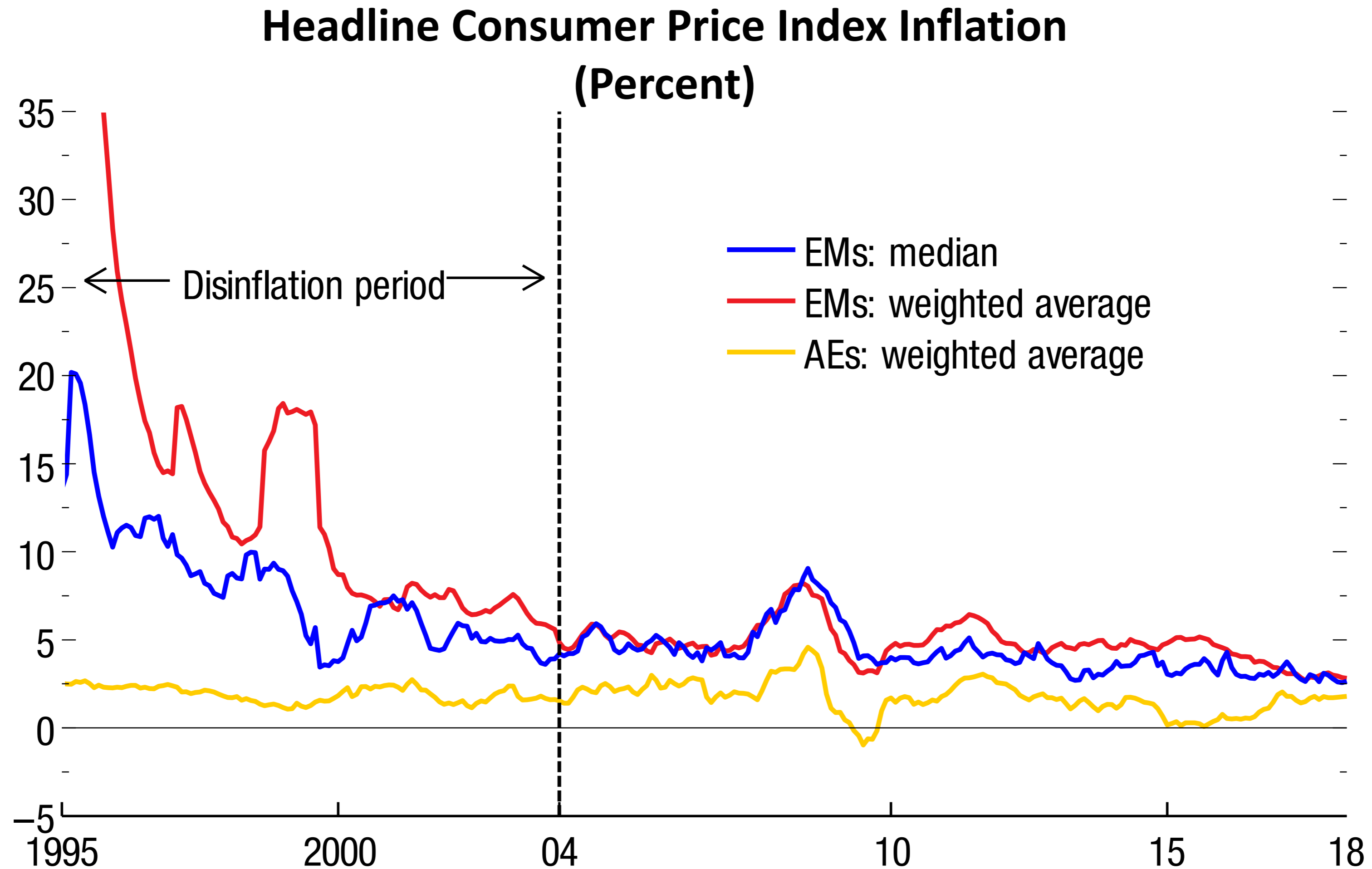




CHALLENGES FOR MONETARY POLICY IN EMs AS GLOBAL FINANCIAL CONDITIONS NORMALIZE

Rudolfs Bems, Francesca Caselli, Francesco Grigoli, Bertrand Gruss, and Weicheng Lian,
with support from Ava Yeabin Hong, Jungjin Lee, Cynthia Nyakeri, and Jilun Xing

Inflation in EMDEs has been remarkably low and stable since the mid-2000s...

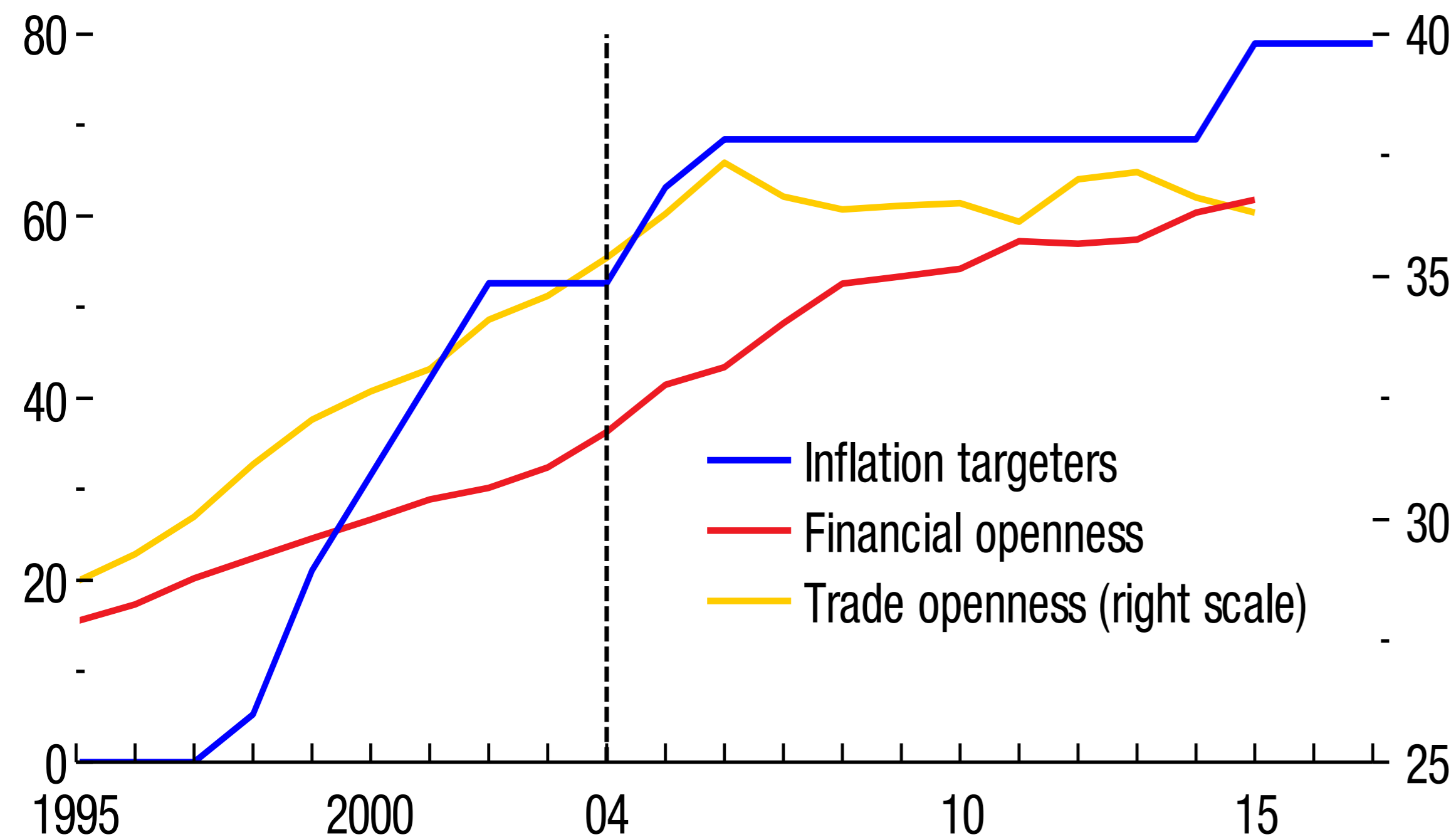


Sources: Haver Analytics; and IMF staff calculations.

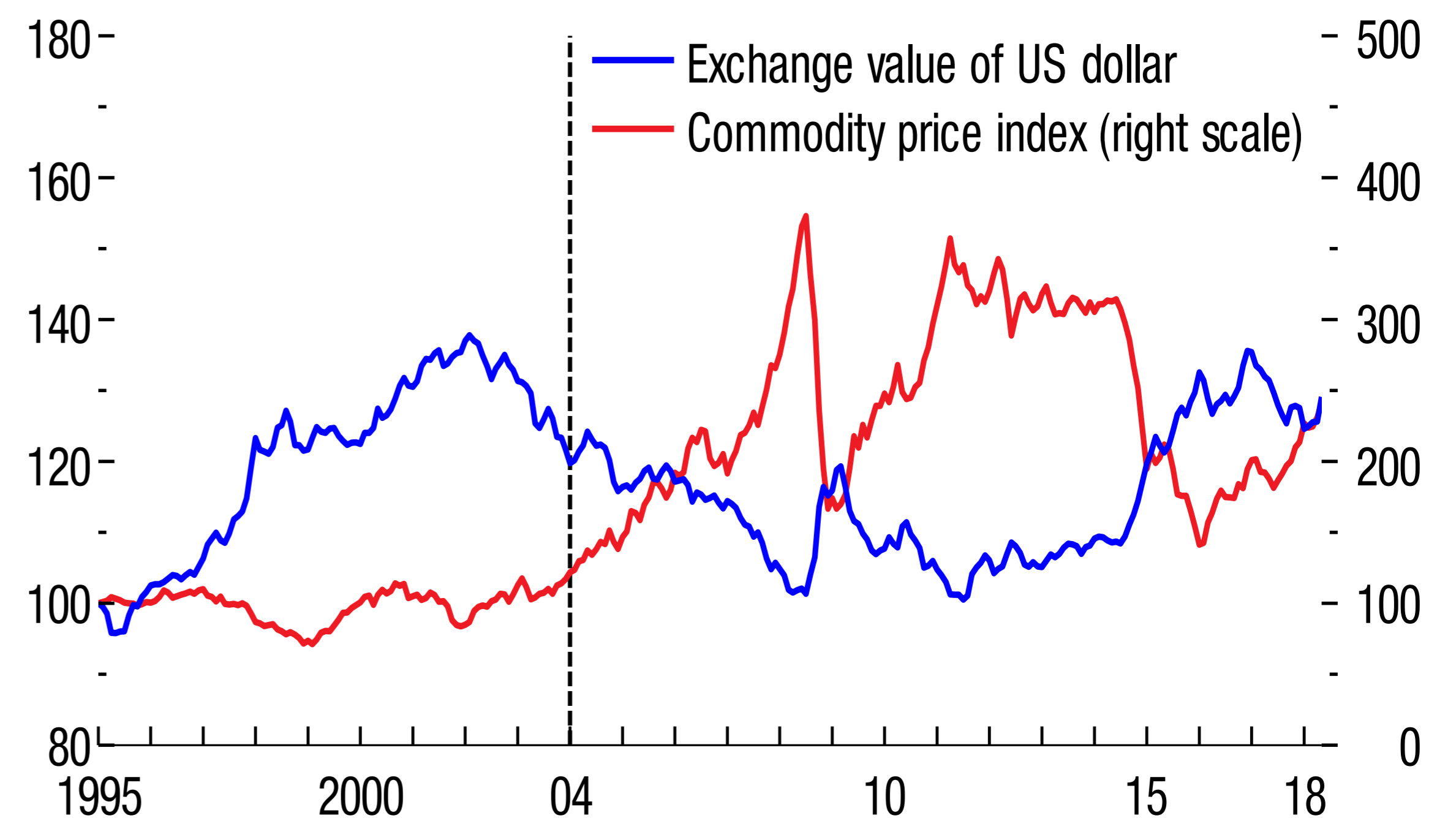
Note: AEs = advanced economies; EMs = emerging markets. Weighted average is constructed using weights of nominal GDP, expressed in US dollar terms, for 2010–12. The vertical dashed line distinguishes the disinflation period from the rest of the sample.

... in the context of institutional and policy changes and despite large global shocks

Inflation Targeting and Openness in EMs (Percent)



Global Shocks (Index)



Sources: Haver Analytics; JPMorgan Emerging Market Bond Index; Lane and Milesi-Ferretti (2018); and IMF staff calculations.

Note: EMBIG = emerging market bond index global; EMs = emerging markets. Inflation targeters expressed as percent of countries in the sample. Trade openness defined as imports in percent of GDP (five-year moving average). Financial openness defined as the sum of foreign direct investment and portfolio equity liabilities in percent of GDP (five-year moving average). Exchange value of US dollar is the nominal broad trade-weighted exchange value of the US dollar (Jan-95=100). The commodity price index is based on prices in US dollars of a broad set of commodities (Jan-95=100). The vertical dashed line distinguishes the disinflation period from the rest of the sample.

Roadmap/Questions

Inflation in EMDEs

- Improvements in inflation outcomes
- Determinants (Phillips curve framework)
 - Domestic vs global factors
 - **Inflation expectations**

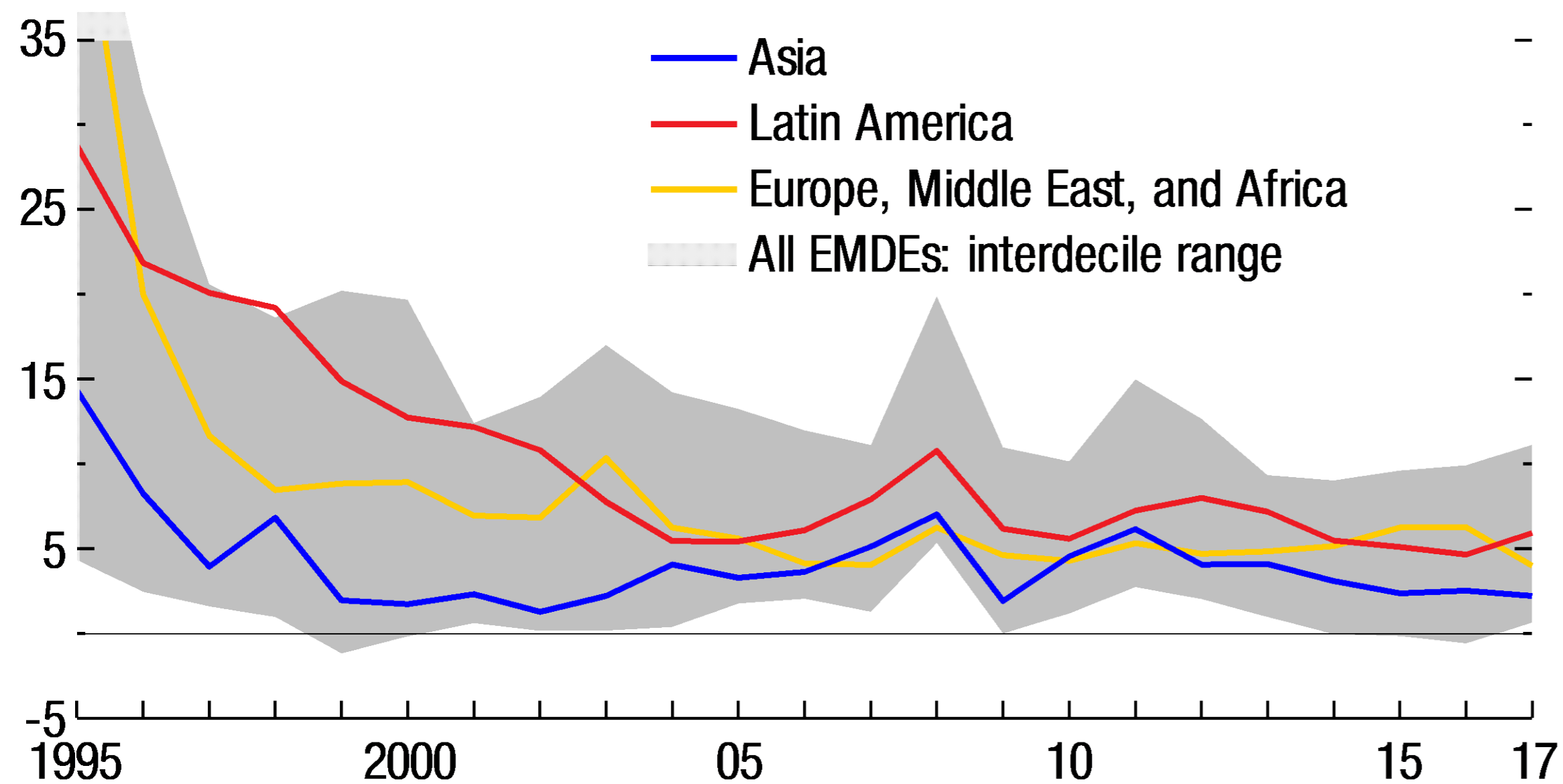


Anchoring of Inflation Expectations in EMDEs

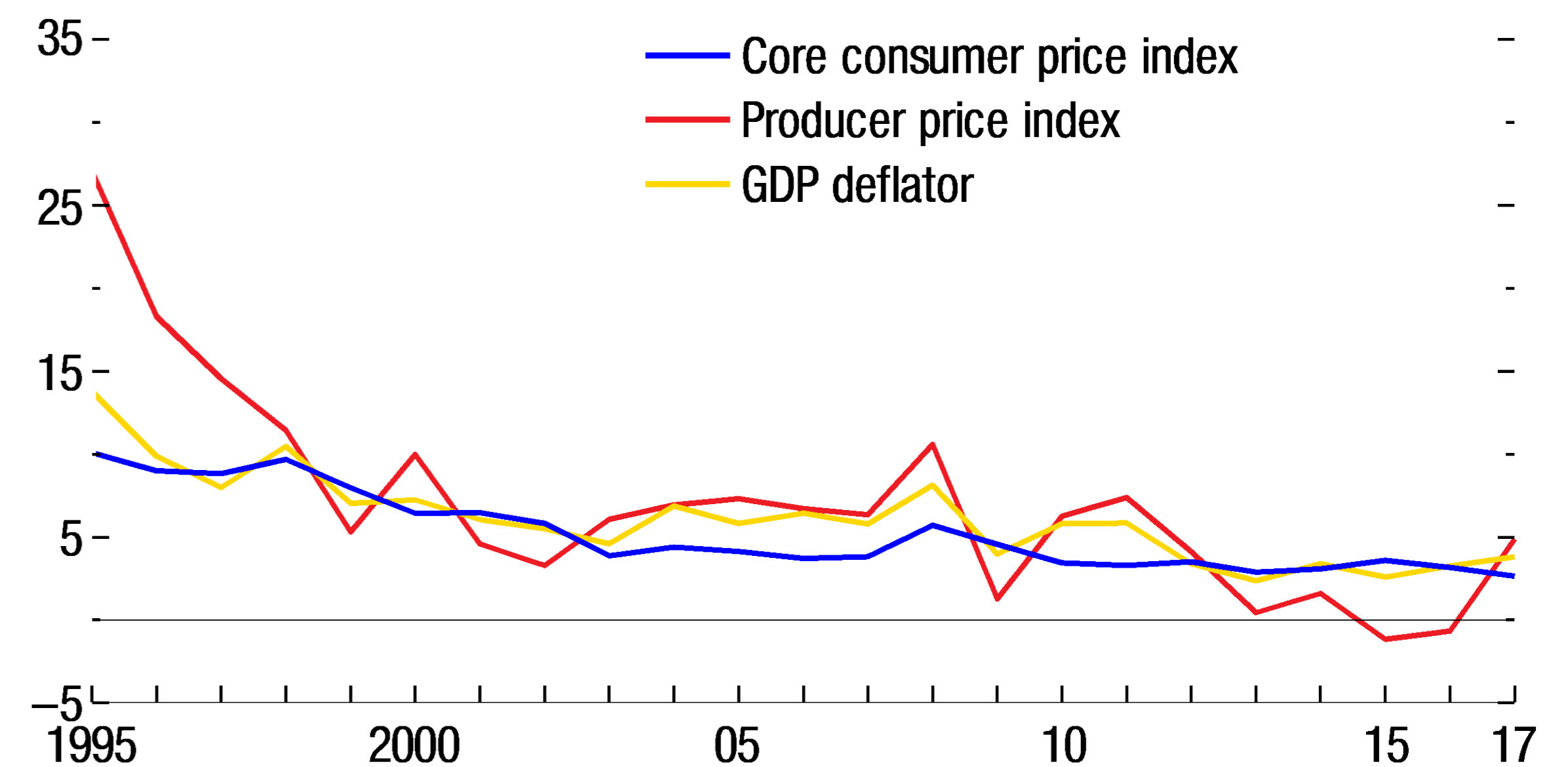
- Measurement
- Evolution and cross-country heterogeneity
- Implications for monetary policy trade-offs

The decline in inflation is common to a larger sample of EMDEs and evident across alternative price measures

Weighted Average Inflation, by Region (Percent)



Other Measures of Price Inflation in EMs (Percent)

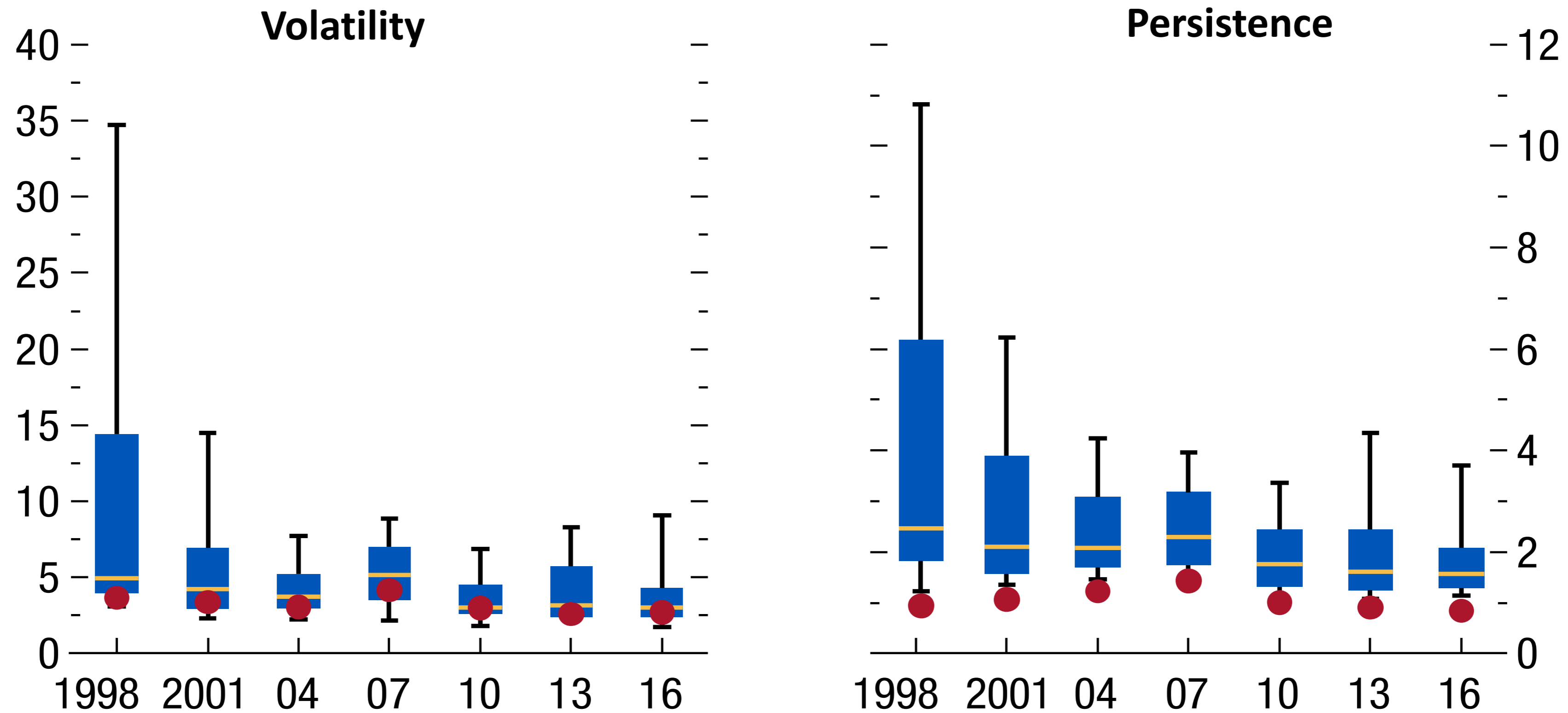


Sources: IMF staff calculations.

Note: EMDEs = emerging market and developing economies. Lines in right panel denote medians across sample emerging markets of each indicator.

Volatility and persistence of inflation also fell, but remain higher than in AEs

Headline Consumer Price Index Inflation (Percent)



Source: IMF staff calculations.

Note: The volatility is computed as the standard deviation of detrended (Hodrick-Prescott) inflation. Persistence denotes the standard deviation of the permanent component of inflation based on Stock and Watson (2007). The horizontal line in each box represents the median across countries; the upper and lower edges of each box show the top and bottom quartiles; and the vertical lines denote the range between the top and bottom deciles. The red dot denotes the average for advanced economies. X-axis labels indicate the start of three-year windows.

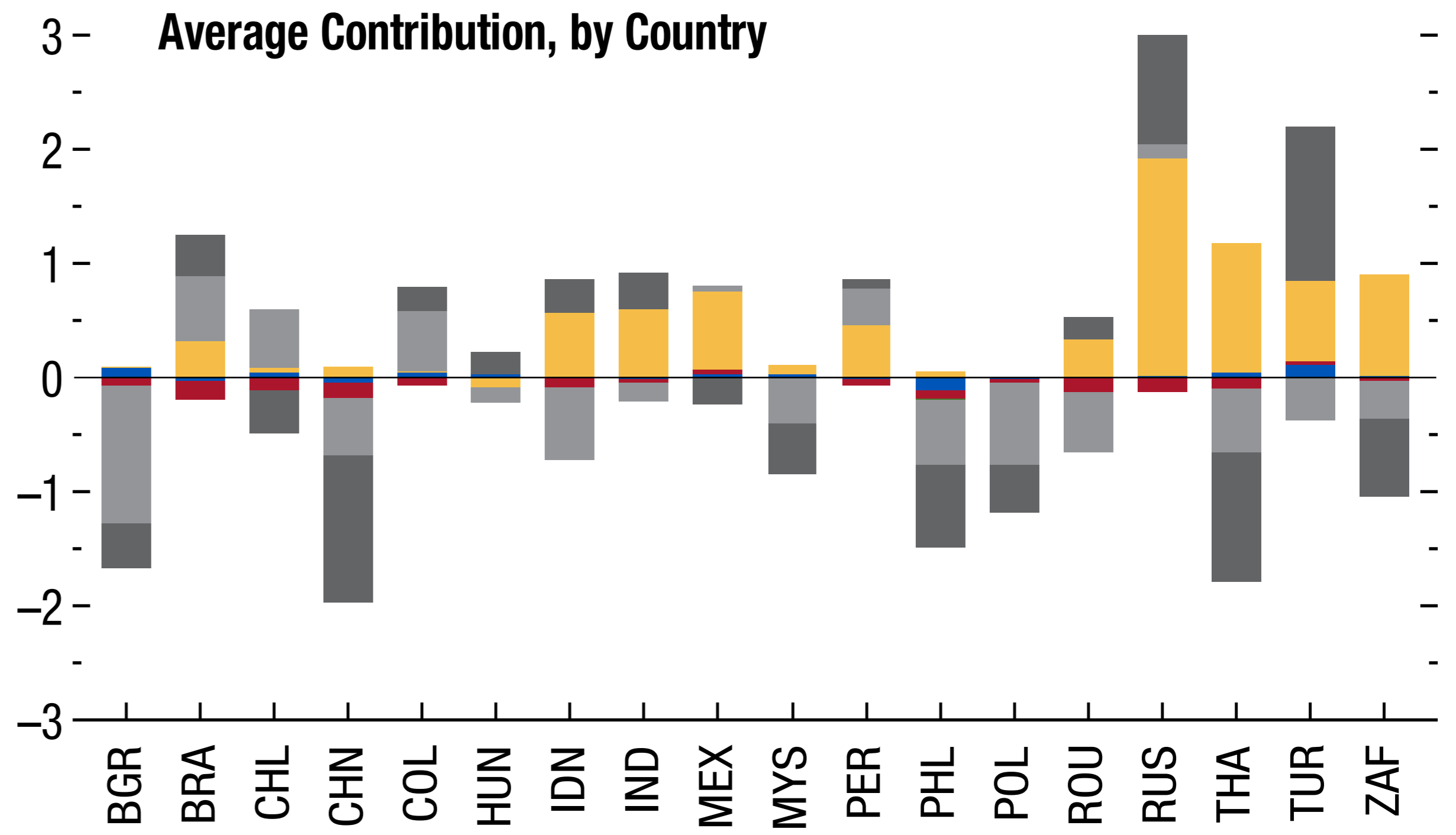
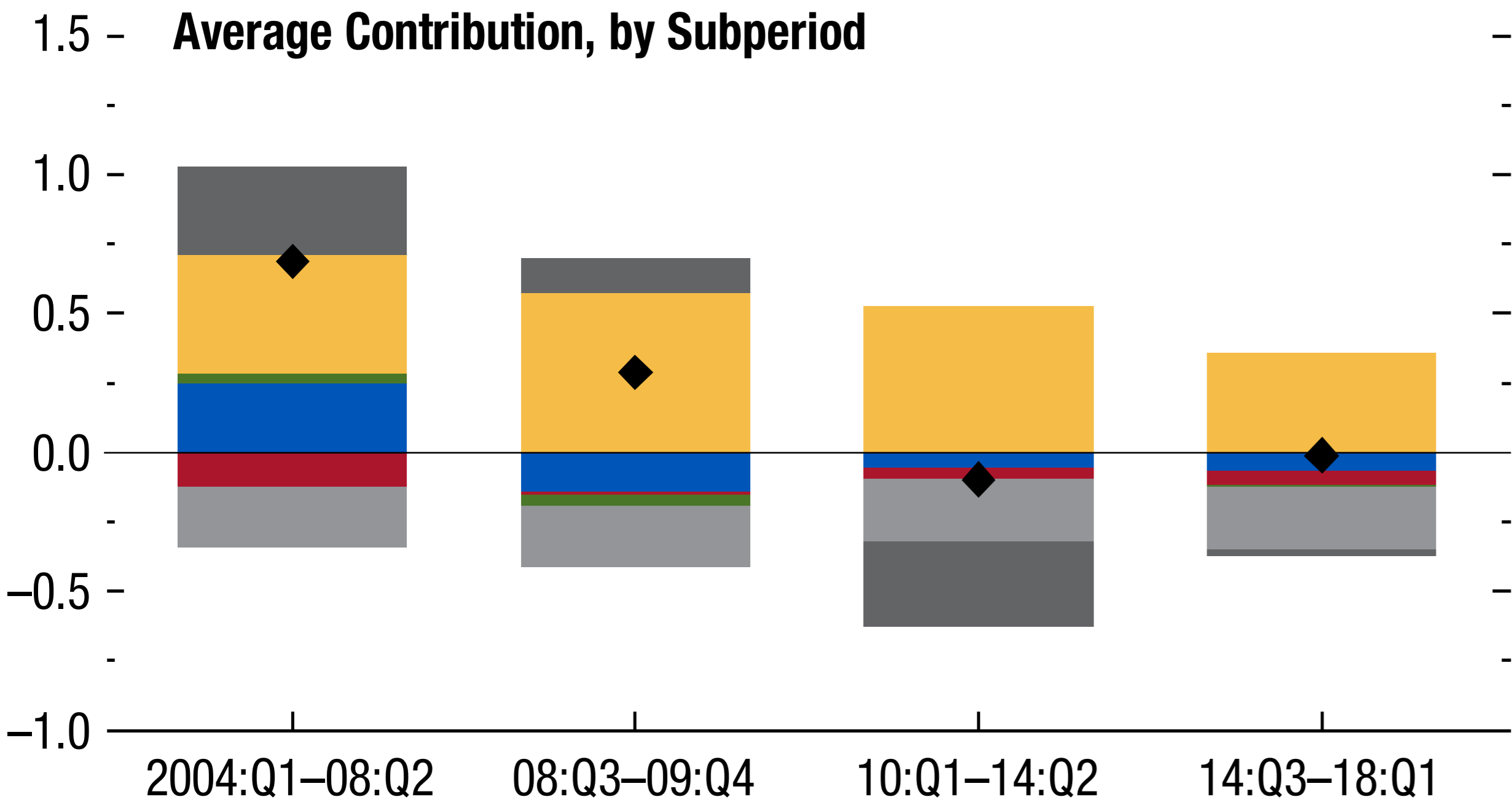
Determinants and contributions: empirical strategy

1. Estimate a hybrid NKPC, augmented with external factors (price pressure, global slack), in a panel of 19 EMs with quarterly data during 2004Q1-2018Q1
2. Decompose contributions of explanatory factors to *inflation deviations from targets*
3. Decompose *variability of inflation* into contributions from domestic and foreign factors

Fluctuations in expected inflation are a key contributor to inflation levels

Contributions to Deviation of Core Inflation from Target (Percentage points)

■ Output gap
 ■ Foreign output gap
 ■ Country fixed effect
 ■ External price pressure
 ■ Expected inflation
 ■ Residual

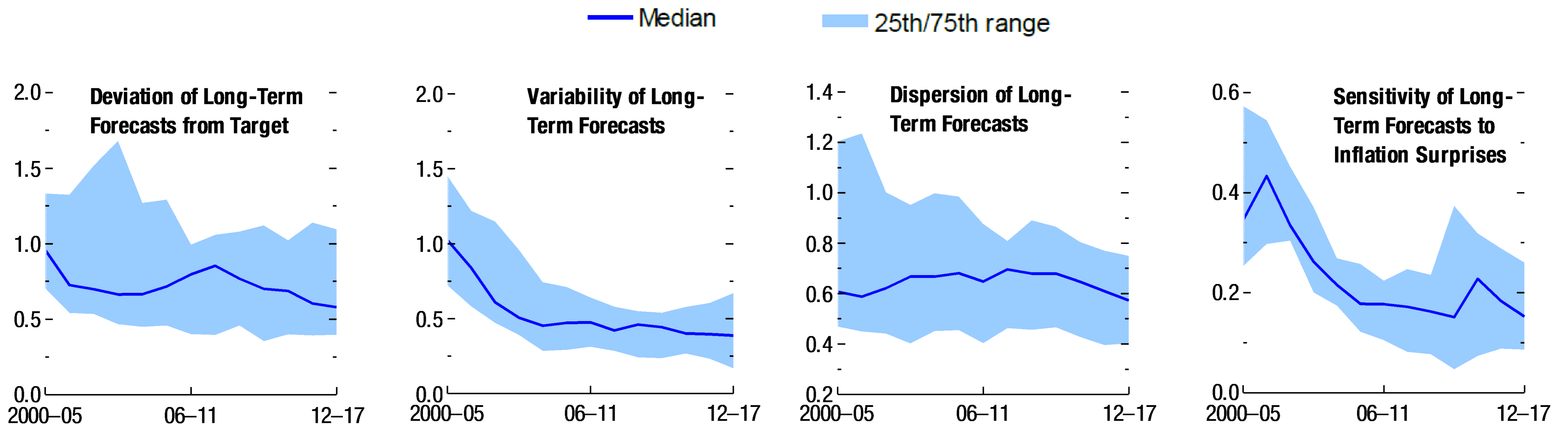


Source: IMF staff calculations.

Note: The bars in left (right) panel represent the simple average contribution of each factor averaged across countries (periods). The diamonds in left panel represent the overall deviation in inflation. Data labels use International Organization for Standardization (ISO) country codes.

Inflation expectations are increasingly anchored in EMDEs...

**Evolution of the Degree of Anchoring of Inflation Expectations, 2000-17
(Percent)**

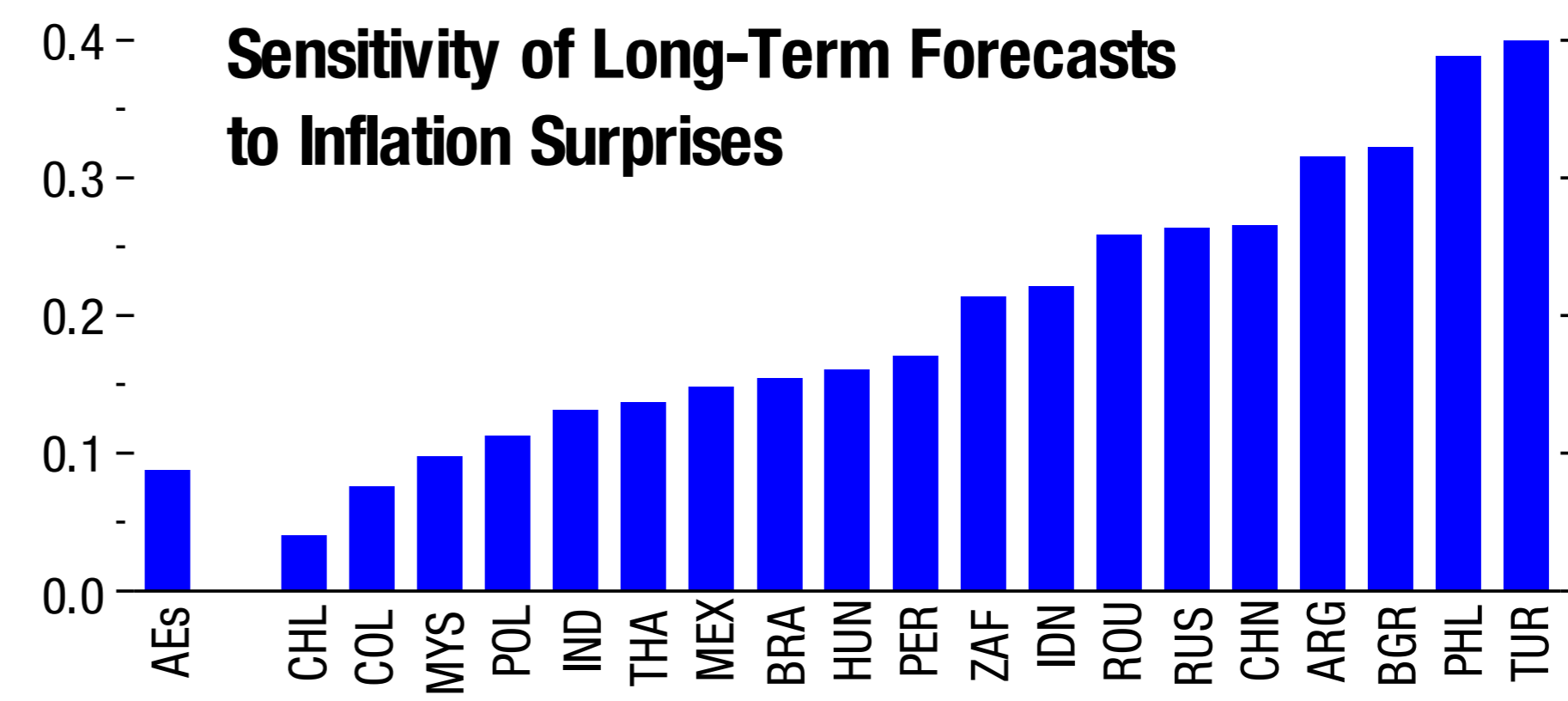
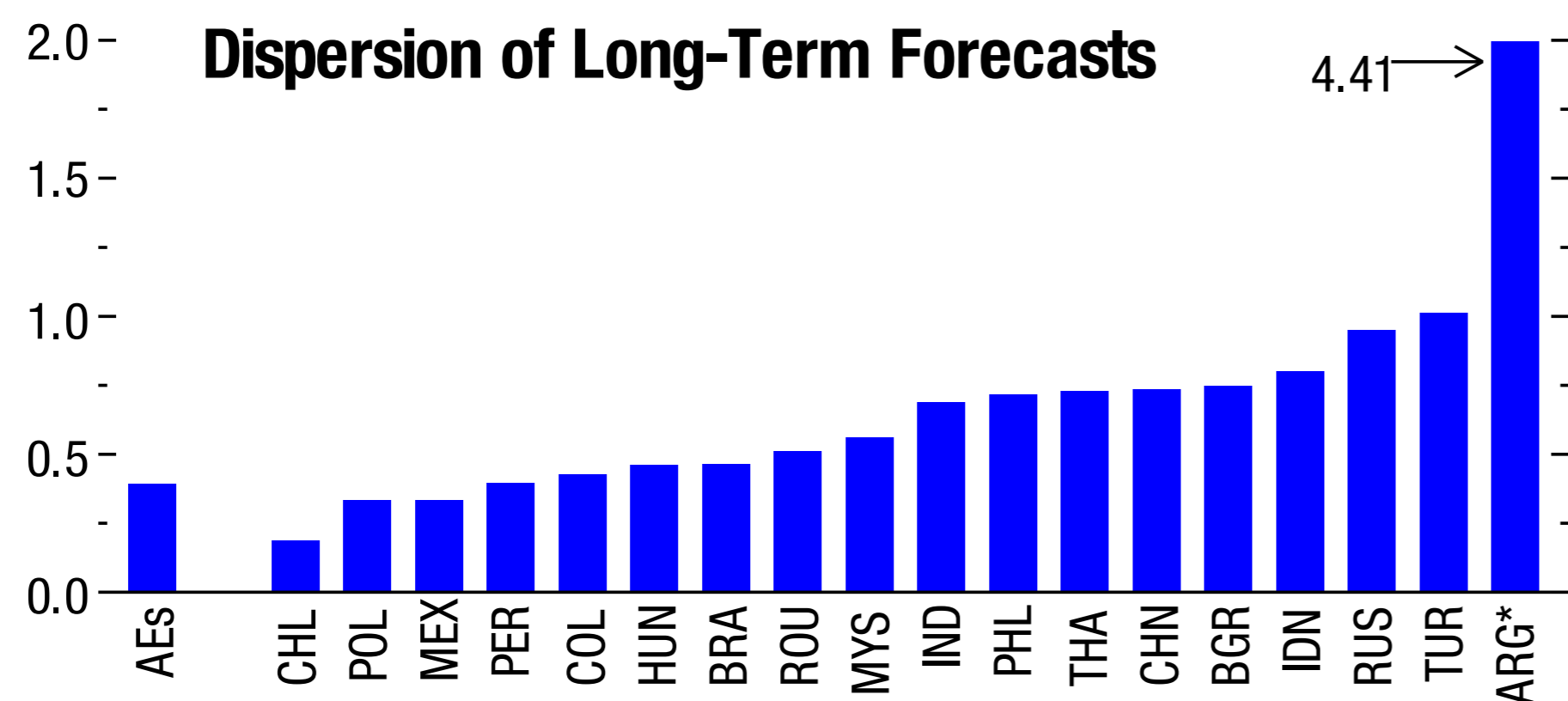
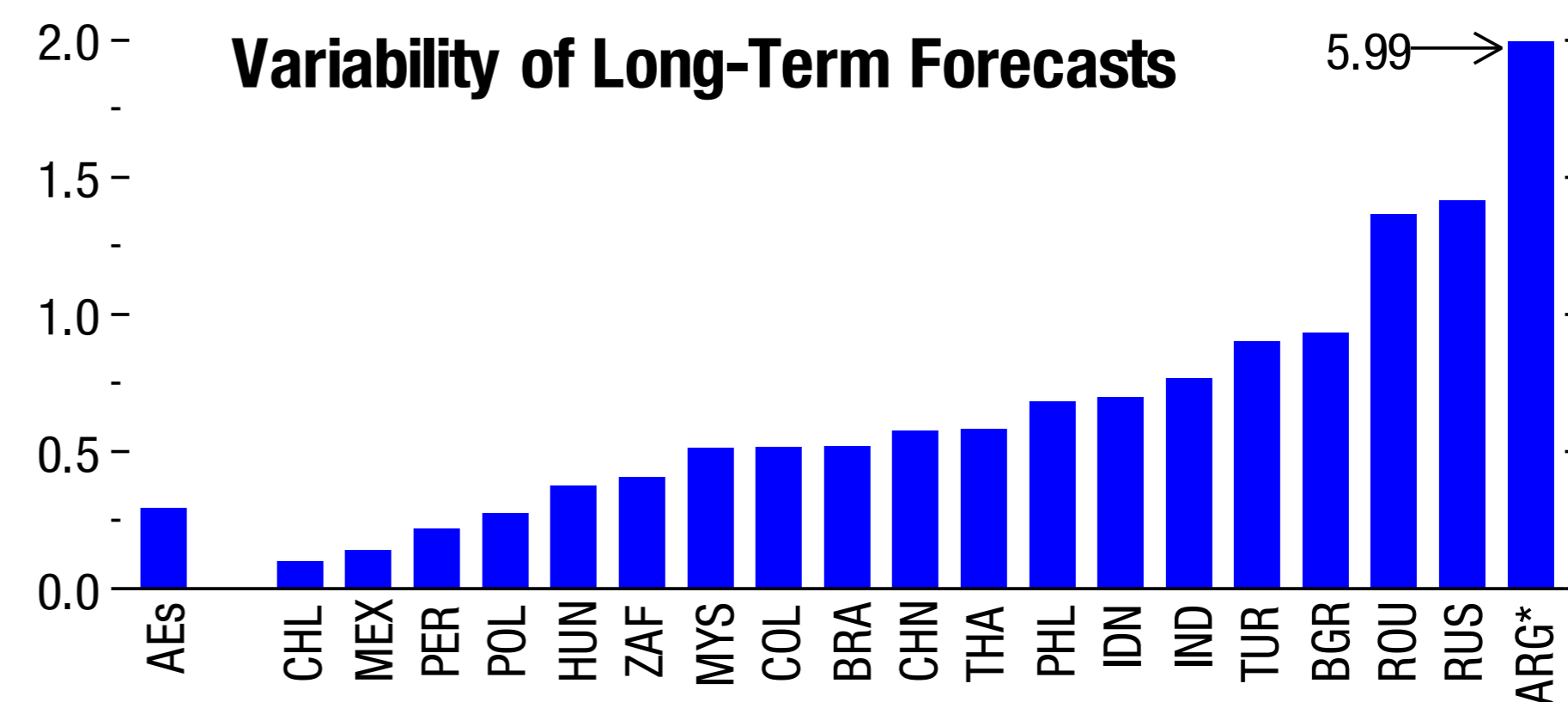
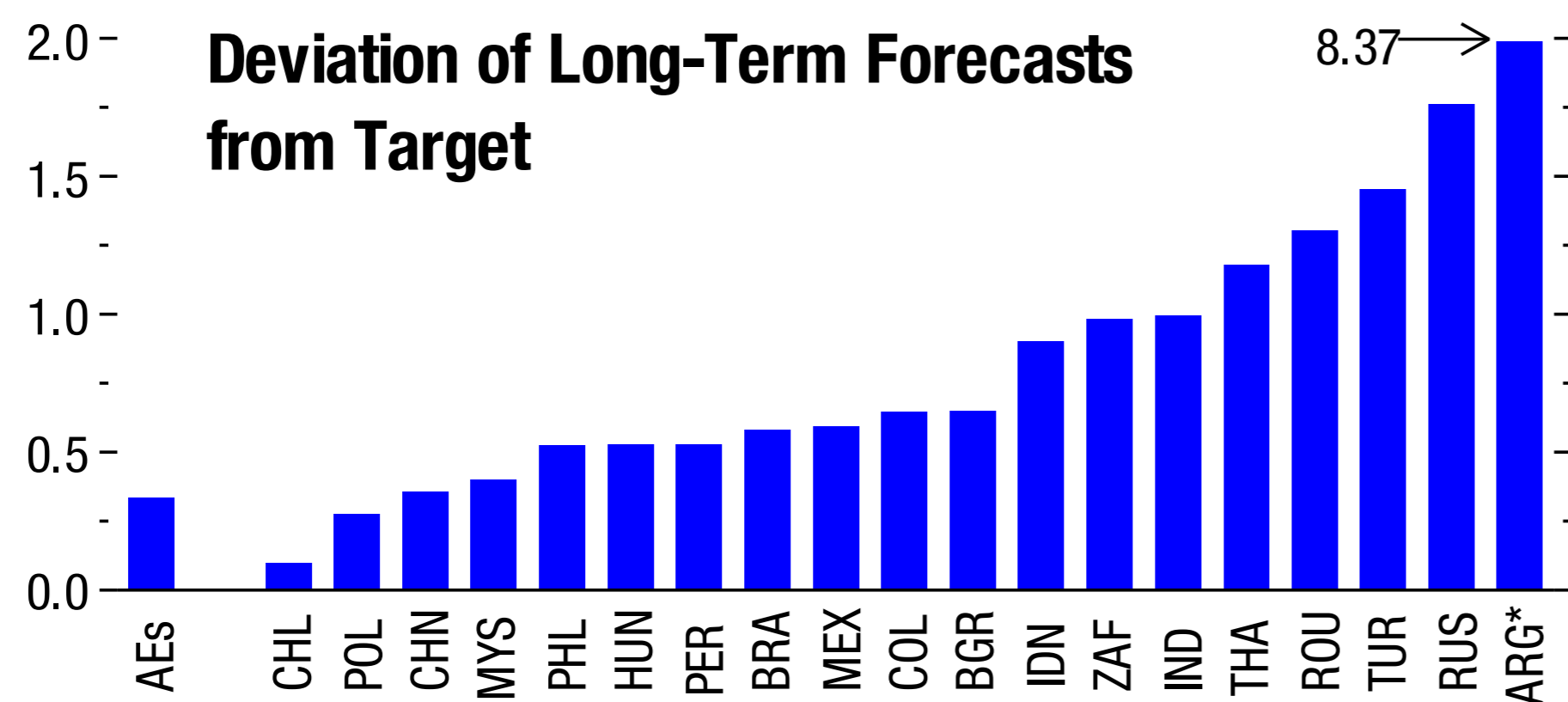


Source: IMF staff calculations.

Note: The figure shows the evolution of the degree of anchoring of inflation expectations over six-year rolling windows. The lines denote the median across countries. The shaded areas denote interquartile ranges. The measures on the degree of anchoring of inflation expectations are defined in Annex 3.3. In all panels lower values denote more-anchored inflation expectations.

... but important heterogeneity across countries remains...

Cross-Country Heterogeneity in Degree of Anchoring of Inflation Expectations, 2004-2017 (Percent)

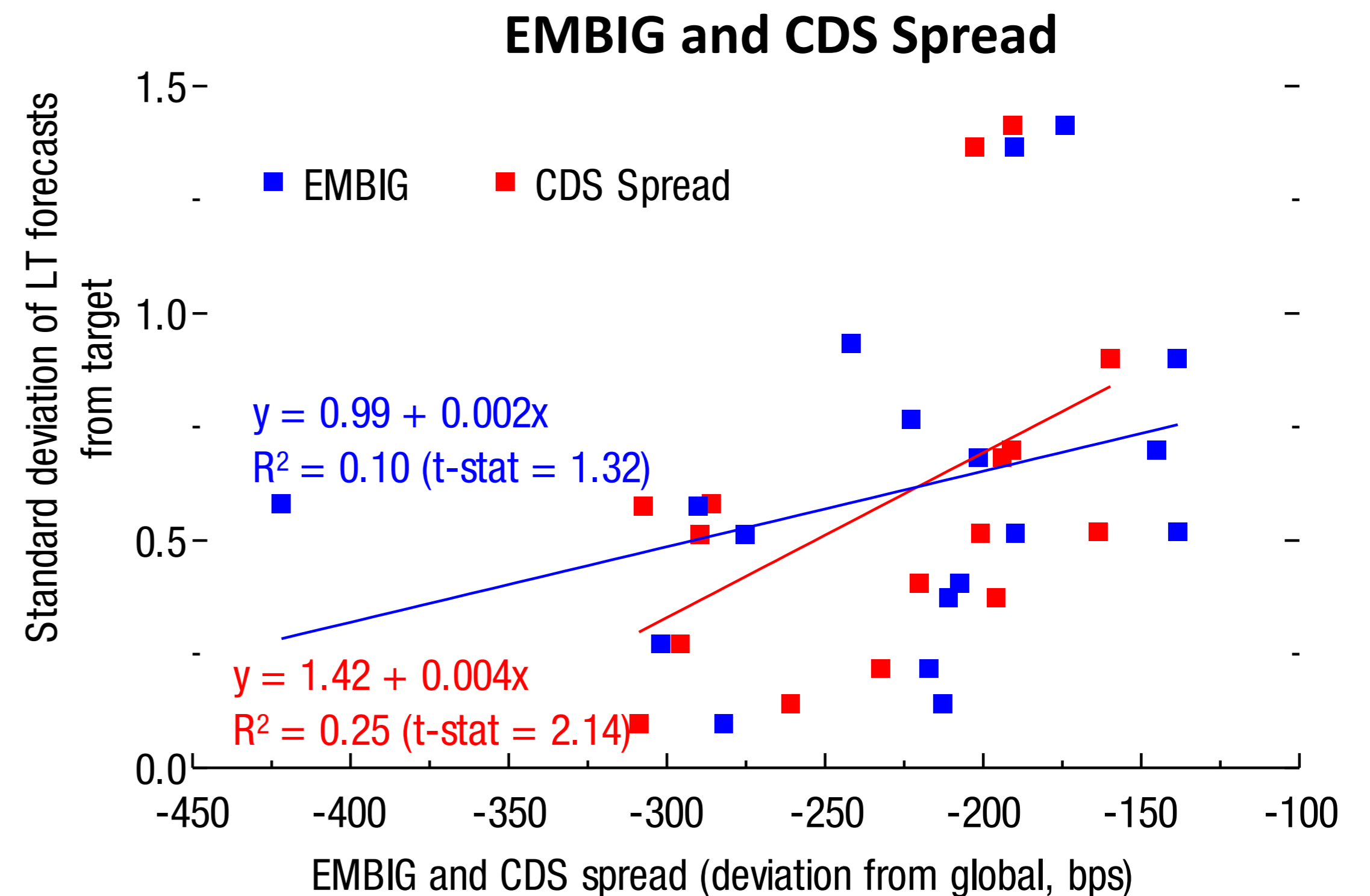
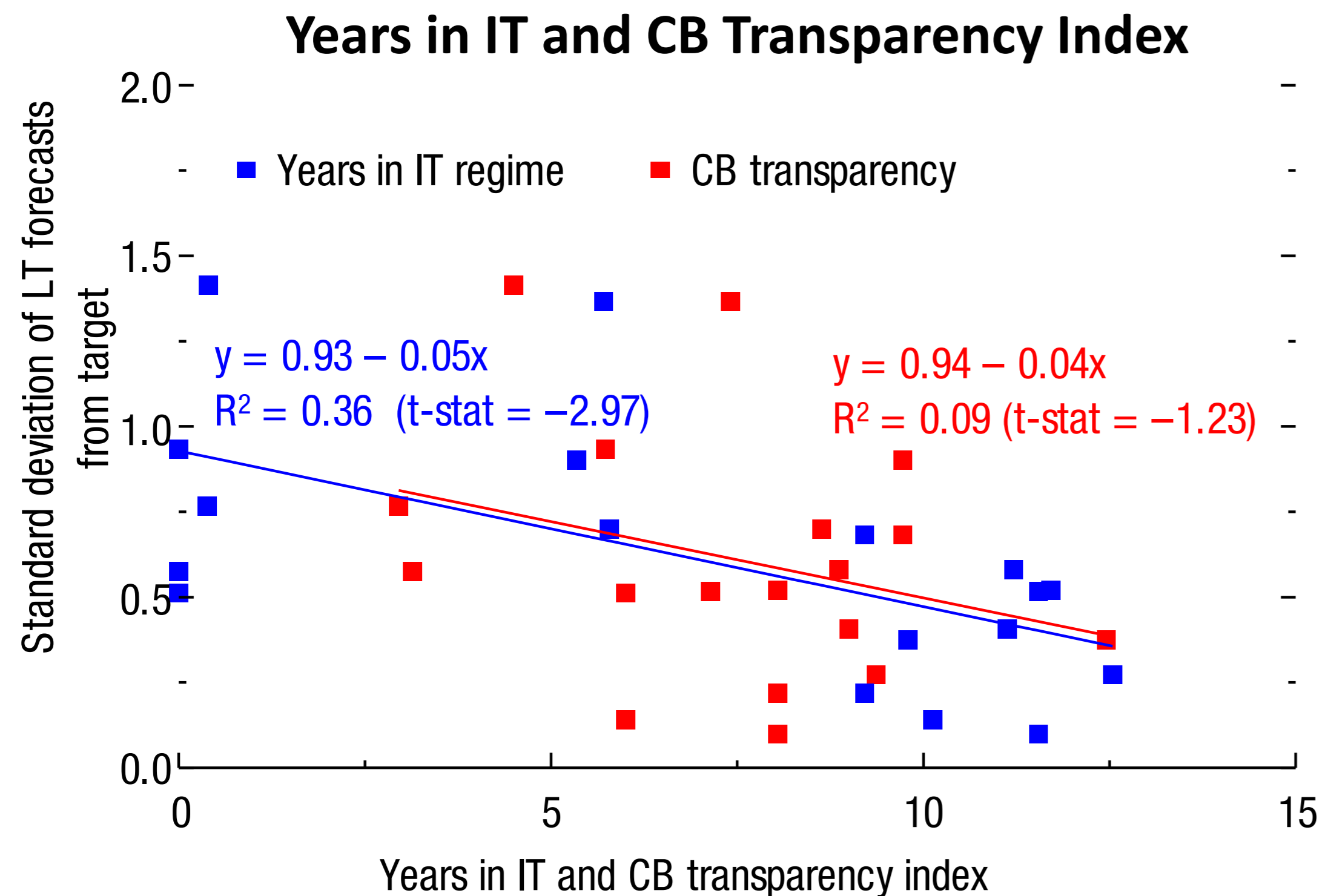


Source: IMF staff calculations.

Note: AEs = average of 11 advanced inflation targeting economies. The figures show the average value for each anchoring measure over 2004–17. Values marked with (*) have been truncated at 2. In all panels lower values denote more-anchored inflation expectations.

... which could reflect differences in fiscal and monetary frameworks

Anchoring of Inflation Expectations and Policy Frameworks, 2004-17 (Percent, unless noted otherwise)



Sources: Dicer and Eichengreen 2014; JP Morgan; Thomson Reuters Datastream; and IMF staff calculations.

Note: bps = basis points; CB = central bank; CDS = credit default swap; EMBIG = emerging market bond index global; IT = inflation targeting; LT = long-term. EMBIG spreads and CDS spreads are the residuals from a regression on time fixed effects. For the CB transparency index higher values indicate higher degree of transparency. Argentina is excluded from the figures as an outlier. Its inclusion would further strengthen the depicted relationships.

The “natural experiment” of the Taper Tantrum

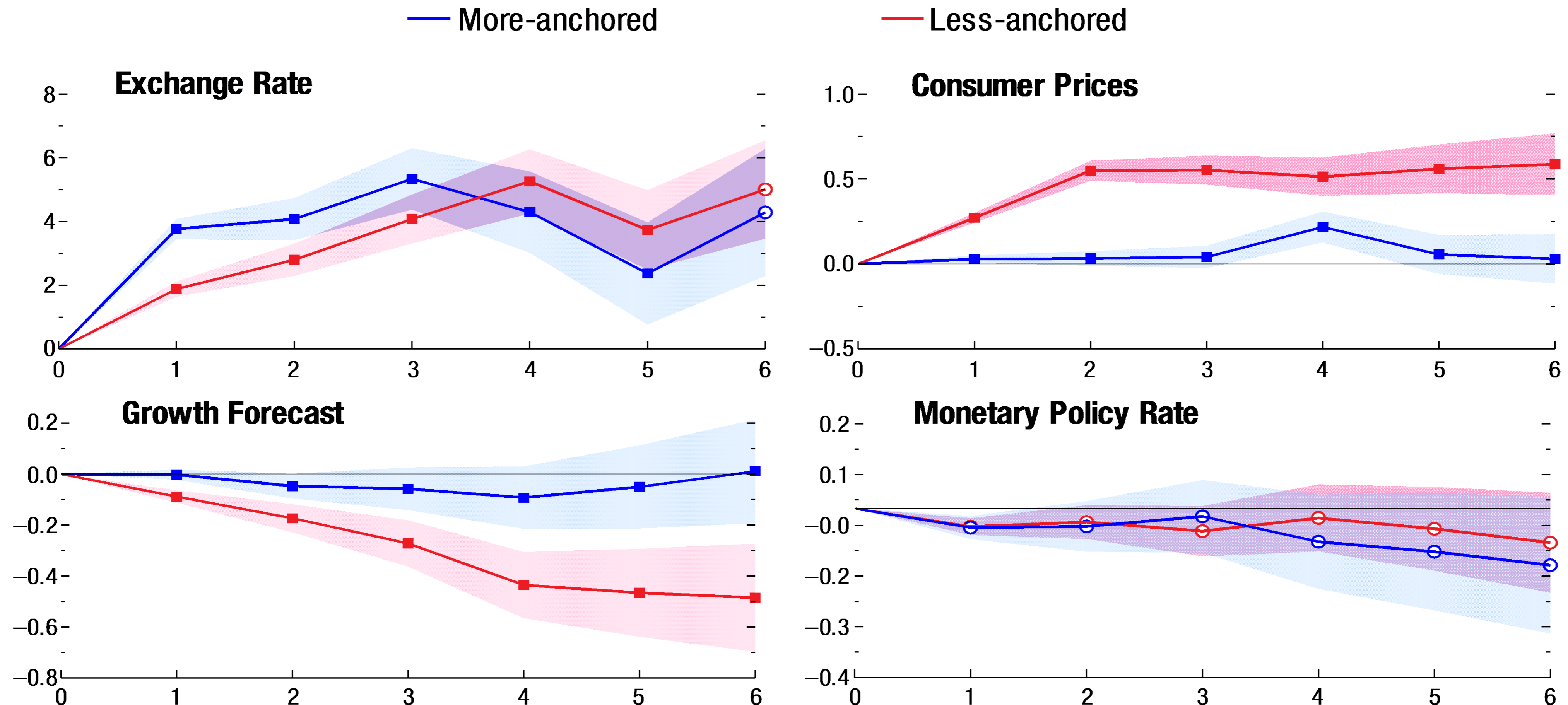
Taper Tantrum (May 2013) – an adverse external shock for EMDEs

How did key macro variables in EMs respond to the shock?

- Exchange rate, inflation, output and policy rate
- Differentiate between more-/less-anchored country groups
- We estimate the impact in a local projection framework

Anchoring increased resilience to the Taper Tantrum shock

Response of Key Macro Variables to the Taper Tantrum (Percentage points)



Source: IMF staff calculations.

Note: The figures show the cumulative impulse response to the taper tantrum episode. An increase in the exchange rate denotes a depreciation. X-axis denotes time in months. The episode corresponds to May 2013. The shaded areas correspond to 90 percent confidence intervals computed with Driscoll-Kraay standard errors. Solid squares (unfilled circles) for responses denote that the difference between the two responses is statistically significant (not statistically significant) at a 90 percent confidence level.

Anchoring of expectations and counter-cyclical monetary policy

More anchored => more counter-cyclical monetary policy?

1. Correlation between policy rate and output gap
2. Estimate monetary policy reaction function

Explore the benefits of more anchored expectations by **comparing countries with different degree of anchoring**

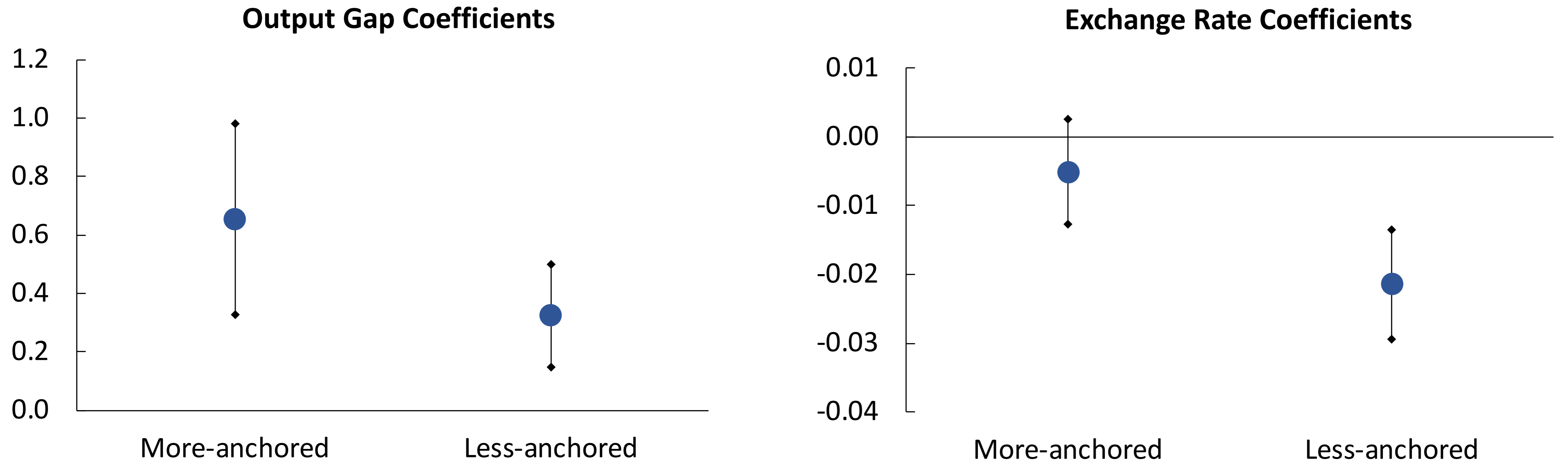
Focus on adverse external shocks that generate stagflation trade-off

- 2011-2015 slowdown episode in net capital inflows to EMDEs
- Global investors became more risk-averse

More anchoring, better trade-off

Estimation of monetary policy reaction functions

● Point Estimate ◄—► 95 Percent Confidence Interval



Source: IMF staff calculations.

Note: Positive output gap (exchange rate) coefficients imply an increase in policy rate if the output gap is positive (the currency depreciates). Timeframe: 2004Q1-2018Q1.

Summary

- **Low and stable inflation in EMDEs** since the early 2000s
- **Inflation expectations** are a key driver of inflation dynamics, while **global factors** play a minor role
- **Anchoring of inflation expectations has improved**, but sizable **heterogeneity** across EMDEs remains
- Better-anchored inflation expectations
 - **Reduce inflation persistence**
 - **Improve monetary policy trade-offs** and economic resilience to adverse external shocks

4. Policy Implications

EMs are not bystanders to global forces

Strengthen the long-term sustainability of public finances

1. Fiscal rules
2. Preserving and rebuilding fiscal buffers when necessary

Improve the credibility of central banks

1. Independence of central banks
2. Timeliness, clarity, transparency, and openness in communications



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