

***From Low to High Inflation ...
... And Back Again?***

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WORLD BANK GROUP

Equitable Growth, Finance & Institutions

Prospects Group

Selected Sources

- Ha, Kose, Ohnsorge. 2019. [*Inflation in Emerging and Developing Economies: Evolution, Drivers, and Policies*](#), Washington, DC: World Bank.
- Ha, Kose, Ohnsorge. 2022. "[From Low to High Inflation: Implications for Emerging Market and Developing Economies](#)," Policy Insight 115, CEPR, London.
- Ha, Kose, Ohnsorge. 2022. "[Global Stagflation](#)," Discussion Paper 17381, CEPR, London.
- Ha, Kose, Ohnsorge. 2021. "[One-Stop Source: A Global Database of Inflation](#)," Discussion Paper 16327, CEPR, London.
- Kilic Celik, Kose, Ohnsorge. 2020. "[Subdued Potential Growth: Sources and Remedies](#)," Discussion Paper 14527, CEPR, London.
- Kose, Nagle, Ohnsorge, Sugawara. 2021. [*Global Waves of Debt*](#), Washington, DC: World Bank.
- Kose, Ohnsorge, Reinhart, Rogoff. 2021. "[The Aftermath of Debt Surges](#)," *Annual Review of Economics* 14: 637-663.
- Kose, Ohnsorge, Sugawara. Forthcoming. "[A Mountain of Debt: Navigating the Legacy of the Pandemic](#)," *Journal of Growth and Development*.

Four Questions

1 What are short-term prospects for inflation?

2 What are long-term prospects for inflation?

3 Which threat does stagflation present for EMDEs?

4 What are the policy implications?

Four Questions

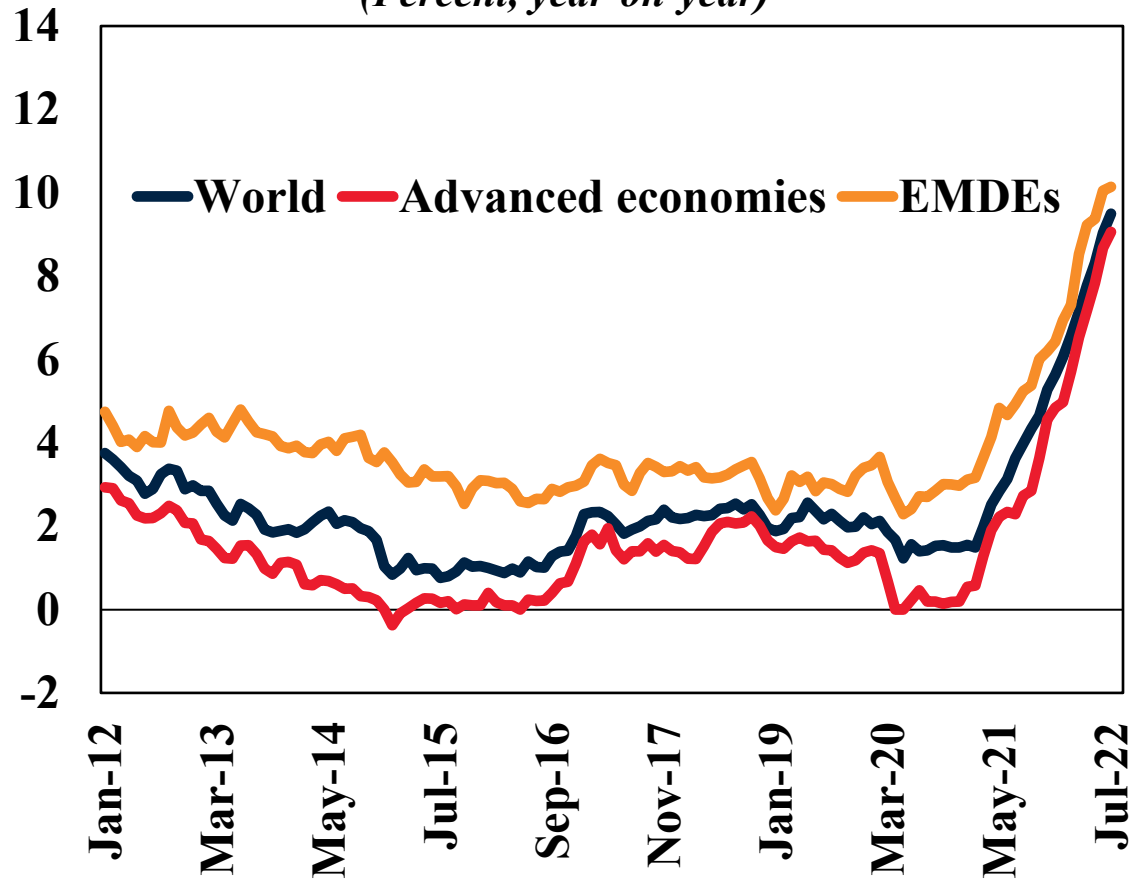
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What are short-term prospects for inflation? *Inflation is running at multi-year highs, in a sharp reversal over the past decade, but is expected to ease.*

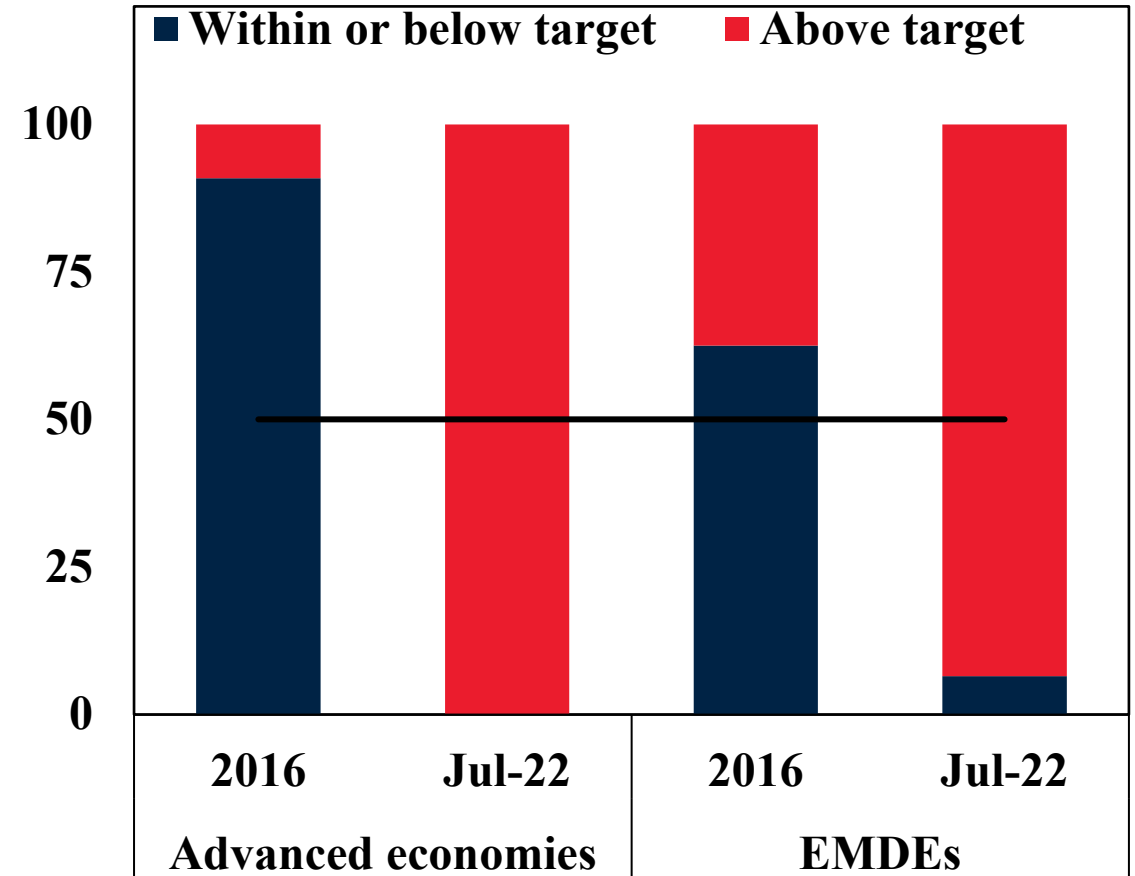
Inflation, 2016 versus 2022

From Record-Lows to Record-Highs

Monthly CPI inflation
(Percent, year-on-year)



Countries with inflation below or within target
(Percent of countries)



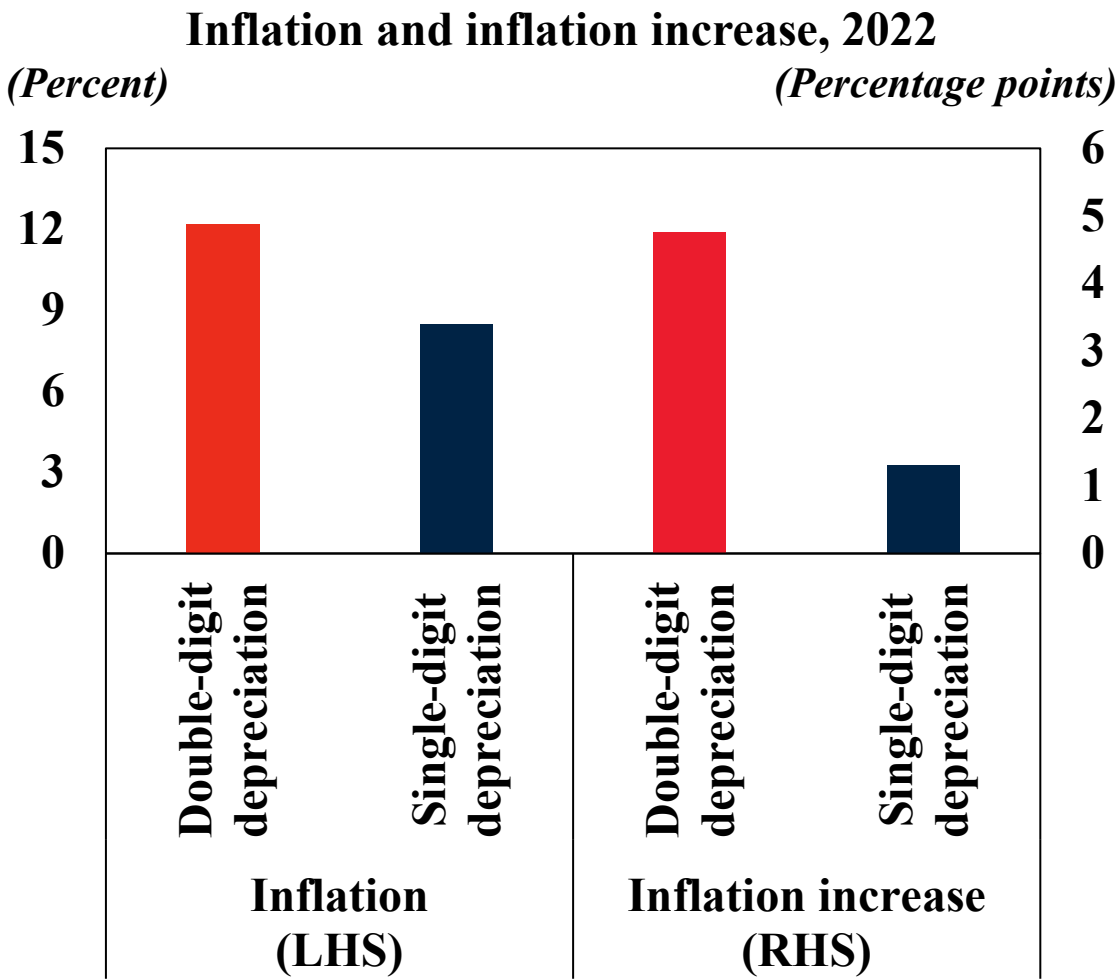
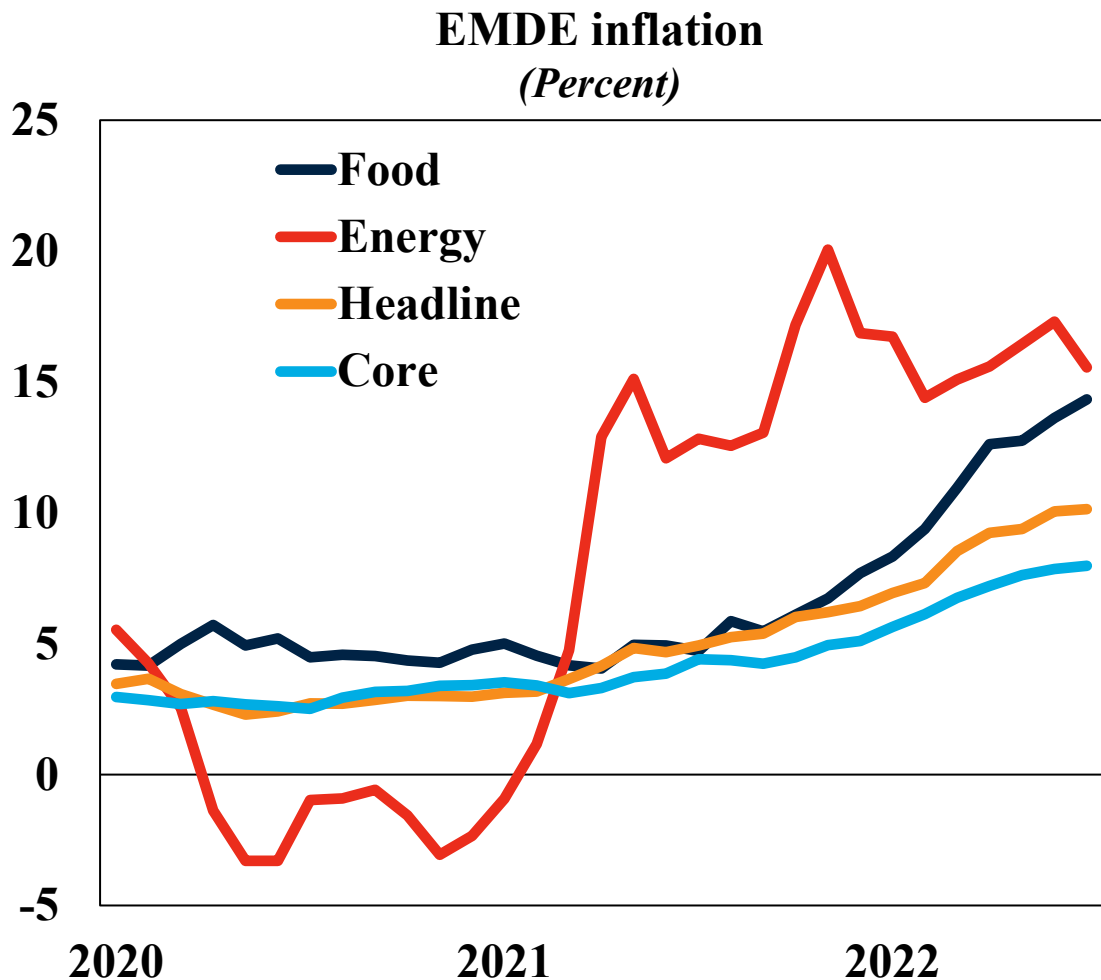
Sources: Haver Analytics; World Bank.

Note: EMDEs = Emerging market and developing economies. CESEE = Central Europe and Southeastern Europe.

Left Panel. CPI refers to consumer price index. Year-on-year inflation. Lines show group median inflation for 81 countries, of which 31 are advanced economies and 50 are EMDEs. Left Panel. Bars show the share of inflation-targeting economies (in percent) with average inflation during the course of the year (or month) below or within the target range.

Features of Inflation Surge Since Mid-2020

Broad-Based Increase, Especially With Depreciation



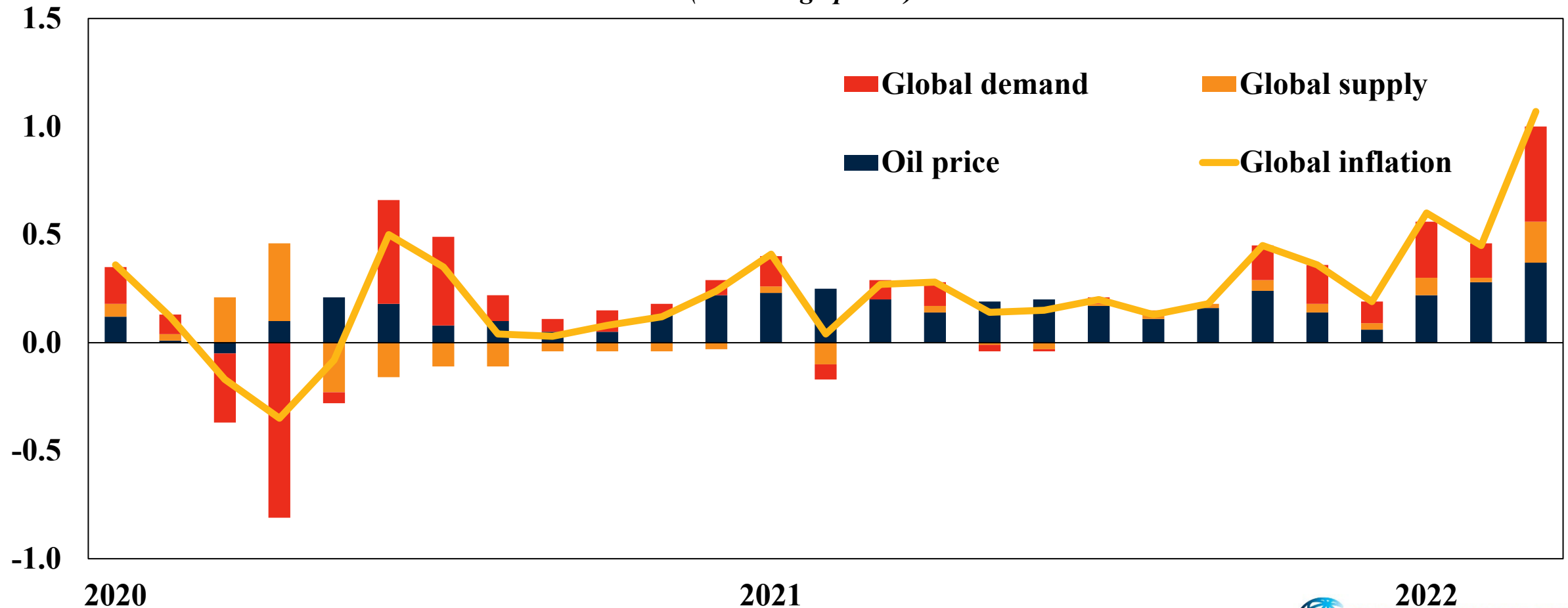
Sources: Haver Analytics; World Bank.

Left Panel: Year-on-year group median inflation for 81 countries, of which 31 are advanced economies, 50 are EMDEs. Last observation is July 2022. Right Panel: Cross-country median of average inflation during January-July 2022 (“inflation”) or cross-country median of change in inflation between December 2020-July 2021 and December 2021-July 2022 (“Inflation increase”). The group “Double-digit depreciation” includes 29 EMDEs whose currencies have depreciated by 10 percent or more between end-2021 and mid-August 2022; the group “Single-digit depreciation” includes 68 EMDEs whose currencies have depreciated by less than 10 percent between end-2021 and mid-August 2022.

Drivers of Inflation Surge Since Mid-2020

Mainly Global Demand and Oil Price Shocks

Contributions to global inflation
(Percentage points)

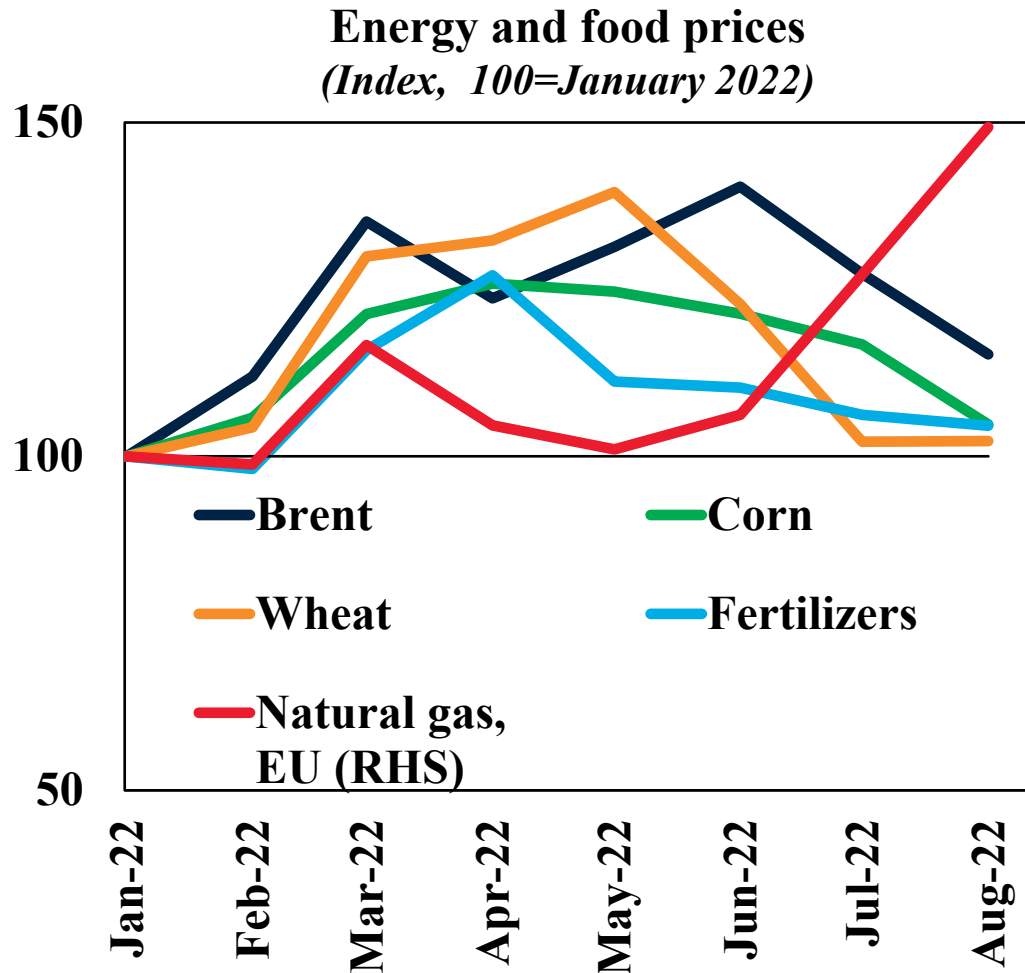


Sources: Haver Analytics; World Bank.

Note: Contributions to month-on-month inflation in headline CPI for 83 countries, of which 31 are advanced economies and 52 are EMDEs, based on FAVAR models over the period of 2001M1 - 2022M3. Unexplained residual is omitted from the graph.

Inflation Prospects: Easing

Unwinding of Food/Energy Price Shocks and Supply Disruptions



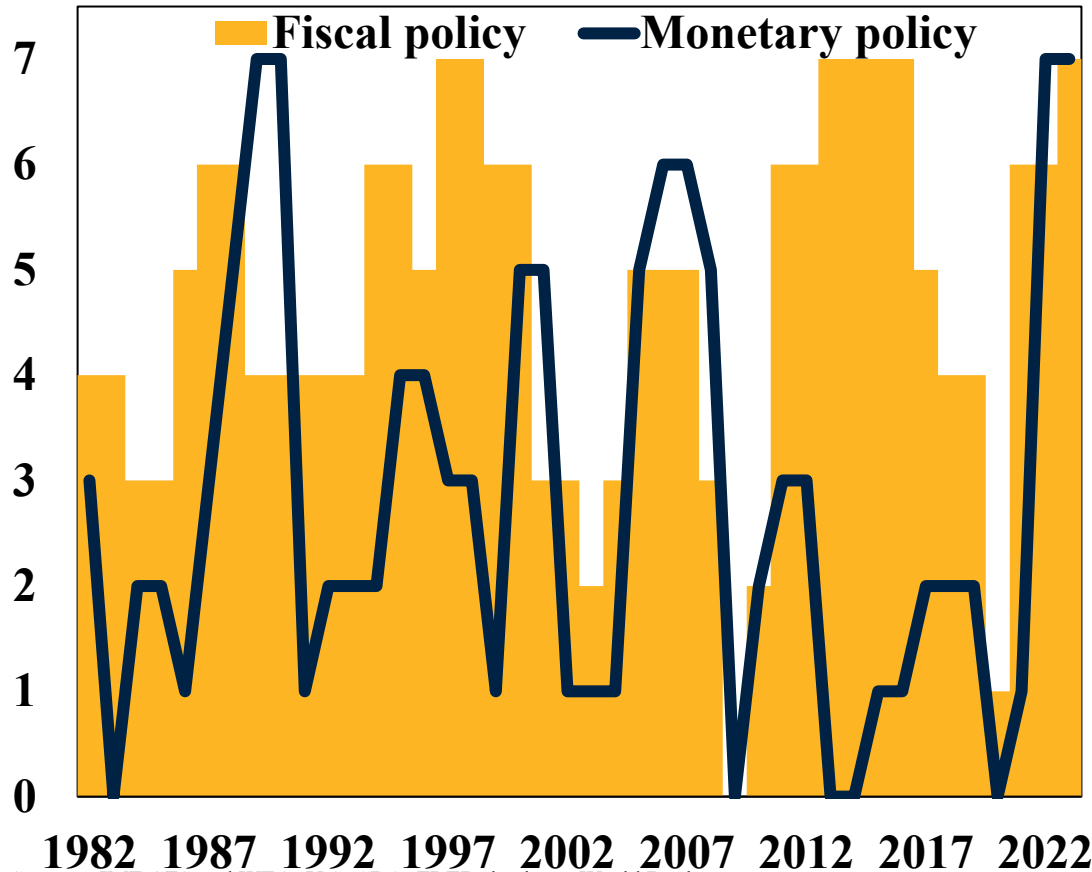
Sources: New York Federal Reserve Bank; World Bank.

Left Panel: Chart shows monthly commodity prices, indexed to January 2022=100. Last observation is August 2022. Right Panel: Global Purchasing Managers Index (PMI) composite backlogs of work and input costs. PMI of 50 or higher (lower) indicates expansion (contraction).

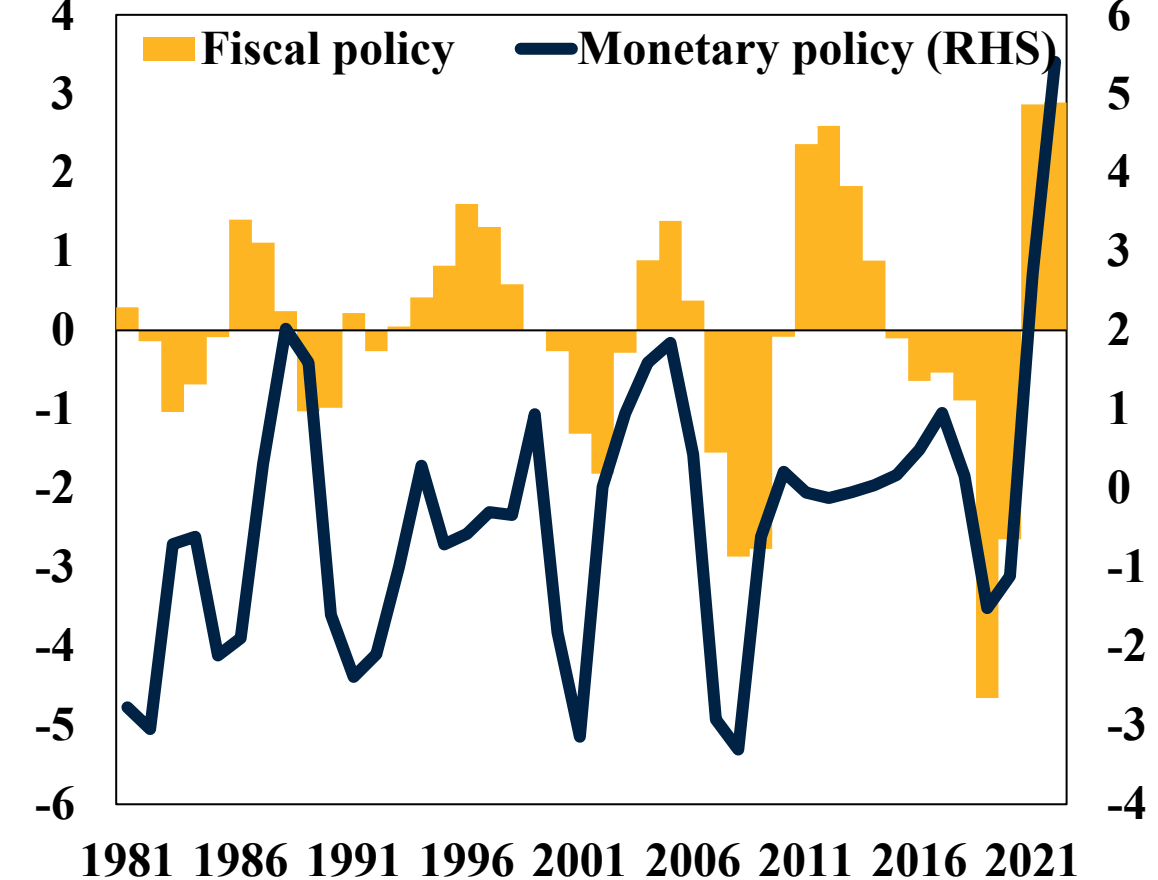
Inflation Prospects: Easing

Most Synchronous Policy Tightening in Four Decades

Number of G7 economies with policy tightening
(Number)



Fiscal impulse and change in monetary policy rates
(Percentage points of pot. GDP) (Percentage points)



Sources: IMF GFS and WEO; U.S. CBO; FRED database; World Bank.

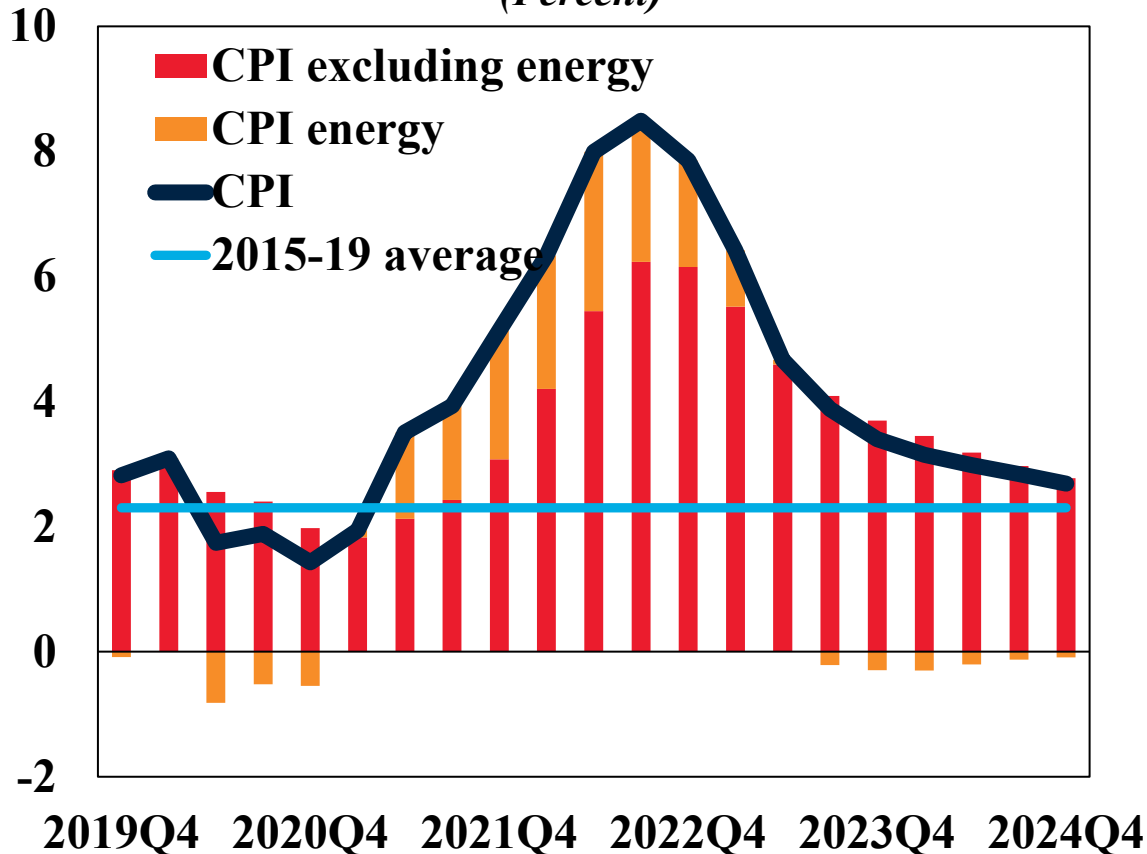
Left Panel: Blue bars show the number of G7 countries (Canada, France, Germany, Italy, Japan, United Kingdom, United States) in which the cumulative fiscal impulse over the indicated year and the preceding year is positive. G7 countries have accounted for 40 percent of global GDP on average since 2000. Red lines show the maximum number of G7 economies in which monetary policy rates have risen in the year indicated or the previous year. Right Panel. Blue line shows real GDP-weighted average of changes in structural fiscal balance (fiscal impulse) from the two years before, in G7 countries. Data for Germany 1980-1990, Italy 1984-1987, and Japan 1980-1993 estimated based on output gaps (from latest IMF WEO) and the assumption of unit-elastic revenues and inelastic expenditures to GDP. Red line shows real GDP-weighted average of monetary policy rate changes from two years before, in G7 countries.



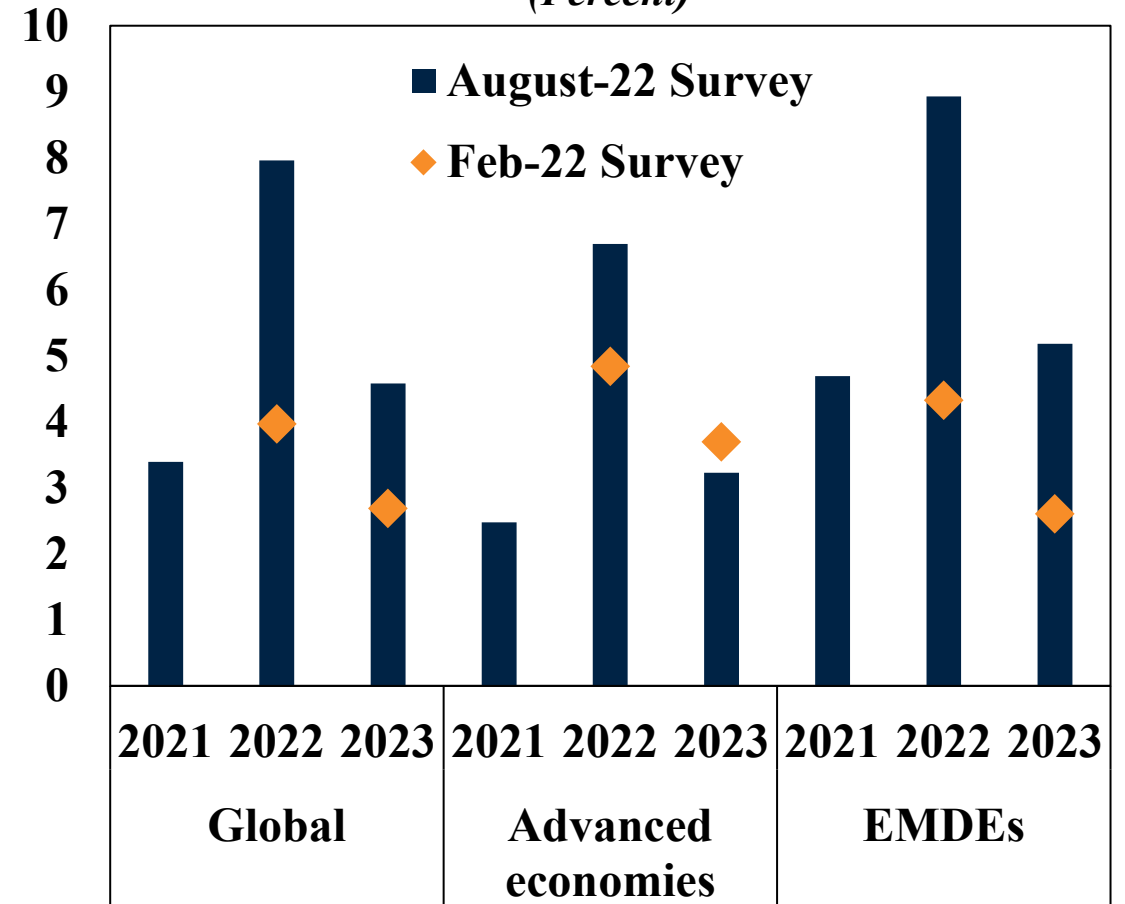
Inflation Prospects

Inflation Will Ease, But Not Enough To Meet Targets

Model-based global CPI inflation projection
(Percent)



Survey-based inflation expectations
(Percent)



Sources: Consensus Economics; Oxford Economics Model; World Bank.

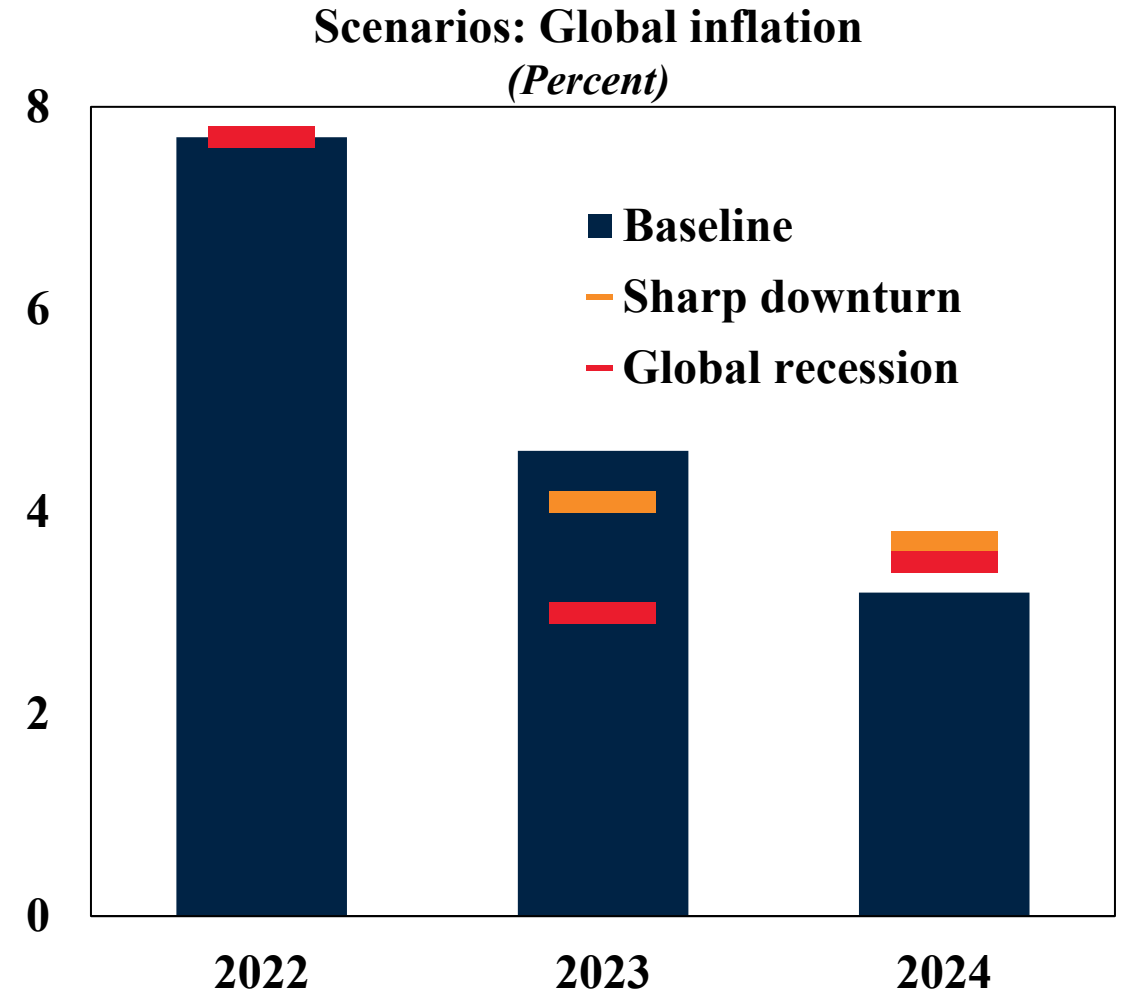
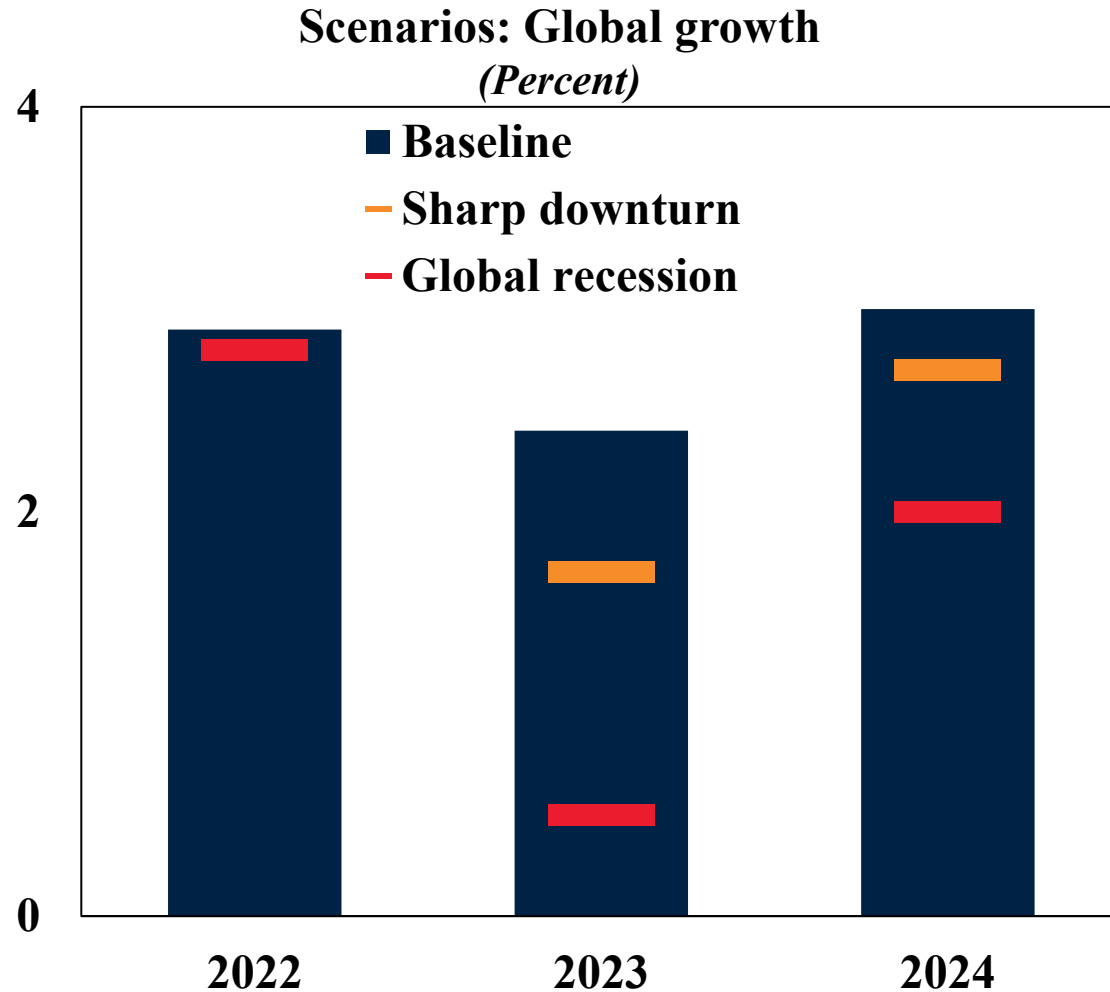
Note: EMDEs = emerging market and developing economies. CESEE = Central Europe and Southeastern Europe.

Left Panel: Model-based projection of quarterly global year-over-year CPI inflation using Oxford Economics Global Economic Model. Projection embeds the updated global oil price forecast.

Right Panel: Figure shows the median one-year-ahead headline CPI inflation expectations for 32 advanced economies and 51 EMDEs derived from February, June and August 2022 Consensus Economics surveys.

Risk to Global Growth

Global Downturn or Recession

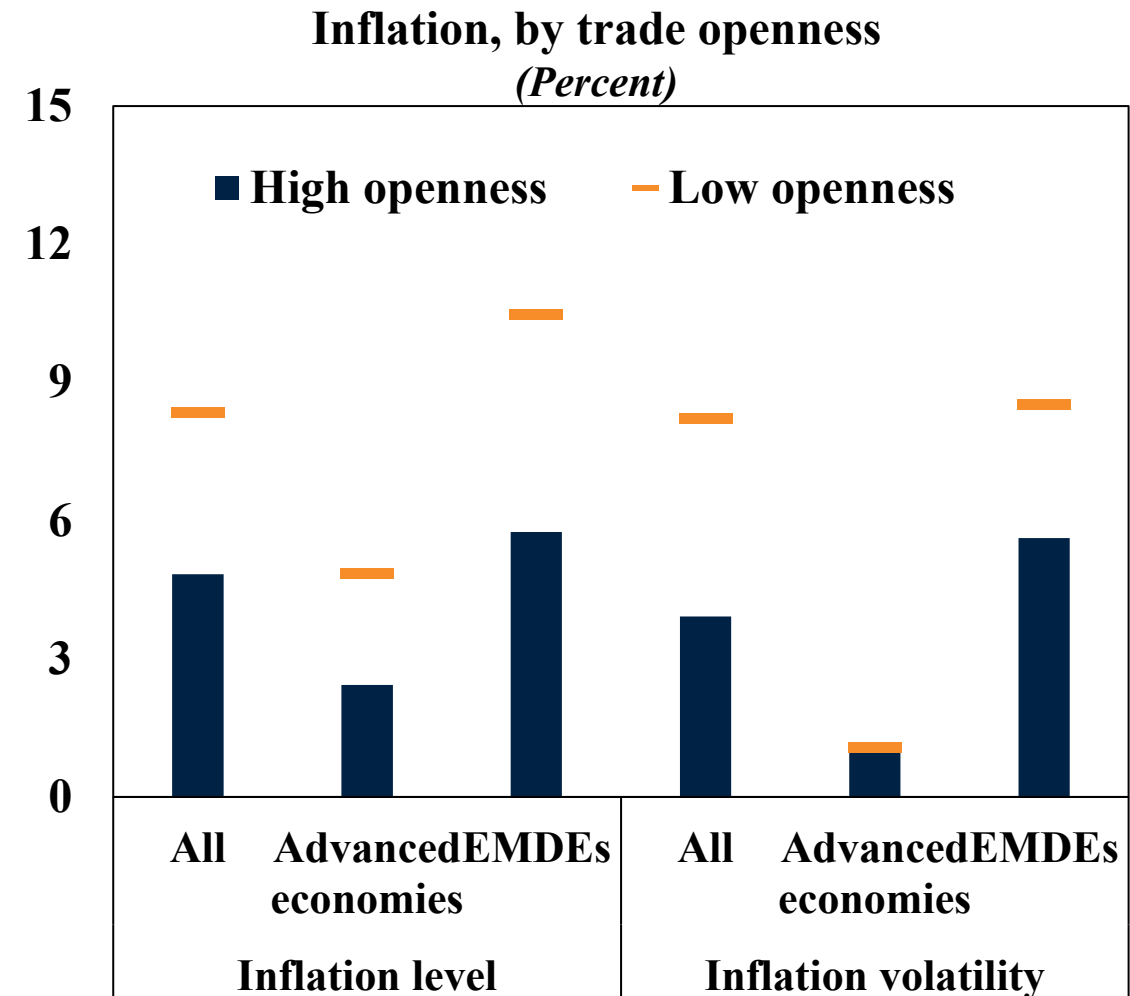
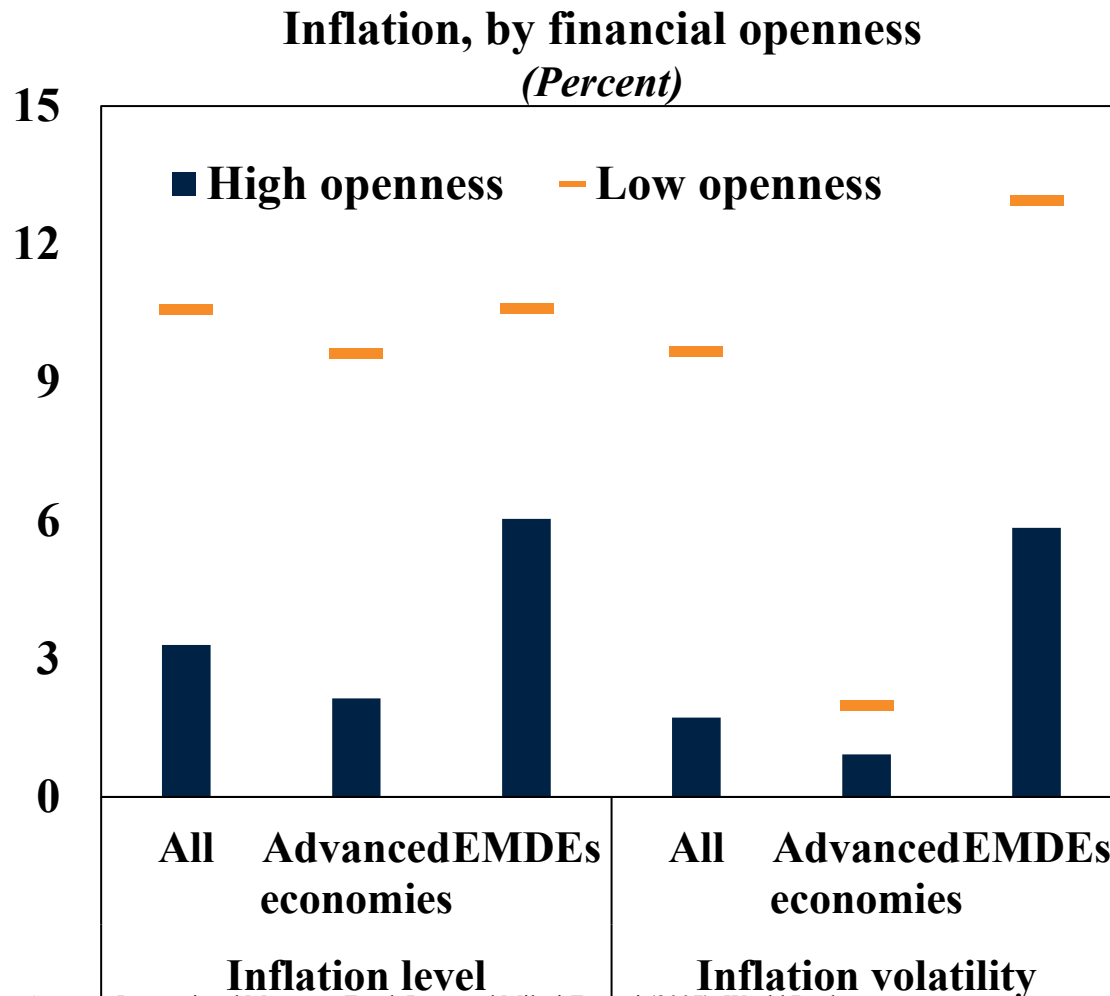


Four Questions

2 **What are long-term prospects for inflation?** *Structural forces that have depressed inflation over the past two decades may now be fading.*

Factors Supporting Decline in Inflation since 1970s

Rapid Globalization



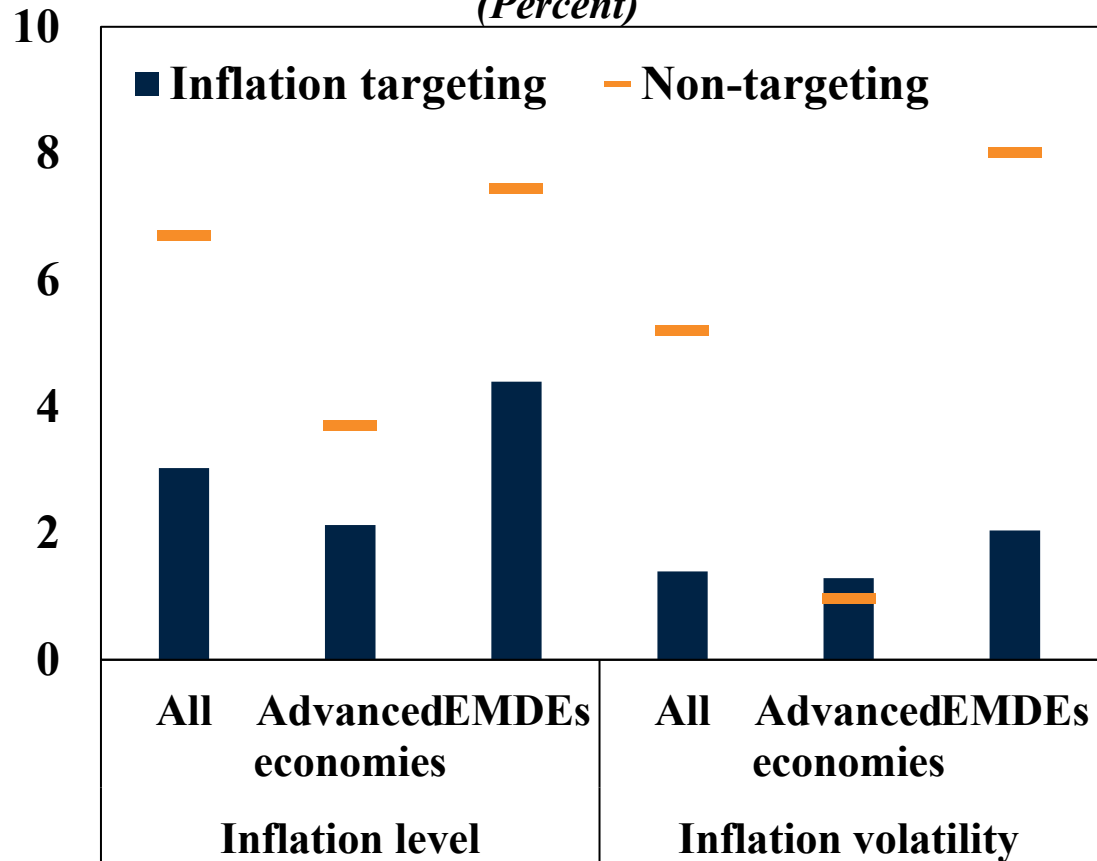
Sources: International Monetary Fund; Lane and Milesi-Ferretti (2007); World Bank.

Note: Blue bars indicate median inflation levels or inflation volatility (defined as standard deviation of inflation) in countries with financial openness (Left Panel) and trade openness (Right Panel) in the top quartile. Orange tickers indicate median inflation levels or inflation volatility in countries in the bottom quartile. Left Panel. Financial openness is measured as the sum of financial assets and liabilities, as a share of GDP. Right Panel. Trade openness is measured as the sum of exports and imports as a percent of GDP.

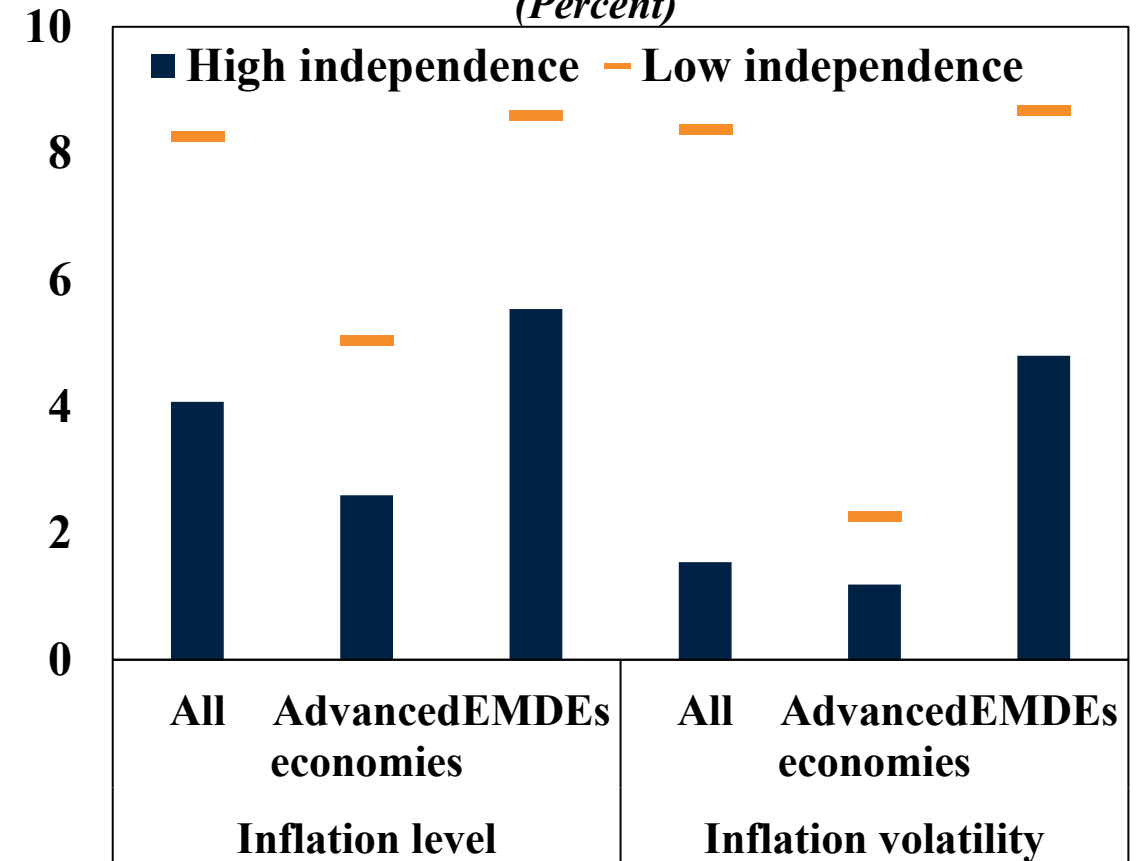
Factors Supporting Decline in Inflation since 1970s

More Resilient Monetary Policy Frameworks

Inflation, by monetary policy regime
(Percent)



Inflation, by central bank independence
(Percent)

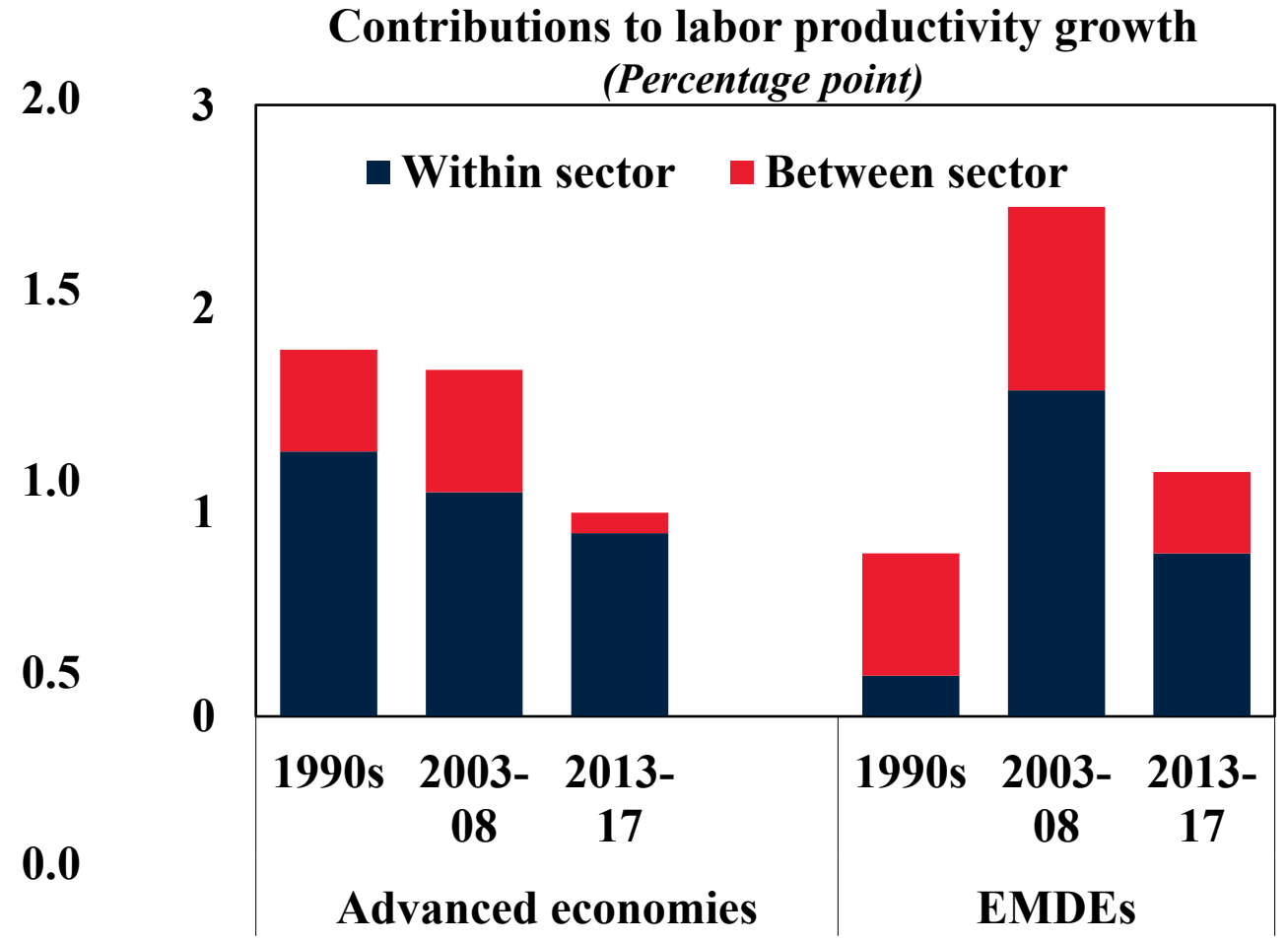
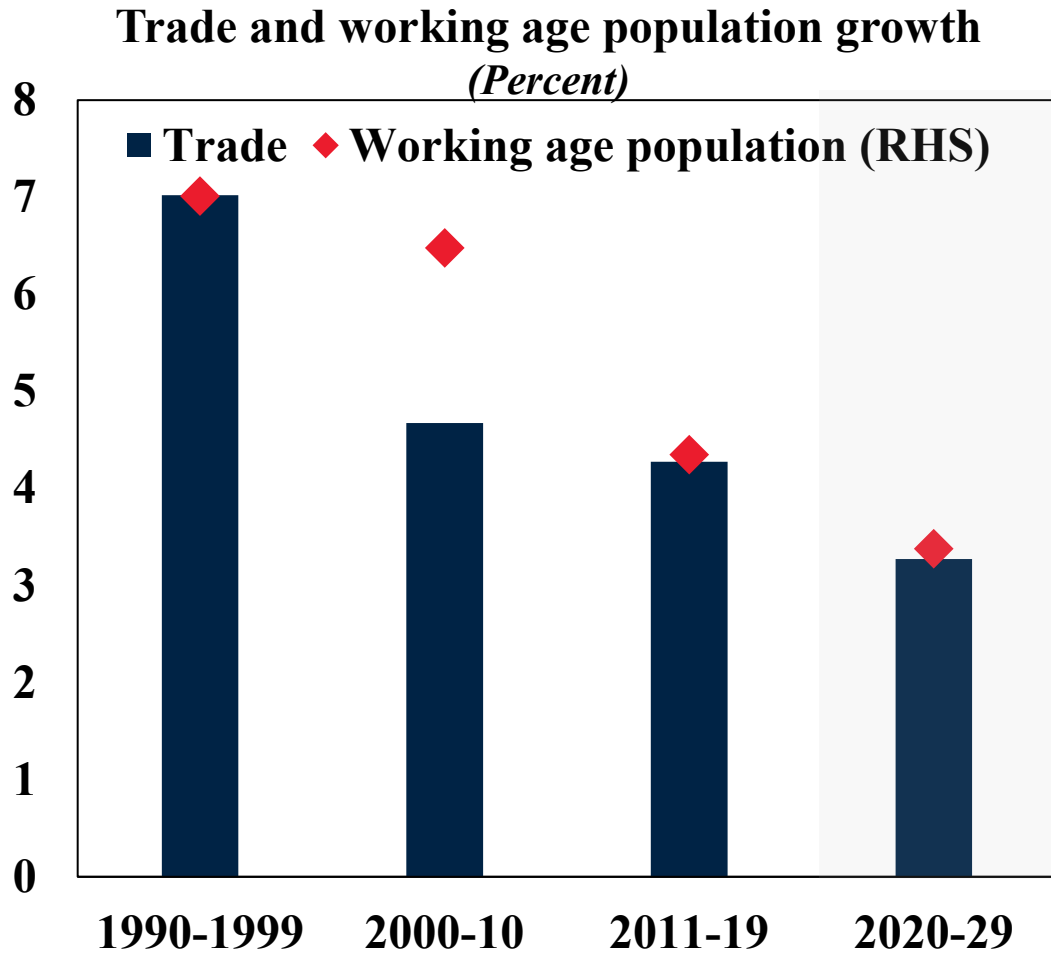


Sources: Caceres, Carrière-Swallow, and Gruss (2016); Dincer and Eichengreen (2014); World Bank.

Left Panel. Blue bars show median inflation levels or inflation volatility in countries with inflation targeting monetary policy regimes during 1970-2017. Orange tickers indicate median inflation levels or inflation volatility in countries without inflation-targeting monetary policy regimes during the same period. Inflation targeting regimes are defined as in Caceres, Carrière-Swallow, and Gruss (2016) and the IMF Annual Report on Exchange Arrangements and Exchange Restrictions. Right Panel. Blue bars show median inflation levels or inflation volatility in countries with a score of the index of central bank independence in the top quartile of the sample. Orange tickers indicate median inflation levels or inflation volatility in countries in the bottom quartile. Central bank independence is measured by the index of central bank independence and transparency, taken from Dincer and Eichengreen (2014). The index ranges from 0 (least independent and transparent) to 15 (most independent and transparent).

Factors Supporting Low Inflation

Now Fading



Sources: APO; EASD; GGDC; ILO; KLEMS; national sources; OECD; United Nations; World Bank.

Note: EMDEs = Emerging markets and developing economies; LICs = Low-income countries. Shaded areas indicate forecasts.

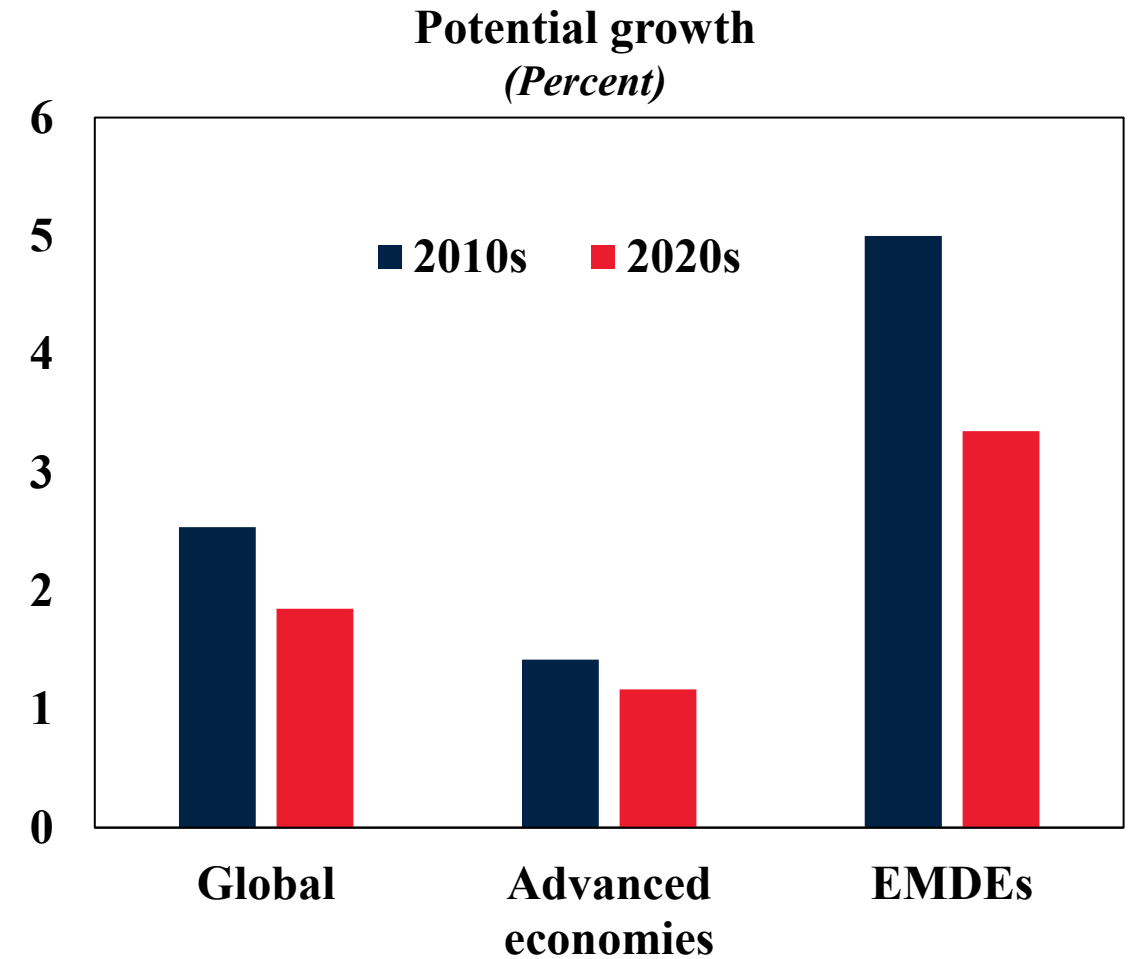
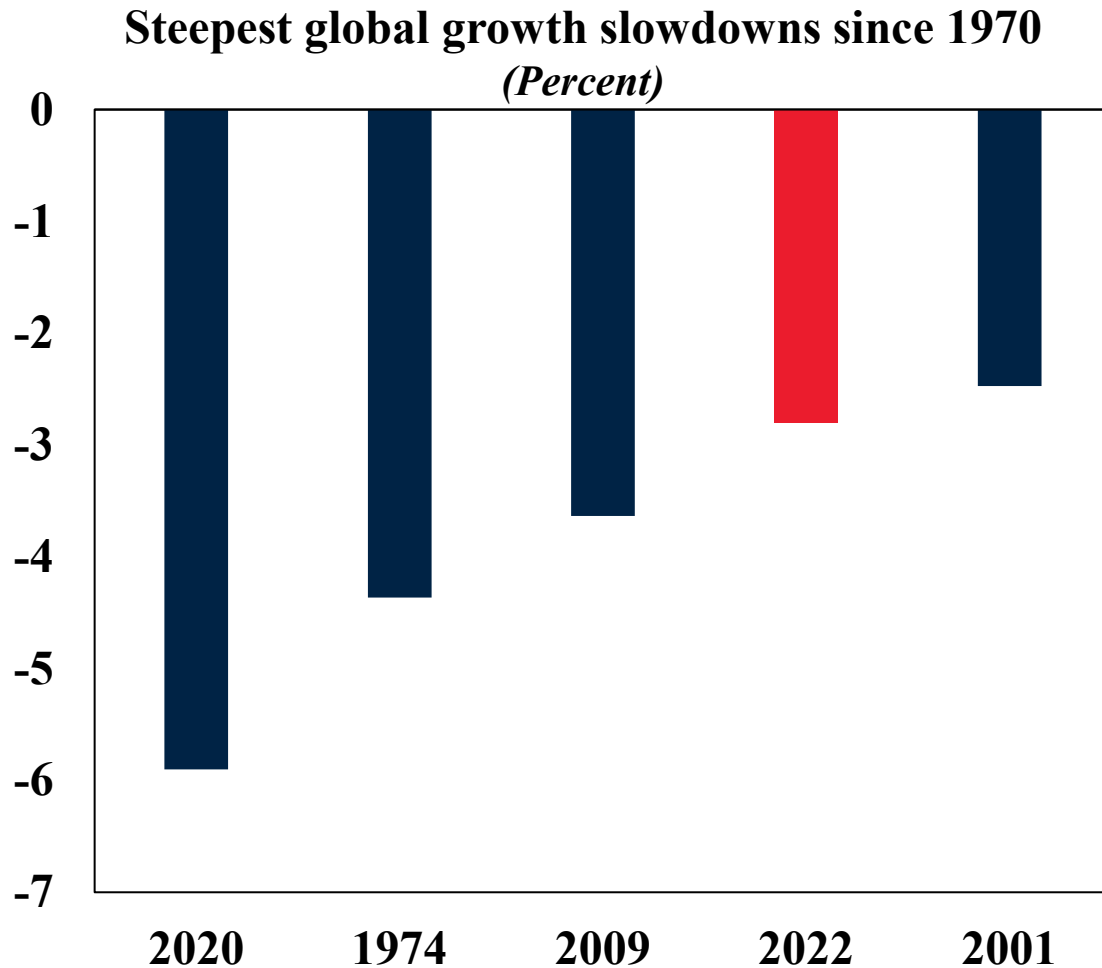
Left Panel. Average annual growth in real trade in goods and nonfactor services and in working age population aged 15-64 years during time intervals indicated. Right Panel: Based on samples of 94 countries during 1995-1999 and 103 countries during 2003-2017. Median of the country-specific productivity. Growth within sector shows the contribution of initial real value-added weighted productivity growth rate and between sector growth effect give the contribution arising from changes in the change in employment share. Median of the country-specific contributions.

Four Questions

3 Which threat does stagflation present for EMDEs? *A risks of a repeat of the 1970s when stagflation ended with a series of financial crises in EMDEs.*

Global Growth

Steep Growth Slowdown, Prospects for Persistent Weakness

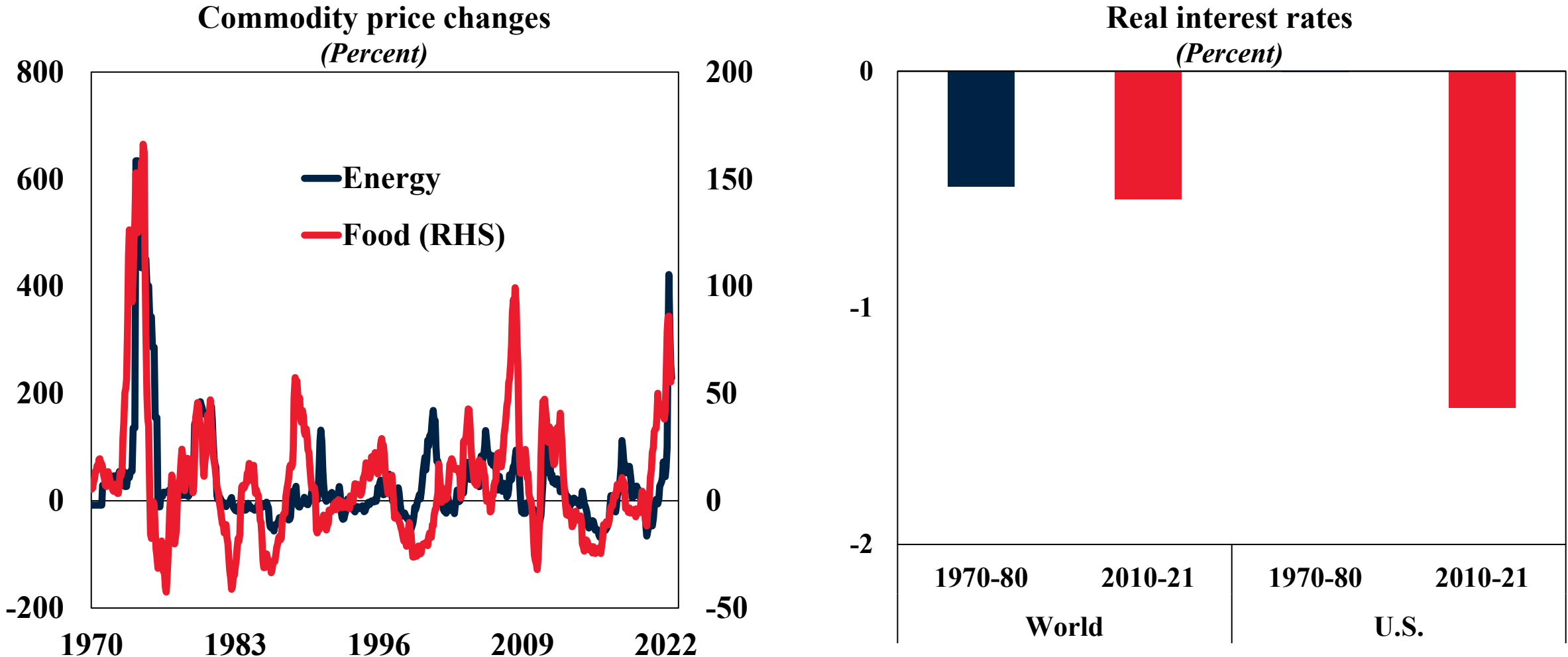


Sources: Consensus Economics; World Bank.

Note: EMDEs = emerging market and developing economies. Left Panel: The five largest decline in global growth (from the previous year) since 1970. Right Panel: GDP-weighted average (at 2010 prices and exchange rates) for 82 countries, including 52 EMDEs. Potential growth estimates based on a production function approach as described in Kilic Celik, Kose, and Ohnsorge (2020) and World Bank (2021b). 2020s forecasts in red bars assume that investment grows as expected by consensus forecasts, working-age population and life expectancy evolve as envisaged by the UN Population Projections, and secondary and tertiary school enrollment and completion rates decline by 2.5 percentage points.

Similarities to the 1970s

Large Commodity Price Shocks; Accommodative Monetary Policy

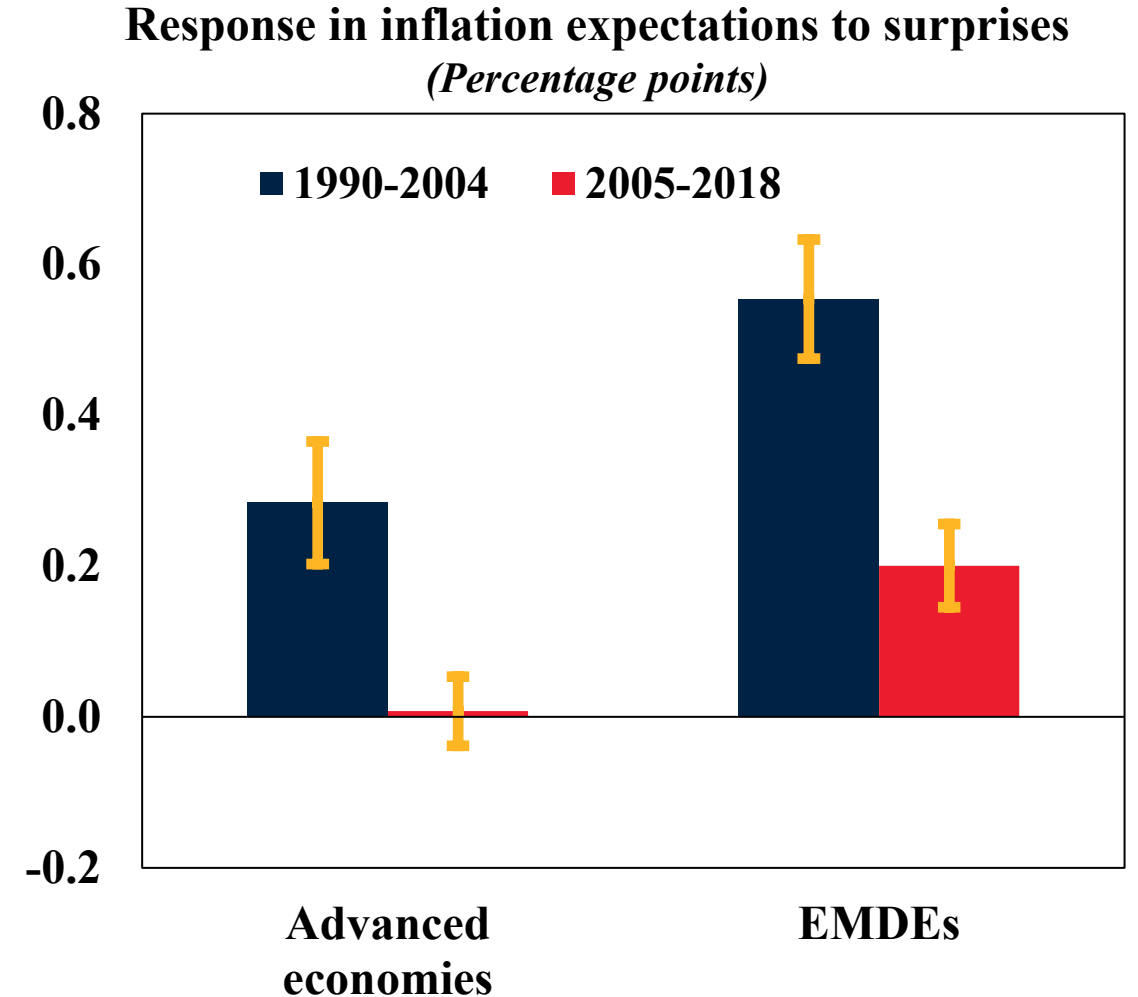
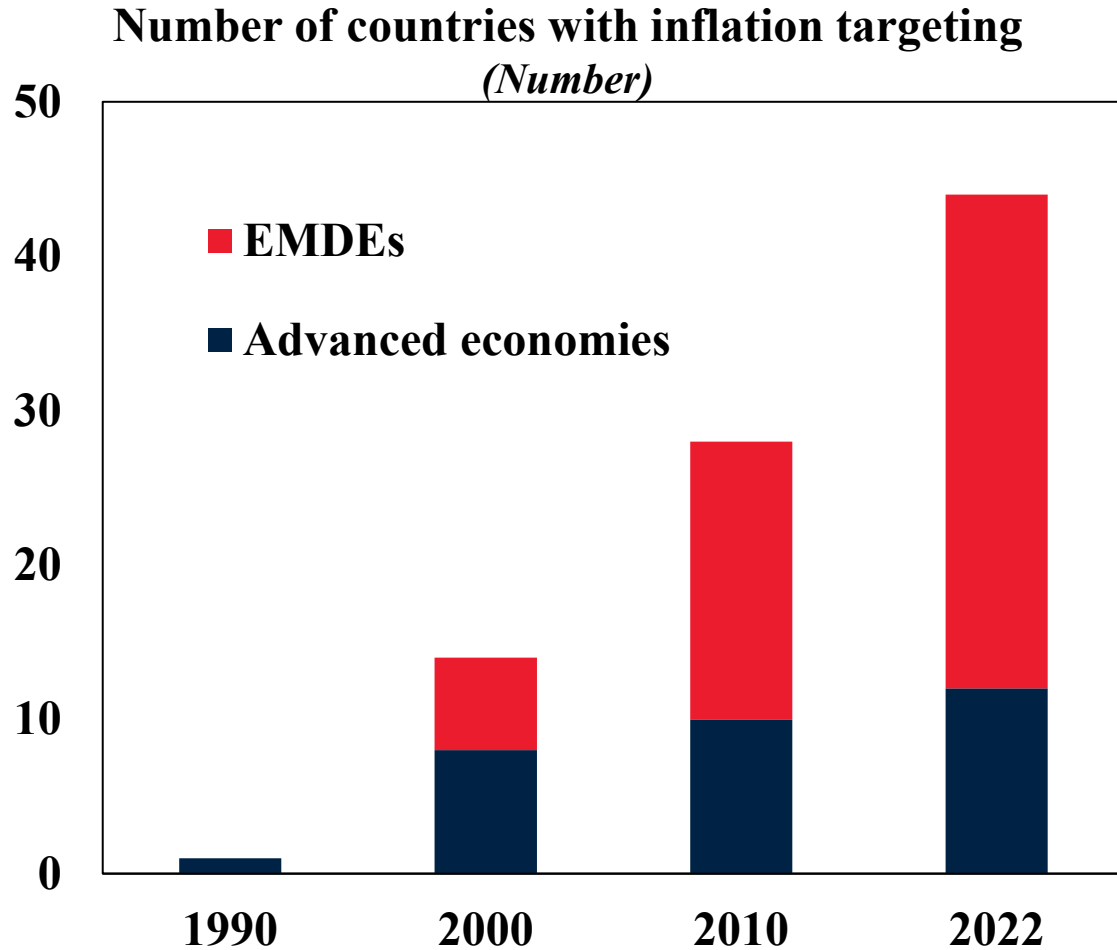


Sources: Bloomberg; Federal Reserve Economic Data; Haver Analytics; World Bank.

Left Panel. Percent change in monthly energy and food price indices over a 24-month period. This facilitates a comparison of the April 2020 trough with the most recent data (July 2022). Due to data limitations, prior to 1979, the energy price change is proxied using the oil price change. Right Panel: Figure shows nominal and real (CPI-adjusted) short-term interest rates (Treasury bill rates or money market rates, with the maturity of three months or less). Global interest rates are weighted by GDP in U.S. dollars. Sample includes 113 countries, though the sample size varies by year.

Differences from the 1970s

More Inflation Targeting; Better-Anchored Expectations



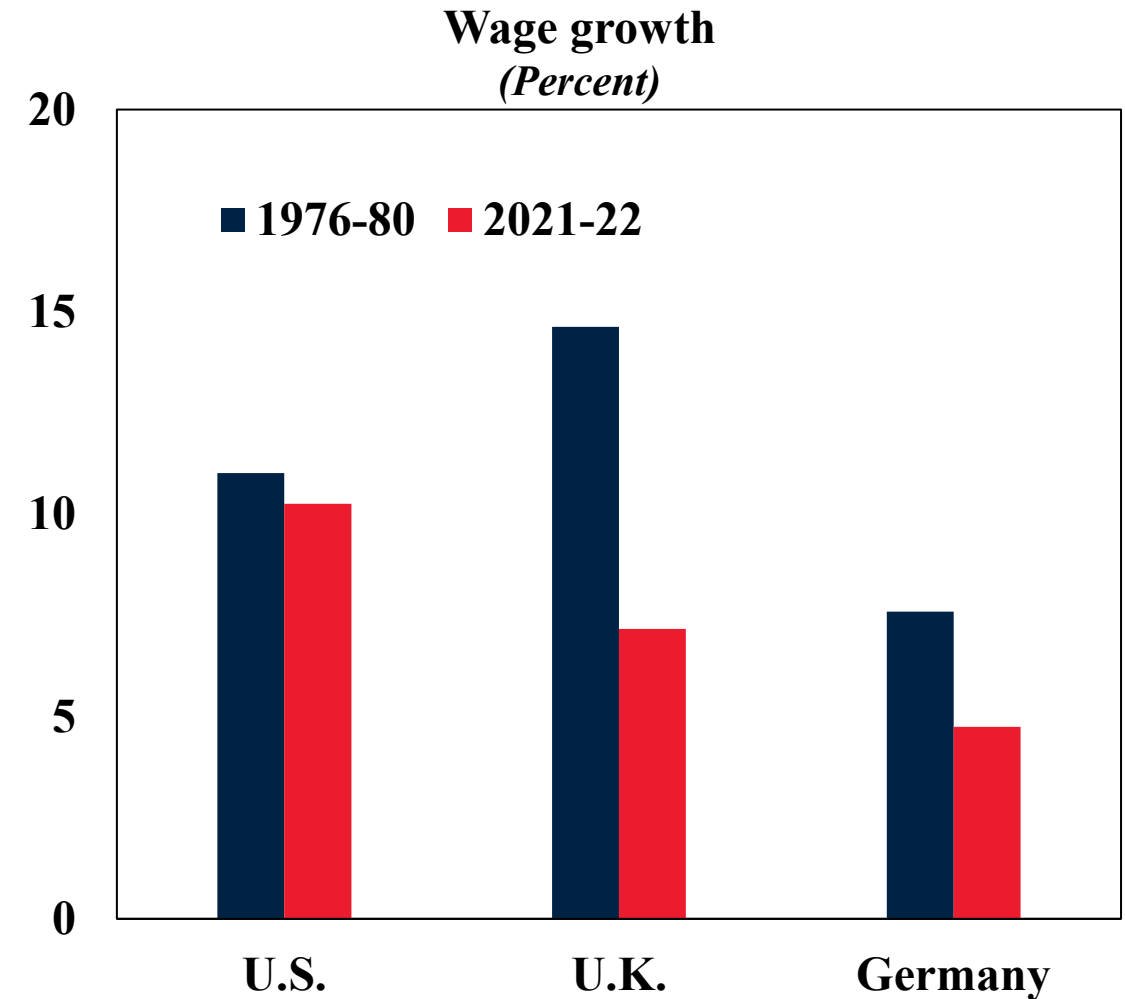
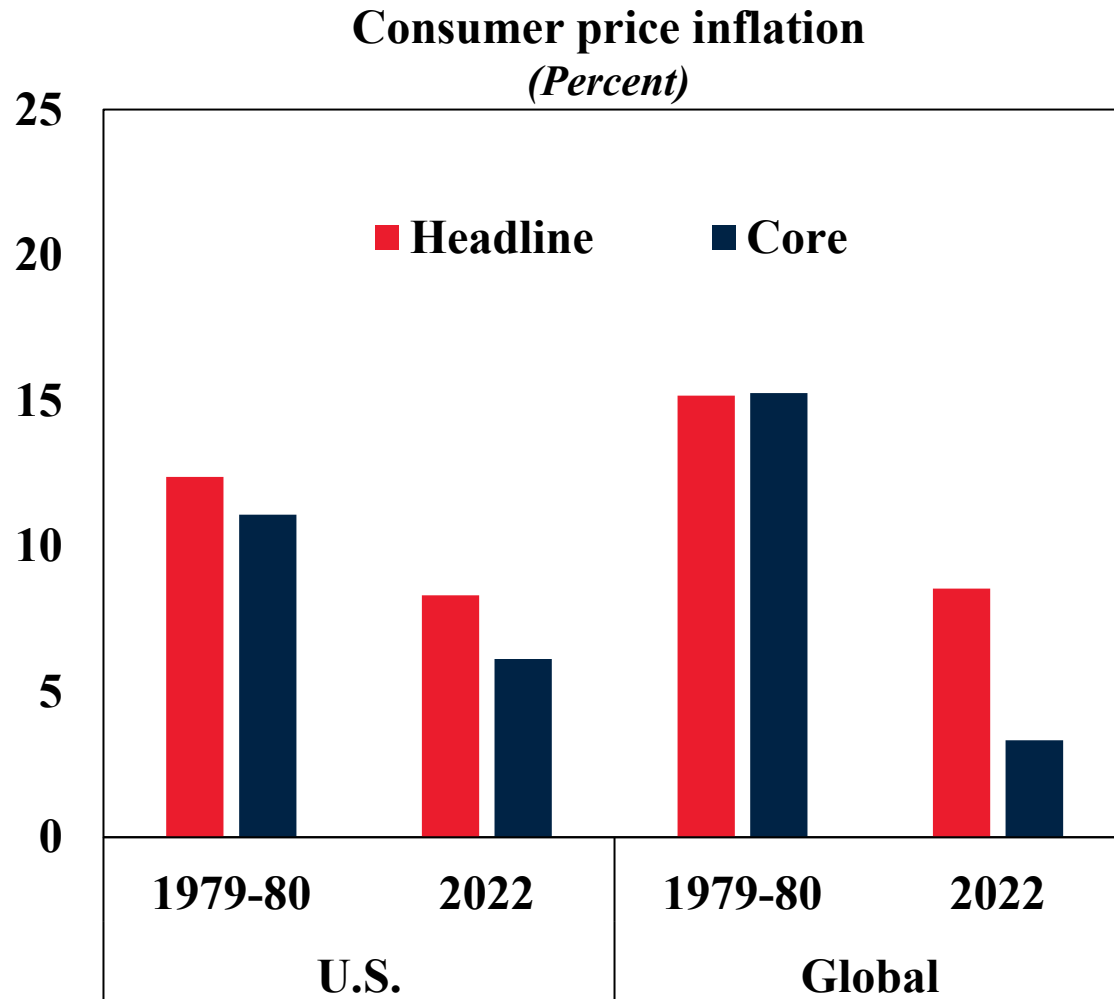
Sources: Ha, Kose, and Ohnsorge (2019); International Monetary Fund; OECD; World Bank.

Note: EMDEs = Emerging market and developing economies.

Left Panel. Based on the clarification of IMF Annual Report on Exchange Arrangements and Exchange Restrictions and country-specific sources. Right Panel: Inflation expectations are five-year-ahead expectations of annual inflation. Inflation shocks are defined as the difference between realized inflation and short-term inflation expectations in the previous period. Sensitivity is estimated using a panel regression of the change in five-year-ahead inflation expectations on inflation shocks. Bars denote medians and vertical lines denote 90 percent confidence intervals. Sample period is divided into the first (1990-2004) and second (2005-2018) sub-periods. Based on a sample of 24 advanced economies and 23 EMDEs.

Differences from the 1970s

For Now, Still Lower Inflation Pressures



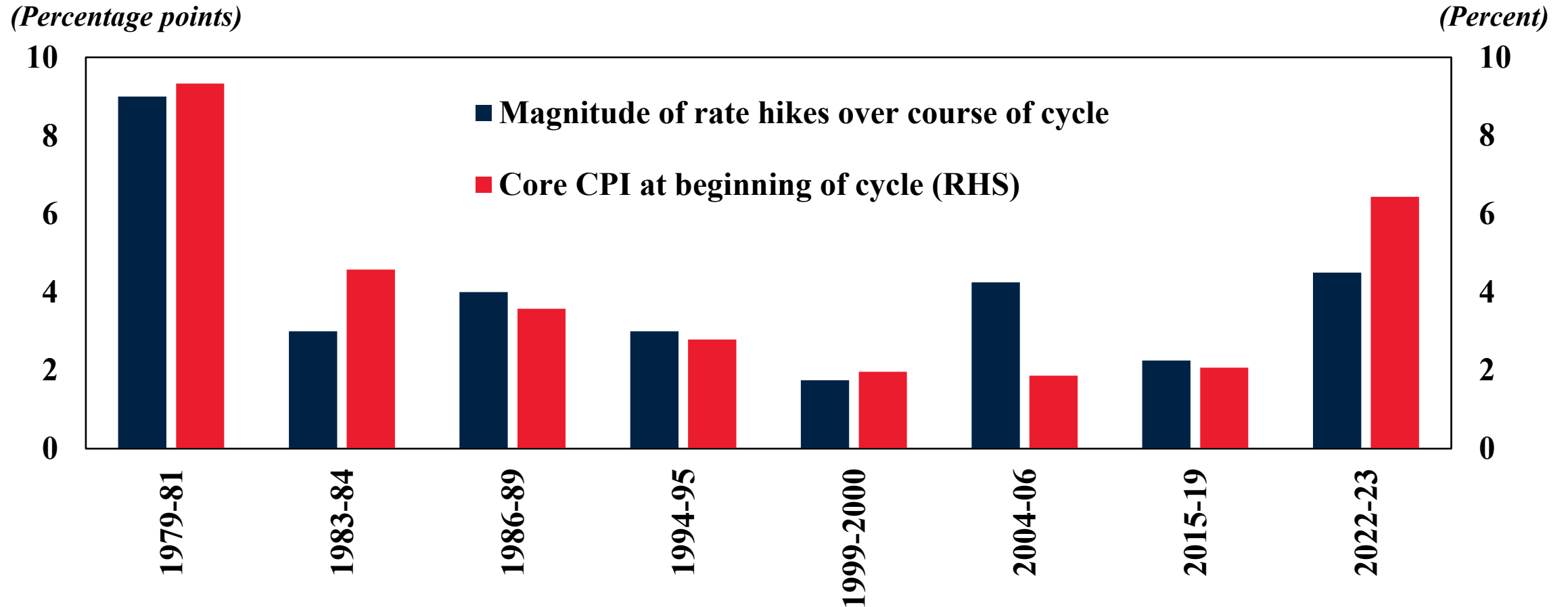
Sources: Ha, Kose, and Ohnsorge (2019); Haver Analytics; International Monetary Fund; OECD; World Bank.

Note: CPI refers to consumer price index. Left Panel. Annual averages of headline and core CPI inflation in the United States and global (average across 66 countries). 2022 is based on the averages of January to July 2022. Right Panel: Annual averages of wage growth.

Ending Stagflation

Sharp Rate Hikes

Magnitude of U.S. rate hikes and core CPI during previous Federal Reserve tightening cycles



Sources: Bank for International Settlements; Federal Reserve Economic Data; Havers Analytics; World Bank.

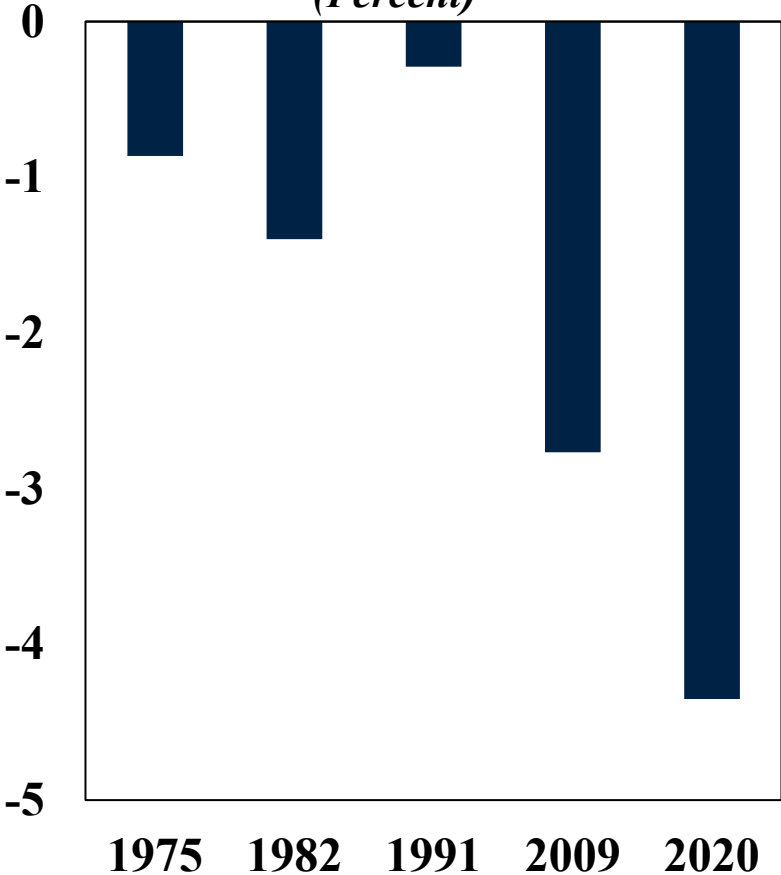
Left Panel. Blue bars show the extent of policy rate increases during previous tightening cycles: 1979-81, 1983-84, 1986-89, 1994-95, 1999-2000, 2004-06, 2015-19. Value for 2022-23 is an estimate based on market expectations for the level of the Fed Funds rate in mid-2023. Core CPI for 2022-23 shows latest data associated with tightening cycle. Right Panel: GDP-weighted averages based on a sample of up to 153 EMDEs.

End of Stagflation

Global Recession, EMDE Financial Crises

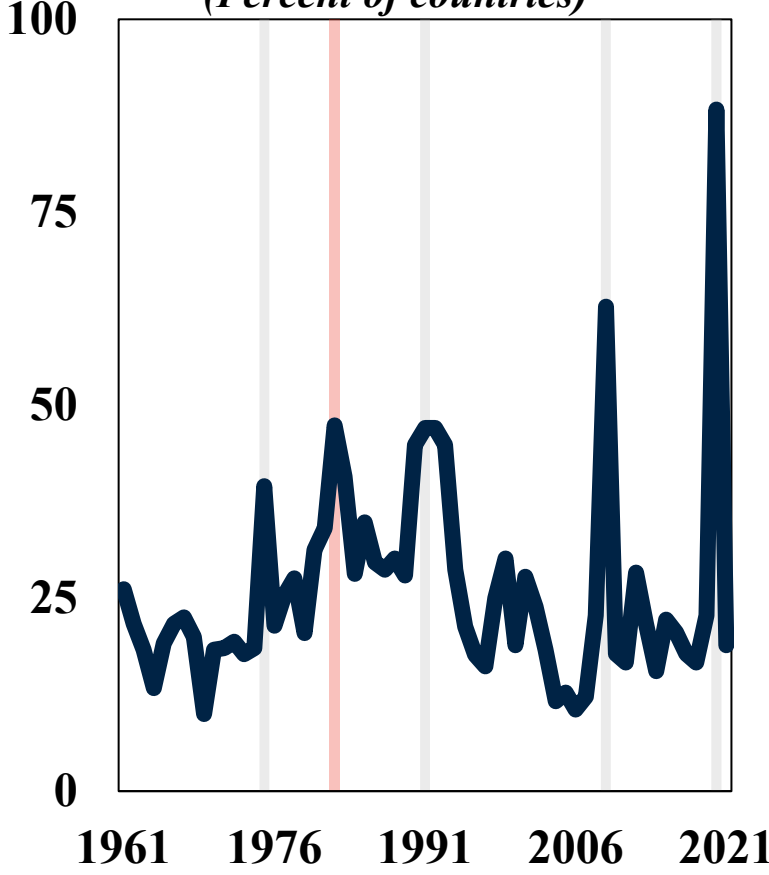
Per capita growth in global recessions

(Percent)



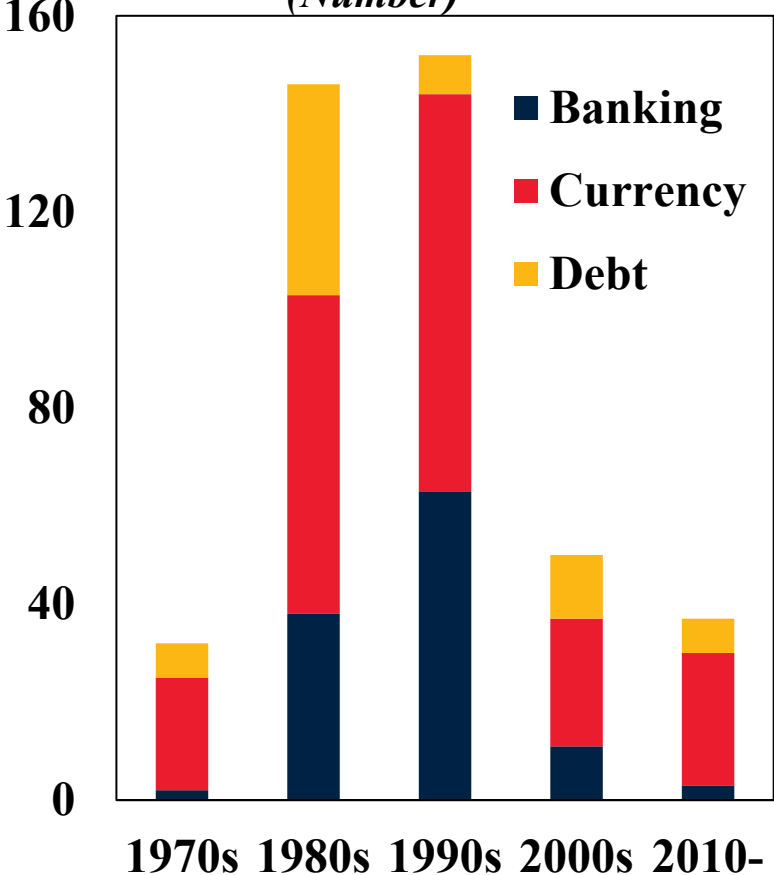
Countries in recession

(Percent of countries)



Financial crises in EMDEs

(Number)



Sources: Haver Analytics; International Monetary Fund; World Bank.

Center Panel: Share of countries in recession, defined as a contraction in per capita GDP. Right Panel: Total number of banking, currency, and sovereign debt crises in EMDEs over respective periods.

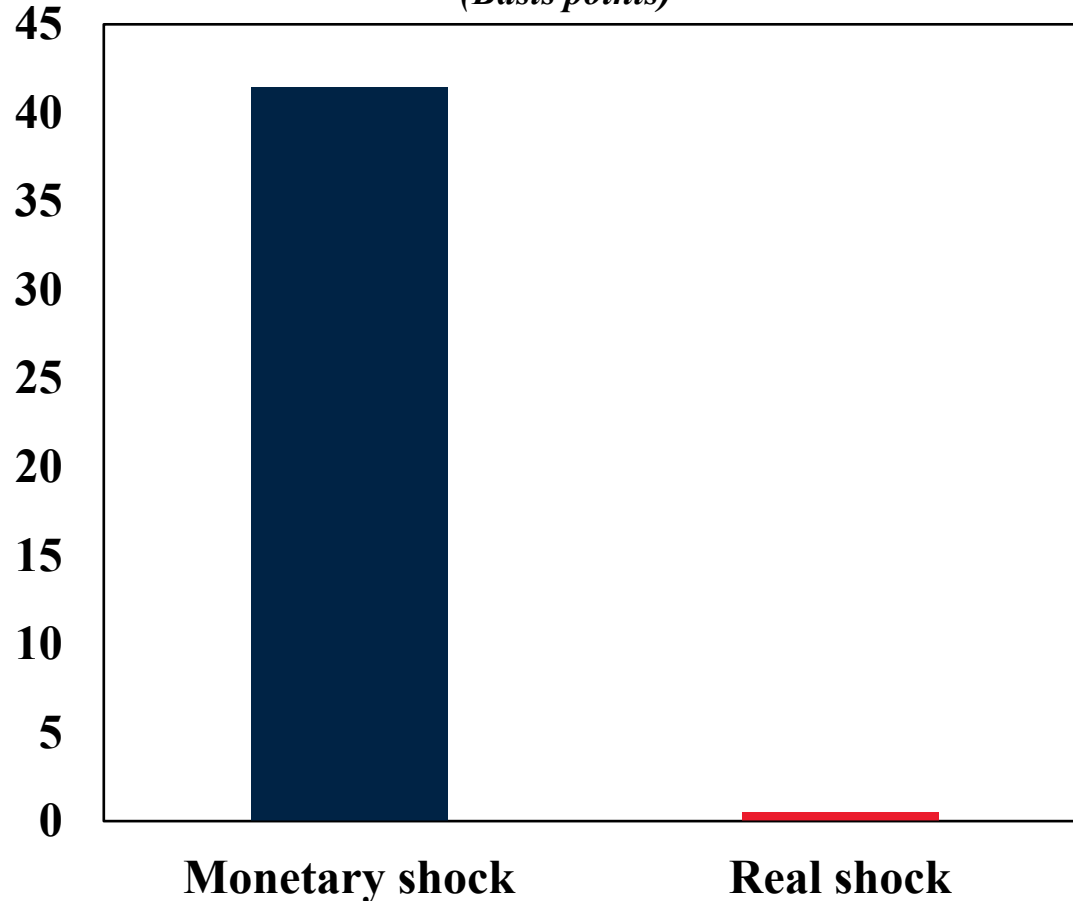
Four Questions

4 **What are the policy implications?** *Preserve financial stability, contain inflation, ensure complementary fiscal and structural policies.*

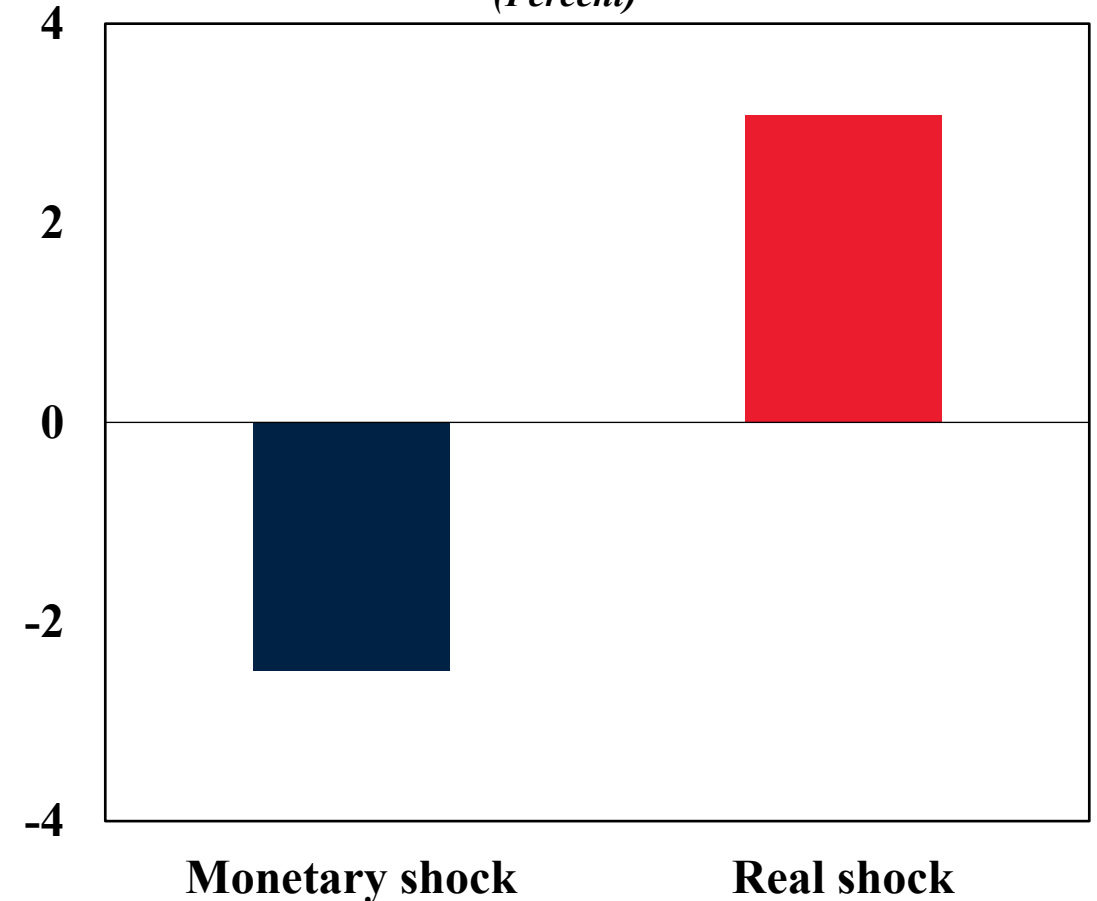
U.S. Monetary Policy Spillovers

Significant Spillovers to EMDEs

Impact of U.S. interest rate on EMDE bond yields
(Basis points)



Impact on U.S. interest rate on EMDE equity prices
(Percent)



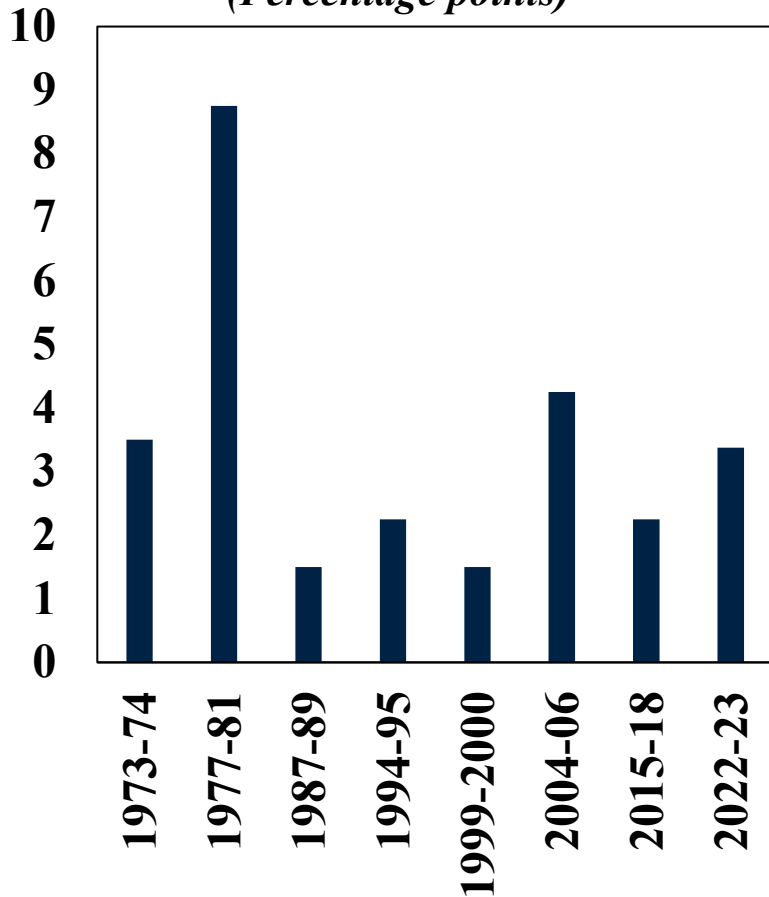
Sources: Arteta et al. (2015); Bloomberg

Note: Left Panel. Impulse responses impact of a U.S. monetary or real interest rate shock after 12 months from a panel VAR model including EMDE industrial production, long-term bond yields, stock prices, nominal effective exchange rates and bilateral exchange rates against the U.S. dollar, and inflation, with monetary and real shocks (estimated in a sign-restricted VAR) as exogenous regressors.

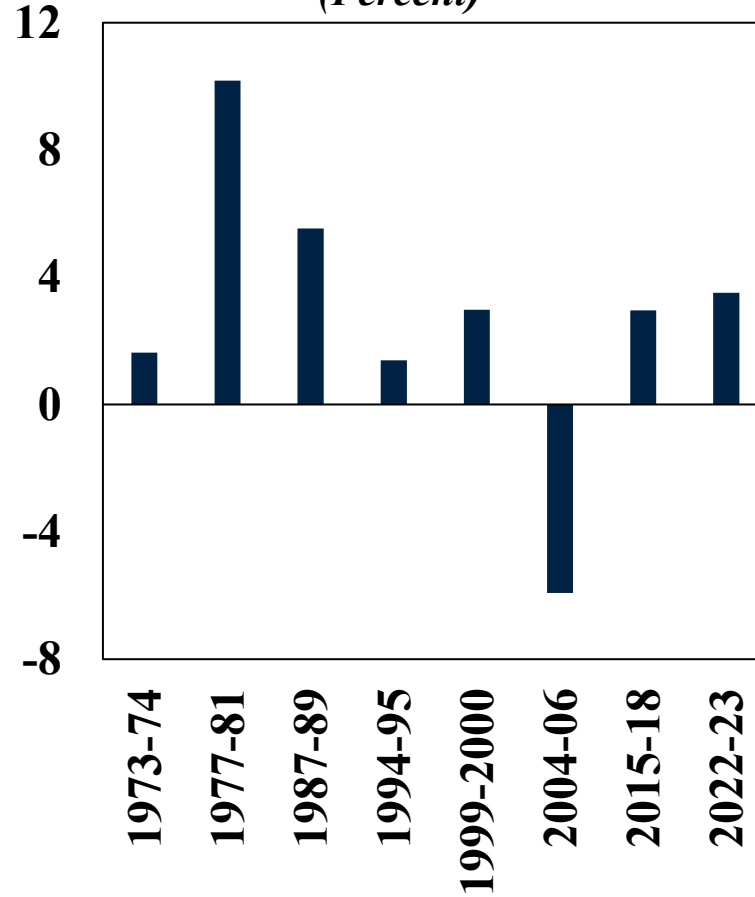
Past U.S. Fed Tightening Cycles

Interest Rate Increases, Dollar Appreciation, Global Growth Slowdown

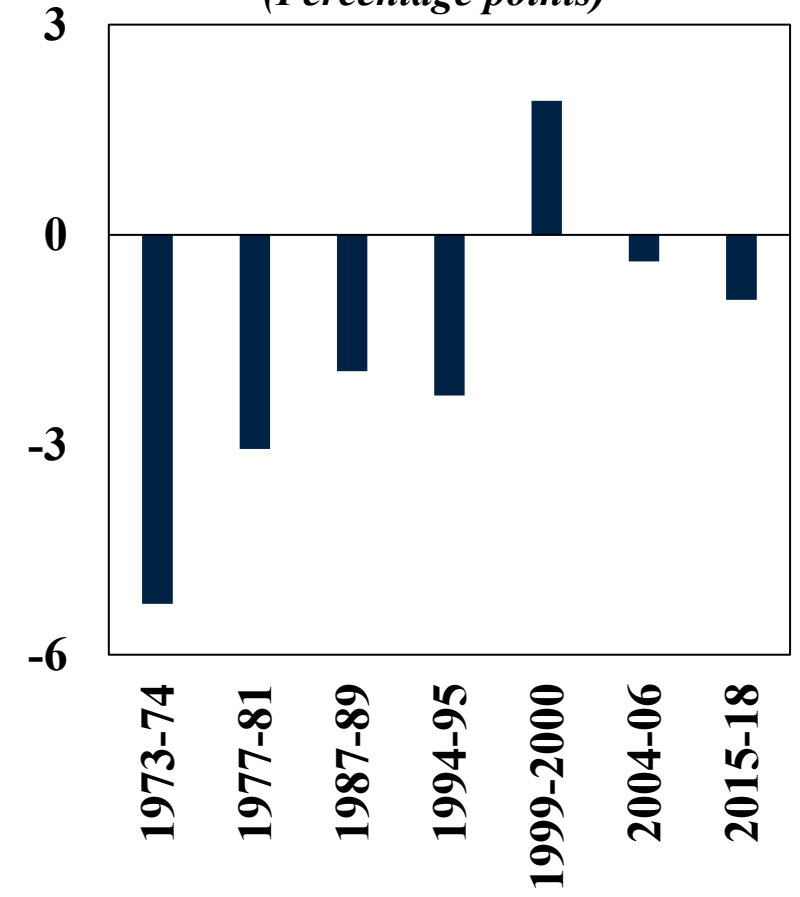
Cumulative U.S. policy rate increase
(Percentage points)



U.S. dollar appreciation
(Percent)



Global growth change
(Percentage points)

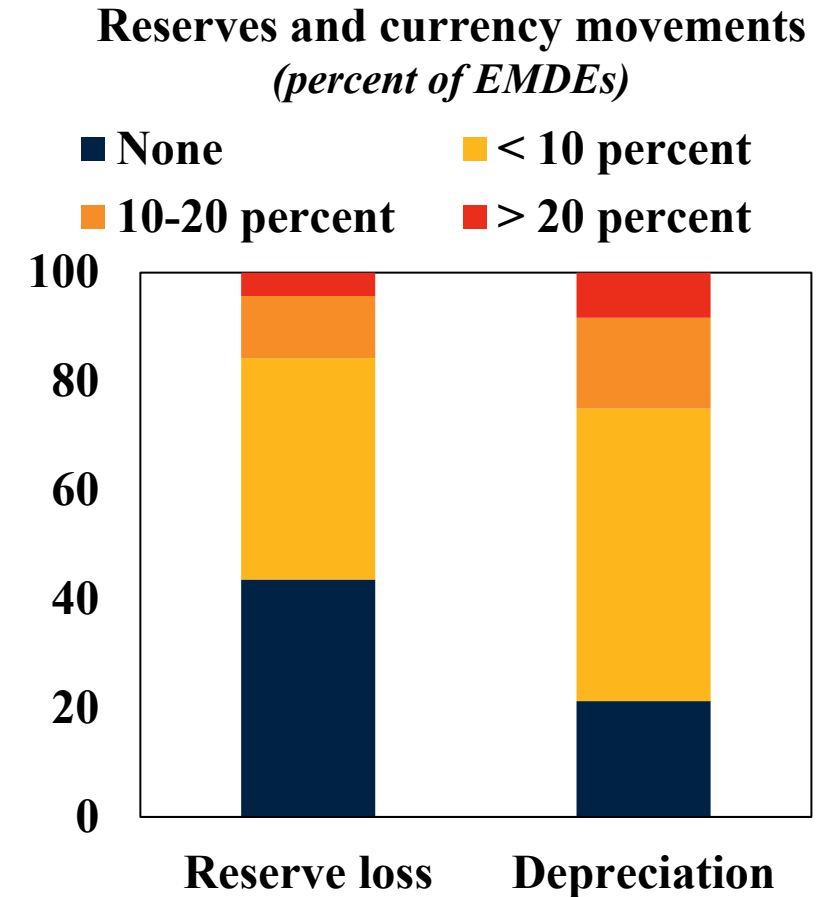
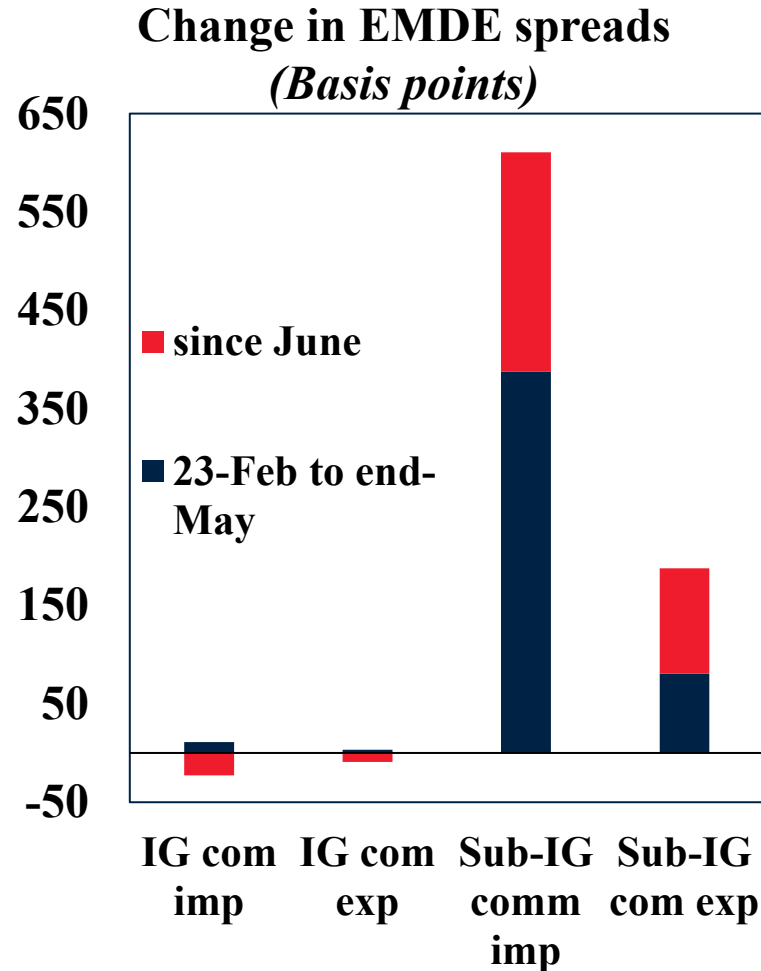
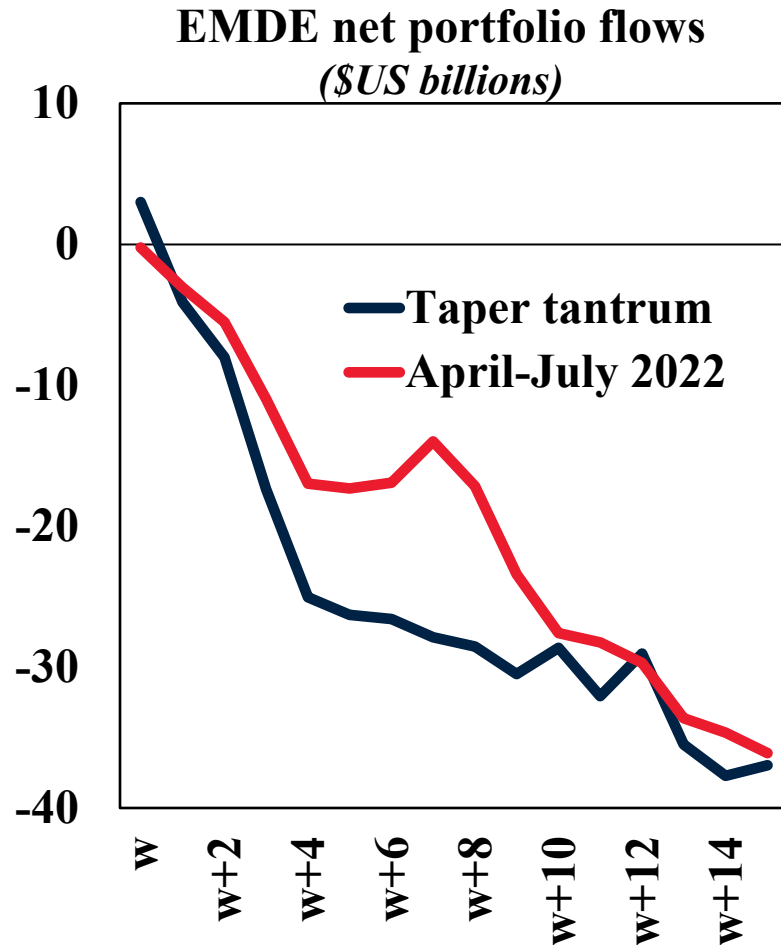


Sources: FRED database; Ha, Kose, and Ohnsorge (2020); World Bank.

Note: Fed tightening cycles are Q1 1973-Q2 1974; Q3 1977-Q2 1981; Q3 1987-Q1 1989; Q2 1994-Q1 1995; Q3 1999-Q2 2000; Q2 2004-Q2 2006; Q4 2015-Q4 2018; from Q1 2022 onwards. Left Panel: Cumulative U.S. monetary policy rate increases between the quarter preceding the first rate increase of the cycle and the final rate increase. Center Panel: Nominal effective U.S. dollar appreciation over the course of each Fed tightening cycle. Right Panel: Change in quarter-on-quarter real GDP growth (seasonally adjusted) between the quarter immediately preceding the tightening cycle and the final quarter of the tightening cycle.

Current Financial Conditions

Large Capital Outflows, Borrowing Cost Increases, Depreciations



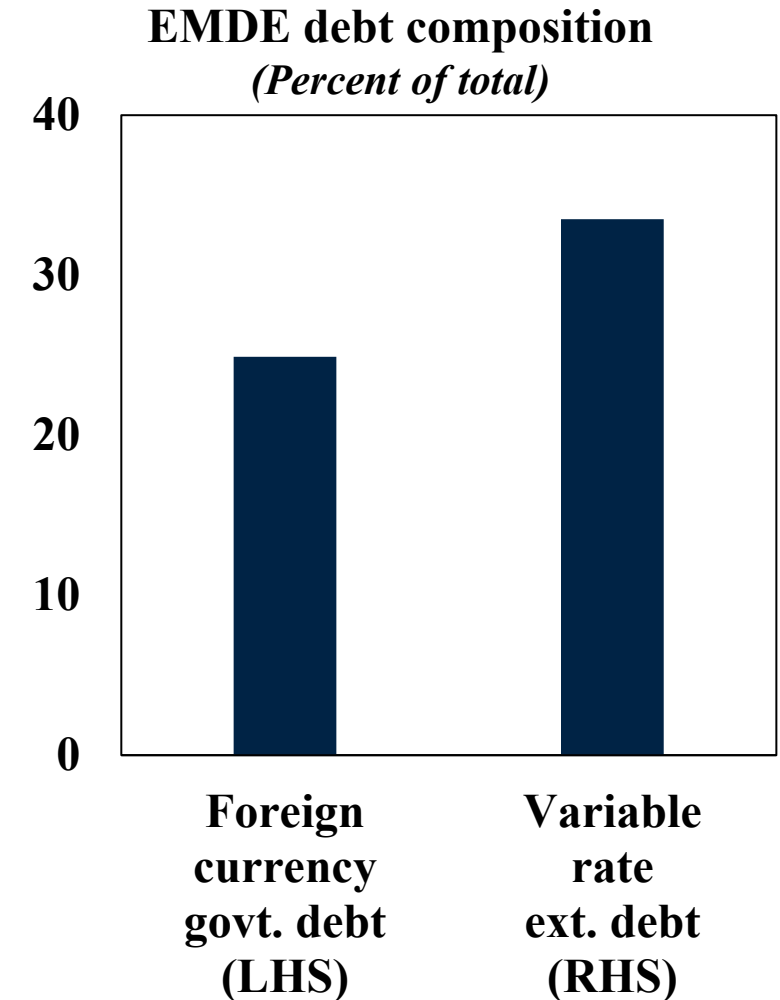
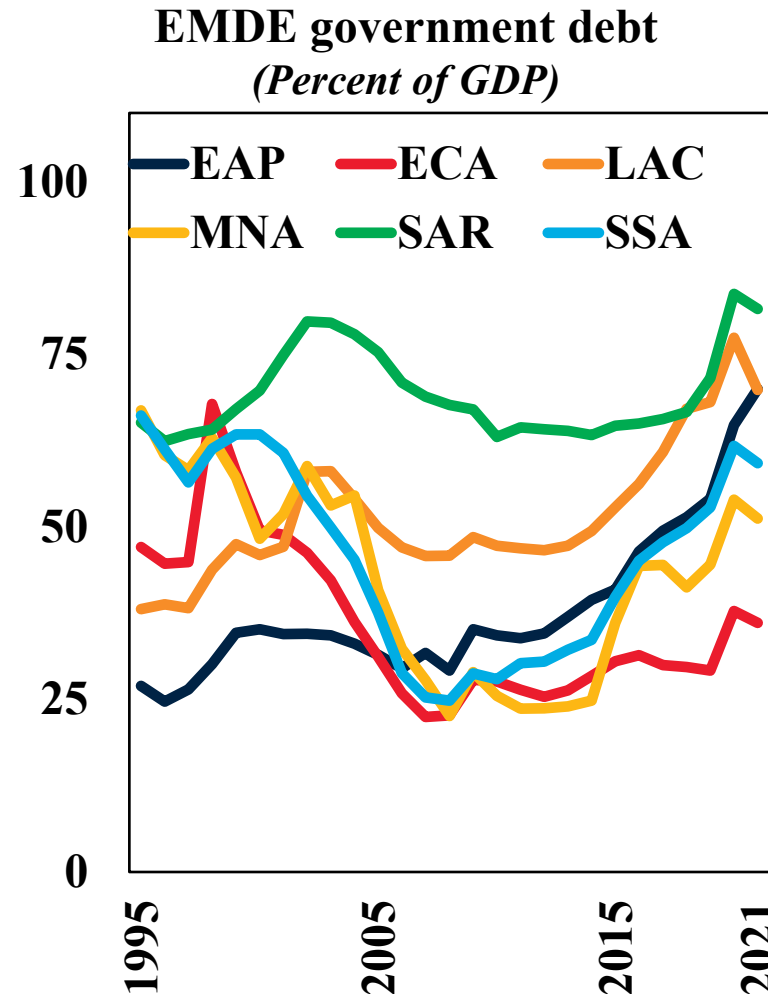
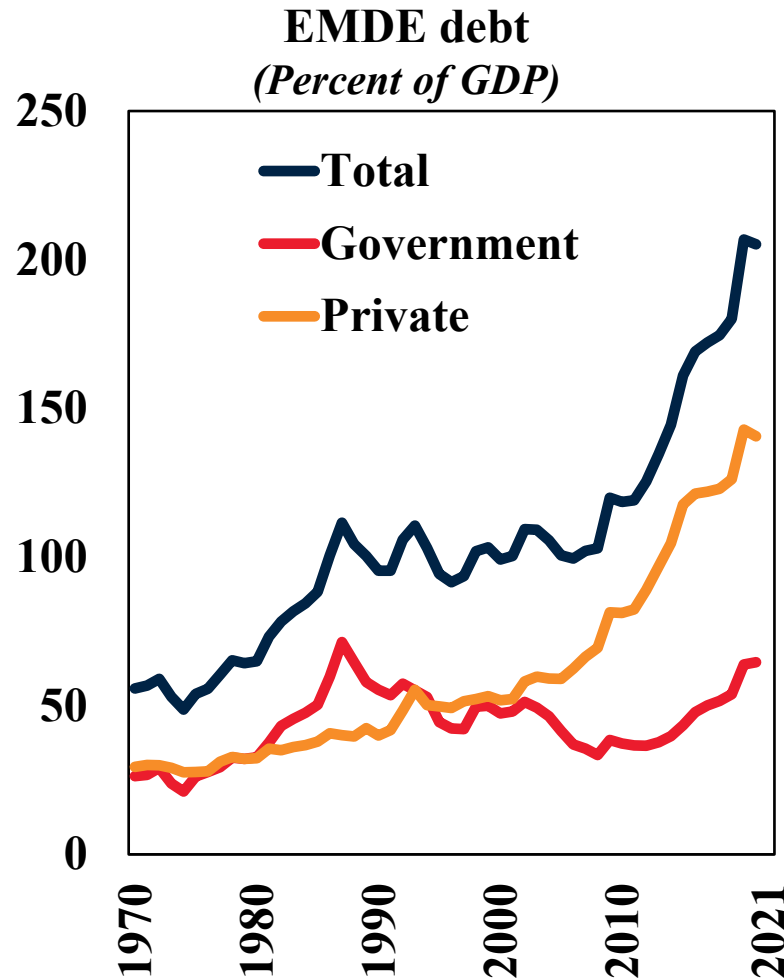
Source: Bloomberg, International Monetary Fund, JP Morgan, World Bank.

Left: Cumulative net portfolio flows. Taper Tantrum period is 16 weeks from 20 May to 6 September 2013. April to July 2022 is 16 weeks from 11 April to 29 July. Countries included are India, Indonesia, Thailand, South Africa, Brazil, Philippines, Turkey, Sri Lanka, Pakistan, Saudi Arabia, Hungary, Mexico, Poland and Ukraine. Center: Credit ratings based on Fitch Ratings.

Right: Reserve losses are reductions in the value of official reserve from end-2021 to latest available data. Currency movements are nominal movements against the U.S. dollar thus far in 2022.

Financial Stability Risks

Rising Debt Servicing Burdens for EMDEs



Sources: Ha, Kose, and Ohnsorge (2020); World Bank.

Note: EMDEs = Emerging market and developing economies.

Left Panel: Debt as percent of GDP. Sample size varies between years based on data availability. Minimum sample size is 71 and maximum 153. Total is a sum of government and private debt.

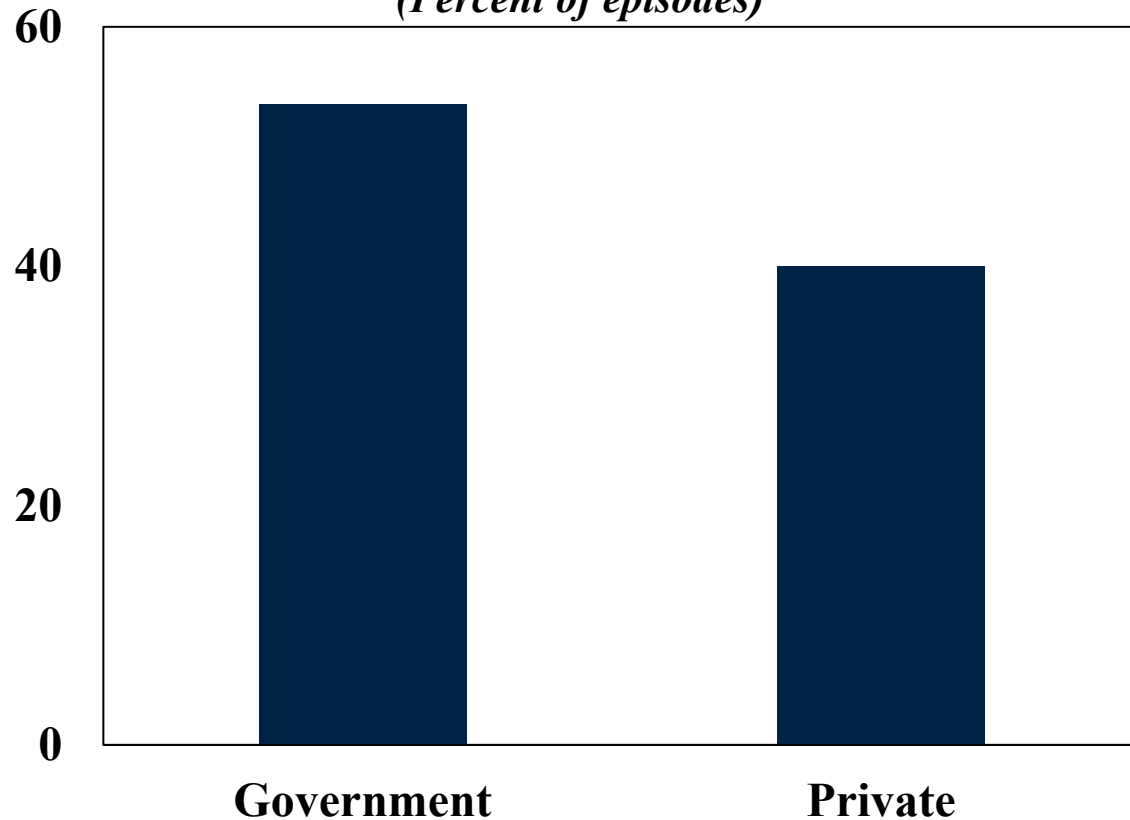
Center Panel: EMDE debt as percent of GDP, by region. Sample size varies between years based on data availability.

Right Panel: Averages of foreign currency share of government debt (for up to 36 EMDEs) and variable rate share of external debt.

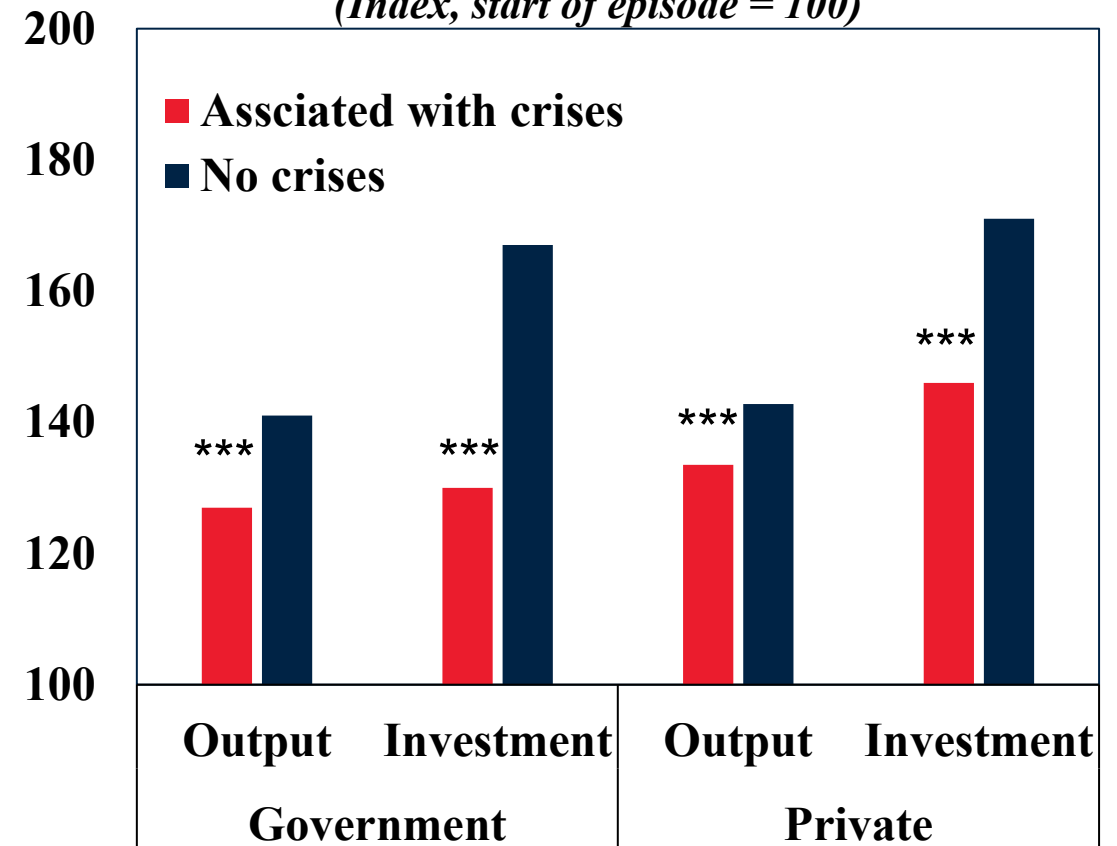
Debt Crises

Associated with Rapid Debt Accumulation, Economically Costly

Debt accumulation episodes associated with crises
(Percent of episodes)



Output and investment eight years after debt accumulation episodes end
(Index, start of episode = 100)

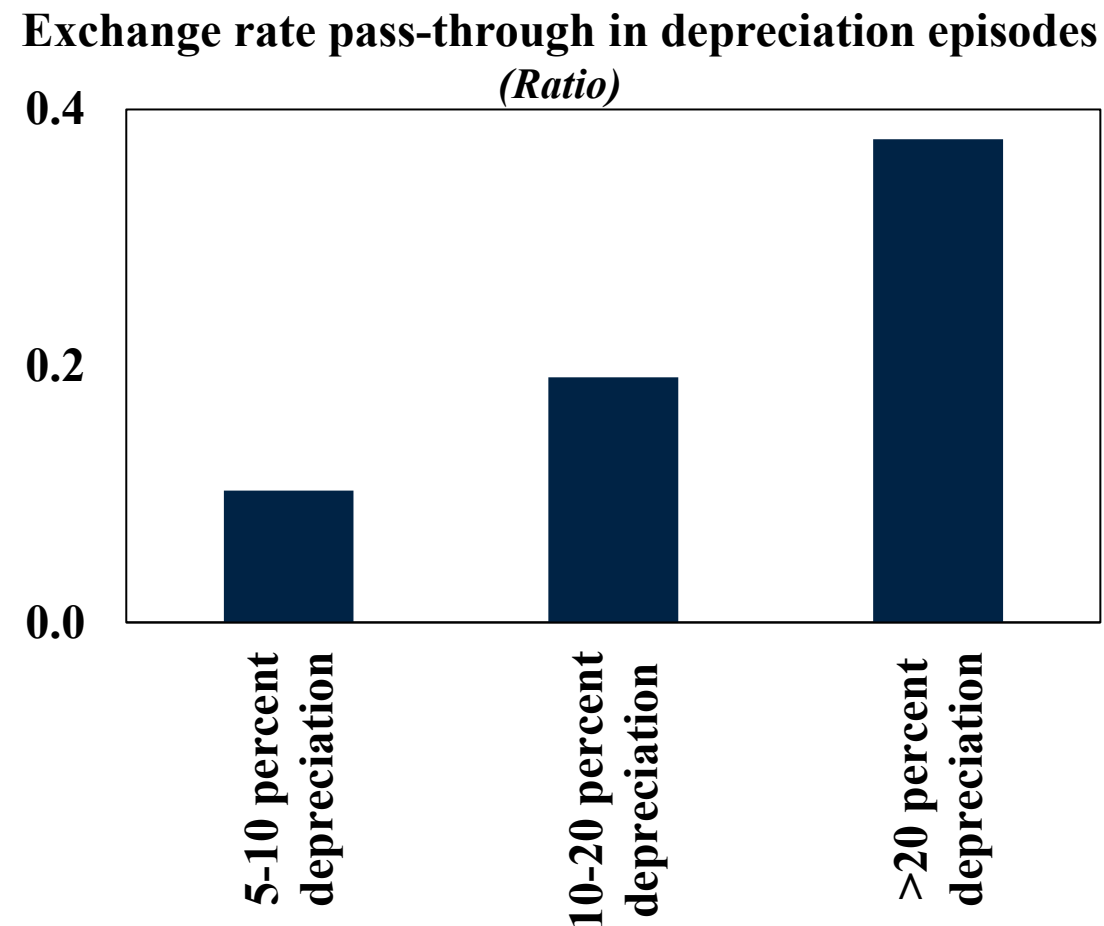
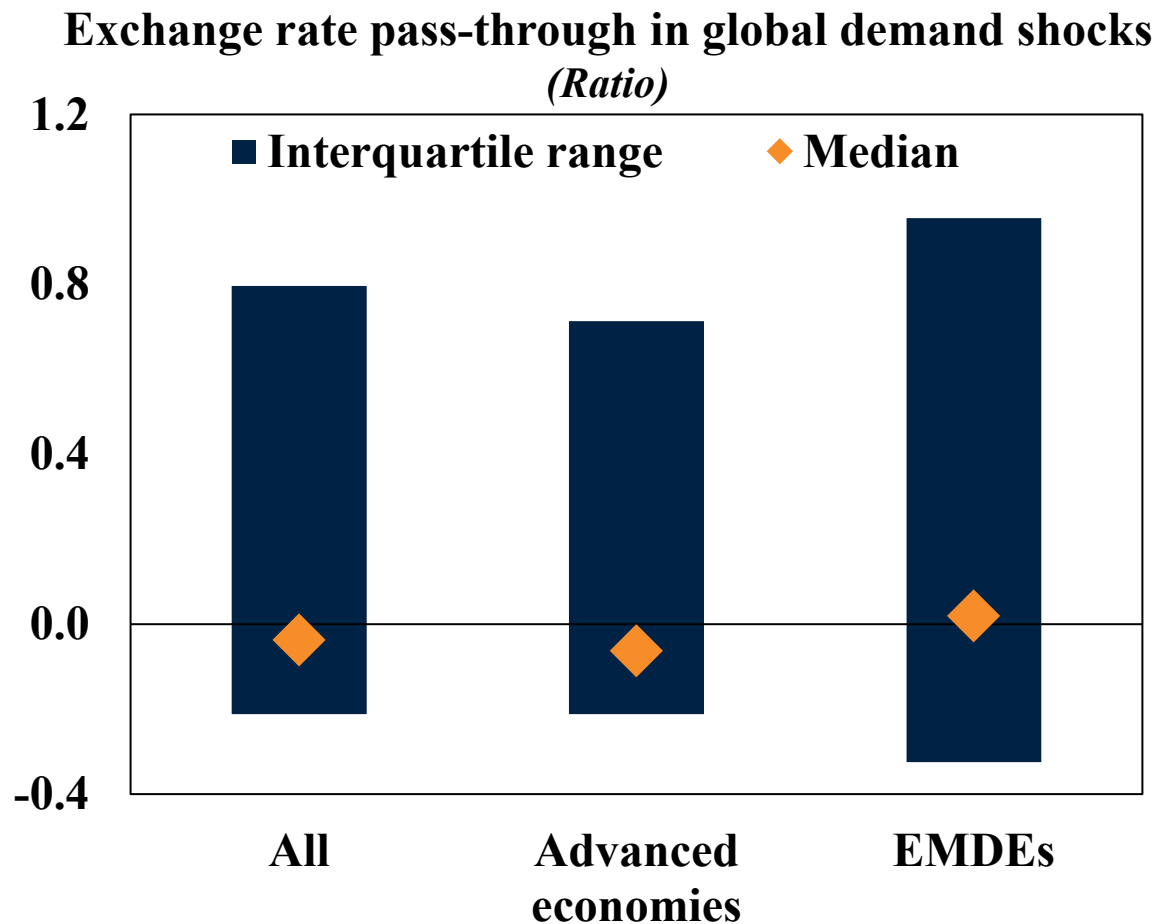


Sources: Ha, Kose, and Ohnsorge (2020); World Bank.

Left Panel: Notes: Episodes associated with crises are those that experience financial crises (i.e., banking, currency, and debt crises, as in Laeven and Valencia 2018) during or within two years after the end of episodes. Right Panel: Note: Median based on balanced samples. Year “t” refers to the beginning of rapid government debt accumulation episodes. Episodes associated with crises are those that experienced financial crises (banking, currency, and debt crises) during or within two years after the end of episodes. The information on crises is taken from Laeven and Valencia (2018). “*”, “***”, and “****” denote that medians between episodes associated with crises and those with no crises are statistically different at 10 percent, 5 percent, and 1 percent levels, respectively, based on Wilcoxon rank-sum tests.

Inflation Risks

Exchange Rate Pass-Through to Inflation



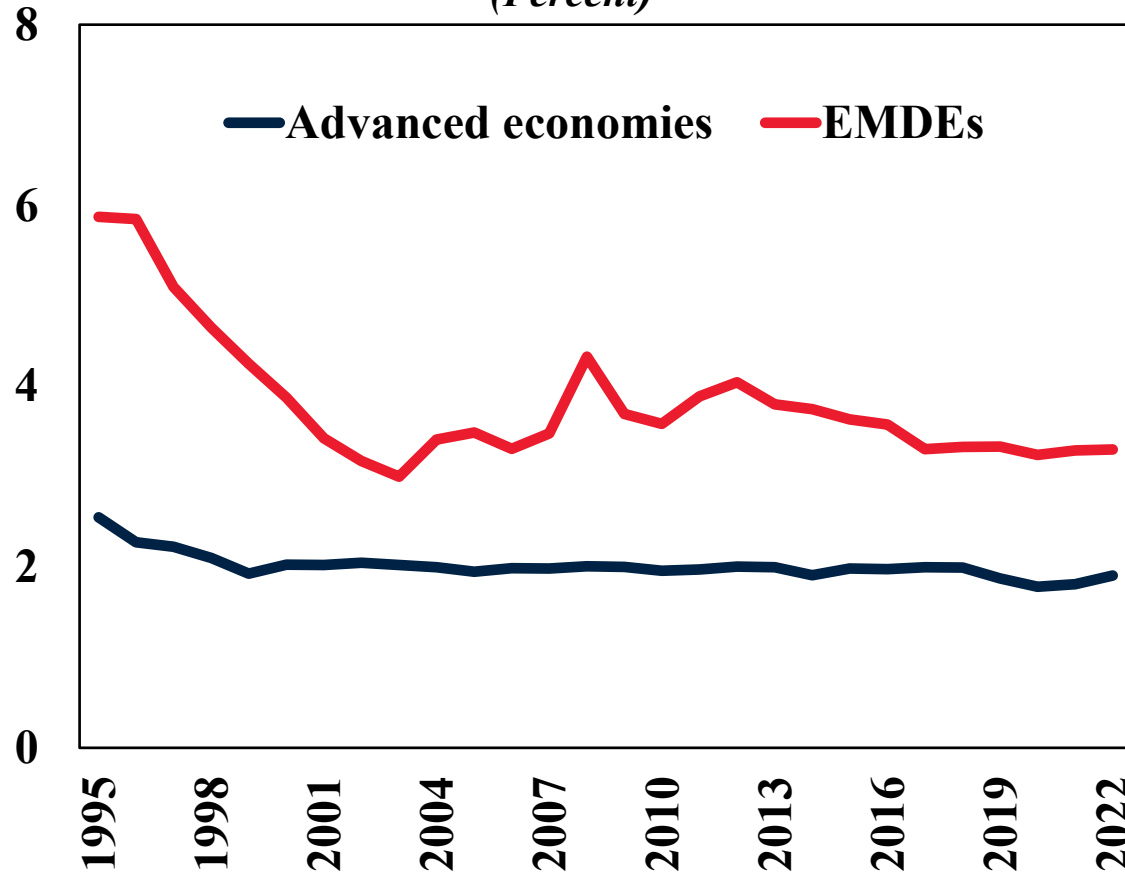
Sources: Ha, Kose, and Ohnsorge (2020); World Bank.

Note:: Depreciations are defined as positive quarterly changes in the nominal effective exchange rate. Pass-throughs are defined as the change in consumer prices after one quarter divided by the depreciation of the nominal effective exchange rate. A positive pass-through indicates that depreciation is associated with inflation. Left Panel: Pass-throughs are defined as the ratio between the one-year cumulative impulse response of consumer price inflation and the one-year cumulative impulse response of the exchange rate change estimated from FAVAR models for 29 advanced economies and 26 EMDEs over the period 1998-2017. Bars show the interquartile range and markers represent the median across countries. Right Panel: Pass-throughs are defined as the change in consumer prices after one quarter divided by the depreciation of the nominal effective exchange rate. Right Panel: The sample comprises depreciation episodes (defined as quarterly movements in excess of 5 percent) in 34 advanced economies and 138 EMDEs. The markers refer to the median pass-through. The bars show the interquartile range of pass-throughs.

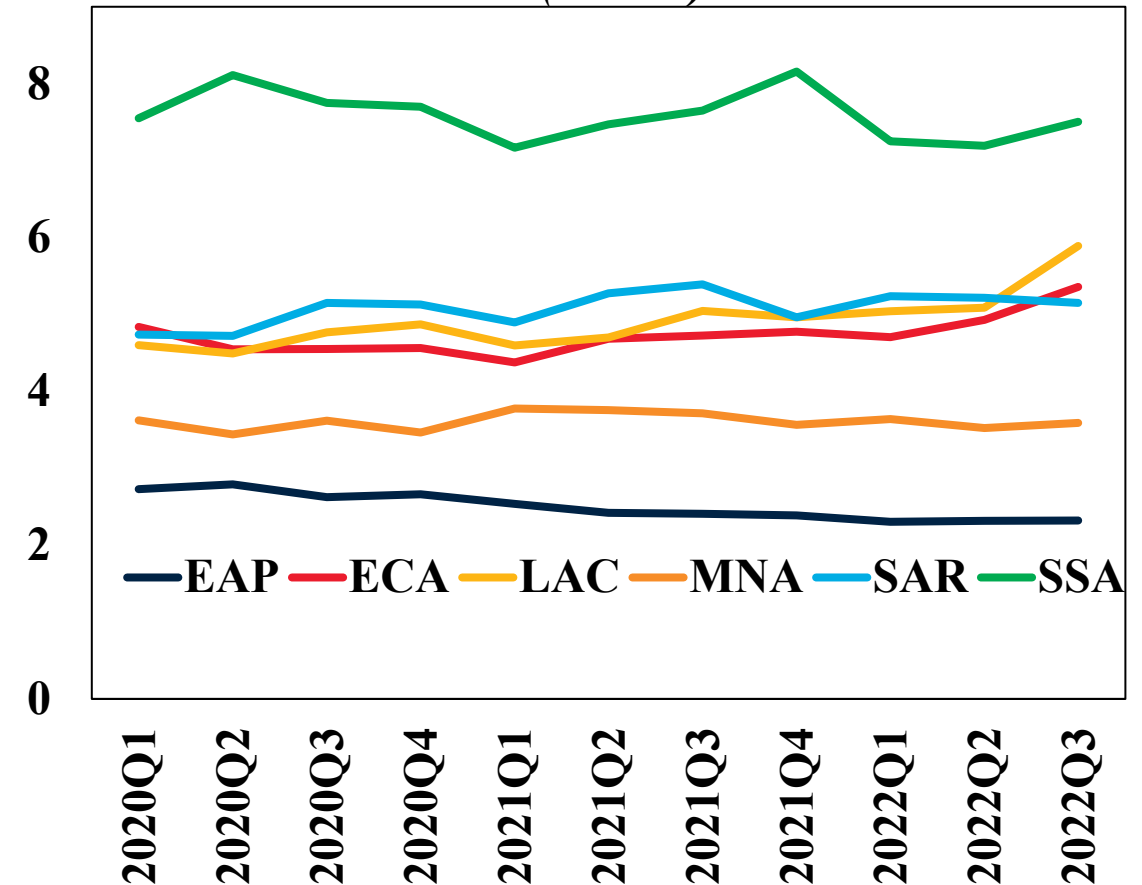
Longterm Inflation Expectations

Risk of De-Anchoring in Some EMDE Regions

Five-year-ahead inflation expectations
(Percent)



Five-year-ahead inflation expectations
(Percent)



Sources: Ha, Kose, and Ohnsorge (2020); International Monetary Fund; World Bank.

Note: EMDEs = Emerging market and developing economies, EAP = East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa, SAR = South Asia, SSA = Sub-Saharan Africa. Left Panel: Median five-year ahead inflation expectations for 18 EMDEs and 24 advanced economies. Right panel: Real GDP-weighted five-year ahead inflation expectations for 5 EAP, 19 ECA, 17 LAC, 3 MNA, 2 SAR, and 2 SSA economies.

Policy Lessons from the 1970s

Increase Efficiency, Transparency, New Supplies

Energy (1970s)

- Creation of national oil reserves (Strategic Petroleum Reserve in the U.S.)
- Establishment of IEA to share information
- Mandates to improve efficiency (lower speed limits; car and home appliance efficiency)
- Ban on oil-fired electricity generation, replaced by coal

Agriculture

- Some export bans and increased protection (1970s)
- Extensive use of trade restrictions and export bans (2007-08 and 2010-11)
- Establishment of the Agricultural Marketing Information System (2012) to share information and data (similar to IEA)

Four Questions

- 1 What are short-term prospects for inflation?** *Inflation is running at multi-year highs, in a sharp reversal over the past decade, but is expected to ease.*
- 2 What are long-term prospects for inflation?** *Structural forces that have depressed inflation over the past two decades may now be fading.*
- 3 Which threat does stagflation present for EMDEs?** *A risks of a repeat of the 1970s when stagflation ended with a series of financial crises in EMDEs.*
- 4 What are the policy implications?** *Preserve financial stability, contain inflation, ensure complementary fiscal and structural policies.*

Thanks!
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