analysis of monetary policy in SSA, see Berg and Portillo (2018).

different stages of transmission: (i) through financial markets, assessing the speed and strength of pass-through across channels; and (ii) to economic activity and prices, while systematically investigating cross-country heterogeneity and comparing results across regions using a consistent framework. Third, it investigates how key structural factors relevant to the region—including monetary policy frameworks, financial development, fiscal dominance, the sovereign-bank nexus, and exchange rate flexibility—affect the effectiveness of transmission across SSA EFMs. The main findings can be summarized as follows.

First, we find strong evidence of an active interest rate channel of monetary policy transmission across the region, but a weak exchange rate channel. Short-term market interest rates, as well as bank deposit and lending rates, respond quickly and persistently to monetary tightening and are statistically significant in most economies. This suggests that the bank-based interest rate channel remains the dominant transmission mechanism, consistent with recent micro-level evidence for SSA countries (Abuka et al., 2015; Conesa et al., 2025; Loate and Viegi, 2021; Pirozhkova and Viegi, 2024). By contrast, exchange rate responses to contractionary monetary policy are generally muted and statistically insignificant and, in many cases, exhibit depreciation—a phenomenon known as the exchange rate puzzle—consistent with evidence from EMEs (e.g., Kohlscheen, 2014; Hnatkovska et al., 2016; Kim and Lim, 2018; Solis, 2023). The limited responsiveness likely reflects shallow financial markets, restricted capital mobility, and low global financial integration, as well as the prevalence of de facto exchange rate management or fixed arrangements in several economies.

Second, contractionary monetary policy reduces both real GDP and consumer prices with a lag, with output responding before inflation. However, the overall magnitude is modest and notably weaker than in AEs and EMEs, consistent with the existing literature (Mishra and Montiel, 2012; Mishra et al., 2014). A 100-basis-point monetary policy shock reduces real GDP by about 0.2 percent at its peak in SSA EFMs, compared with around 1 percent in AEs. We also document substantial heterogeneity across SSA EFMs. Transmission is stronger and more persistent in economies that have adopted, or are transitioning toward, formal inflation-targeting (IT) frameworks than in monetary-aggregate-targeting (MT) regimes. In IT economies, a 100-basis-point shock reduces real GDP by around 0.3 percent at its peak (after four to six quarters), while effects in MT regimes are smaller and statistically insignificant. Disinflationary effects are also more pronounced and statistically significant in IT economies. However, country-level results reveal weak and uncertain transmission as well as some evidence of a price puzzle in a few economies. The contrast between the relatively effective pass-through to bank lending rates and the limited effects on output and, especially, prices likely reflects structural impairments of the macro-financial environment in SSA, such as underdeveloped financial systems and weak monetary policy frameworks, which we investigate further.

Third, heterogeneity in transmission across SSA EFMs reflects not only the adoption of inflation targeting per se, but also broader institutional and macro-financial conditions. Greater monetary policy transparency and higher levels of financial development—and, to a lesser extent, lower fiscal dominance—are associated with stronger and faster transmission. By contrast, the sovereign-bank nexus and exchange rate flexibility do not appear to significantly explain cross-country differences in transmission.

Finally, we extend the analysis to broader financial conditions, measured using a financial conditions index, to capture how the overall financial environment shapes macroeconomic outcomes. We find that tighter financial conditions exert a sizable contractionary effect on both output and inflation. These findings underscore the importance of broader financial channels in shaping macroeconomic dynamics

beyond the direct effects of the policy rate, though these effects likely reflect a combination of domestic monetary policy actions and other domestic and global financial developments.

Related literature. This paper contributes to several strands of literature on monetary policy transmission in SSA and, more broadly, in LICs, which generally find weak and uncertain transmission mechanisms.[3] Existing cross-country studies often focus on individual transmission channels and generally report lower monetary policy effectiveness in developing economies relative to countries with more developed financial systems.[4] Mishra et al. (2010), for example, argue that the bank lending channel is likely the dominant mechanism in LICs, reflecting the central role of banks as formal financial intermediaries. They show that correlations between the policy rate and money market rates, as well as between money market rates and lending rates, are significantly weaker in LICs than in advanced and emerging economies. Mishra and Montiel (2012) provide a comprehensive review of the VAR literature on monetary transmission in LICs, including SSA, and conclude that evidence of effective transmission comparable to advanced economies is limited. They attribute this both to structural constraints—such as shallow domestic financial systems—and to limitations of commonly used empirical approaches. Building on this work, Mishra et al. (2014), using a structural panel VAR covering advanced, emerging, and low-income countries, show that monetary policy shocks transmit less effectively to bank lending rates in LICs, linking this to weaker institutional environments, underdeveloped financial systems, and concentrated banking sectors. To address the limited success of conventional statistical methods in detecting monetary transmission in SSA LICs, Berg et al. (2013) adopt a narrative approach following Romer and Romer (1989) and examine the 2011 monetary tightening episode in four East African Community countries (Kenya, Uganda, Tanzania, and Rwanda). They document an operative transmission mechanism, whereby policy rate increases are followed by higher lending and market interest rates, exchange rate appreciation, slower output growth, and lower inflation. Recent single-country studies using bank-loan-level data in SSA also provide evidence of an active bank lending channel (e.g., Abuka et al., 2015; Loate and Viegi, 2021; Pirozhkova and Viegi, 2024; Conesa et al., 2025). For instance, Abuka et al. (2015), using loan-level data for Uganda, show that monetary tightening reduces bank credit supply and raises retail lending rates, with stronger responses among weaker banks, consistent with both lending and bank balance sheet channels. Similarly, Loate and Viegi (2021) and Pirozhkova and Viegi (2024) document heterogeneous lending responses across South African banks following monetary policy shocks, while Conesa et al. (2025) find that policy rate increases in Uganda lead to higher lending rates and smaller, shorter-maturity household loans. Our paper also relates to recent work on monetary policy transmission in EMEs that exploits improved data availability and uses external instruments to isolate exogenous monetary policy shocks (e.g., Brandao-Marques et al., 2020;

[3] This review is not intended to be exhaustive and focuses primarily on recent empirical studies.

[4] It is worth noting that the weak monetary policy transmission observed in SSA may partly reflect data limitations—such as short time spans, structural breaks, and the generally low quality of high-frequency indicators—which reduce the reliability of traditional empirical methods.

Deb et al., 2023; Checo et al., 2024; Ha et al., 2024).[5] Overall, this literature highlights both the progress made and the remaining gaps in understanding monetary policy transmission in developing economies.

This paper makes two main contributions. First, it applies a Romer and Romer (2004)-style single-equation approach to identify monetary policy shocks across SSA economies—an approach well suited to the data constraints prevalent in the region and that also provides an alternative to the VAR-based methods commonly used in the literature. Second, unlike many existing studies that focus on a single transmission channel, this paper provides a comprehensive assessment of monetary policy transmission in SSA EFMs, examining multiple financial channels and macroeconomic outcomes, comparing transmission strength across regions, and systematically investigating how institutional frameworks and macro-financial conditions shape the effectiveness of monetary policy across countries.

The remainder of the paper is structured as follows. Section II discusses structural constraints affecting monetary policy transmission in SSA. Section III outlines the identification strategy and empirical framework. Section IV presents baseline results on the relative importance of financial channels and macroeconomic outcomes, and examines how structural features shape cross-country heterogeneity. Section V reports robustness checks and additional results. Section VI concludes.

II. Impediments to Effective Monetary Policy Transmission in SSA

Monetary policy transmission is inherently country-specific, reflecting the structural features of the macro-financial environment in which central banks operate. Its effectiveness depends in particular on the depth of financial markets, the degree of international financial integration, the exchange rate regime, the structure of the banking system, and the credibility of the monetary policy framework. In SSA—and in LICs more broadly—these structural conditions are often underdeveloped or unevenly distributed across the region, implying that transmission is likely to be weaker and more uncertain than in AEs and major EMEs (Mishra and Montiel, 2012).[6]

In AEs and major EMEs, monetary policy is typically transmitted through relatively well-functioning interest rate, bank lending, asset price, exchange rate, and expectations channels.[7] These economies generally feature deep and liquid financial markets, competitive and well-regulated banking systems, and coherent and transparent monetary policy frameworks, often operating under flexible exchange rate

[5] Brandao-Marques et al. (2020), following Romer and Romer (2004), estimate a Taylor-rule-type regression to purge systematic policy responses to contemporaneous macroeconomic conditions and expected future inflation and output, and use local projections to show that monetary policy shocks significantly affect output and prices in EMEs, with exchange rates acting as an important amplifying channel. Deb et al. (2023) extend this line of research to a broader set of advanced and emerging economies by identifying exogenous monetary policy shocks through the orthogonalization of forecast errors in short-term interest rates—defined as the difference between forecasted and realized rates—with respect to macroeconomic variables. Checo et al. (2024) introduce a complementary approach that closely follows high-frequency identification strategies. Using analysts' Bloomberg forecasts of policy rate decisions, they construct measures of monetary policy surprises and further orthogonalize them with respect to information available prior to monetary policy meetings.

[6] For further discussion, see Mishra et al. (2010), which reviews monetary transmission mechanisms in low-income countries and identifies features that may differ from those in advanced and emerging economies, including weak institutional frameworks, the reduced role of securities markets, imperfect competition in the banking sector, and the resulting high cost of bank lending to private firms.

[7] For an overview and further discussion of the transmission mechanisms of monetary policy in advanced economies, see for example, among others, Mishkin (1996).

regimes with relatively open capital accounts (Mishra et al., 2010; IMF, 2005). By contrast, in SSA the macro-financial infrastructure underpinning these channels is considerably less developed, weakening transmission at each stage (IMF, 2012; Christensen, 2014).[8] Figure 1 summarizes several structural features of SSA EFMs that shape the effectiveness of monetary policy transmission.

The interest rate channel is impaired by shallow interbank markets, underdeveloped domestic securities markets, limited financial inclusion, and high excess reserves, all of which reduce pass-through from the policy rate to market rates and borrowing costs (Christensen, 2011; Saxegaard, 2006).[9] The bank lending channel is similarly constrained by concentrated banking systems, weak competition, high net interest margins, and the limited role of non-bank financial institutions (Mishra et al., 2010; Christensen, 2014; Sanfilippo-Azofra et al., 2018). The asset price channel is likewise likely weak, as equity and real estate markets are generally small, illiquid, and narrow, with limited market capitalization outside a small number of countries, most notably South Africa (Christensen, 2011; Mohanty and Turner, 2008).

Beyond these financial market channels, the exchange rate and expectations channels face additional structural constraints. The exchange rate channel is also limited in many SSA economies. Low integration with international capital markets, shallow and illiquid foreign exchange markets, and frequent foreign exchange intervention reduce the responsiveness of exchange rates to monetary policy actions (Mishra and Montiel, 2012; Christensen, 2011). In countries operating under fixed or heavily managed exchange rate regimes, this channel is further muted or largely absent (Christensen, 2014). The expectations channel faces similar constraints. In economies where monetary policy frameworks lack coherence and transparency—particularly a clearly communicated interest rate target—the link between the policy rate, longer-term interest rates, and inflation expectations is weakened (IMF, 2015). This is compounded by the region's high exposure to supply shocks, including food and fuel price fluctuations, weather-related disruptions, and terms-of-trade volatility, which raise inflation variability and complicate central banks' policy trade-offs (Tiedemann et al., 2025).

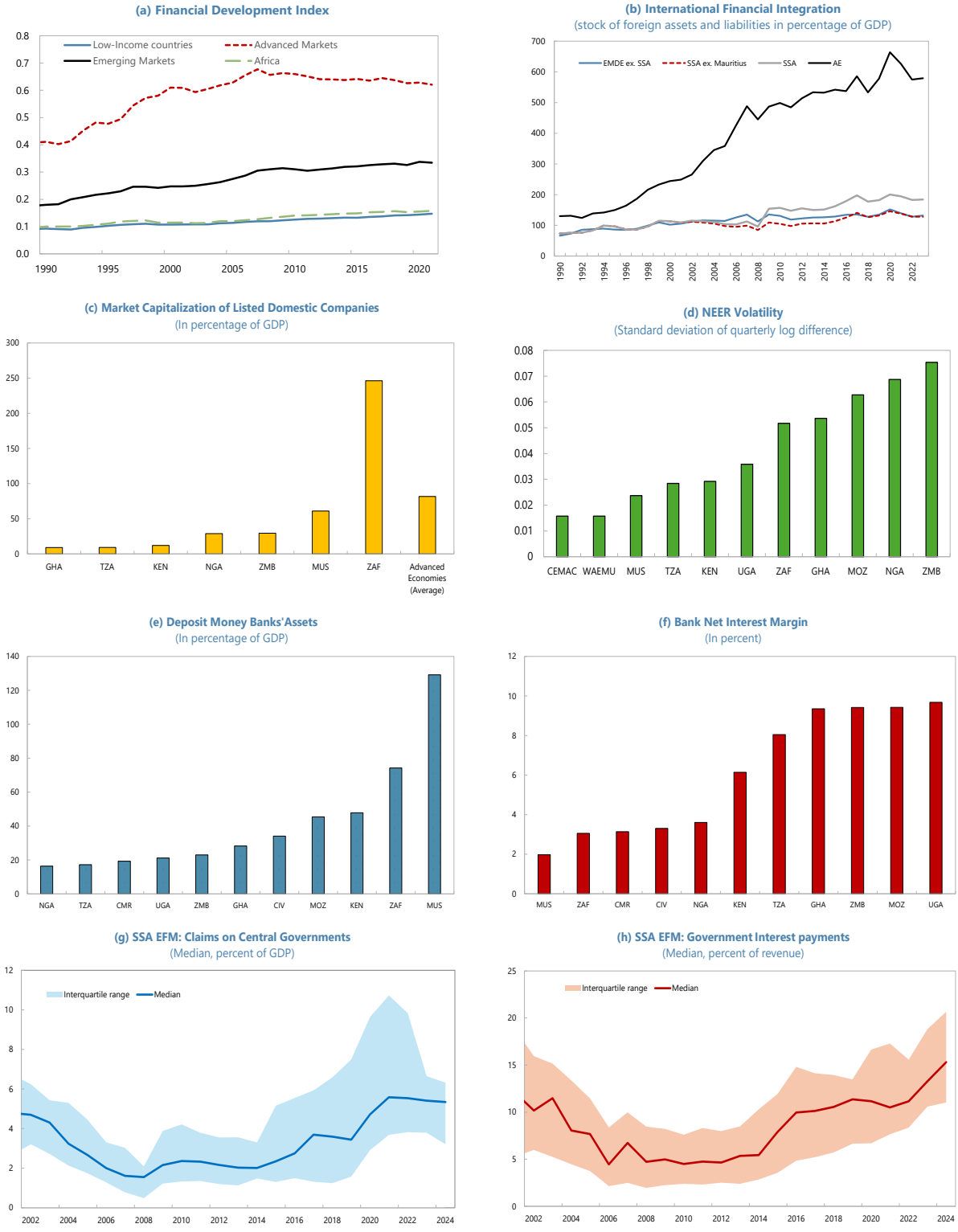
Fiscal dominance provides a further structural impediment that amplifies the channel weaknesses described above. When fiscal constraints limit the central bank's ability to tighten policy, inflation expectations become more closely anchored to fiscal sustainability than to the monetary policy stance itself (Hooley et al., 2024). This may reflect both political pressures to maintain low interest rates and economic constraints arising from high public debt, elevated default risk, and the adverse effects of tighter policy on sovereign financing conditions (Blanchard, 2004). These dynamics are often reinforced by a strong sovereign-bank nexus, whereby banks' substantial holdings of government debt expose them to fiscal stress and make central banks more reluctant to raise interest rates (Feyen and Zuccardi, 2019).

Despite these common structural features, SSA is far from homogeneous. In countries such as South Africa, Ghana, Kenya, and Mauritius, stronger institutional frameworks and more developed financial systems are likely to support more effective transmission, implying substantial intra-regional heterogeneity that any empirical analysis must account for (IMF, 2015; Tiedemann et al., 2025).

[8] For a more detailed discussion of monetary policy transmission mechanisms in Africa, see, for example, Christensen (2011).

[9] For an in-depth analysis of financial systems in low-income countries, including those in sub-Saharan Africa, see IMF (2012) and IMF (2016).

Figure 1: Structural Features of the Macro-Financial Environment in SSA EFMs



Sources: IMF Financial Development Index Database; the External Wealth of Nations Database; IMF WEO, IMF MFS, and authors' calculations.

III. Data and Methodology

In this section, we describe the data and country coverage, explain the construction of the monetary policy shock series, and outline the baseline empirical specifications used to examine the different stages of the transmission mechanism.

A. Data

Our analysis is based on quarterly data for 11 SSA EFMs—CEMAC, Ghana, Kenya, Mauritius, Mozambique, Nigeria, Tanzania, Uganda, WAEMU, South Africa, and Zambia—covering the period from the first quarter of 2002 to the fourth quarter of 2023.[10] While price stability is a key policy objective across all these economies, exchange rate regimes and monetary policy frameworks differ.[11] As of end-2023, five countries—Ghana, Kenya, Mauritius, South Africa and Uganda—are classified as inflation targeters, although most adopted this framework at different points during the sample period.[12] Nigeria and Tanzania continue to target monetary aggregates, while Mozambique and Zambia follow eclectic frameworks that monitor multiple indicators.[13] The two monetary unions peg their currencies to the euro, but their central banks (BEAC and BCEAO) retain some scope for independent monetary policy given limited capital mobility and financial integration.

To analyze the first stage of monetary policy transmission, we consider each economy's key policy rate together with a range of financial variables, including interbank rates, government treasury bill and bond yields, stock prices, nominal exchange rates, and bank deposit and lending rates. Data coverage varies across countries, and the analysis reflects indicator availability for each economy. For the second stage, we use real GDP and headline consumer price indices, supplemented with international commodity price data given their importance for SSA economies. To benchmark transmission strength, we extend the analysis to 10 AEs and 13 major EMEs.

To proxy central bank forecasts for real GDP growth and inflation, we rely on projections from the IMF's World Economic Outlook (WEO) for all countries. Following recent studies, we also use professional forecasters' expectations from Consensus Forecasts for AEs and major EMEs, where available (e.g., Deb et al., 2023; Brandao-Marques et al., 2020).

To assess heterogeneity in transmission mechanisms, we draw on several databases capturing key country characteristics. Information on monetary policy frameworks comes from the IMF's 2023 Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). Financial development is measured using the IMF's Financial Development Index.[14] As a proxy for the effectiveness of monetary

[10] CEMAC consists of Cameroon, the Republic of Congo, the Central African Republic, Chad, Equatorial Guinea and Gabon. WAEMU members are Benin, Burkina Faso, Côte D'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo. Within these monetary unions, Gabon (CEMAC), along with Côte D'Ivoire and Senegal (WAEMU), are classified as frontier market economies.

[11] For further details on classification of exchange rate arrangements and monetary policy frameworks for the selected economies, see Table C.2.

[12] South Africa officially adopted an inflation targeting framework in 2000; Ghana in 2007; Uganda in 2011; Kenya adopted a forward-looking monetary policy framework—incorporating elements of inflation targeting—in 2011; and Mauritius adopted an inflation targeting framework in 2023.

[13] The central bank of Mozambique is currently transitioning toward inflation targeting.

[14] The comprehensive index includes indicators of financial depth, access, and efficiency for financial institutions and markets. See Sahay et al. (2015) for further details on the construction of the index.

policy frameworks, we use the monetary policy transparency index of Dincer et al. (2022).[15] We employ external asset and liability data from the External Wealth of Nations database to proxy the degree of international financial integration. Further details on data sources, variable definitions, and country coverage are provided in Tables C.1 and C.3.

B. Identification of monetary policy shocks

Identifying the effects of monetary policy on macroeconomic and financial variables is empirically challenging. Central banks typically adjust policy rates in response to current or anticipated economic conditions, which introduces endogeneity when output and prices are regressed on changes in policy rates. As a result, exogenous changes in monetary policy are not directly observable. The literature has therefore developed alternative strategies to identify monetary policy shocks.[16] Two well-established approaches dominate this literature. The first is the high-frequency identification method, which exploits financial market reactions in a narrow window around policy announcements (e.g., Kuttner, 2001; Gertler and Karadi, 2015). The second is the narrative approach, which relies on information extracted from central bank communications and internal forecasts (e.g., Romer and Romer, 2004). While these methods have been widely applied to AEs and, to a lesser extent, major EMEs, they are difficult to implement in most SSA economies due to limited high-frequency financial data and the absence of consistent long-run central bank records and projections.

In this paper, we adopt the approach of Romer and Romer (2004) to construct quarterly monetary policy shocks. Specifically, we regress changes in the policy rate on the central bank's information set—including past, current, and projected macroeconomic conditions—and interpret the resulting residuals as exogenous monetary policy shocks.[17] This framework is well suited to our context, as it relies on macroeconomic variables that are typically available at monthly or quarterly frequency for SSA EFMs. These shocks are then used to estimate impulse responses.

For each economy we estimate the following Taylor-rule-type regression:

$$\Delta i_t = \alpha + \gamma_1 i_{t-1} + \gamma_2 E_t \Delta y_{t+4} + \gamma_3 E_t \pi_{t+4} + \sum_{k=1}^{2} \gamma_{4,k} \Delta y_{t-k} + \sum_{k=1}^{2} \gamma_{5,j} \pi_{t-k} + \sum_{k=1}^{2} \gamma_{6,k} \Delta NEER_{t-k} + \varepsilon_t \quad (1)$$

where Δi_t denotes the change in the policy rate and i_{t-1} is the lagged policy rate. $E_t \Delta y_{t+4}$ and $E_t \pi_{t+4}$ represent the one-year-ahead projections of real GDP growth and inflation. Unlike Romer and Romer (2004), we use WEO projections as proxies for central bank forecasts, which offer broad country coverage and a long historical span.[18] Our approach implicitly assumes that central banks and the IMF

[15] The indices of monetary policy transparency distinguish five dimensions of central bank transparency for 112 central banks for the period 1998-2019: political transparency (openness about policy objectives); economic transparency (disclosure of the economic data and models used in policy formulation); procedural transparency (the process by which decisions are made); policy transparency (timely disclosure of policy decisions along with explanations and forward guidance); and operational transparency (information on the implementation and execution of monetary policy).

[16] For an overview of the literature on the identification of monetary policy shocks, see Ramey (2016).

[17] Romer and Romer (2004) emphasize that the objective of this regression is not to provide the best possible estimate of the central bank's reaction function, but rather to purge the intended policy rate series of movements driven by responses to information about expected future economic developments. In practice, this approach implicitly assumes that the systematic component of monetary policy remains broadly stable over the sample period. In SSA economies, however, monetary policy frameworks have evolved over time, reflecting ongoing institutional development and reforms. This evolution highlights the importance of interpreting the estimated policy shocks in the context of changing policy frameworks. For a broader discussion of the evolution of monetary policy frameworks in low- and lower-middle- income countries, including SSA economies, see IMF (2015).

[18] Romer and Romer (2004) rely on real-time forecasts from the Federal Reserve staff's Greenbooks.

rely on comparable macroeconomic information relevant to monetary policy decisions. Central bank forecasts and alternative sources commonly used in the literature—such as Consensus or Bloomberg forecasts—are generally unavailable for most SSA economies. The specification also includes two lags of GDP growth and inflation, as well as lagged changes in the nominal effective exchange rate to account for the possibility that exchange rate developments influence policy decisions.

By controlling for current and expected macroeconomic conditions, the regression isolates the systematic component of monetary policy. The residuals (ε_t) are interpreted as exogenous monetary policy shocks—i.e., the component of policy not explained by the information set available to policymakers at the time of the decision (see Figure A.1).

C. Empirical framework

The first stage of monetary policy transmission

We examine the first stage of the monetary policy transmission mechanism—namely, transmission through financial markets and, more broadly, the financial system. Financial channels, including market interest rates, equity markets, foreign exchange markets, and banking interest rates, play a central role in shaping both the speed and the extent of policy transmission. Their effectiveness depends not only on the functioning of individual channels but also on the interactions among them.

We analyze seven financial variables spanning different stages of transmission channels: money market rates, government treasury-bill yields, government bond yields, bank deposit rates, bank lending rates, the nominal effective exchange rate, and domestic stock market indices. Short-term market variables—such as money market rates and stock prices—tend to adjust quickly, reflecting the forward-looking nature of financial markets, and the limited frictions at this stage of transmission. By contrast, bank interest rates respond more gradually, reflecting banks' pricing decisions and the stickiness of deposit and lending adjustments. To capture these dynamics, we estimate the responses of financial variables to monetary policy shocks using the local projections method of Jordà (2005).

More specifically, we estimate cumulative impulse response functions for each financial variable and each economy using the following local projection specification:

$$y_{t+h} - y_{t-1} = \alpha^h + \beta^h MPS_t + \sum_{k=1}^{K} \theta_k^h X_{t-k} + \varepsilon_{t+h}^h, \quad (2)$$

where y_{t+h} denotes the log of the financial variable *h* periods ahead, and MPS_t represents our identified monetary policy shock measure. The coefficient β^h captures the cumulative impulse response of financial variable y to a monetary policy shock at horizon *h*, relative to its value at horizon *t-1*. The vector X_t includes four lags of the dependent variable and the monetary policy shock, as well as indicator-specific controls, such as the VIX index (as a proxy for global financial uncertainty) for stock prices, and the U.S. federal funds rate (as a proxy for global monetary policy conditions). ε_{t+h}^h is the error term.

Equation (2) is estimated separately for each horizon *h* = 0, 1, …, 8 and for each economy using ordinary least squares. The impulse response functions are constructed from the estimated β^h coefficients. To account for potential serial correlation and heteroskedasticity in the residuals, confidence intervals are computed using Newey-West standard errors.

The second stage of monetary policy transmission

We next analyze the effects of monetary policy shocks on macroeconomic outcomes in SSA economies, corresponding to the second stage of the monetary policy transmission mechanism. Given substantial cross-country heterogeneity, we disaggregate the analysis by monetary policy framework, distinguishing between inflation-targeting regimes (SSA EFM IT), monetary-aggregate targeting, and eclectic regimes (SSA EFM MT).

Specifically, we estimate the following panel local projection specification separately for all SSA EFMs, as well as for SSA EFMs operating under inflation-targeting and monetary-targeting regimes:

$$y_{j,t+h} - y_{j,t-1} = \alpha_j^h + \alpha_t^h + \beta^h MPS_{j,t} + \sum_{k=1}^{K} \theta_k^h X_{j,t-k} + \varepsilon_{j,t+h}^h, \quad (3)$$

where y_{t+h} denotes the log of the variable of interest (real GDP or headline CPI) for country j at horizon *h* in the panel. $MPS_{j,t}$ is the identified monetary policy shock. The vector $X_{j,t-k}$ includes four lags of the dependent variable and the monetary policy shocks as controls. The specification includes country fixed effects (α_j) to control for time-invariant country-specific characteristics, and time fixed effects (α_t) to capture common global shocks. Standard errors are clustered at the country level.

To benchmark monetary policy transmission in SSA EFMs against other regions, we compare the estimated effects on output and consumer prices with those observed in AEs and major EMEs. To this end, we estimate the baseline panel local projection specification in equation (3) separately for AEs, EMEs, and SSA EFMs.

Finally, to further assess monetary policy transmission at the country level, we also estimate the following local projection specification separately for each economy:

$$y_{t+h} - y_{t-1} = \alpha^h + \beta^h MPS_t + \sum_{k=1}^{K} \theta_k^h X_{t-k} + \varepsilon_{t+h}^h, \quad (4)$$

where y_{t+h} is the log of the variable of interest (real GDP or the headline CPI) at horizon *h*, and MPS_t represents the identified monetary policy shock. The vector X_{t-k} includes four lags of the dependent variable and the monetary policy shock, as well as controls for global conditions, including growth in global commodity prices in local currency, and the U.S. policy rate.

Heterogeneity in transmission within SSA

We then investigate how structural features of the macro-financial environment—including the degree of financial development, the design of monetary policy operational frameworks, the extent of international financial integration, the degree of fiscal dominance, the sovereign-bank nexus, and the flexibility of the exchange rate regime—shape the strength and effectiveness of monetary policy transmission across SSA economies.

To this end, we split the SSA EFM sample into two subsamples according to whether a given conditioning variable—measured by its historical mean—lies above (“High”) or below (“Low”) a threshold defined by the SSA EFM sample mean. Specifically, for each characteristic, we estimate the following panel local projection regression separately for the two groups:

$$y_{j,t+h} - y_{j,t-1} = \alpha_j^h + \alpha_t^h + \beta_g^h MPS_{j,t} + \sum_{k=1}^{K} \theta_{g,k}^h X_{j,t-k} + \varepsilon_{j,t+h}^h, \quad (5)$$

where $g \in \{High, Low\}$. The coefficient β_g^h captures the cumulative impulse response of the variable of interest (real GDP or consumer prices) to a monetary policy shock for group g at horizon *h* relative to its value at horizon *t-1*. Comparing β_{High}^h and β_{Low}^h across groups provides evidence on how structural characteristics condition the transmission of monetary policy.

The conditioning characteristics of the macro-financial environment considered are as follows:

- *Monetary policy framework strength,* proxied by the monetary policy transparency index (*high vs. low)*;
- *Financial development*, based on the IMF Financial Development Index (*high vs. low)*;
- *International financial integration*, proxied by the ratio of total external assets and liabilities to GDP (high vs. low);
- *Fiscal dominance*, measured by the ratio of central bank loans to government relative to GDP (*high vs. low*);
- *Sovereign-bank nexus,* measured by the ratio of banks' total claims on the public sector (including loans and holdings of public sector securities) to total bank assets (*high vs. low*);
- *Exchange rate flexibility*, proxied by the volatility of the nominal effective exchange rate (*high vs. low)*.

IV. Baseline Results

In this section, we present the baseline results in four parts. We first examine the responses of financial variables to monetary policy shocks, assessing the speed and strength of pass-through across transmission channels. We then analyze the effects of monetary policy shocks on macroeconomic outcomes (output and prices) in SSA EFMs and compare the strength of transmission with that observed in AEs and EMEs. Third, we investigate the extent to which structural characteristics of the macro-financial environment help explain cross-country differences in transmission effectiveness. Finally, we extend the analysis to broader financial conditions, examining how overall financial conditions shape macroeconomic outcomes across SSA EFMs.

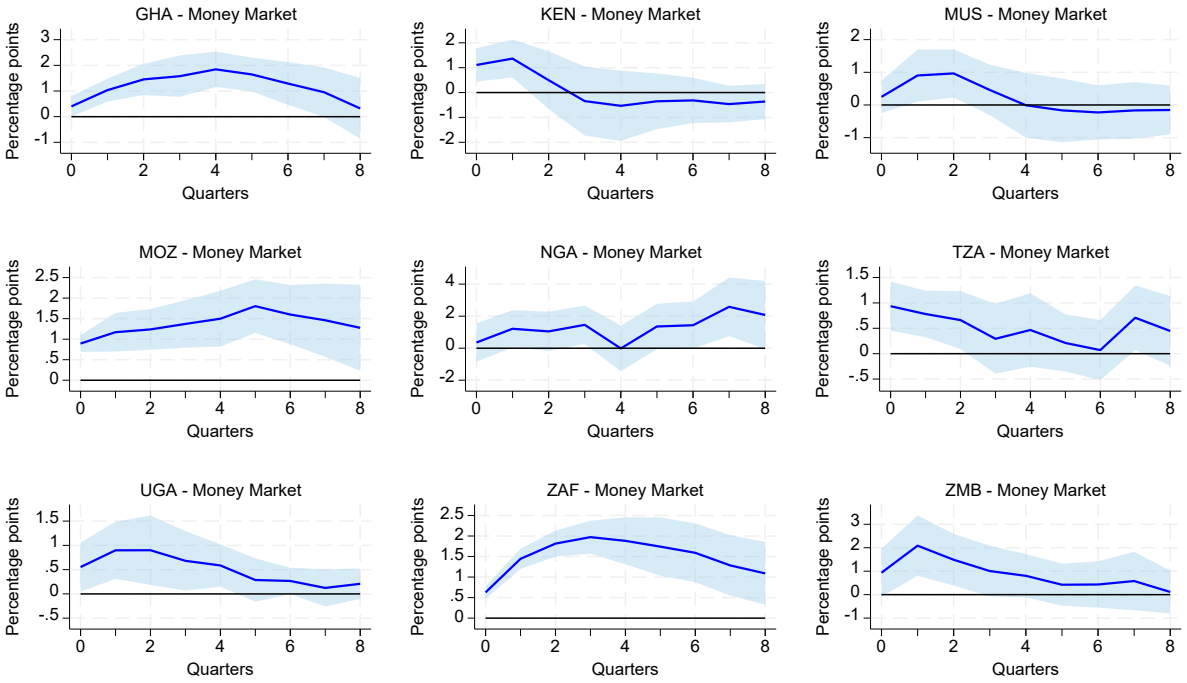
A. Transmission to financial markets

The results reveal substantial heterogeneity in the speed and strength of pass-through across financial variables and economies.

Money market rates. Figure 2 presents the responses of interbank rates to a monetary policy shock. A contractionary monetary policy leads to an immediate and persistent rise in money market rates in only a limited number of economies, and even in these cases the magnitude varies considerably. The response is strongest, most persistent, and statistically significant in South Africa, Ghana, Mozambique, and, to some extent, Uganda. In some other countries (e.g., Kenya, Tanzania, Zambia), the response is positive and statistically significant but short-lived. The weak pass-through from policy rates to interbank rates found in some countries may indicate that central banks lack the operational tools required to align market rates with the intended policy stance. It may also reflect adjustments in policy

stance implemented through liquidity management, which are not fully captured by policy rate changes. Both factors weaken monetary policy transmission (IMF, 2015).

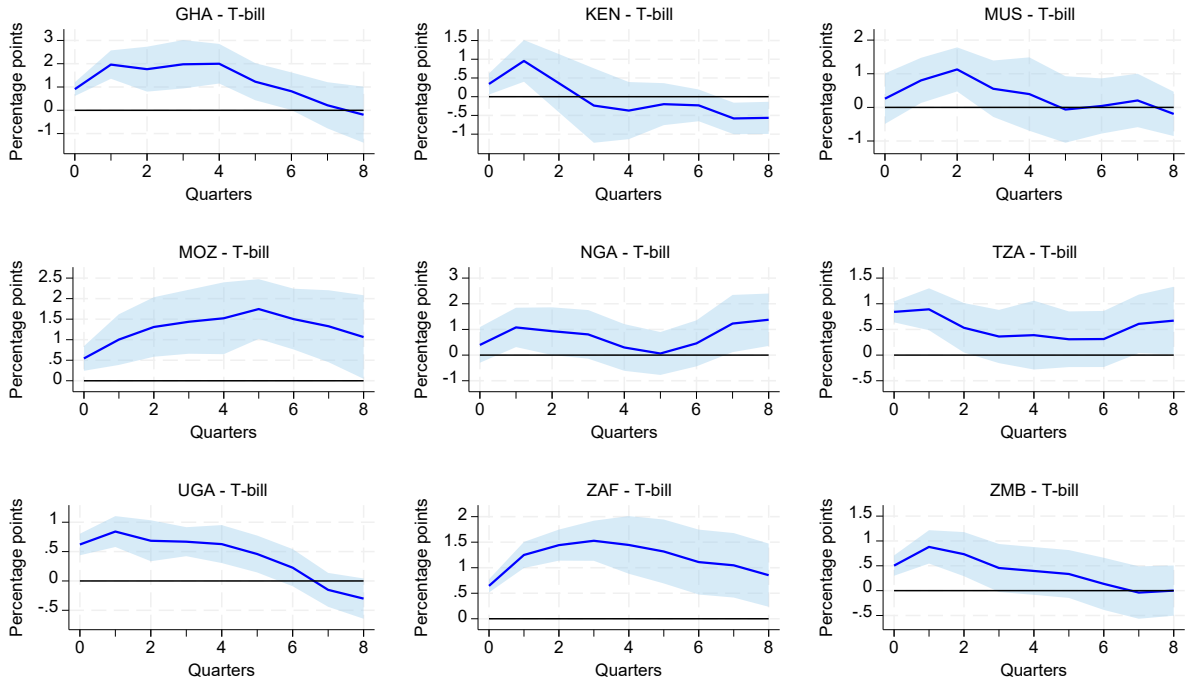
Figure 2: Money Market Rate Responses to Monetary Policy Shocks in SSA EFMs



Notes: The figures show impulse response functions of money market rates to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Government treasury bill yields. Figure 3 shows the responses of T-bill yields to a monetary policy shock. T-bill yields increase following a contractionary shock in most economies. The pass-through largely mirrors the response of money market rates in terms of magnitude: it is positive, statistically significant, and persistent only in economies where monetary policy has the strongest effect on interbank rates (e.g., South Africa, Ghana, Mozambique). In most of the remaining countries, monetary policy shocks lead to a positive but short-lived and statistically significant increase in T-bill yields. The positive response of T-bill yields is consistent with the short maturity of these instruments, which makes them more sensitive to monetary policy. Finally, in economies where the impact on interbank rates is modest even in the short term (e.g., Mauritius and Nigeria), the response of T-bill yields is also muted. This pattern indicates weak policy transmission and likely reflects uncertainty among market participants stemming from the central bank's limited ability to align market rates with its main policy rate.

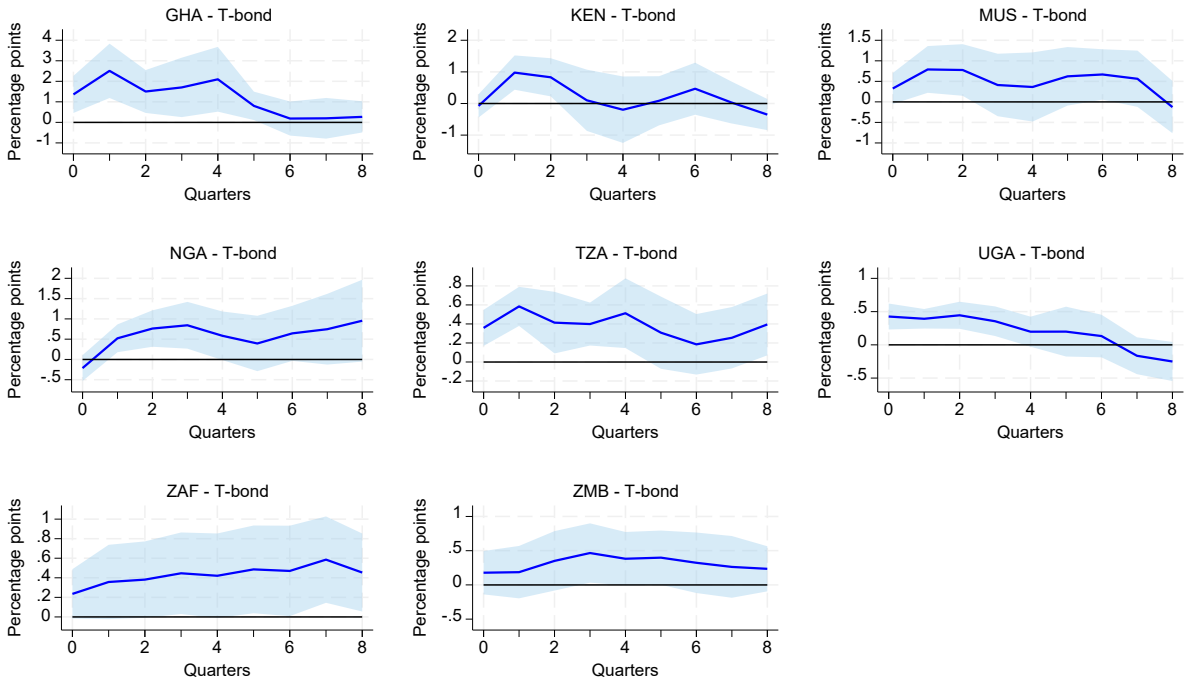
Figure 3: Treasury Bill Rate Responses to Monetary Policy Shocks in SSA EFMs



Notes: The figures show impulse response functions of government Treasury bill (T-bill) rates to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Government bond yields. Figure 4 illustrates the responses of government bond yields to a monetary policy shock. A contractionary shock leads to an increase in government bond yields in most economies, although the responses are generally less pronounced than those of T-bill yields. This is expected, as long-term yields generally reflect not only monetary policy but also term and risk premia. The magnitude and persistence of the effects vary across the region. Responses are positive, statistically significant, and relatively persistent in Ghana, Tanzania, and Uganda. In the remaining economies, the effects tend to be more modest and short-lived or less precisely estimated.

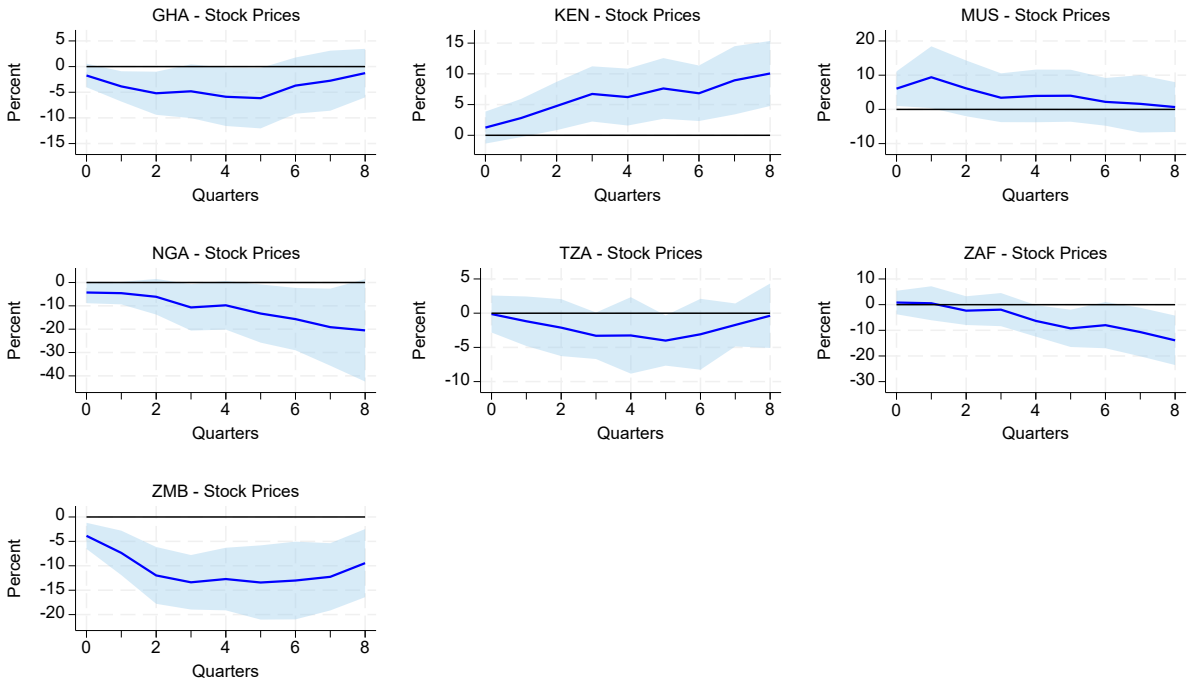
Figure 4: Government Bond Yield Responses to Monetary Policy Shocks in SSA EFMs



Notes: The figures show impulse response functions of government bond (T-bond) yields to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Stock prices. Figure 5 shows the responses of stock prices to a monetary policy shock. A contractionary shock lowers stock prices, in line with theoretical predictions, but the effect is statistically significant only in a small number of economies with available stock market data. The decline is most pronounced in Nigeria, South Africa, and Zambia. As discussed in Section II, South Africa has the most developed capital markets among SSA EFM economies, which suggests a stronger asset price channel.

Figure 5: Stock Price Responses to Monetary Policy Shocks in SSA EFMs



Notes: The figures show impulse response functions of stock prices to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; NGA = Nigeria; TZA = Tanzania; ZAF = South Africa; ZMB = Zambia.

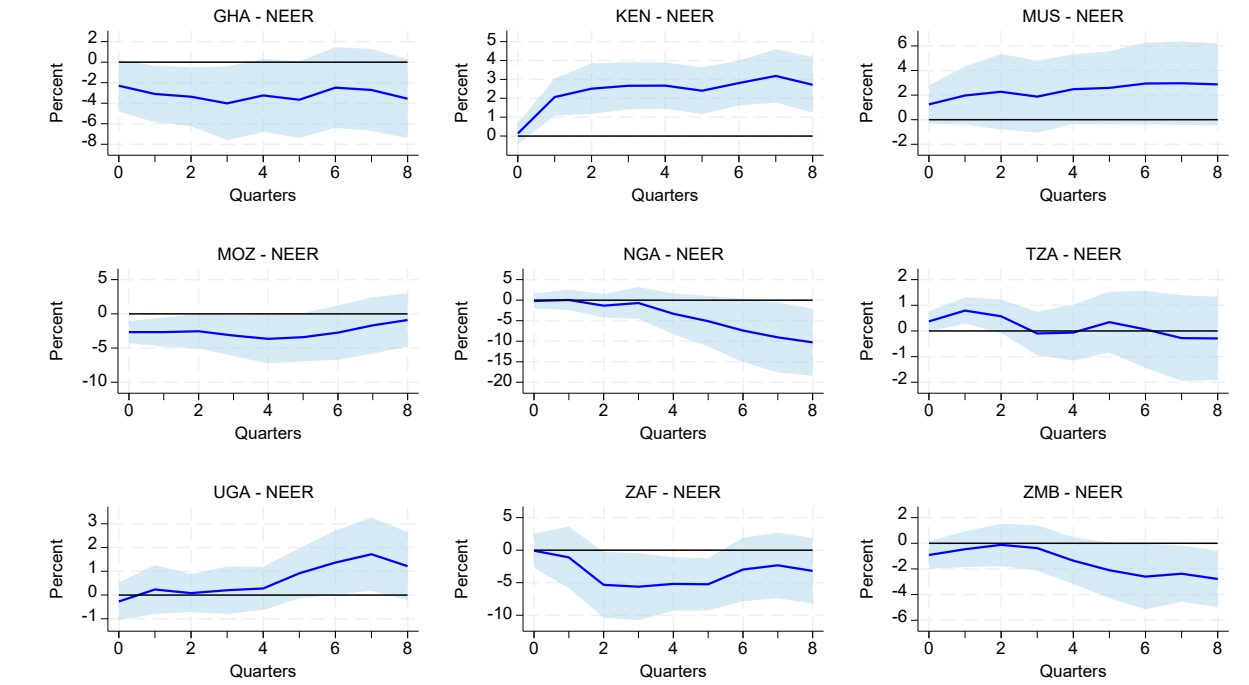
Exchange rates. Figure 6 presents impulse response estimates of the nominal effective exchange rate (NEER) to monetary policy shocks. A contractionary shock leads to the expected appreciation of the exchange rate only in Kenya, where the impact is positive and statistically significant. In the remaining countries, currencies depreciate following monetary tightening, albeit to varying degrees. For instance, the exchange rate depreciates sharply in Nigeria and, to a lesser extent, in Zambia, South Africa, and Ghana. In other economies, exchange rate responses are muted or less precisely estimated. The limited responsiveness of SSA EFM currencies to domestic monetary policy shocks likely reflects a combination of less liquid financial markets, restricted capital mobility, and relatively low levels of global financial integration, which constrain arbitrage between domestic and foreign financial assets (see Section II). These results suggest that interest rate increases alone may be insufficient as a policy tool to systematically influence exchange rate movements in SSA economies. In addition, several economies operate under de facto exchange rate management. Foreign exchange intervention and active exchange rate stabilization policies may therefore further dampen the response of exchange rates to monetary policy shocks.

The domestic currency depreciation following a monetary policy tightening—a phenomenon known as the exchange rate puzzle—observed in most SSA economies is consistent with evidence from EMEs (e.g., Kohlscheen, 2014; Hnatkovska et al., 2016; Kim and Lim, 2018). This puzzle has been linked to fiscal dominance (e.g., Blanchard, 2004; Alberola et al., 2022), as higher real interest rates can increase default risk, reduce the attractiveness of domestic debt, and induce real depreciation. Such effects tend to

be more pronounced when debt burdens are elevated, a large share of debt is denominated in foreign currency, and risk premia are high. Evidence of the exchange rate puzzle has also been associated with sensitivity to data frequency. In particular, limited exchange rate responsiveness may reflect the use of low-frequency data, which allows omitted variables to obscure the relationship between policy rate shocks and exchange rates (Solis, 2023).[19]

Broader cross-country evidence on the exchange rate puzzle remains mixed but generally points to weaker and short-lived responses in EMEs. For example, Bolhuis et al. (2024), using daily data for 21 advanced and 8 emerging economies, find that a 100-basis-point shock leads to a sharp and persistent NEER appreciation in AEs but only a modest and short-lived depreciation in EMEs. By contrast, Checo et al. (2024), analyzing 18 EMEs with a novel set of monetary policy shocks over a more recent sample, find no evidence of the puzzle: exchange rates initially appreciate by about 0.5 percent, with effects dissipating within days to weeks.

Figure 6: Exchange Rate Responses to Monetary Policy Shocks in SSA EFMs



Notes: The figures show impulse response functions of nominal effective exchange rates (NEER) to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. A decline in the response indicates a depreciation of the NEER. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Figure 7 depicts the impulse responses of deposit rates (in blue) and lending rates (in red) to a monetary policy shock.

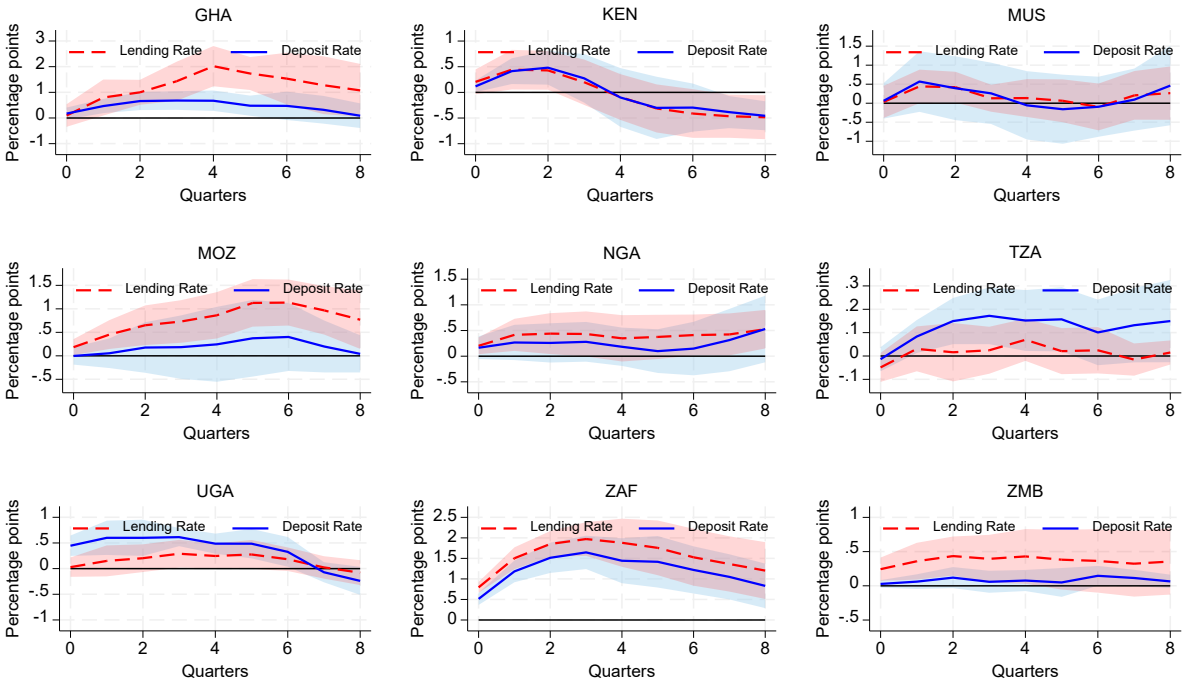
[19]In particular, Solis (2023) shows, using intraday asset price data for Mexico, that significant exchange rate responses to policy rate surprises are only detectable at intraday frequency.

Deposit rates. A monetary tightening generally leads to an increase in deposit rates across most economies, with effects that tend to be persistent. The responses are strongest and statistically significant in South Africa and, to a lesser extent, in Ghana and Uganda, while they are more muted or short-lived in the remaining economies. Typically, a 100-basis-point contractionary monetary policy shock raises deposit rates by about 1.5 percentage points after three quarters in South Africa, and by about 0.5 percentage point in Ghana and Uganda.

Lending rates. A contractionary monetary policy shock leads to positive and persistent increases in lending rates across the region, except in Mauritius and Tanzania, where the effects are muted. In most economies, the peak impact occurs after about three to four quarters. The effects are strongest and statistically significant in South Africa, Ghana, and Mozambique: for example, a 100-basis-point monetary policy shock increases lending rates by about 1.5-2 percentage points after four quarters in these economies, with effects persisting thereafter. The strong pass-through to lending rates in some economies may partly reflect the prevalence of variable-rate loans—for instance, most mortgage loans in South Africa are on variable terms (IMF, 2024). In the remaining economies, the effects are positive but more modest.

Overall, bank deposit and lending rates exhibit significant and persistent increases following monetary tightening in the majority of countries, pointing to the bank-based interest rate channel as the dominant transmission mechanism. This pattern is consistent with recent micro-level evidence for SSA countries (see Abuka et al., 2015 and Conesa et al., 2025 for Uganda; and Loate and Viegi, 2021 and Pirozhkova and Viegi, 2024 for South Africa). More generally, this finding supports theoretical predictions about monetary transmission in financially shallow economies, where households and firms rely heavily on bank-based financing (IMF, 2016). Moreover, in most economies, deposit and lending rates respond with broadly similar timing and magnitude, suggesting that banks do not systematically maintain or widen interest margins following policy tightening. Lending rates respond more strongly than deposit rates only in Ghana, Mozambique and Zambia.

Figure 7: Deposit and Lending Rate Responses to Monetary Policy Shocks in SSA EFMs



Notes: The figures show impulse response functions of deposit (blue line) and lending (red dashed line) rates to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

B. Macroeconomic responses to monetary policy shocks

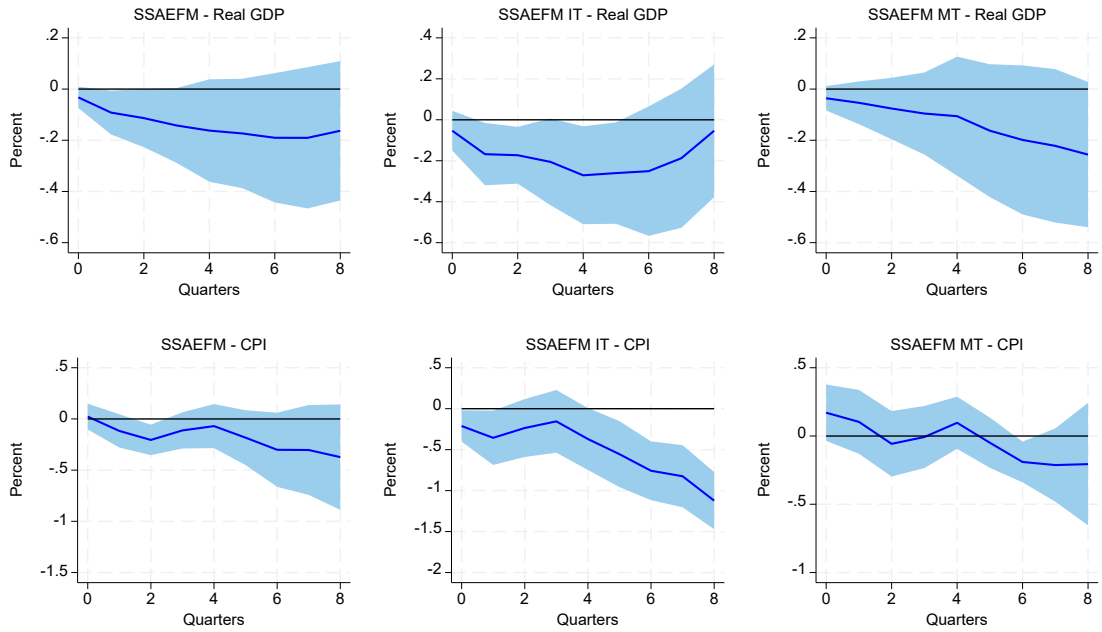
The second part of our results examines the effects of monetary policy shocks on macroeconomic outcomes in SSA EFMs.

Figure 8 reports impulse response estimates of real GDP and headline CPI for SSA EFMs as a whole and for two subgroups—economies operating under inflation-targeting (SSA EFM IT) and monetary-aggregate-targeting (SSA EFM MT) regimes—following contractionary monetary policy shocks.

The results point to weak and uncertain monetary policy transmission in SSA EFMs, consistent with the literature documenting weaker transmission mechanisms in LICs (Mishra et al., 2010; Mishra and Montiel, 2012). A contractionary monetary policy shock leads to a muted and statistically insignificant decline in both output and prices, pointing to impaired transmission in the second stage. Both effects materialize with a delay, with output responding before inflation. On average, a 100-basis-point monetary policy shock in SSA EFMs reduces real GDP by about 0.2 percent at its peak, occurring between six and seven quarters after the shock, with the effects remaining persistent thereafter but statistically insignificant. Headline CPI declines by roughly 0.4 percent about two years after the shock, though these effects remain statistically insignificant throughout. This timing is consistent with the conventional view that monetary policy affects the real economy with long and variable lags and that transmission unfolds gradually over time.

The results also indicate that the magnitude and persistence of the effects of monetary policy differ across SSA EFM subgroups. Monetary transmission is stronger in economies that have adopted, or are transitioning toward, formal inflation-targeting frameworks (SSA EFM IT). In these countries, a 100-basis-point shock reduces real GDP by around 0.3 percent at its peak (four to six quarters after the shock), compared with a smaller and statistically insignificant decline of about 0.2 percent at the trough (around eight quarters after the shock) in monetary-aggregate-targeting economies (SSA EFM MT). Similarly, disinflationary effects are stronger and statistically significant in SSA EFM IT countries, with CPI falling by approximately 1 percent two years after the shock, compared with an insignificant decline of about 0.2 percent in SSA EFM MT economies.

Figure 8: Real GDP and CPI Responses to Monetary Policy Shocks in SSA EFMs



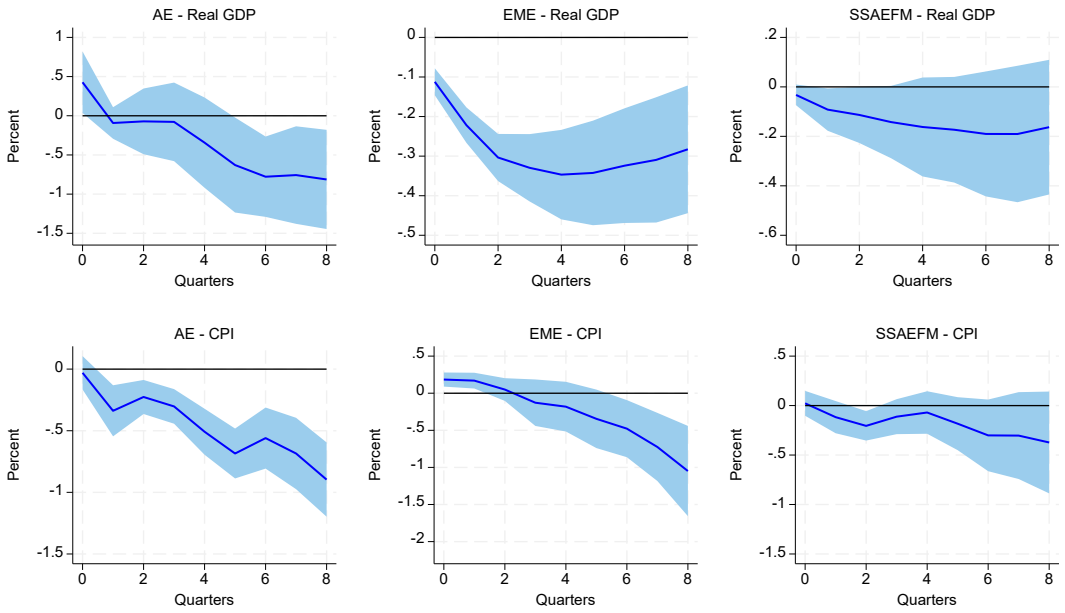
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands, constructed using standard errors clustered at the country level. Country group abbreviations: SSA EFM = SSA emerging and frontier market economies; SSA EFM IT = SSA emerging and frontier market economies, inflation targeters; SSA EFM MT = SSA emerging and frontier market economies, monetary-aggregate–targeting and eclectic regimes.

Using the same panel local projection framework (equation 3), we also examine how monetary policy transmission in SSA EFMs compares with that in other regions. Specifically, we compare the responses of output and prices to monetary policy shocks in SSA EFMs with those observed in AEs and major EMEs. Our empirical results are consistent with existing findings in the literature (e.g., Mishra and Montiel, 2012; Mishra et al., 2014). Figure 9 shows that monetary policy transmission in SSA EFMs is notably weaker than in AEs and EMEs, which are generally characterized by more developed macro-financial environments, including more sophisticated financial systems and stronger monetary policy frameworks. Following a contractionary monetary policy shock, output in AEs and EMEs contracts more sharply than in SSA EFMs. In AEs, real GDP declines by approximately 0.4 percent after one year, reaching a trough

of around 1 percent after eight quarters. In EMEs, real GDP declines by about 0.3 percent after one year and remains at roughly that level after two years. By contrast, the peak contraction in SSA EFMs is about 0.2 percent and occurs after roughly eight quarters.[20]

The disinflationary effects are also more pronounced in AEs and EMEs. Prices fall by approximately 1 percent in both groups at their respective troughs, around two years after the shock, compared with a more modest decline of about 0.4 percent in SSA EFMs over the same horizon. The results are robust to using Consensus Forecasts data for real GDP growth and inflation in the identification equation (1), instead of World Economic Outlook projections, for AEs and EMEs where both sources are available.[21] This robustness is unsurprising given the high correlation between the two sources: for one-year-ahead inflation expectations, the correlation is 0.85 for AEs and 0.94 for EMEs; for one-year-ahead GDP growth expectations, it is 0.84 for AEs and 0.88 for EMEs.

Figure 9: Real GDP and CPI Responses to Monetary Policy Shocks Across Country Groups



Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands, constructed using standard errors clustered at the country level. Country group abbreviations: AE = Advanced economies; EME = Emerging market economies; SSA EFM = SSA emerging and frontier market economies.

[20] For example, Willems (2020) shows that a 100-basis-point increase in interest rates leads to a 1.1 percent decline in real GDP in AEs, compared with only 0.3 percent in emerging and developing economies. By contrast, Deb et al. (2023) find that monetary policy shocks have smaller effects on output in AEs relative to EMEs, but larger effects on prices in AEs. Using a sample of emerging and developing economies, Brandao-Marques et al. (2020) find that, for the median economy, a 100-basis-point increase in interest rates lowers output by about 1 percent at its peak (after roughly 10 months), while the effect on prices is more muted (about 0.33 percent after 11 months). Differences in regional estimates of monetary policy transmission may reflect variations in sample coverage and the time span of the data used across studies.

[21] For AEs, the policy identification regression excludes the exchange rate, as central banks typically do not explicitly incorporate it into their policy decisions.

Figures 16 and 17 (reported at the end of the paper) present the country-level impulse responses of output and prices, respectively, highlighting substantial heterogeneity in monetary policy transmission across SSA economies.[22] Real GDP responds to monetary policy shocks in almost all economies, although the timing, magnitude, and persistence of the responses differ markedly (Figure 16). Output contracts most sharply and is statistically significant in South Africa, where real GDP declines gradually to about 3 percent at its trough eight quarters after the shock, consistent with the relatively more effective transmission channels documented above. More modest but still statistically significant declines are observed in several other countries, including Mozambique, Nigeria, Uganda and Zambia. In the remaining economies, GDP responses are muted and less precisely estimated. Nevertheless, even where output responses are imprecisely estimated, the direction of the effect is broadly negative, suggesting weak and uncertain transmission rather than a complete absence of pass-through.

The effects of monetary policy shocks on prices vary considerably across the region (Figure 17). The full disinflationary effects emerge only with long lags and are not statistically significant in most economies, except some operating under inflation-targeting regimes (e.g., Ghana, Kenya, and Uganda). Moreover, there is evidence of a price puzzle—a counterintuitive increase in the price level following a monetary policy contraction—in a few economies (e.g., CEMAC, Mozambique, Nigeria, and South Africa).[23]

The main message from the country-specific evidence is that multiple transmission channels are operative across SSA EFMs—albeit heterogeneously—but the ultimate effects of monetary policy shocks on output and prices remain weak or imprecisely estimated in many cases. Table 1 summarizes, for each SSA EFM, the responses of financial variables and macroeconomic outcomes to monetary policy shocks within two years. The effects on money market rates, government securities yields, and bank interest rates are statistically significant in most SSA EFMs, suggesting that the interest rate channel and, given the strong and persistent response of bank lending rates, the bank lending channel are broadly operative. Given that these economies are primarily bank-based, these channels are likely the dominant transmission mechanism in the region.[24] By contrast, the exchange rate and asset price channels are operative in only a limited number of economies, consistent with the structural impediments documented in Section II. Yet, despite the apparent effectiveness of pass-through to bank lending rates, transmission to output and, especially, prices remains modest and imprecisely estimated in many economies. Notably, economies where the impact on bank lending rates is statistically significant and positive also tend to exhibit output contractions following monetary policy shocks. The effects on prices are statistically significant only in some inflation-targeting economies (Ghana, Kenya, Uganda), where there is also evidence of an operative bank-based interest rate transmission channel. The contrast between relatively effective pass-through to bank lending rates and limited effects on output and prices likely reflects the structural impairments of the macro-financial environment documented in Section II, an issue examined more formally in the following subsection.

[22] Monetary policy shocks for WAEMU and CEMAC are identified at the monetary union level, consistent with the fact that policy decisions are taken by the regional central bank (BCEAO and BEAC, respectively). As a result, the analysis captures the average transmission of monetary policy across member countries. This approach does not allow for country-specific heterogeneity within the unions, and the estimated responses should therefore be interpreted as union-level effects.

[23] For a comprehensive review of the evidence on the price puzzle in empirical studies of monetary policy transmission, see Ramey (2016). For a discussion of the price puzzle in emerging market economies, see Ha et al. (2024).

[24] Financial market data are unavailable for a number of economies, limiting the ability to assess whether all channels are operative across the full sample.

Table 1: Monetary Policy Transmission Across Channels and Countries in SSA

Country	Money Market	T-bill	T-bond	Deposit Rates	Lending Rates	NEER	Stock Prices	Real GDP	CPI
CEMAC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	
GHA	X	X	X	X	X		X		X
KEN	X	X	X	X	X	X			X
MOZ	X	X	N/A		X		N/A	X	
MUS	X	X	X		X			X	
NGA	X	X	X		X		X	X	
TZA	X	X	X	X		X		X	
UGA	X	X	X	X	X		N/A	X	X
WAEMU	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
ZAF	X	X	X	X	X		X	X	
ZMB	X	X			X		X	X	

Notes: An X indicates that the variable is statistically significant at least at the 10 percent level within two years of a monetary policy shock and carries the expected sign, consistent with conventional transmission theory. Empty cells denote variables that are statistically insignificant or carry the wrong sign. N/A denotes variables that are unavailable. Grey shading indicates inflation-targeting countries (SSA EFM IT); unshaded rows indicate monetary aggregate targeters and eclectic regimes (SSA EFM MT). Financial market channels are not analyzed for CEMAC and WAEMU owing to data limitations at the monetary union level and insufficient time series at the country level. Country abbreviations: GHA = Ghana; KEN = Kenya; MOZ = Mozambique; MUS = Mauritius; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

C. Drivers of cross-country heterogeneity in SSA

Differences in monetary policy frameworks alone are unlikely to fully explain the cross-country variation in transmission documented above. Although transmission tends to be stronger and more persistent in inflation-targeting economies, many of these countries adopted these frameworks only within the past two decades and regimes continued to evolve over much of the sample period.[25] The observed strength of transmission may therefore also reflect broader macro-financial reforms undertaken during the transition to inflation targeting, including improvements in policy operating procedures, banking system soundness, domestic financial market development, and fiscal discipline.[26]

In this sub-section, we examine whether structural features particularly relevant for SSA EFMs—including financial development, monetary policy transparency, fiscal dominance, the sovereign-bank nexus, and exchange rate flexibility—have shaped the strength of monetary policy transmission across the region. Given that SSA EFMs are small open economies, we further investigate how these characteristics shape exchange rate responses to monetary policy shocks. For each dimension, we split economies into two groups—those with a high level and those with a low level of the characteristic—and estimate panel local projection regressions separately (see Equation 5).

[25] Ghana, Uganda, Kenya, and Mauritius adopted inflation-targeting frameworks within the past two decades. South Africa is the only economy in the sample with a longer track record, having adopted the framework in the early 2000s.

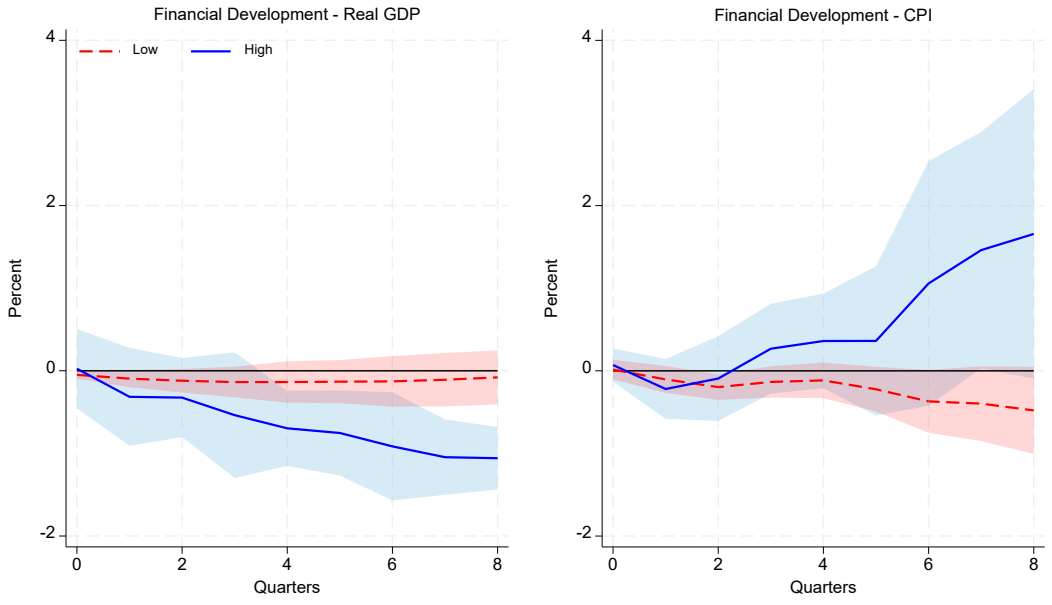
[26] For a detailed discussion of the benefits of inflation targeting, as well as implementation and operational issues and the specific challenges faced by African countries, see Bank of England (2025). For a broader discussion of inflation-targeting regimes in emerging economies, see, among others, Mishkin (2004).

Financial development

We first examine the role of financial development in explaining cross-country differences in monetary policy transmission across SSA EFMs.[27] To do so, we employ an aggregate index of financial development and divide the sample into two groups: economies with high and low financial development. An economy is classified as highly financially developed if its average index value exceeds the SSA sample mean, and as less financially developed otherwise.

The results are broadly consistent with theoretical predictions (Figure 10). Monetary policy shocks have stronger and more persistent effects in more financially developed economies, consistent with empirical evidence showing that the bank lending channel is more effective in economies with more developed financial systems (Sanfilippo-Azofra et al., 2018; Mishra et al., 2010).[28] Specifically, the trough impact on real GDP in more financially developed economies reaches approximately 1 percent after seven to eight quarters and is statistically significant, compared with less than 0.2 percent in less financially developed economies. By contrast, the effects on prices are less clear-cut and do not conform to theoretical priors. In more financially developed economies, there is some evidence of a price puzzle emerging around six to eight quarters after the shock. In less financially developed economies, prices tend to decline gradually, although these effects are not statistically significant.

Figure 10: GDP and CPI Responses to Monetary Policy Shocks: High vs. Low Financial Development



Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high level of financial development, while the red dashed line depicts the response for economies with a low level of financial development. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

[27] For a discussion of the role of financial system structure on the monetary transmission mechanism, see IMF (2012).

[28] Results are robust to using the financial markets sub-index instead.

Monetary policy transparency

We next examine how key features of monetary policy frameworks influence the strength of monetary policy transmission.[29] The literature proposes several indicators capturing elements of central bank credibility and operational frameworks. In our analysis, we use the monetary policy transparency index developed by Dincer et al. (2022) as a proxy for the effectiveness of central banks' operational frameworks. A key advantage of this index is its broad country coverage, which includes all SSA economies in our sample.

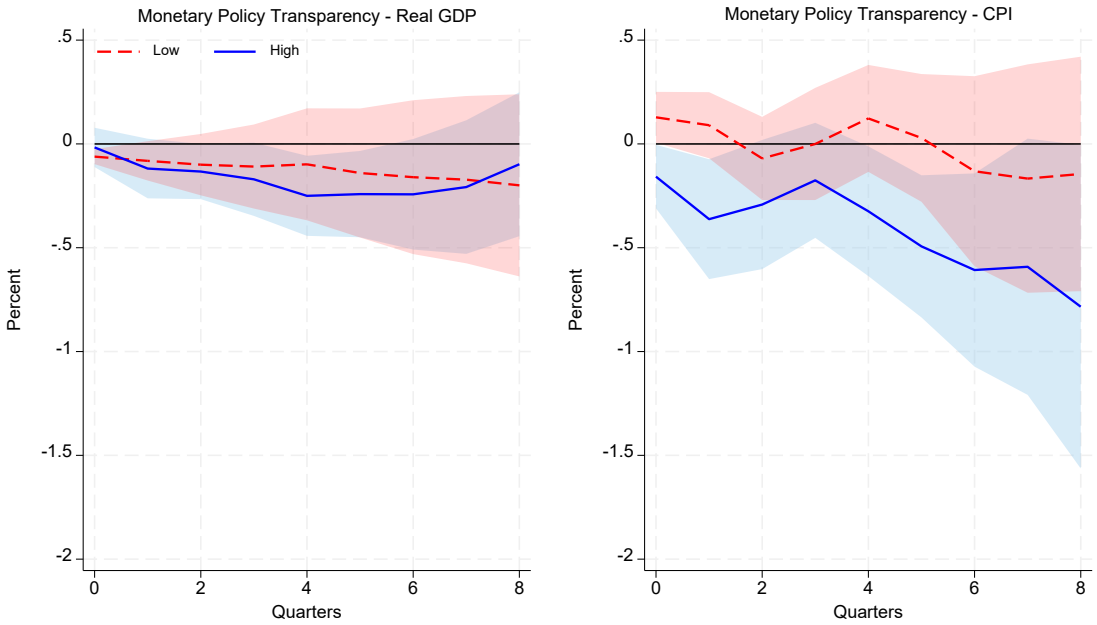
To estimate impulse responses, we divide the SSA sample into two groups based on the degree of monetary policy transparency.[30] A country is classified as having high transparency if its average index value exceeds the SSA sample mean, and as having low transparency otherwise. Our results show that the effects of monetary policy shocks on output and prices are larger and statistically significant in economies with higher levels of transparency (Figure 11), consistent with findings for advanced and emerging economies (Deb et al., 2023). This finding supports the view that greater transparency strengthens monetary transmission by enabling the private sector to interpret policy actions more accurately and form expectations more efficiently.[31]

[29] For an extensive discussion of monetary policy frameworks and transmission in low- and lower-middle-income countries, including SSA economies, see IMF (2015).

[30] For an overview of the literature on the economic effects of central bank transparency, see, among others, Eijffinger and Van der Cruijsen (2007).

[31] We also use alternative publicly available proxies for the strength of monetary policy frameworks, including the monetary policy frameworks index (IAPOC) developed by Unsal et al. (2022), which captures broader institutional features of central bank frameworks, and the central bank independence index (CBIE) developed by Romelli (2022, 2025). Figures B.6 and B.7 in Annex B.3 present impulse response estimates based on these measures, which show that the output and price effects are qualitatively similar across economies with stronger and weaker frameworks and remain statistically insignificant.

Figure 11: GDP and CPI Responses to Monetary Policy Shocks: High vs. Low Monetary Policy Transparency



Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of monetary policy transparency, while the red dashed line depicts the response for those with a low degree of transparency. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Fiscal dominance

We examine how fiscal dominance influences the strength of monetary policy transmission. Fiscal dominance is proxied by the ratio of central bank credit to government relative to GDP (see Hooley et al., 2024).[32] A country is classified as exhibiting high fiscal dominance when its average central bank credit-to-GDP ratio exceeds the SSA EFM sample mean, and as exhibiting low fiscal dominance when it falls below this threshold.[33]

Figure 12 presents the impulse responses of output and prices to a contractionary monetary policy shock for both groups. The results indicate that monetary policy transmission is stronger in economies with low fiscal dominance, where output and consumer prices contract more sharply and the responses are statistically significant.[34] This greater effectiveness likely reflects stronger fiscal discipline, more credible

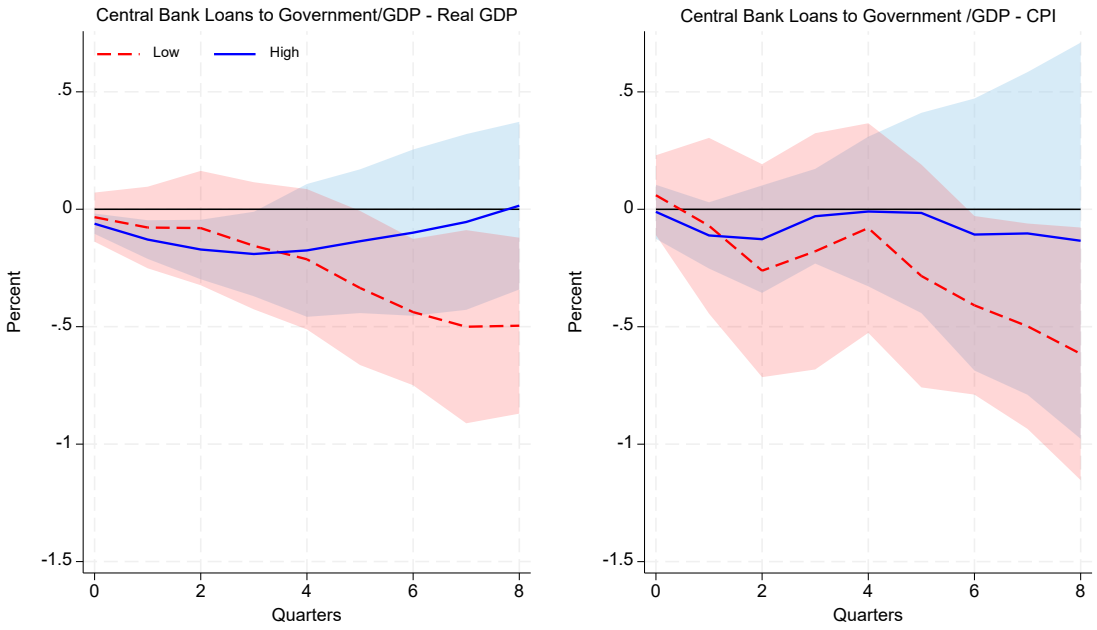
[32] Following Hooley et al. (2024), we assume that central bank financing for fiscal needs is typically provided through loans and overdraft facilities, whereas central bank holdings of government securities are more often associated with monetary policy operations.

[33] For more discussion on the effects of fiscal dominance on monetary policy transmission in SSA economies see, among others, Christensen (2011).

[34] As fiscal dominance is measured indirectly, we also assess robustness by using the government interest-to-revenue ratio as an alternative proxy. The results remain qualitatively similar (see Figure B.11).

policy frameworks, and deeper domestic financial markets in economies with a low degree of fiscal dominance.

Figure 12: GDP and CPI Responses to Monetary Policy Shocks: High vs. Low Fiscal Dominance



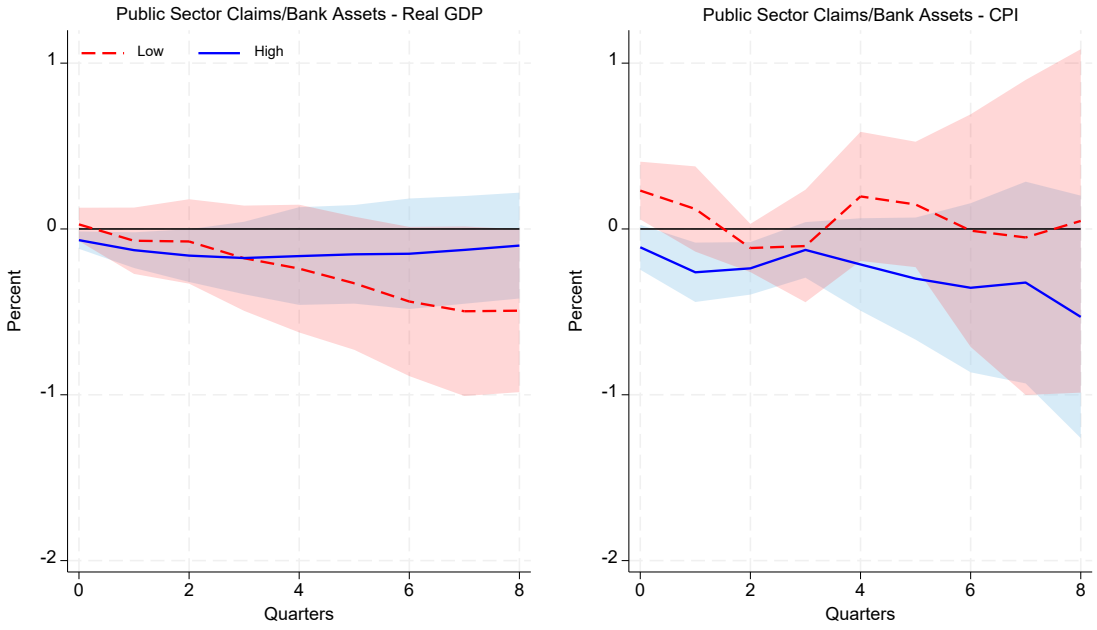
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of fiscal dominance, while the red dashed line depicts the response for those with a low degree. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Sovereign-bank nexus

We analyze the extent to which banks' exposure to the sovereign (the sovereign-bank nexus) affects monetary policy transmission. The sovereign-bank nexus, measured by the ratio of banks' total claims on the public sector to total bank assets, can be interpreted as a channel through which fiscal dominance operates, as large bank exposures to the public sector may make central banks more reluctant to raise interest rates. We classify an economy as having a high sovereign-bank nexus when the average exposure of its banking sector to the public sector exceeds the SSA EFM sample mean, and as having a low sovereign-bank nexus otherwise.

Figure 13 reports the impulse responses of real GDP and prices to a monetary policy shock. Real GDP tends to decline gradually following the shock in economies with a low sovereign-bank nexus, whereas in high-nexus economies the responses are smaller and less precisely estimated. By contrast, price effects are not statistically significant in either case. The absence of stronger transmission in low-nexus economies may reflect the fact that sovereign exposures are elevated across the entire sample. As a result, economies classified as having a "low" nexus may still exhibit relatively high exposure in absolute terms, limiting our ability to identify whether variation in these characteristics influences the way monetary policy transmits across the region.

Figure 13: GDP and CPI Responses to Monetary Policy Shocks: High vs. Low Sovereign-Bank Nexus



Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of sovereign-bank exposure (measured by public sector claims relative to bank assets), while the red dashed line depicts the response for those with a low degree. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Exchange rate flexibility

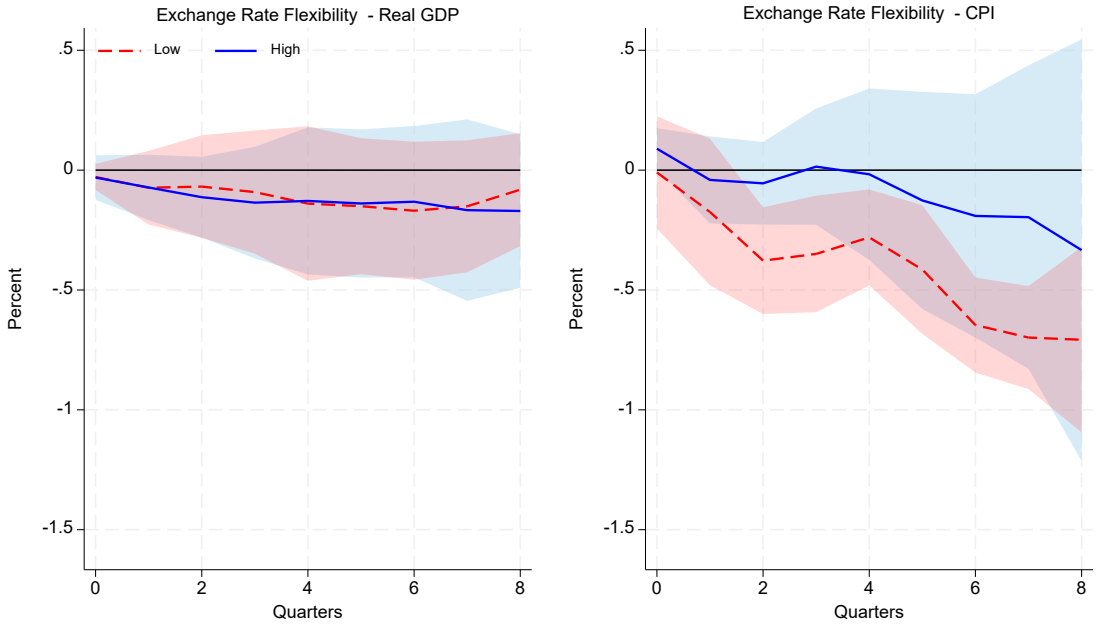
We examine whether the degree of exchange rate flexibility influences the transmission of monetary policy to economic activity and prices. Exchange rate flexibility is proxied by the volatility of the nominal effective exchange rate (NEER), measured following Aghion et al. (2009) as the standard deviation of quarterly log differences over the sample period.[35] Economies with NEER volatility above the SSA average are classified as having a relatively high degree of exchange rate flexibility, while those below the average are classified as having low flexibility.

Our results indicate that monetary policy shocks have statistically insignificant effects on output across the two groups (Figure 14). By contrast, consumer prices decline more steeply in economies with lower exchange rate flexibility than in those with higher flexibility, and these responses are statistically significant. These findings suggest a limited role for the exchange rate channel in monetary transmission, even in economies classified as relatively flexible according to our measure, consistent with the weak exchange rate channel documented in Section IV.A. The limited role of exchange rate flexibility contrasts with Deb et al. (2023), who, using a larger sample of advanced and emerging economies, find that monetary policy transmission is stronger in countries with floating exchange rate regimes than in those

[35] While NEER volatility is an imperfect proxy, reflecting not only exchange rate policy but also exposure to external shocks and the depth of foreign exchange markets, it is a commonly used measure of de facto exchange rate flexibility, particularly in SSA EFMs where formal regime classifications alone may be insufficient given their evolution over the sample period.

with fixed regimes, consistent with the exchange rate channel of monetary policy. One plausible explanation is that most countries in our sample—including those deemed relatively flexible—effectively operate under some form of managed exchange rate arrangement, even without a formal exchange rate anchor. For instance, according to the IMF de facto classification, only three economies in our sample (Mauritius, South Africa, and Uganda) were classified as floating regimes with largely market-determined rates as of 2023.[36] The stronger price declines observed in low-flexibility economies likely reflect the influence of other transmission channels, particularly the interest rate channel, rather than the exchange rate channel per se.

Figure 14: GDP and CPI Responses to Monetary Policy Shocks: High vs. Low Exchange Rate Flexibility



Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of exchange rate flexibility, while the red dashed line depicts the response for those with a low degree. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Structural determinants of exchange rate responses

The preceding results point to a weak exchange rate channel of monetary policy transmission, consistent with earlier country-level evidence documenting muted exchange rate responses and the presence of an exchange rate puzzle in some economies. To complement this analysis, we examine whether the strength of exchange rate responses varies with key structural features of SSA EFMs. Using panel local projections (Equation 5), we analyze exchange rate responses along three dimensions of heterogeneity relevant to this channel: (i) monetary policy transparency (high vs. low), (ii) exchange rate flexibility (more

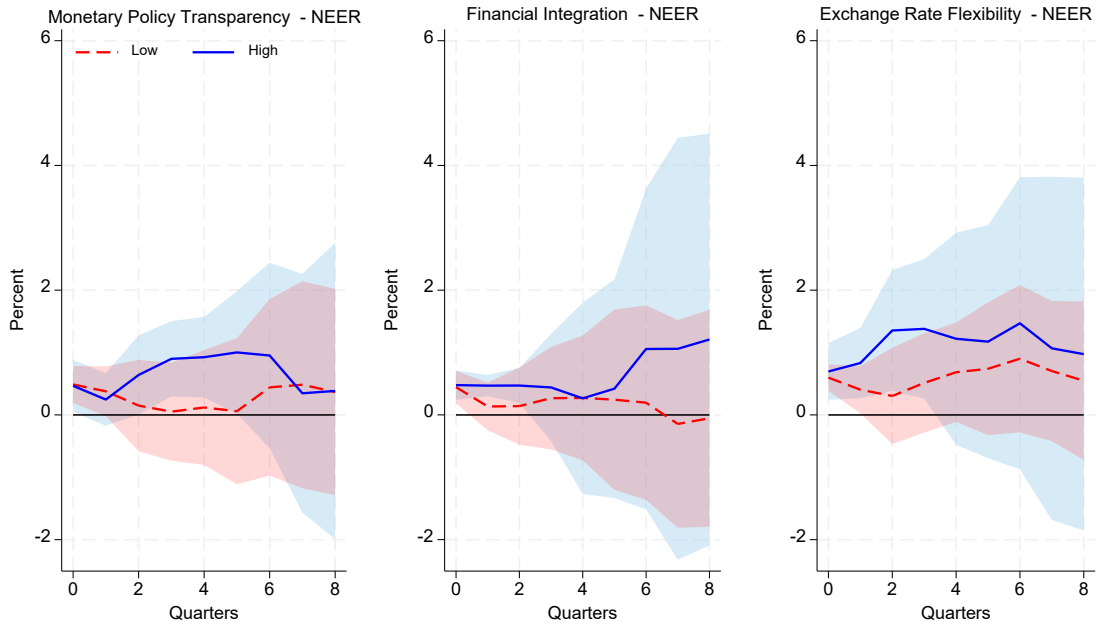
[36] See Table C.2 for the IMF de facto exchange rate regime classification in 2023. For example, in 2015, seven countries in our sample were classified as having floating exchange rate regimes (Tanzania, Ghana, Kenya, Mauritius, Mozambique, South Africa, and Uganda).

vs. less flexible regimes), and (iii) international financial integration (high vs. low). International financial integration is measured by the ratio of a country's stock of foreign assets and liabilities to GDP, with economies above the SSA mean classified as highly integrated and those below as less integrated.[37]

Our results indicate that the effects of monetary policy on the exchange rate are somewhat stronger in economies with higher transparency, greater exchange rate flexibility, and higher international financial integration (Figure 15). Even in these cases, however, estimated exchange rate responses remain modest and statistically imprecise. On average, a 100-basis-point monetary policy shock leads to an appreciation of the nominal effective exchange rate of less than 0.5 percent on impact.

Overall, the muted response of SSA EFM currencies to domestic monetary policy shocks—even in economies with stronger monetary policy frameworks, higher financial integration, and more flexible exchange rate regimes—likely reflects persistently low capital mobility and limited integration into global financial markets relative to more advanced economies.[38]

Figure 15: NEER Responses to Monetary Policy Shocks: High vs. Low Structural Features



Notes: The figures show impulse response functions of NEER to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). A positive response is an appreciation of the domestic currency. The thick blue line shows the response for economies with a high degree of monetary policy transparency, financial integration, and exchange rate flexibility, while the red dashed line depicts the response for economies with a low degree of these characteristics. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

[37] The sample mean of the international financial integration indicator for SSA EFMs excludes Mauritius, as it is an offshore financial center with exceptionally large external assets and liabilities.

[38] It is worth noting that the group of economies classified as having high monetary policy transparency does not necessarily overlap with those with a higher degree of exchange rate flexibility or higher levels of international financial integration.

D. Macroeconomic effects of broader financial conditions

As shown in Section IV.A, monetary policy shocks affect—albeit to varying degrees—financial variables such as market interest rates, exchange rates, stock prices, and bank interest rates across SSA economies. Because the effectiveness of monetary policy depends not only on the functioning of individual financial channels but also on their interactions, we extend our analysis by examining how overall financial conditions shape macroeconomic outcomes. To capture these broader conditions, we rely on the financial conditions indices (FCIs) developed by Tiedemann et al. (2025), which synthesize information from a range of financial variables for each SSA EFM.[39]

To estimate the responses of output and prices to changes in financial conditions, we estimate the following country-level local projection specification:

$$y_{t+h} - y_{t-1} = \alpha^h + \delta^h FCI_t + \sum_{k=0}^{K} \theta_k^h X_{t-k} + \varepsilon_{t+h}^h, \quad (6)$$

where y_{t+h} is the log of the variable of interest (real GDP or CPI) at horizon *h*, and FCI_t represents the log of the financial conditions index.[40] The coefficient δ^h captures the cumulative impulse response of variable y to a tightening in financial conditions at horizon *h*, relative to its value at horizon *t-1*. The vector X_{t-k} includes four lags of the dependent variable and the FCI.

Figures 18-19 (see Annex) present the impulse responses of real GDP and CPI to a one percent increase in the FCI for each SSA EFM. FCI shocks have economically meaningful and statistically significant effects across SSA EFMs.[41] A tightening in financial conditions exerts a statistically significant contractionary effect on output in most economies, consistent with FCIs capturing interactions among a broader set of financial transmission channels. In most cases, peak effects on output occur after about four to six quarters and remain persistent, indicating that financial conditions transmit to the real economy with a lag and materialize gradually over time (Figure 18). Disinflationary effects are also strong and statistically significant in most SSA EFMs, with prices continuing to decline for up to two years following the shock (Figure 19).

These results should be interpreted with two considerations in mind. First, while monetary policy shocks are an important driver of financial conditions, FCIs also capture other factors—such as uncertainty and domestic or external shocks—that lie beyond the direct control of the central bank (Tiedemann et al., 2025). Second, SSA EFM FCIs incorporate global financial variables (e.g., the VIX and EMBI), which reflect global financial conditions not directly linked to domestic monetary policy. As a result, the estimated macroeconomic effects of FCI shocks likely capture the combined influence of domestic monetary policy, broader domestic financial conditions, and global financial developments.

[39] Details on the construction and composition of the FCIs, as well as an analysis of the impact of monetary policy shocks on financial conditions in SSA EFMs, are provided in Tiedemann et al. (2025).

[40] To mitigate potential endogeneity of contemporaneous FCI values, we re-estimate equation (6) using lagged values of the FCI. The results, available upon request, remain qualitatively unchanged.

[41] Note that the FCI-based local projections should not be interpreted as identifying a structural financial shock in the same sense as our monetary policy shock.

V. Robustness Checks and Further Results

In this section, we present additional results and assess the robustness of our identification strategy and main findings. First, using local projections, we examine the sensitivity of our baseline results to alternative exchange rate measures (USD bilateral rate versus NEER), the use of the actual policy rate instead of the identified monetary policy shock, and alternative estimation approaches for assessing the drivers of cross-country heterogeneity. Second, we estimate the effects of monetary policy shocks using a Vector Autoregression (VAR) framework, as an alternative to the local projections approach.

A. Alternative specifications

Exchange rate. Annex B.1 reports robustness checks for the financial responses discussed in section IV. We examine exchange rate responses using the bilateral U.S. dollar exchange rate instead of the nominal effective exchange rate (NEER). Country-level results are broadly consistent with the baseline NEER specification, showing muted exchange rate responses or an exchange rate puzzle in most economies (Figure B.1).

Alternative monetary policy measure. Annex B.2 reports robustness checks for the macroeconomic responses. We re-estimate the baseline local projection model using changes in the actual policy rate, instead of our identified monetary policy shock measure, to assess the validity of the identification strategy. Figures B.2-B.5 compare impulse responses based on the actual policy rate (red) and the identified monetary policy shocks (blue) for SSA country groups (SSA EFMs, SSA EFMs under inflation targeting, SSA EFMs under monetary targeting), AEs, and EMEs, as well as for individual SSA EFMs.

Across SSA EFM groups, the output response to a 100-basis-point contractionary monetary policy shock is broadly similar to the response to a 100-basis-point increase in the actual policy rate (Figure B.2). By contrast, estimates based on the actual policy rate exhibit a pronounced price puzzle across all country groups. For AEs, increases in the actual policy rate generate smaller output effects than those implied by the identified policy shock, whereas responses are broadly comparable in EMEs. However, both specifications produce a large price puzzle (Figure B.3).

At the individual-country level, output responses to policy rate increases are more heterogeneous (Figure B.4), and estimations based on the actual policy rate continue to display a strong price puzzle in most SSA EFMs (Figure B.5). Overall, these findings support the validity of the identification strategy, as the use of identified monetary policy shocks largely mitigates the price puzzle.

Interacting monetary policy shocks and alternative structural indicators. Annex B.3 further examines robustness by estimating panel local projections in which monetary policy shocks are interacted with dummy variables capturing each structural characteristic, rather than estimating separate regressions for each group. This approach also allows us to directly test whether estimated responses differ statistically across groups.

Figures B.8-B.13 show that impulse responses of output and prices across all structural characteristics are broadly consistent with the baseline results, both qualitatively and quantitatively. Tables B.1-B.2 indicate that differences in responses are statistically significant for the level of financial development (for output) and for monetary policy transparency (for both output and prices). By contrast, differences related to exchange rate flexibility are statistically significant only for inflation, while those associated with

fiscal dominance and the sovereign-bank nexus are generally not statistically significant. [42] Overall, these results support the baseline findings that monetary policy transmission tends to be more effective in SSA EFMs with more advanced monetary policy frameworks, higher levels of financial development, and, to a lesser extent, lower fiscal dominance, while the sovereign-bank nexus and exchange rate flexibility appear to play a more limited role in explaining cross-country differences in transmission.

B. Results from a VAR framework

As an alternative to the local projections framework, we also estimate a VAR that incorporates our monetary policy shock series. Following Romer and Romer (2004) for the United States and Cloyne and Hürtgen (2016) for the United Kingdom, we estimate a parsimonious VAR for each SSA EFM economy in which the identified monetary policy shock enters the system as an endogenous policy variable.

The VAR includes real GDP, the consumer price index, and our measure of monetary policy shocks. Specifically, we estimate the following VAR:

$$X_t = \sum_{\mathrm{k}=1}^{K} \mathrm{B}_k X_{t-\mathrm{k}} + \varepsilon_t, \tag{7}$$

where the vector of observables $\mathrm{X}_t = [\mathrm{y}_t, \mathrm{p}_t, \mathrm{CMPS}_t]'$ contains the log of real GDP, the log of CPI, and the cumulated monetary policy shock (CMPS_t).[43] The system is identified recursively, with the monetary policy variable ordered last, implying that monetary policy can respond contemporaneously to output and prices but does not affect them within the same quarter.[44] The VAR is estimated with $K = 4\ lags$ and includes a constant.[45]

Estimating the VAR using the identified monetary policy shock yields results broadly consistent with the baseline local projection specification. Figure B.14 presents impulse responses of real GDP to a 100-basis-point contractionary shock. The VAR estimates indicate qualitatively similar dynamics, with output declining gradually in most economies. However, the magnitude of the responses is generally smaller than in the local projection framework. The VAR results also reveal a comparable degree of cross-country heterogeneity in monetary policy transmission.

Figure B.15 reports impulse responses of the price level. Consistent with the output results, prices generally decline following a contractionary shock, although the magnitude is again smaller than in the local projections. Economies exhibiting a price puzzle in the baseline local projection framework also display a price puzzle in the VAR specification.

As an additional robustness check, we replace the identified monetary policy shock series with the actual policy rate in the VAR framework. Figures B.16 and B.17 report impulse responses of output and prices, respectively, to a 100-basis-point increase in the policy rate. The output effects are smaller than those

[42] The differences in responses across exchange rate flexibility regimes are statistically significant, especially for inflation. However, as discussed in the baseline (Section IV), the stronger responses of the low-flexibility group are not consistent with our priors.

[43] Since conventional VARs typically include macroeconomic variables and the policy instrument in levels, we cumulate our monetary policy shock series before including it in the VAR, as in Romer and Romer (2004) and Cloyne and Hürtgen (2016).

[44] We also estimate a VAR-X model in which the log of real GDP and the log of CPI enter as endogenous variables, while lags of the identified monetary policy shock are included as exogenous regressors. The results are qualitatively similar to those from the baseline VAR and are available upon request.

[45] The results are robust to including a time trend in the VAR and augmenting it with commodity prices as exogenous variables (results available upon request).

obtained using the identified monetary policy shock. In contrast, a pronounced price puzzle emerges when the actual policy rate is included in the VAR and identified using a standard recursive strategy, with prices increasing in most economies following a tightening. These results further support the conclusion that the identified monetary policy shock helps mitigate the price puzzle.

VI. Conclusion

Our findings contribute new insights into the effectiveness of monetary policy transmission mechanisms in SSA EFMs, helping to fill an important gap in the literature. We provide evidence on the main channels through which monetary policy affects financial and macroeconomic outcomes in the region. The financial stage of the transmission process exhibits substantial cross-country heterogeneity, as well as variation in the speed of pass-through across financial variables—an important source of monetary policy lags. In particular, the bank-based interest rate channel emerges as the dominant transmission mechanism across the region, consistent with earlier empirical evidence for financially shallow economies where banks play a central role in financial intermediation. By contrast, the exchange rate channel appears notably weak, with evidence of an exchange rate puzzle in many economies. The limited pass-through of monetary policy to exchange rates is consistent with limited capital mobility and low integration into global financial markets, which constrain arbitrage between domestic and foreign financial assets. These findings suggest that interest rate hikes alone may be insufficient to systematically influence exchange rate movements in the region.

We further find that contractionary monetary policy reduces both real GDP and consumer prices with a lag, with output responding before inflation. Importantly, the overall magnitude of transmission remains modest and notably weaker than in AEs and major EMEs, consistent with the existing literature. Country-level results also point to a disconnect between a relatively effective first stage of transmission through financial channels, especially the bank-based interest rate channel, and a weak second stage in terms of effects on output and, especially, prices.

Beyond the conventional interest rate channel, we also find that tighter overall financial conditions, as captured by a financial conditions index, exert a sizable contractionary effect on both output and inflation, underscoring the importance of broader financial conditions in shaping macroeconomic outcomes—though these effects likely reflect a combination of domestic monetary policy and broader domestic and global financial developments.

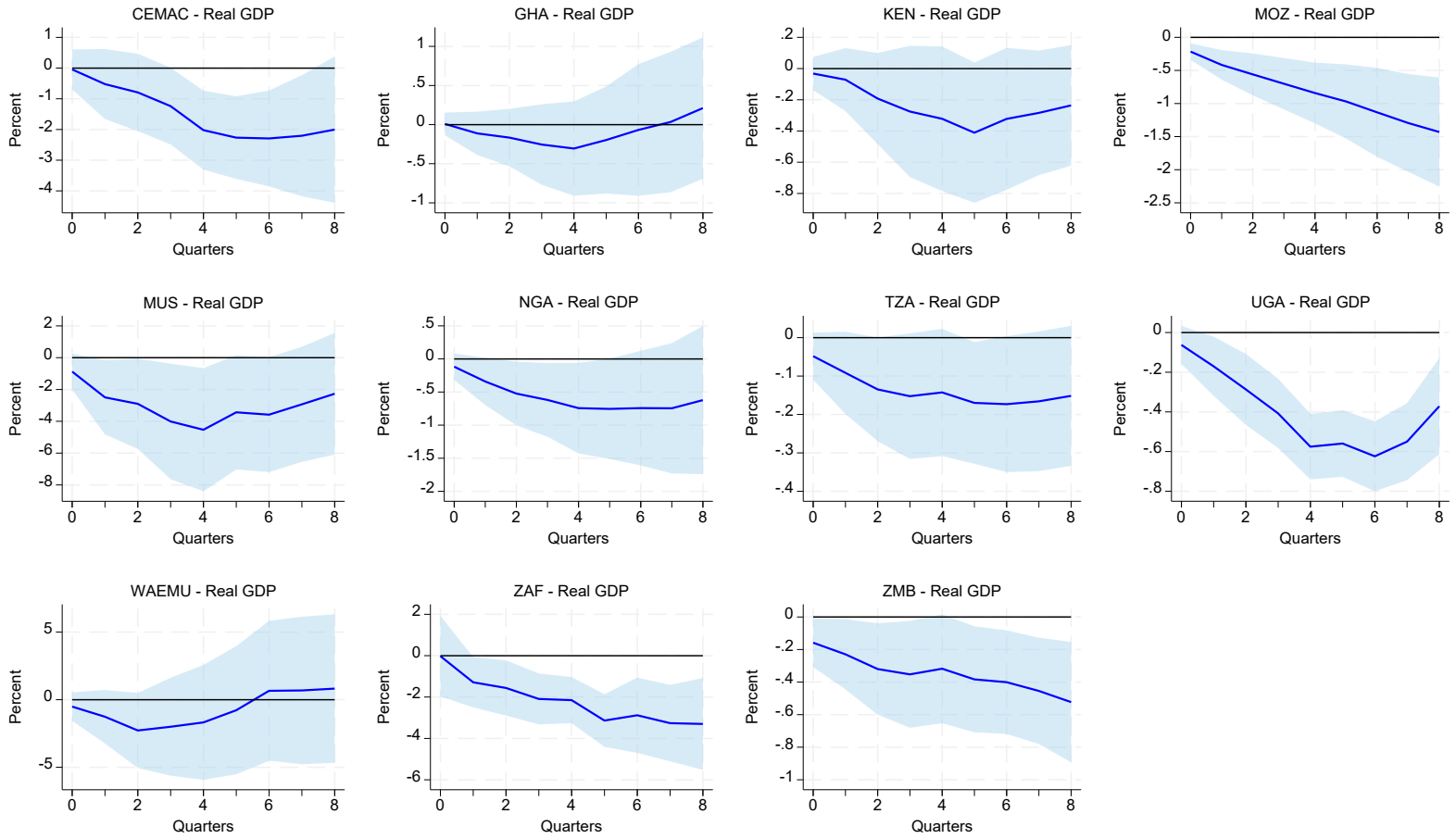
Our results reveal substantial heterogeneity in the transmission of monetary policy to macroeconomic outcomes across SSA EFMs. Transmission is stronger and more persistent in economies that have adopted, or are transitioning toward, formal inflation-targeting frameworks. By contrast, economies operating under monetary-aggregate or eclectic regimes generally exhibit more muted or short-lived responses. However, differences in monetary policy regimes alone are unlikely to fully account for this heterogeneity, given that policy frameworks in many countries have evolved over the sample period.

Our analysis of the underlying structural features of transmission supports this interpretation. Higher levels of financial development and greater monetary policy transparency—and, to a lesser extent, lower degrees of fiscal dominance—appear to contribute to cross-country variation in transmission effectiveness. These findings suggest that reforms aimed at strengthening the macro-financial environment, alongside improvements in the operational and institutional features of monetary policy

frameworks, may have enhanced transmission in economies moving toward inflation targeting. By contrast, we find limited evidence that differences in the sovereign-bank nexus or exchange rate regime flexibility explain variation in transmission effectiveness across SSA EFMs.

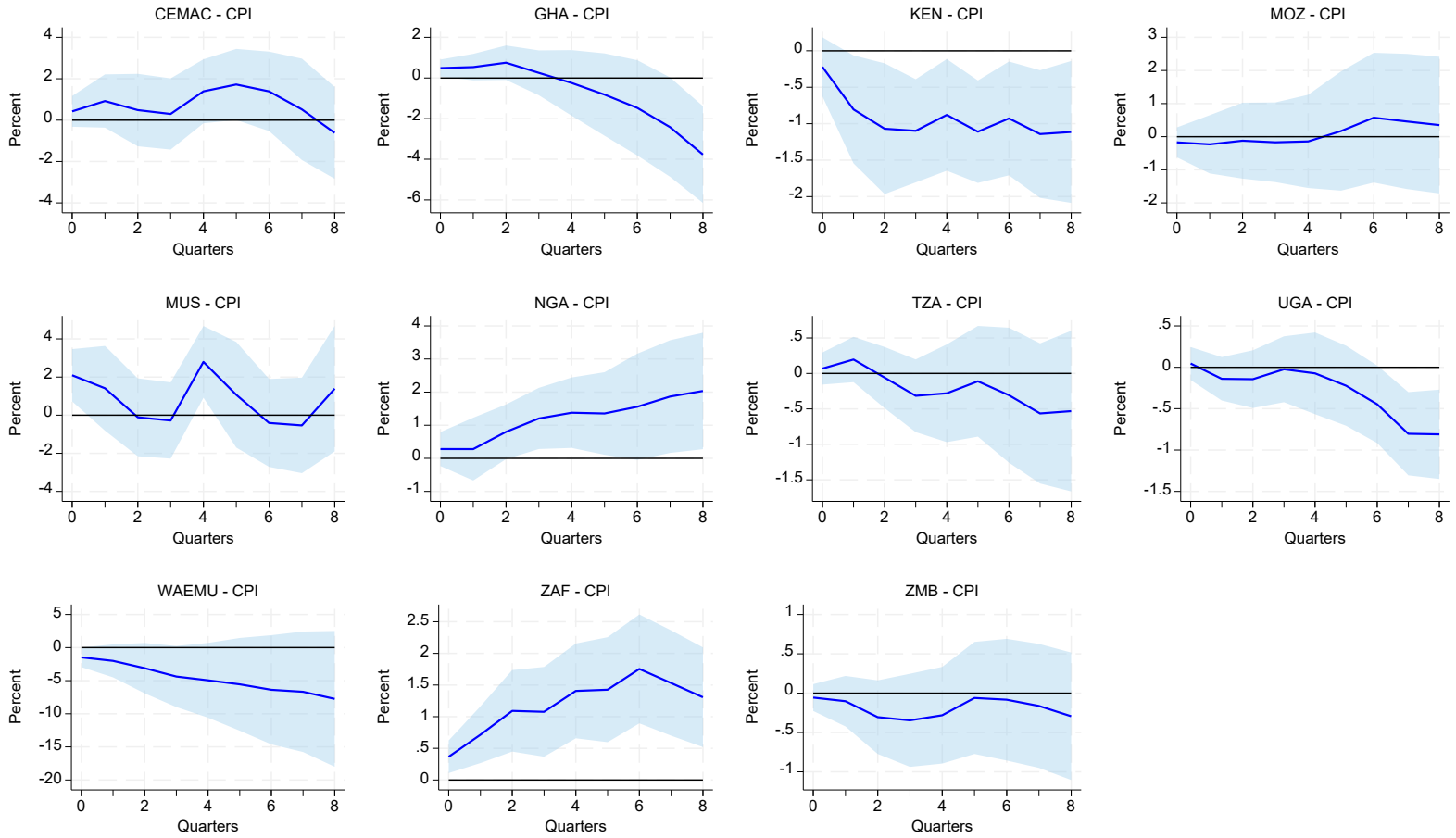
These findings point to several avenues for future research. Deeper investigation into the exchange rate channel is warranted, given its central role in the transmission mechanism of small, open economies. Further analysis is also needed to better understand the transmission of monetary policy to inflation, particularly in light of evidence of price puzzles in several countries. In addition, given the prevalence of fiscal dominance across the region, further work on developing theory-consistent measures of fiscal dominance and better understanding its implications for monetary policy effectiveness would be valuable.

Figure 16: GDP Responses to Monetary Policy Shocks



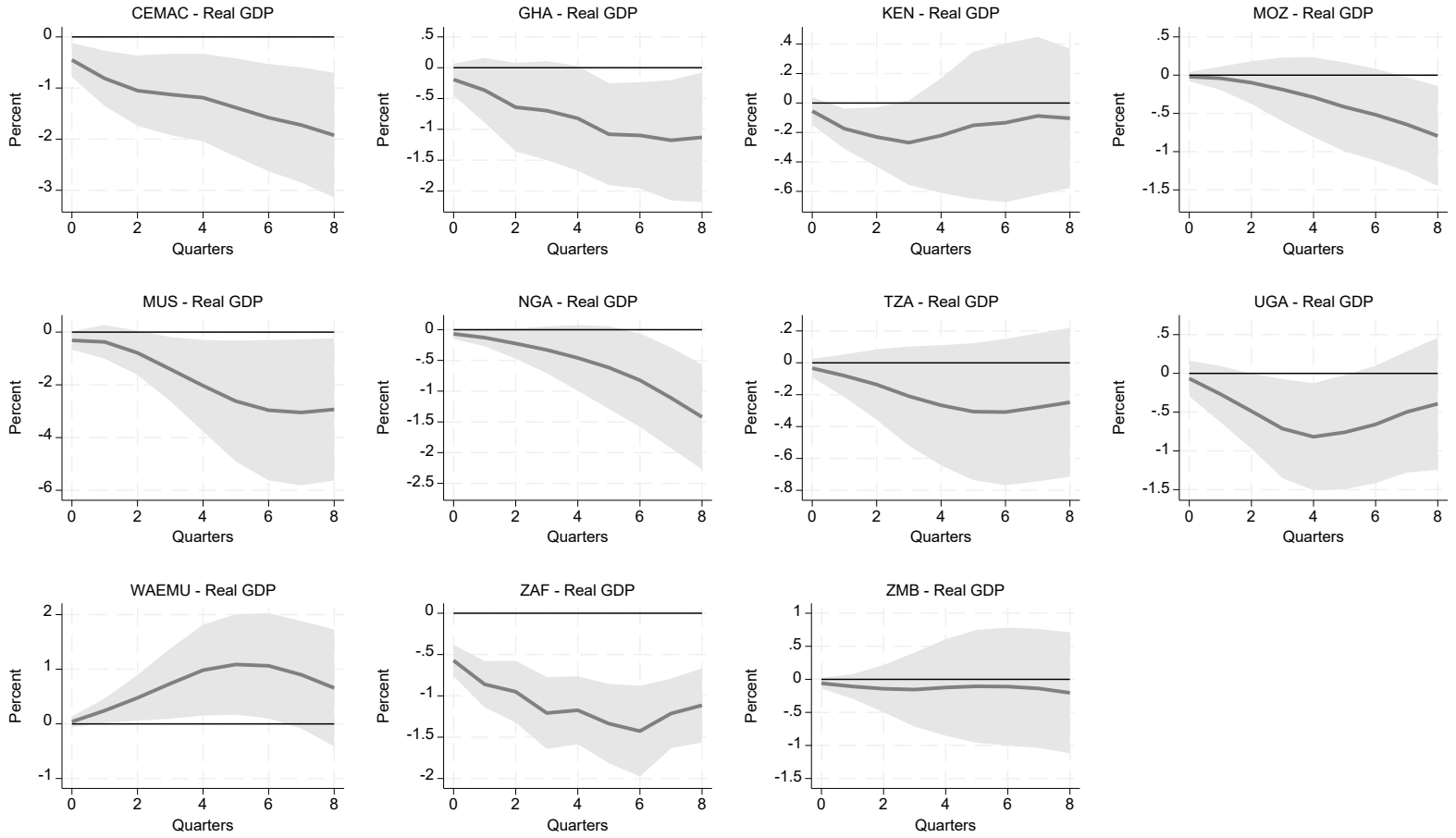
Notes: The figures show impulse response functions of real GDP to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Figure 17: CPI Responses to Monetary Policy Shocks



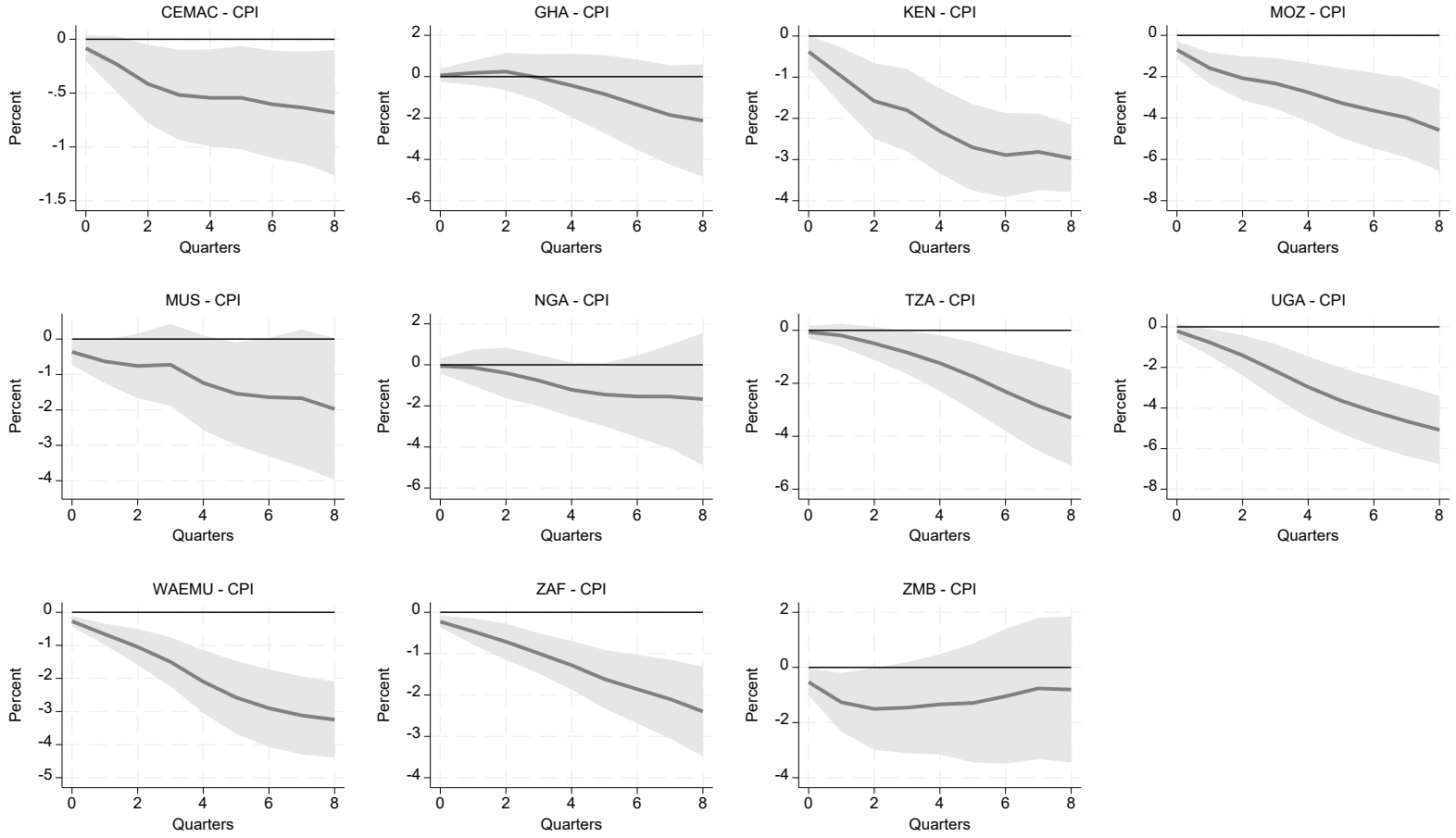
Notes: The figures show impulse response functions of CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Figure 18: GDP Responses to FCI Shocks



Notes: The figures show impulse response functions of real GDP to a one-percentage-point tightening in the FCI over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

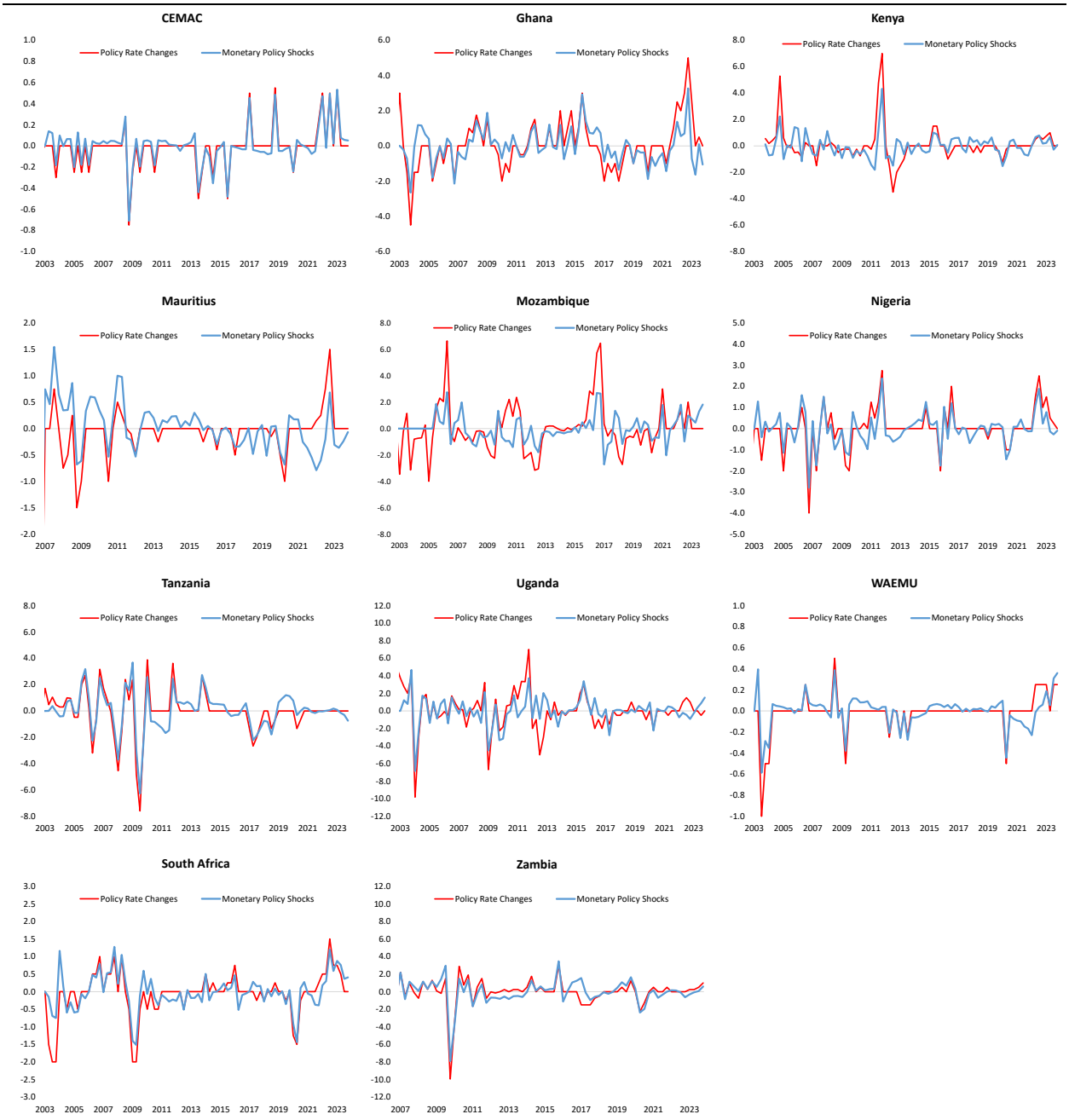
Figure 19: CPI Responses to FCI Shocks



Notes: The figures show impulse response functions of CPI to a one-percentage-point tightening in the FCI over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Annex A. Monetary Policy Shocks

Figure A.1: Monetary Policy Shocks vs. Actual Policy Rate Changes



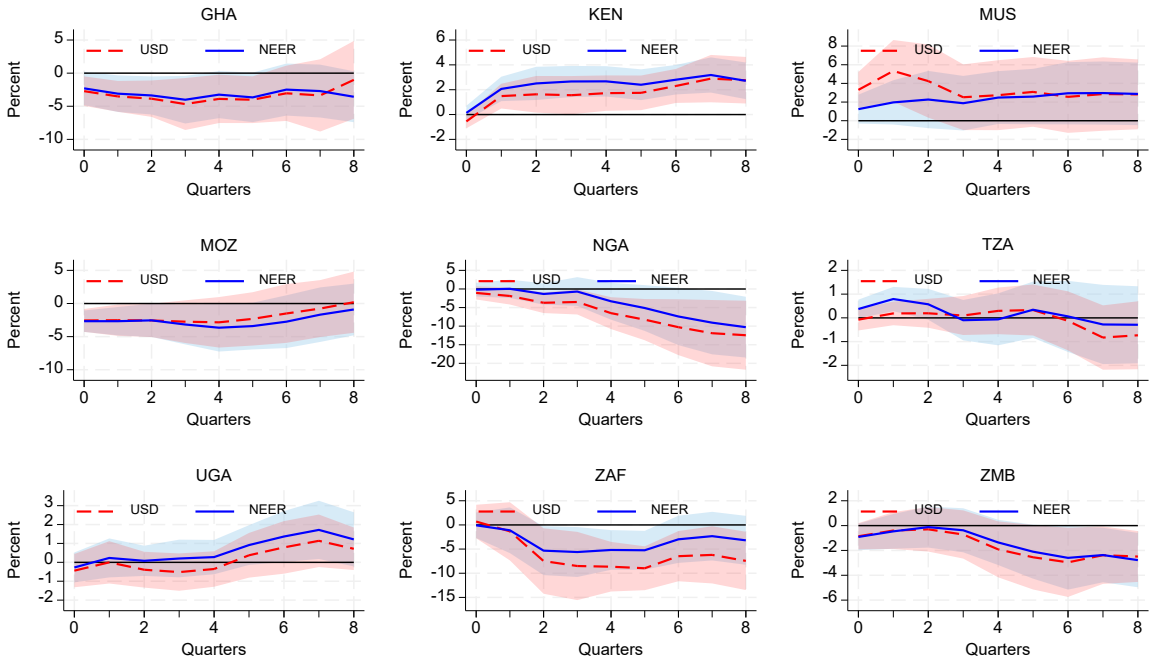
Sources: IMF World Economic Outlook; IMF International Financial Statistics; Haver and authors' calculations.

Notes: The figures show monetary policy shocks, identified following Romer and Romer (2004), in blue, and actual policy rate changes in red, expressed in percentage points.

Annex B. Robustness Checks

B.1 Results for financial markets

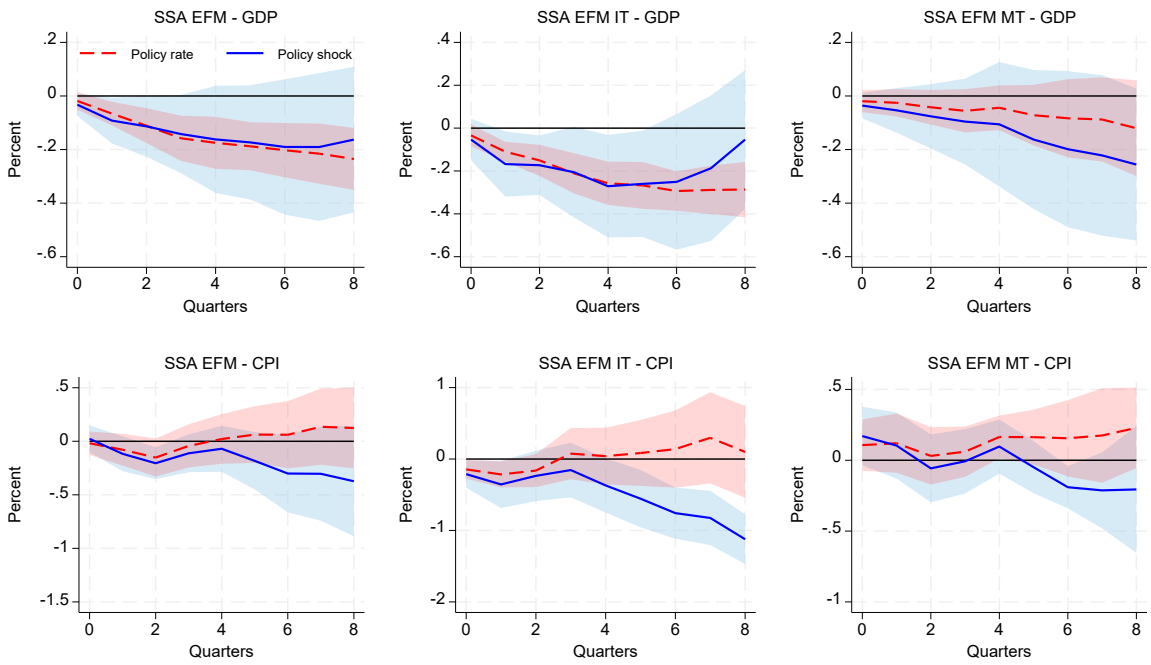
Figure B.1: Responses of Exchange Rates to Monetary Policy Shocks in SSA EFMs



Notes: The figures show impulse response functions of USD exchange rates (USD per unit of local currency; an increase indicates an appreciation) to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

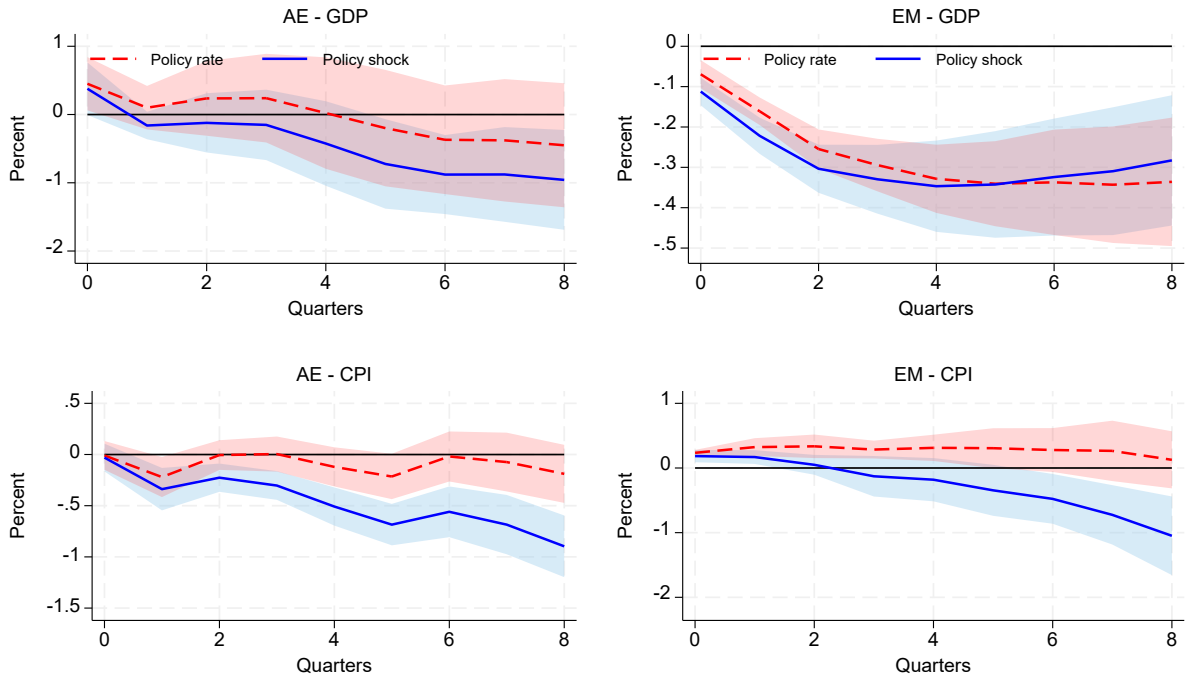
B.2 Results for macroeconomic responses

Figure B.2: GDP and CPI Responses to Contractionary Monetary Policy Across SSA EFMs



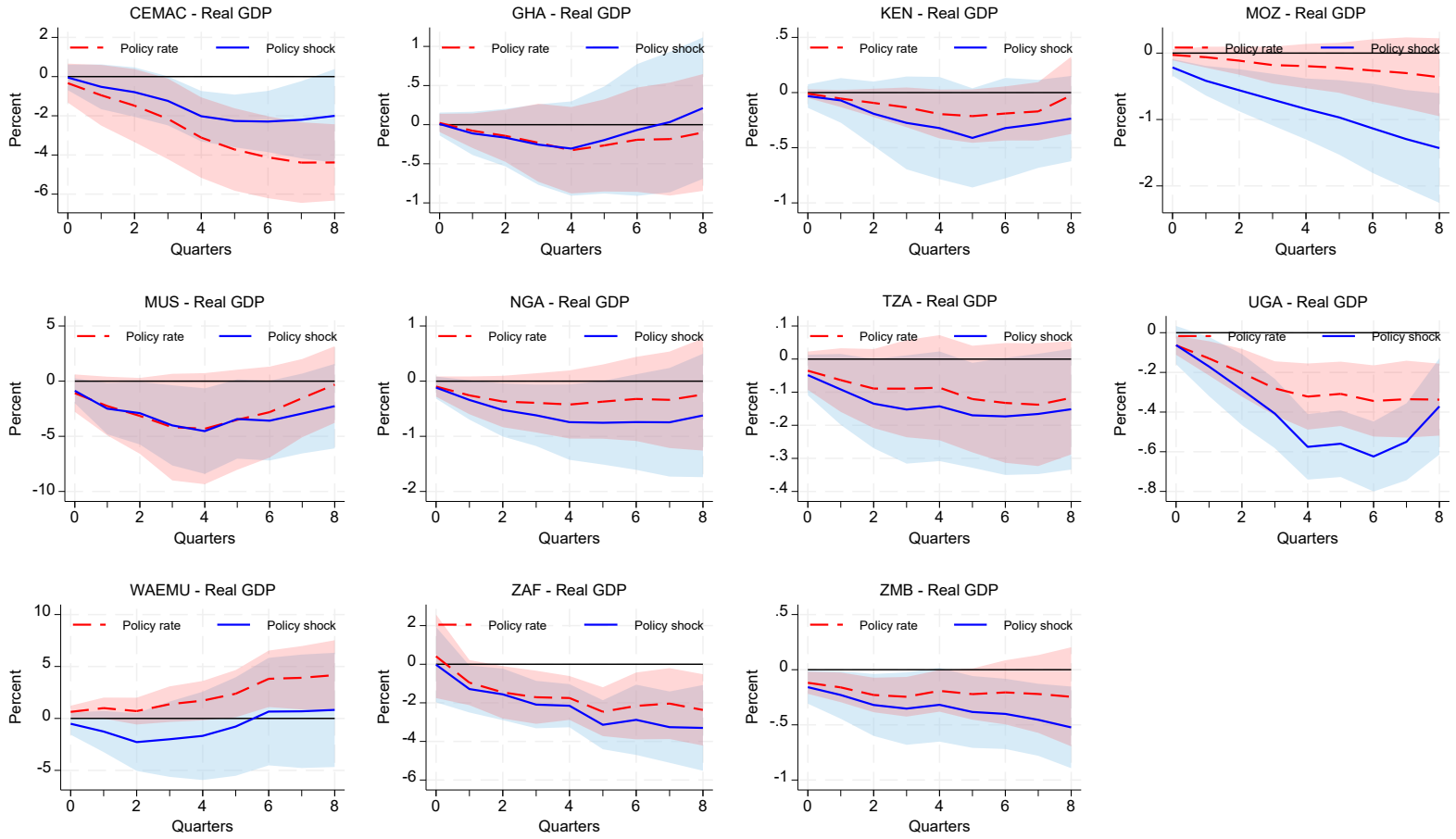
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. The thick blue line shows the response to a one-percentage-point contractionary monetary policy shock, while the red dashed line depicts the response to a one-percentage-point increase in the actual policy rate over the eight quarters following the shock. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level. Country group abbreviations: SSA EFM = SSA emerging and frontier market economies; SSA EFM IT = SSA emerging and frontier market economies, inflation targeters; SSA EFM MT = SSA emerging and frontier market economies, monetary-aggregate–targeting and eclectic regime.

Figure B.3: GDP and CPI Responses to Contractionary Monetary Policy Across Country Groups



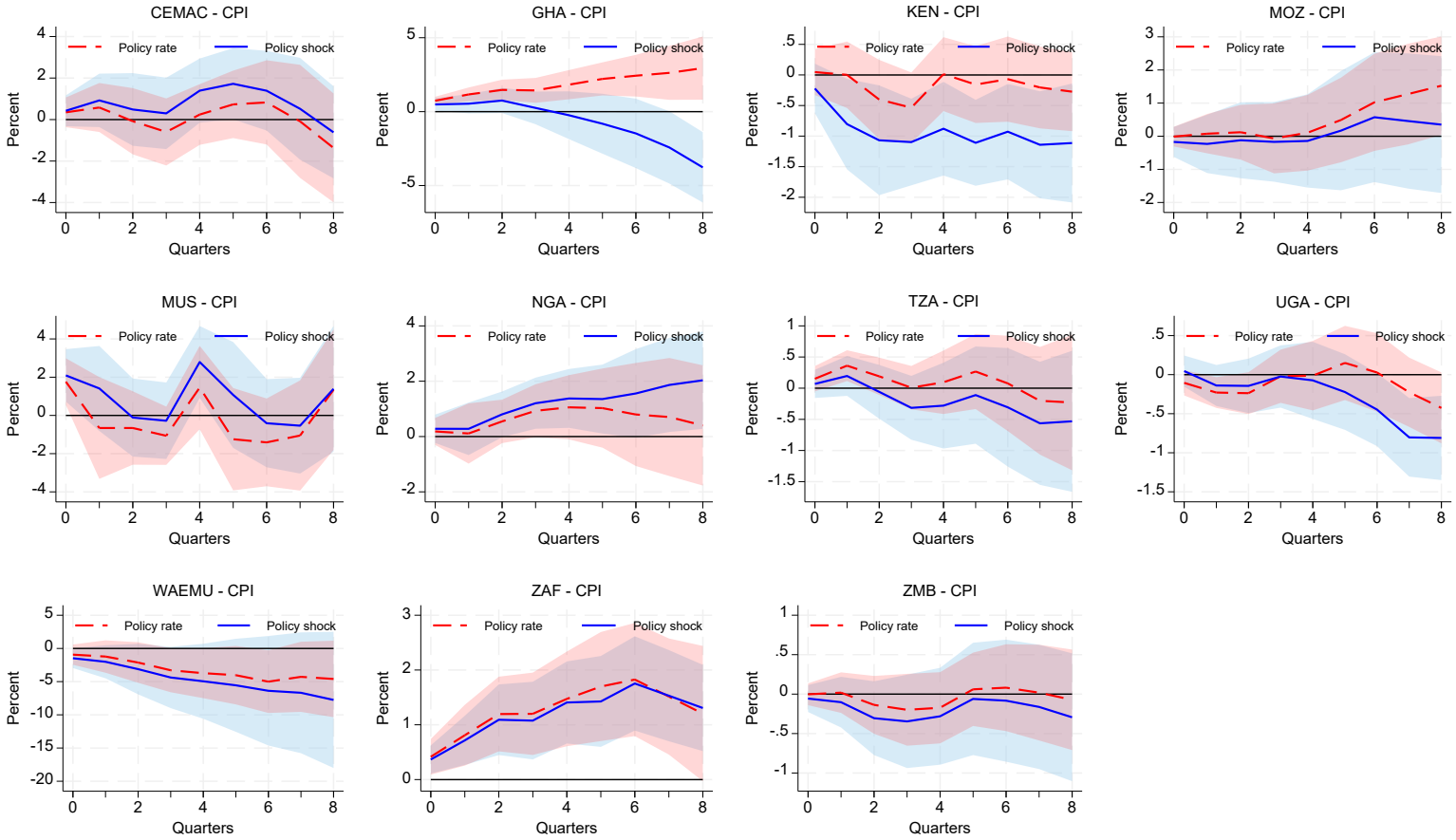
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. The thick blue line shows the response to a one-percentage-point contractionary monetary policy shock, while the red dashed line depicts the response to a one-percentage-point increase in the actual policy rate over the eight quarters following the shock. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands, constructed using standard errors clustered at the country level. Country group abbreviations: AE = Advanced economies; EME = Emerging market economies.

Figure B.4: GDP Responses to Contractionary Monetary Policy in SSA EFMs



Notes: The figures show impulse response functions of GDP to a one-percentage-point contractionary monetary policy, estimated using the local projections method. The thick blue line shows the response to a one-percentage-point contractionary monetary policy shock, while the red dashed line depicts the response to a one-percentage-point increase in the actual policy rate over the eight quarters following the shock. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Figure B.5: CPI Responses to Contractionary Monetary Policy in SSA EFMs

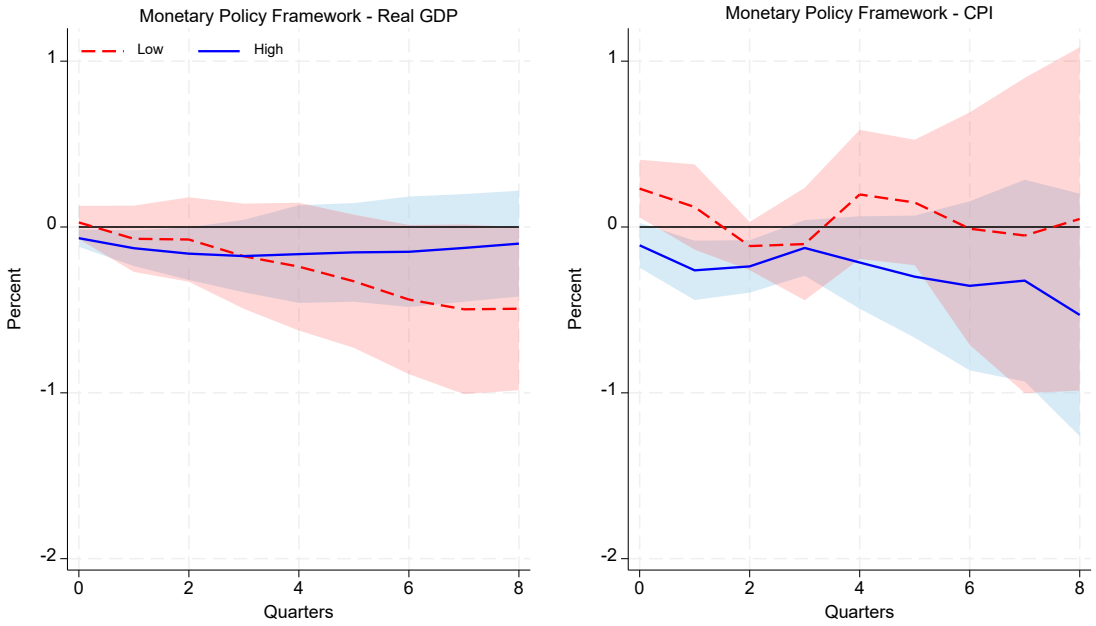


Notes: The figures show impulse response functions of CPI to a one-percentage-point contractionary monetary policy, estimated using the local projections method. The thick blue line shows the response to a one-percentage-point contractionary monetary policy shock, while the red dashed line depicts the response to a one-percentage-point increase in the actual policy rate over the eight quarters following the shock. Monetary policy shocks are identified following Romer and Romer (2004). The shaded areas represent 90-percent confidence bands constructed using Newey–West standard errors. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

B.3 Cross-country heterogeneity

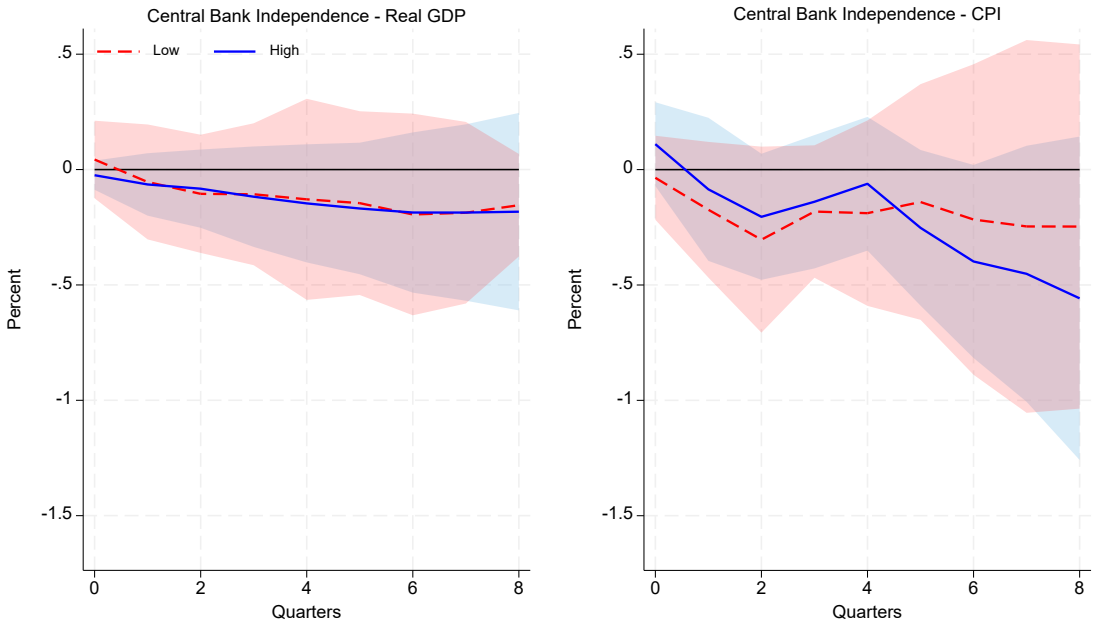
Alternative measures of monetary policy frameworks

Figure B.6: GDP and CPI Responses to Monetary Policy Shocks: High vs. Low Monetary Policy Framework Strength



Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies classified as having strong monetary policy frameworks based on the IAPOC index developed by Unsal et al. (2022), while the red dashed line depicts the response for those with weaker frameworks. Because this index is not available for CEMAC and WAEMU, these economies are classified as having weak frameworks. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Figure B.7: GDP and CPI Responses to Monetary Policy Shocks: High vs. Low Levels of Central Bank Independence



Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters after the shock, estimated using the local projections method. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies classified as having a high degree of central bank independence according to the CBI index developed by Romelli (2022, 2025), while the red dashed line depicts the response for those with a lower degree of independence. Because the index is not available for Mozambique, the country is classified as having a low degree of independence. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Panel local projections with structural interaction terms

We assess the sensitivity of our results by estimating panel local projections in which monetary policy shocks are interacted with a dummy variable capturing each structural feature. This approach allows us to test directly whether the estimated responses differ statistically across groups. Specifically, we estimate the following specification:

$$y_{j,t+h} - y_{j,t-1} = \alpha_j^h + \alpha_t^h + \beta_{High}^h D_j \times MPS_{j,t-1} + \beta_{Low}^h (1 - D_j) \times MPS_{j,t-1} + \sum_{k=1}^{K} \theta_k^h X_{j,t-k} + \varepsilon_{j,t+h}^h, \quad (8)$$

where $D_j = 1$ if the country's mean value of a given structural characteristic—financial development, monetary policy transparency, fiscal dominance, the sovereign-bank nexus, or exchange rate flexibility—exceeds the SSA EFM sample mean, and $D_j = 0$ otherwise. The coefficients β_{High}^h and β_{Low}^h capture, respectively, the cumulative impulse responses of variable y in economies with high and low levels of each characteristic to a monetary policy shock at horizon h, relative to its value at horizon *-1*. We then test whether the estimated responses differ statistically across groups, i.e., $H_0: \beta_{High}^h = \beta_{Low}^h$.

Table B.1: Statistical Differences in GDP Responses Across Groups (p-values)

Horizon	Financial Development	Monetary Policy Transparency	Exchange Rate Flexibility	Fiscal Dominance	Sovereign-Bank Nexus
1	0.184	0.515	0.063*	0.625	0.258
2	0.086*	0.117	0.188	0.679	0.848
3	0.023**	0.076*	0.190	0.462	0.721
4	0.034**	0.064*	0.249	0.686	0.946
5	0.028**	0.053*	0.516	0.881	0.939
6	0.048**	0.123	0.519	0.701	0.715
7	0.052*	0.273	0.616	0.500	0.579
8	0.059*	0.513	0.478	0.393	0.481

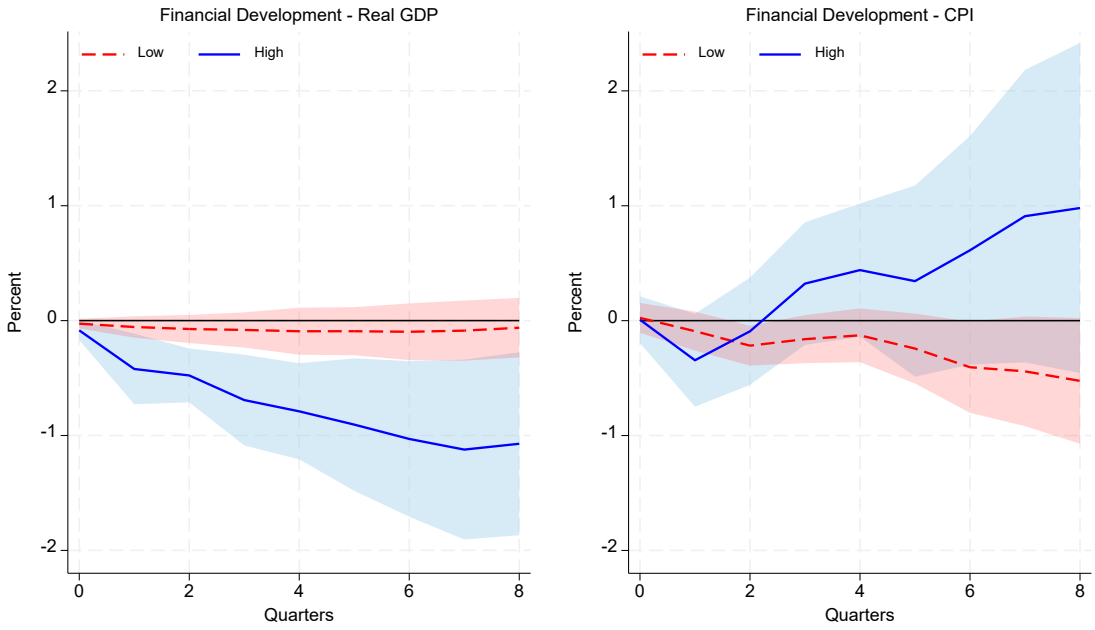
Notes: The table reports p-values for the null hypothesis that $\beta^h_{High} = \beta^h_{Low}$. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.2: Statistical Differences in CPI Responses Across Groups (p-values)

Horizon	Financial Development	Monetary Policy Transparency	Exchange Rate Flexibility	Fiscal Dominance	Sovereign-Bank Nexus
1	0.896	0.015**	0.448	0.420	0.141
2	0.335	0.065*	0.256	0.919	0.440
3	0.714	0.672	0.046**	0.338	0.886
4	0.246	0.771	0.008***	0.281	0.934
5	0.194	0.230	0.008***	0.423	0.543
6	0.341	0.195	0.006***	0.223	0.629
7	0.180	0.414	0.000***	0.124	0.859
8	0.163	0.503	0.000***	0.118	0.881

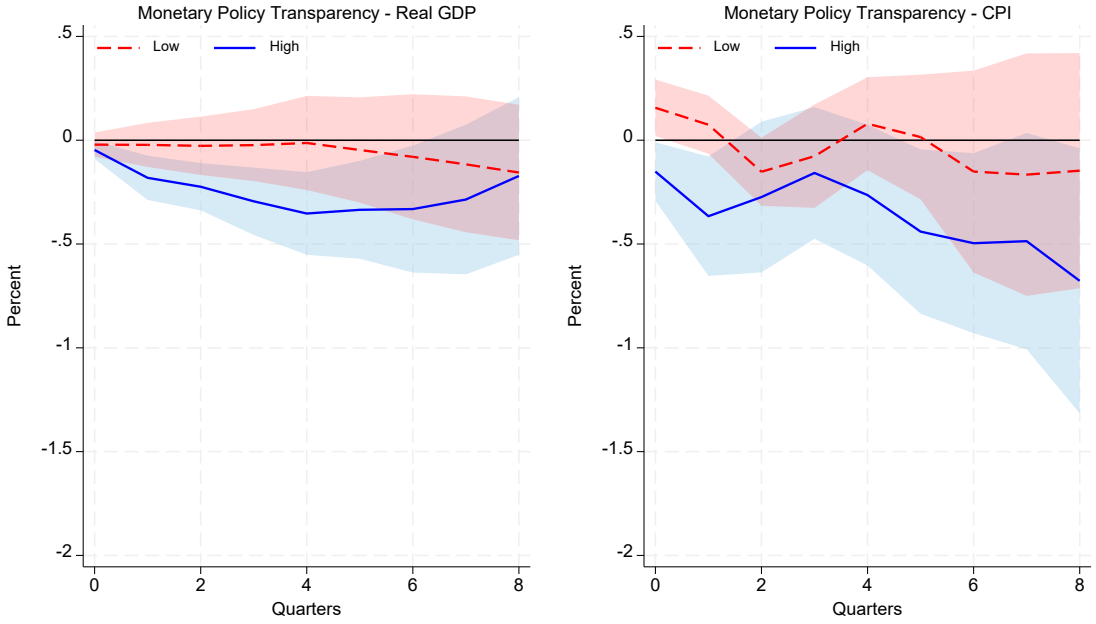
Notes: The table reports p-values for the null hypothesis that $\beta^h_{High} = \beta^h_{Low}$. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Figure B.8: Monetary Policy Shocks: High vs. Low Financial Development (Interaction Specification)



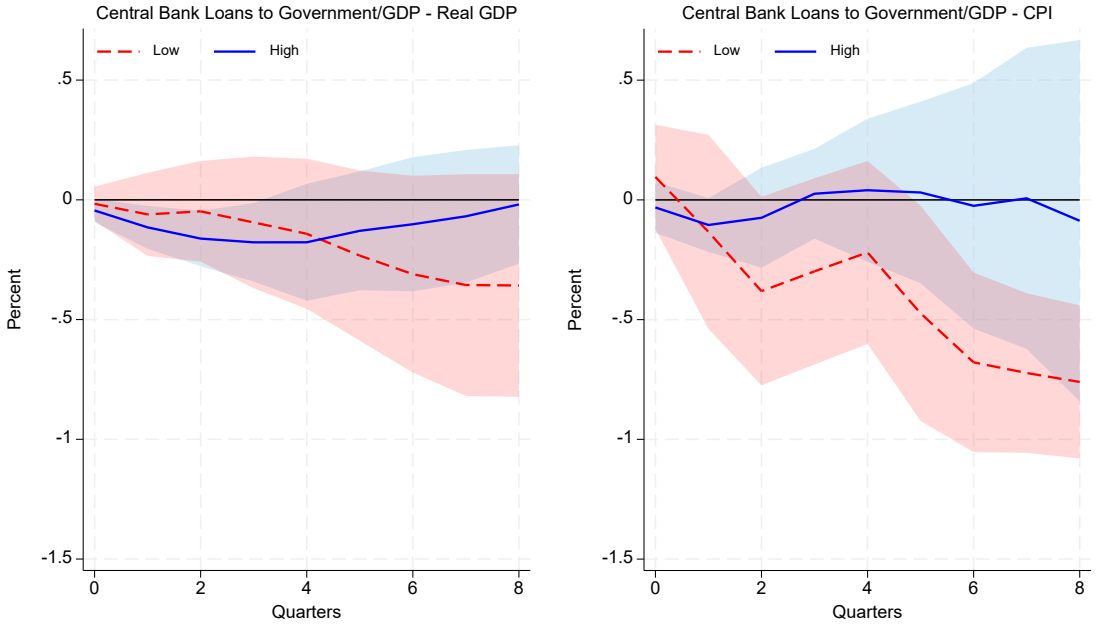
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method with interactions between the identified monetary policy shock and the structural characteristic. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high level of financial development, while the red dashed line depicts the response for economies with a low level of financial development. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Figure B.9: Monetary Policy Shocks: High vs. Low Monetary Policy Transparency (Interaction Specification)



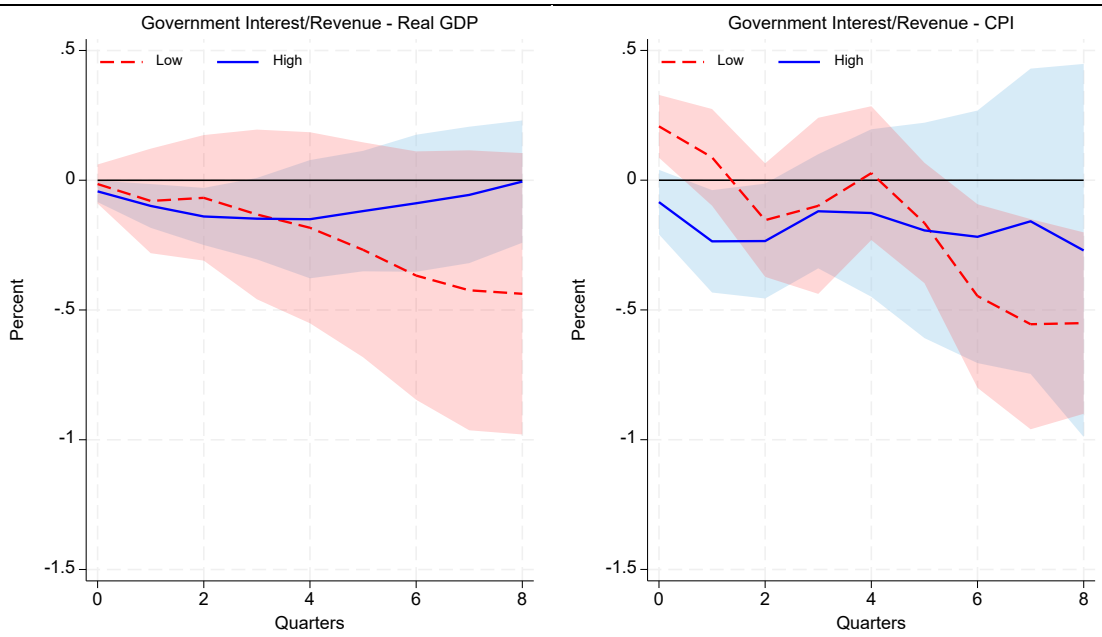
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method with interactions between the identified monetary policy shock and the structural characteristic. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of monetary policy transparency, while the red dashed line depicts the response for those with a low degree of transparency. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Figure B.10: Monetary Policy Shocks: High vs. Low Degree of Fiscal Dominance (Interaction Specification)



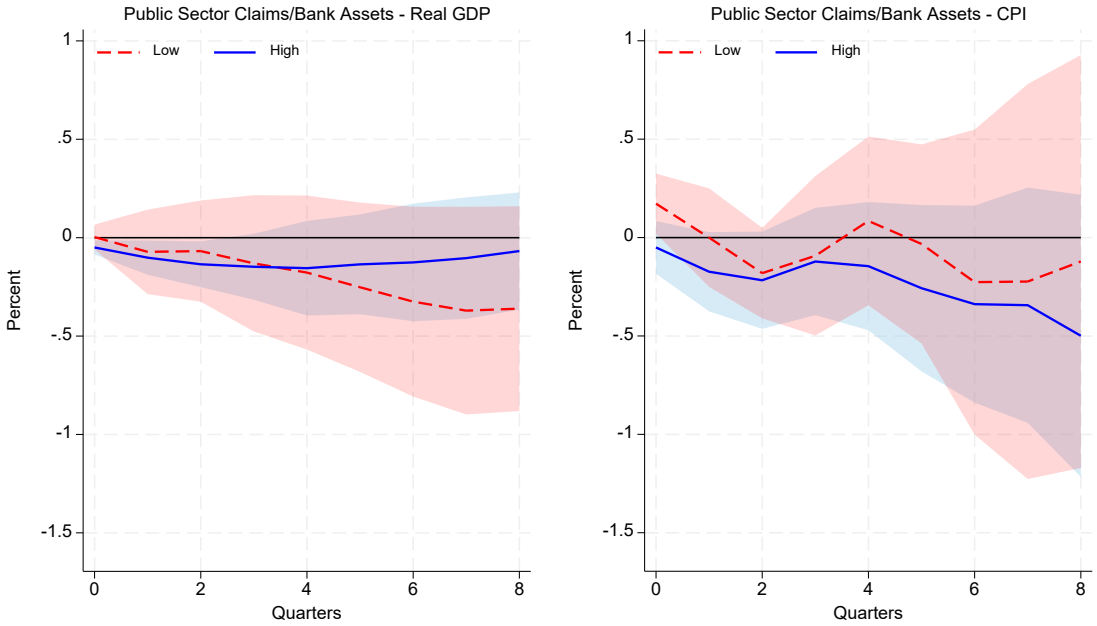
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method with interactions between the identified monetary policy shock and the structural characteristic. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of fiscal dominance (proxied by the central bank loans to government-to-GDP ratio), while the red dashed line depicts the response for those with a low degree. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Figure B.11: Monetary Policy Shocks: High vs. Low Degree of Fiscal Dominance – Alternative Measure (Interaction Specification)



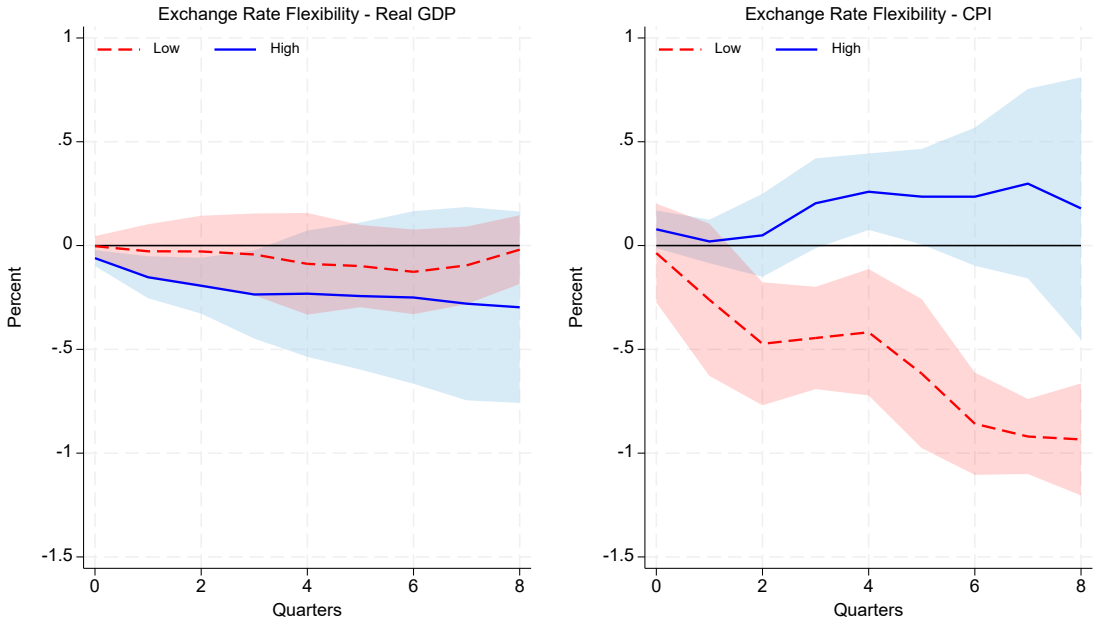
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method with interactions between the identified monetary policy shock and the structural characteristic. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of fiscal dominance (proxied by the government interest-to-revenue ratio), while the red dashed line depicts the response for those with a low degree. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Figure B.12: Monetary Policy Shocks: High vs. Low Degree of Sovereign-Bank Nexus (Interaction Specification)



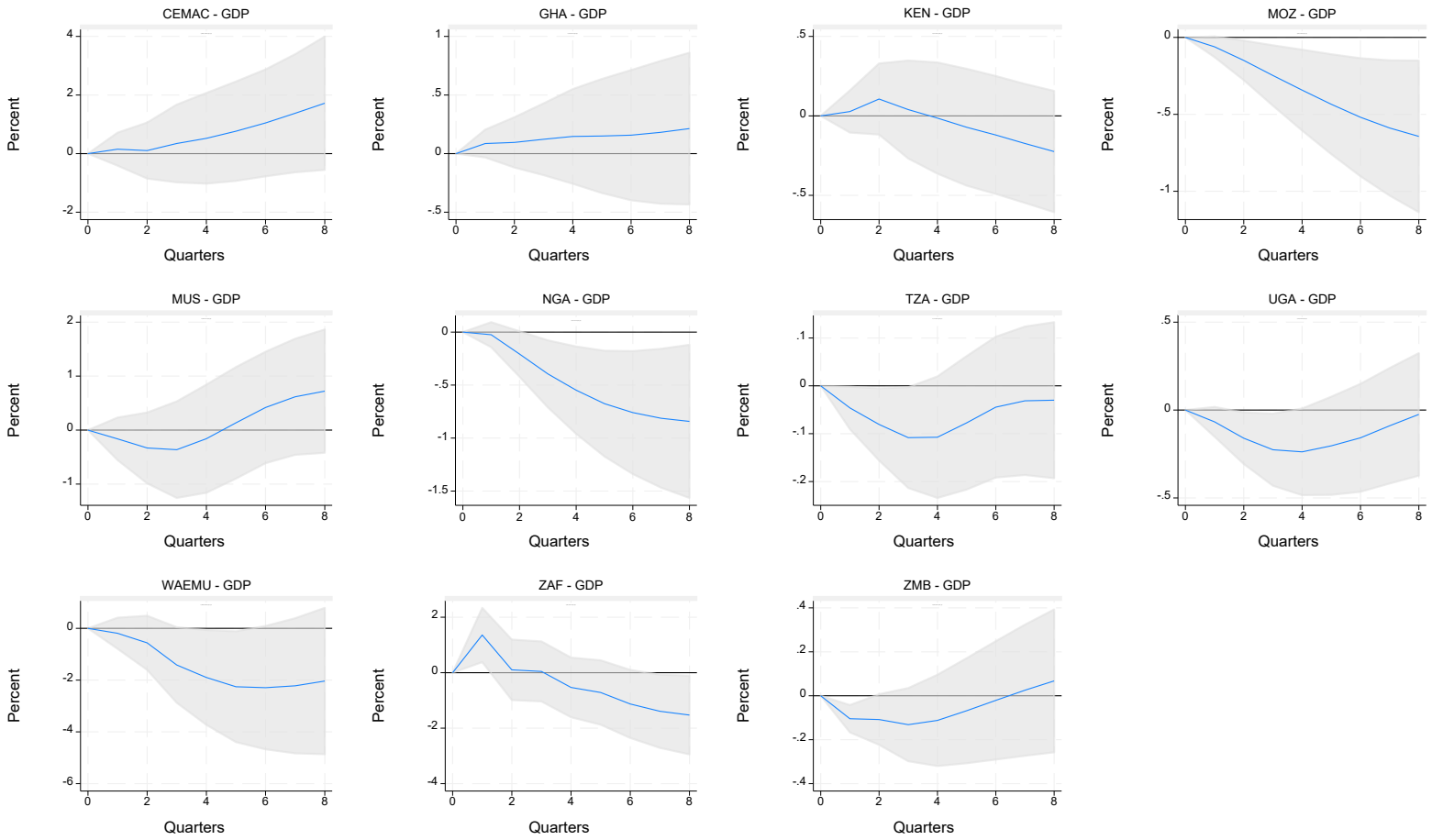
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method with interactions between the identified monetary policy shock and the structural characteristic. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of sovereign-bank nexus (proxied by banks' public sector claims as a share of total assets), while the red dashed line depicts the response for those with a low degree. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Figure B.13: Monetary Policy Shocks: High vs. Low Exchange Rate Flexibility (Interaction Specification)



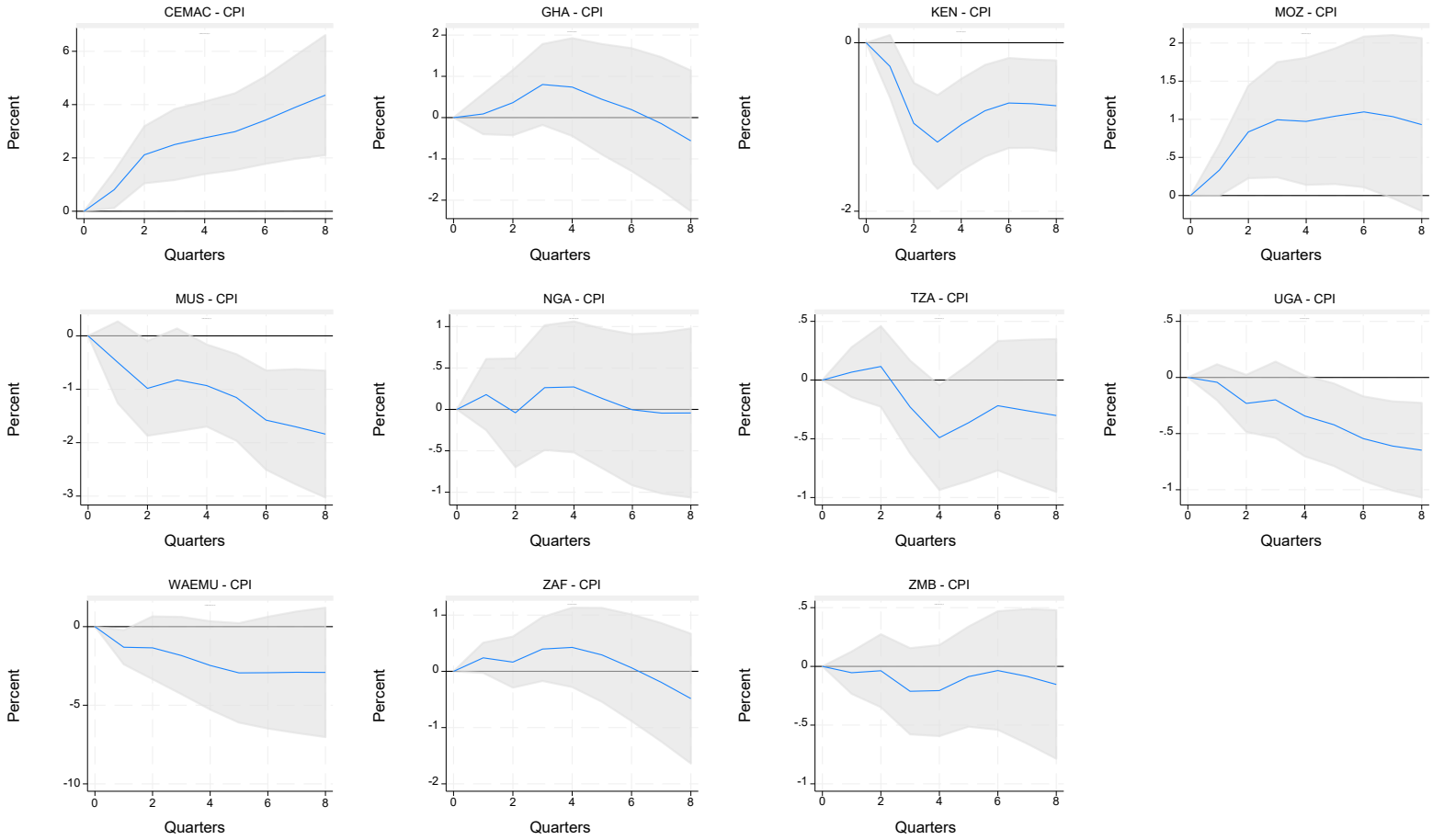
Notes: The figures show impulse response functions of real GDP and CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock, estimated using the local projections method with interactions between the identified monetary policy shock and the structural characteristic. All panel regressions include country and time fixed effects. Monetary policy shocks are identified following Romer and Romer (2004). The thick blue line shows the response for economies with a high degree of exchange rate flexibility, while the red dashed line depicts the response for those with a low degree. The shaded areas represent the 90 percent confidence bands, constructed using standard errors clustered at the country level.

Figure B.14: GDP Responses to Monetary Policy Shocks (VAR)



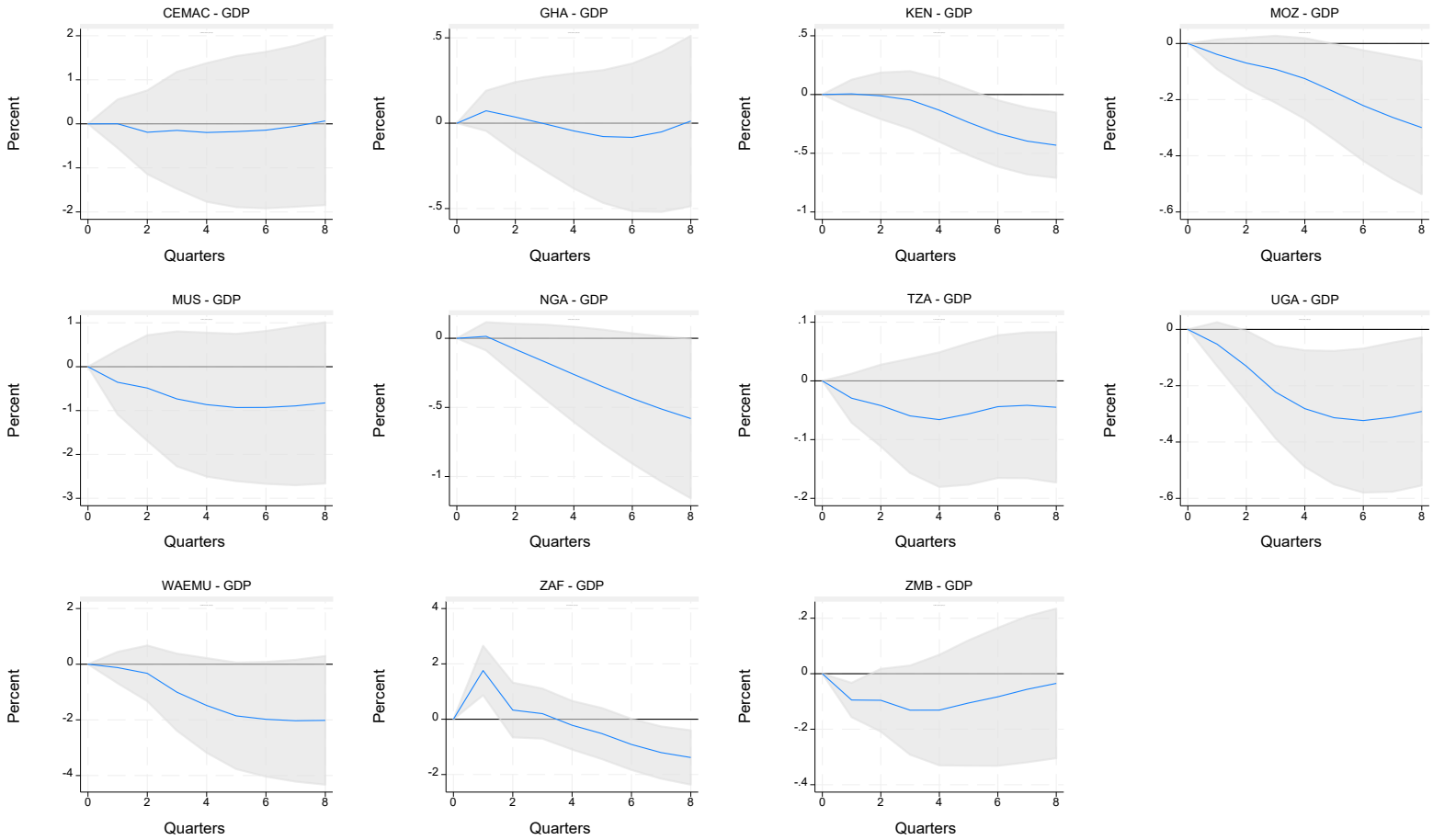
Notes: The figure reports impulse response functions of real GDP to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock. Responses are estimated from a parsimonious VAR comprising real GDP, consumer price inflation, and a cumulated measure of monetary policy shocks as endogenous variables. Identification is recursive, with the monetary policy variable ordered last. Monetary policy shocks are identified following Romer and Romer (2004). Shaded areas denote 90 percent confidence intervals. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Figure B.15: CPI Responses to Monetary Policy Shocks (VAR)



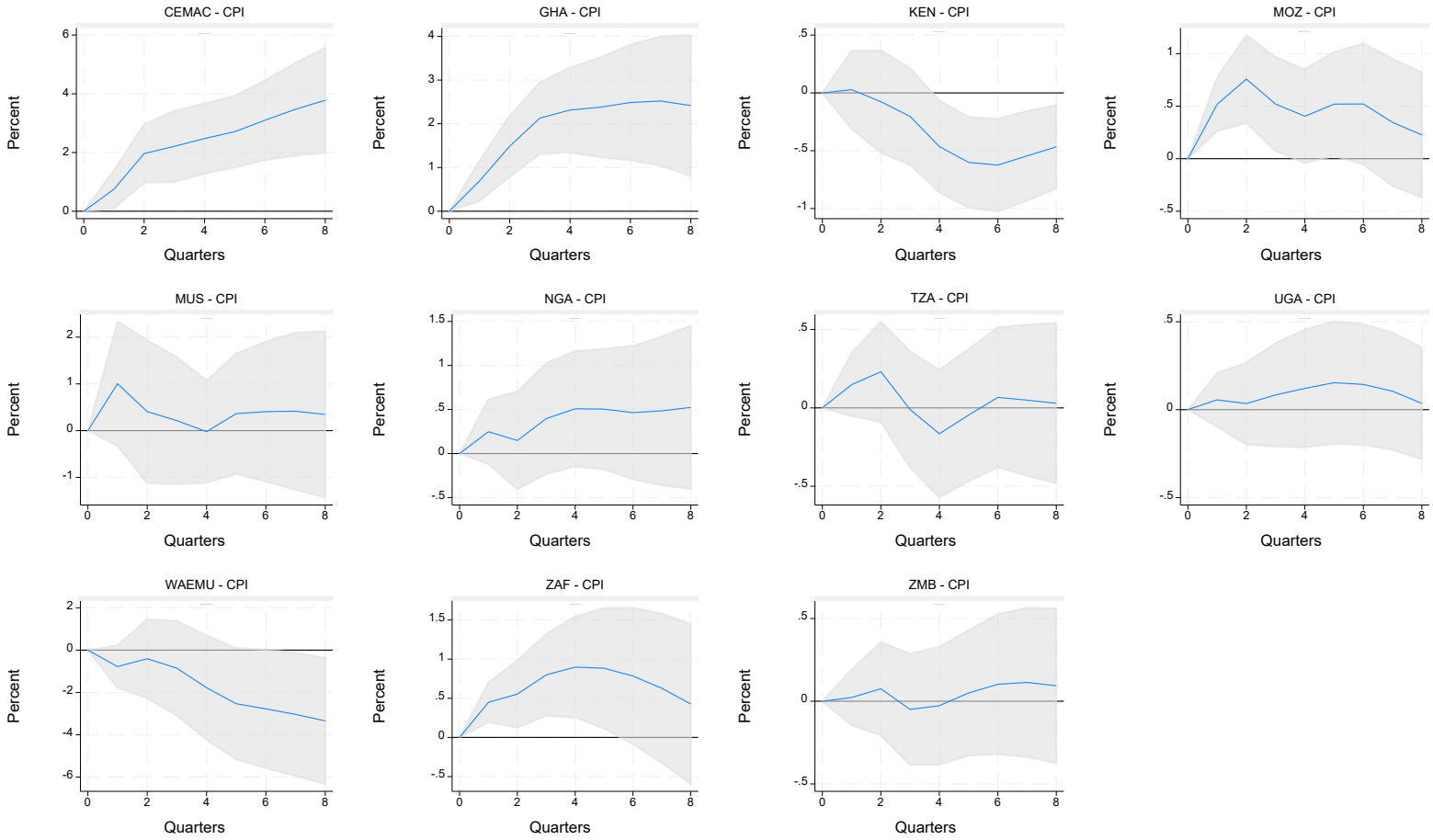
Notes: The figure reports impulse response functions of CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock. Responses are estimated from a parsimonious VAR comprising real GDP, consumer price inflation, and a cumulated measure of monetary policy as endogenous variables. Identification is recursive, with the monetary policy variable ordered last. Shaded areas denote 90 percent confidence intervals. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Figure B.16: GDP Responses to Increase in the Policy Rate (VAR)



Notes: The figure reports impulse response functions of real GDP to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock. Responses are estimated from a parsimonious VAR comprising real GDP, consumer price inflation, and the actual policy rate as endogenous variables. Identification is recursive, with the monetary policy variable ordered last. Shaded areas denote 90 percent confidence intervals. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Figure B.17: CPI Responses to Increase in the Policy Rate (VAR)



Notes: The figure reports impulse response functions of CPI to a one-percentage-point contractionary monetary policy shock over the eight quarters following the shock. Responses are estimated from a parsimonious VAR comprising real GDP, consumer price inflation, and the actual policy rate as endogenous variables. Identification is recursive, with the monetary policy variable ordered last. Shaded areas denote 90 percent confidence intervals. Country abbreviations: GHA = Ghana; KEN = Kenya; MUS = Mauritius; MOZ = Mozambique; NGA = Nigeria; TZA = Tanzania; UGA = Uganda; ZAF = South Africa; ZMB = Zambia.

Annex C. Data Sources

Table C.1: List of Countries

Emerging markets	*Monetary Unions*	*Advanced Economies*	*Emerging Markets*
South Africa	***CEMAC***		
Frontier markets	Cameroon	Australia	Brazil
Ghana	Central African Rep.	Canada	Chile
Kenya	Chad	Euro area	Colombia
Mauritius	Rep. of Congo	Japan	Hungary
Mozambique	Equatorial Guinea	Republic of Korea	India
Nigeria	Gabon	Norway	Indonesia
Tanzania	***WAEMU***	Switzerland	Mexico
Uganda	Benin	Sweden	Peru
Zambia	Burkina Faso	United Kingdom	Philippines
	Côte d'Ivoire	United States	Poland
	Guinea-Bissau		Russian Federation
	Mali		Thailand
	Niger		Turkey
	Senegal		
	Togo		

Table C.2: Classification of Exchange Rate Arrangements and Monetary Policy Frameworks in SSA Emerging and Frontier Markets

Exchange rate arrangement			Monetary policy framework								
			Exchange rate anchor				Monetary aggregate target	Inflation-targeting framework	Other 1/	Main instruments	
			US dollar	Euro	Composite	Other				Policy interest rate 2/	Open market operations
Conventional peg (14)	*Central African Economic and Monetary Union (CEMAC) (6)*	Cameroon		*						*	
		Central African Rep.		*						*	
		Chad		*						*	
		Congo, Rep. of		*						*	
		Equatorial Guinea		*						*	
		Gabon		*						*	
	West African Economic and Monetary Union (WAEMU) (8)	Benin		*						*	
		Burkina Faso		*						*	
		Côte d'Ivoire		*						*	
		Guinea-Bissau		*						*	
		Mali		*						*	
		Niger		*						*	
		Senegal		*						*	
		Togo		*						*	
Stabilized arrangement (2)		Mozambique 3/							*	*	
		Tanzania					*			+	*
Crawl-like arrangement (3)		Nigeria					*			+	*
		Kenya						*		*	
		Zambia							*	*	
Other managed arrangement (1)		Ghana						*		*	
Floating (3)		Mauritius						*		*	
		South Africa						*		*	
		Uganda						*		*	

Sources: AREAER database 2023; and websites of central banks. Notes: 1/ Includes countries that have no explicitly stated nominal anchor, but rather monitor various indicators in conducting monetary policy. 2/ *: The policy rate is the main instrument to signal the stance of monetary policy. +: The central bank uses a variety of instruments to align the operating target with the policy rate. 3/ The central bank is in transition toward inflation-targeting.

Table C.3: Data Sources and Description

Variable	Description	Source
Real GDP	Real GDP in local currency units, interpolated to quarterly frequency using the quadratic match method if quarterly series are not available.	Haver Analytics
Nominal GDP	Nominal GDP in local currency units, interpolated to quarterly frequency using the quadratic match method if quarterly series are not available.	Haver Analytics
Central bank loans to government	Claims on the central government.	IMF MFS
General interest payments	Interest payments on government debt (including long-term bonds, long-term loans, and other debt instruments) to domestic and foreign residents.	IMF MFS
General government revenue	Total inflow of resources (taxes, fees, charges, grants, and other income) received by the government.	IMF WEO
Output gap	Measured as the Hodrick–Prescott (HP)–filtered quarterly real GDP with a smoothing parameter λ = 1600.	IMF WEO
Policy rate	Main nominal official (policy) interest rate.	Haver Analytics
NEER	Nominal effective exchange rate.	IMF IFS
USD exchange rate	Exchange rate; U.S. dollar per domestic currency.	IMF IFS
CPI inflation	Consumer price index.	Haver Analytics
Inflation expectations	One-, three-, and five-year-ahead forecasts for CPI inflation. Data are interpolated to quarterly frequency using the quadratic match method.	IMF WEO
GDP growth expectations	One-, three-, and five-year-ahead forecasts for GDP growth. Data are interpolated to quarterly frequency using the quadratic match method.	IMF WEO
Commodity prices, all index	World commodity price index (2016 = 100), USD, including both fuel and non-fuel price indices.	Refinitiv Eikon; IMF
Commodity prices, excl. fuel	World commodity price index excluding fuel (2016 = 100), USD, including precious metals, food and beverages, and industrial inputs price indices.	Refinitiv Eikon; IMF
Commodity food prices	World food price index (2016 = 100), USD, including cereals, vegetable oils, meat, seafood, sugar, and other food items (apples, bananas, chana [legumes], fishmeal, groundnuts, milk [dairy], tomatoes).	Refinitiv Eikon; IMF
Oil prices	Brent crude oil price in USD.	Refinitiv Eikon; IMF
Bank lending rates	Rate charged by other depository corporations that typically meets the short- and medium-term financing needs of the private sector.	IMF IFS
Bank deposit rates	Rates offered to resident customers for demand, time, or savings deposits.	IMF IFS
Money market interest rates	Short-term lending rate between financial institutions or interbank interest rate, depending on country availability.	IMF IFS
Government treasury bills	Yield on short-term government debt securities (maturity of less than one year), depending on country availability.	IMF IFS; Refinitiv Eikon; Haver Analytics
Government treasury bonds	Yields to maturity on government bonds or other securities indicating longer-term rates (maturity greater than two years), depending on country availability.	IMF IFS; Refinitiv Eikon; Haver Analytics
Stock market indices	Price indices of national stock exchanges.	Refinitiv Eikon; Haver Analytics
U.S. monetary policy rate	Federal Funds target rate.	Haver Analytics
Euro area policy rate	Main refinancing rate.	Haver Analytics
VIX	Chicago Board Options Exchange Volatility Index.	Haver Analytics
FCI (EFMs)	Defined following Tiedemann et al. (2025).	Tiedemann et al. (2025)
Financial development index	Defined following Sahay et al. (2015).	IMF Financial Development Index Database
Monetary policy transparency index	Defined following Dincer et al. (2022).	Dincer et al. (2022)
Bank exposures to the public sector	Ratio of banks' total claims on the public sector (loans and debt securities) to total bank assets.	IMF MFS
International financial integration	Ratio of a country's stock of foreign assets and liabilities to GDP.	External Wealth of Nations Database

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