EQUITABLE GROWTH, FINANCE, AND INSTITUTIONS POLICY NOTE

Is a Global Recession Imminent?

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WORLD BANK GROUP
Equitable Growth, Finance & Institutions

EFI Policy Note 4

SEPTEMBER 2022

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The odds of recession in Europe, the United States, and China are significant and increasing, and a collapse in one region will raise the odds of collapse in the others… The risks of a global recession trifecta are rising by the day.
Kenneth Rogoff, April 26, 2022

A global recession is entirely avoidable… Even by laxer criteria like GDP growth below 2.5 percent, global recession is very far from inevitable.
Jeffrey Frankel, August 25, 2022

Whether the balance of risks is toward inflation, recession, or a smooth landing from current turbulence depends on unknowns such as the duration of the Ukraine war… …. But a global recession is certainly not inevitable.
Anne O. Krueger, August 25, 2022

… If these two economies (the US and China) are both in their respective versions of recession, then that will virtually guarantee a global downturn. Given their current weaknesses and challenges, such a scenario is quite possible… But I am less convinced of this than I probably was a few months ago…
Jim O'Neill, August 25, 2022

Notwithstanding the pitfalls of forecasting anything these days, my cracked and worn crystal ball sees a global recession occurring in the next year…. Collectively, Europe, the US, and China make up about half of world GDP on a purchasing-power-parity basis. With no other economy able to fill the void, I am afraid a global recession does indeed appear inevitable.
Stephen S. Roach, August 25, 2022

EXECUTIVE SUMMARY

***Context*.** Since the beginning of the year, a rapid deterioration of growth prospects, coupled with rising inflation and tightening financing conditions, has ignited a debate about the possibility of a global recession—a contraction in global per capita GDP (Figure 0.A). Drawing on insights gained from previous global recessions, this study presents a systematic analysis of the recent evolution of economic activity and policies, and a model-based assessment of possible near-term macroeconomic outcomes.

Evolution of activity. Consensus forecasts for global growth in 2022 and 2023 have been downgraded significantly since the beginning of the year. Although these forecasts do not point to a global recession in 2022–23, experience from earlier recessions suggests that at least two developments—which either have already materialized in recent months or may be underway—heighten the likelihood of a global recession in the near future. First, every global recession since 1970 was preceded by a significant weakening of global growth in the previous year, as has happened recently (Figure 0.B). Second, all previous global recessions coincided with sharp slowdowns or outright recessions in several major economies.

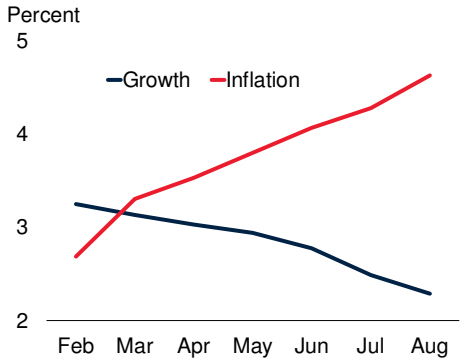
Evolution of policies. Despite the current slowdown in global growth, inflation has risen to multi-decade highs in many countries. To stem risks from persistently high inflation, and in a context of limited fiscal space, many countries are withdrawing monetary and fiscal support. As a result, the global economy is in the midst of one of the most internationally synchronous episodes of monetary and fiscal policy tightening of the past five decades (Figure 0.C). These policy actions are necessary to contain inflationary pressures, but their mutually compounding effects could produce larger impacts than intended, both in tightening financial conditions and in steepening the growth slowdown. This synchronous policy tightening contrasts with the policies adopted around the 1975 global recession but is similar to those implemented ahead of the 1982 recession. A major lesson from these two episodes is that making necessary policy adjustments in a timely fashion is essential to containing inflationary pressures and reducing the output costs of policy interventions.

Near-term growth outcomes. Three scenarios for the global economy over 2022-24 are analyzed using a large-scale, cross-country model (Figure 0.D). The first, *baseline scenario*, aligns closely with recent consensus forecasts of growth and inflation, as well as market expectations for policy interest rates. However, it implies that the degree of monetary policy tightening currently expected may not be enough to restore low inflation in a timely fashion. The second scenario, *sharp downturn*, assumes an upward drift in inflation expectations, which triggers additional synchronous monetary policy tightening by major central banks. In this scenario, the global economy would still escape a recession in 2023 but would experience a sharp downturn without restoring low inflation by the end of the forecast horizon. In the third scenario, *global recession*, additional increases in policy rates would trigger a sharp re-pricing of risk in global financial markets and result in a global recession in 2023 (Figure 0.E). If the ongoing global slowdown turns into a recession, the global economy could end up experiencing large permanent output losses relative to its pre-pandemic trend (Figure 0.F). This would have severe consequences for the long-term growth prospects of emerging market and developing economies that were already hit hard by the pandemic-induced global recession of 2020.

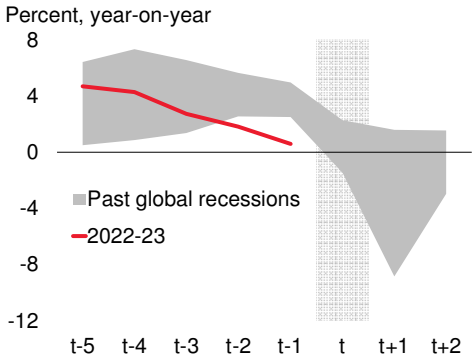
Policy responses. Policymakers need to navigate a narrow path that requires a comprehensive set of demand- and supply-side measures. On the demand side, monetary policy must be employed consistently to restore, in a timely manner, price stability. Fiscal policy needs to prioritize medium-term debt sustainability while providing targeted support to vulnerable groups. Policymakers need to stand ready to manage the potential spillovers from globally synchronous withdrawal of policies supporting growth. On the supply-side, they need to put in place measures to ease the constraints that confront labor markets, energy markets, and trade networks.

Figure 0. Global recession: activity, policies, and outcomes

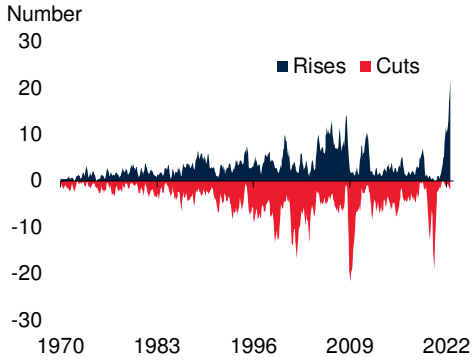
A. Evolution of global growth and inflation forecasts for 2023



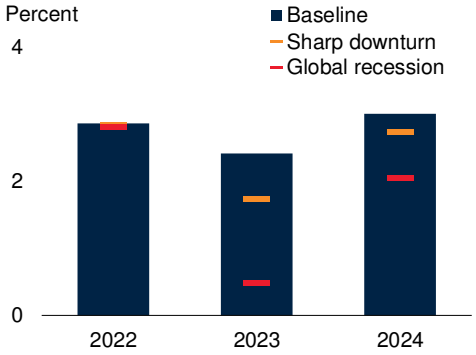
B. Global GDP growth during global recessions



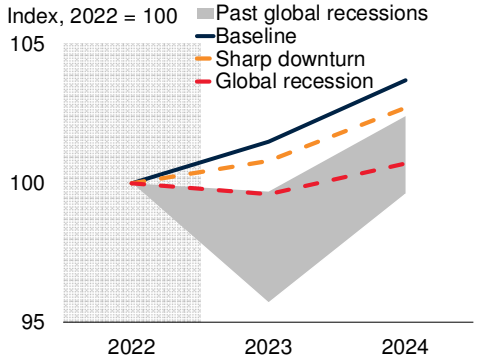
C. Global policy rate rises and cuts



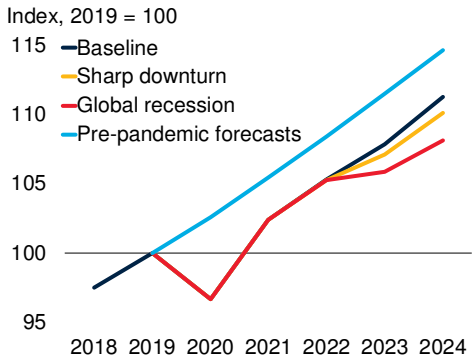
D. Global GDP growth under different scenarios



E. Global per capita GDP under different scenarios



F. Evolution of global GDP



Sources: Bank for International Settlements; Consensus Economics; Haver Analytics; Kose, Sugawara, and Terrones (2020); Organisation for Economic Co-operation and Development; Oxford Economics; World Bank.

A. Consensus forecasts of global growth are weighted by GDP in U.S. dollars based on 86 countries, and consensus inflation forecasts are based on median based on 83 countries. The last observation is August 2022.

B. Global GDP growth around the five global recessions, as well as in recent period, based on the quarterly data. Past global recessions show the range for the five global recessions (i.e., 1975, 1982, 1991, 2009, and 2020), and time "t" denotes the beginning of respective global recessions: 1974Q1, 1981Q4, 1990Q4, 2008Q3, and 2020Q1, respectively. For 2022-23, time "t" shows 2023Q1. Data over t-3 to t-1 in 2022–23 (i.e., 2022Q2 to 2022Q4) are computed with consensus forecasts of quarterly growth in 45 countries.

C. Three-month average of the number of policy rate rises and cuts over the month for 38 countries including euro area. The last observation is July 2022.

D.E. These scenarios (Baseline, Sharp downturn, and Global recession) are produced using the Oxford Economics Global Economic Model and expressed as the values in 2022 equal to 100. For past global recessions, the range shows the minimum-maximum range of past five global recessions and the values one year prior to each global recession (for example, 1974 for the 1975 global recession, and 2019 for the 2020 global recession) are equal to 100.

F. Data are shown as an index (2019 = 100). The pre-pandemic forecasts are based on growth forecasts in the January 2020 long-term consensus forecasts over 2020–24.

I. INTRODUCTION

Just two years after the pandemic-induced global recession of 2020, the world economy is again facing difficult challenges. As growth is slowing sharply, fears of an impending global recession are rising (Figure 1A). Stagflationary pressures are also mounting as inflation reaches new multi-decade highs in many countries (Figures 1B and 1C). Geopolitical tensions are casting a long shadow over global growth prospects, with the Russian Federation's invasion of Ukraine magnifying pre-existing supply-side challenges and intensifying volatility in commodity markets. Moreover, rising global borrowing costs are heightening the risk of financial stress among the many emerging market and developing economies (EMDEs) that over the past decade have accumulated debt at the fastest pace in more than half a century (Figure 1D).[1]

As the quotes above show, there has recently been a vigorous debate about the near-term prospects for the global economy and the chances of global recession.[2] Our study aims to inform this debate with a systematic analysis of recent developments drawing on lessons from previous global recessions and a careful assessment of possible near-term growth scenarios based on a well-defined modelling framework. We address three specific questions:

- How does the recent evolution of economic activity compare with that prior to earlier global recessions?
- How do recent macroeconomic policy actions differ from those preceding earlier global recessions?
- What is the outlook for global growth in 2022-24?

In answering these questions, we make the following contributions:

- *Insights from previous global recessions* (defined as contractions in annual global per capita GDP) *and global downturns* (which are marked slowdowns in annual global GDP growth that do not entail outright contractions). We review the main features of previous global recessions and downturns for the light they shed on near-term prospects for the global economy.
- *Analysis of policy actions.* After providing unprecedented policy support during the pandemic, many countries have implemented increasingly tighter fiscal and monetary policies. We study how these policy actions compare with those that preceded earlier global recessions and consider the implications of this exceptionally synchronous shift in policies for near-term prospects.

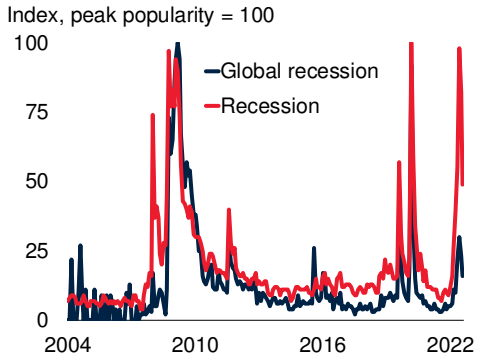
[1] For detailed discussions of the impact of the war in Ukraine on the global economy, see Guénette, Kenworthy, and Wheeler (2022) and World Bank (2022a); for a comprehensive analysis of stagflationary risks, see Ha, Kose and Ohnsorge (2022a, 2022b); and for the implications of recent trade disruptions and volatility in energy and food markets, see World Bank (2022b) and Baffes and Nagle (2022).

[2] This debate initially focused on how much monetary tightening will be required in the United States to reduce inflation and whether this will result in a recession in the U.S. economy (Barro 2022; El Erian 2022; Monteiro 2022; Powell 2022). More recently, there has been a broader debate on the possibility of a global recession in the context of a material weakening of activity in the United States, the euro area, and China (Frankel 2022; Krueger 2022; O'Neill 2022; Roach 2022; Rogoff 2022).

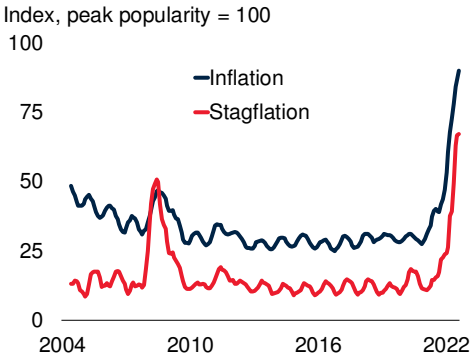
- *Quantitative analysis of likely growth outcomes.* Using a standard semi-structural model, we present a detailed quantitative assessment of possible global growth scenarios for 2022-24. The model allows us to analyze different types of shocks and evaluate their implications for advanced economies and EMDEs. Our scenarios are informed by insights from previous global recessions. They describe three possible outcomes—a baseline representing recent forecasts, a sharp downturn, and a global recession.

Figure 1. Global context

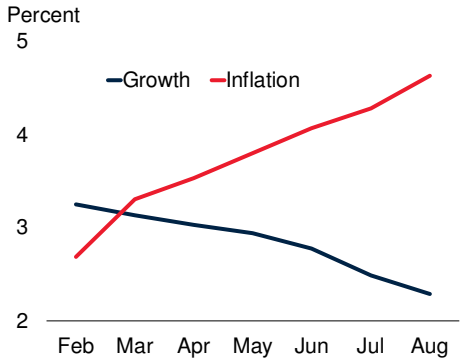
A. Web searches about recessions



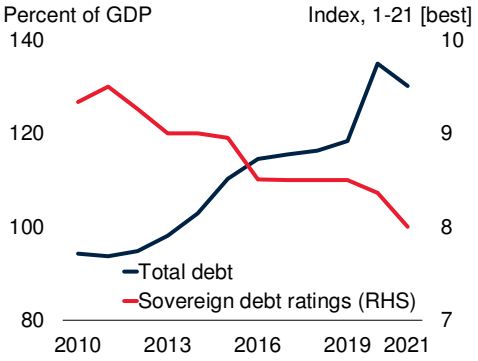
B. Web searches about inflation and stagflation



C. Evolution of global growth and inflation forecasts for 2023



D. Total debt and sovereign debt ratings in EMDEs



Sources: Consensus Economics; Google; Kose et al. (2021, 2022); World Bank.

A.B. Figure shows monthly index numbers that represent search interest for the terms "global recession" and "recession" (Panel A), and "inflation" and "stagflation" (Panel B), relative to the highest point (i.e., peak popularity for the term, equal to 100). The information is obtained via Google Trends on September 6, 2022, with the following features: worldwide coverage, all categories, and web search. In Panel B, data are shown as a six–month moving average. The last observation is August 2022.

C. Consensus forecasts of global growth are weighted by GDP in U.S. dollars based on 86 countries, and consensus inflation forecasts are based on median based on 83 countries. The last observation is August 2022.

D. Sample includes EMDEs excluding China. Total debt is defined as a sum of general government gross debt and domestic credit to the private sector and shown as nominal GDP-weighted averages. Sovereign debt ratings are presented as median.

In Section II, we briefly summarize the main features of the global recessions and downturns that have occurred since 1970. There have been five global recessions in this period—in 1975, 1982, 1991, 2009, and 2020. Each was characterized by broad-based weakness in multiple indicators of global activity as a result of highly synchronized recessions in many countries. The global recessions were associated with confluences of a wide range of concurrent or preceding developments, including financial crises (1982, 1991, 2009), a major shift in policies (1982), sharp

movements in oil prices (1975, 1982), and a pandemic (2020). In addition to the five global recessions, the global economy experienced downturns in 1998, 2001, and 2012—driven mostly by financial stress concentrated in certain groups of countries. During each of these downturns, the global economy avoided a recession but experienced relatively weak growth.

Armed with an understanding of previous global recessions and downturns, we examine the recent evolution of global activity in Section III. Since the beginning of the year, consensus forecasts for global growth in 2022 and 2023 have been significantly downgraded reflecting the effects of the war in Ukraine, persistent supply disruptions, and, perhaps most importantly, global monetary policy tightening in response to elevated inflation.[3] While these forecasts do not point to a global recession as the most likely outcome in 2022-23, they suggest that the world economy will experience a slowdown next year.

However, experience from earlier recessions suggests that at least two recent developments increase the likelihood of a global recession in the near future. First, since mid–2021, there has been a steady deterioration in high-frequency indicators of activity globally. Every global recession since 1970 was preceded by a significant weakening of global growth in the previous year. Indeed, recent forecast downgrades are partly a reflection of data showing weaker global growth. Also, as in the periods preceding past recessions, global asset prices and confidence have declined since the beginning of 2022. Second, all previous global recessions coincided with sharp slowdowns or outright recessions in several major economies. Growth forecasts for the United States, euro area, and China have recently been lowered significantly.

In Section IV, we assess the implications of current policies, guided by lessons from previous global recessions. Despite the slowdown in global growth, inflation has risen to multi-decade highs in many countries and shows signs of persistence. To stem the threats from persistently high inflation, and in a context of limited fiscal space, many countries are withdrawing monetary and fiscal support. These tightening policies have exacerbated the weakening of demand while they have counteracted the rise in inflation.

Policy responses to the 1975 and 1982 global recessions are informative in the current context of globally synchronous tightening policies. During the 1975 global recession, policies generally remained supportive of demand, even as inflation was elevated. This initially countercyclical policy response contributed to persistent inflation and a protracted period of stagflation during the second half of the 1970s and the early 1980s. Monetary policy was eventually tightened significantly in several major advanced economies—most notably in the United States—in the late 1970s and early 1980s to control inflation. This procyclical monetary policy response was successful in reducing inflation but was also the main driver of the 1982 global recession.

A major lesson from the 1975 and 1982 global recessions for the current episode is that making necessary policy adjustments in a timely fashion is essential to containing inflationary pressures and reducing the output costs associated with delayed policy interventions. Over the past three decades, many central banks have set their monetary policy instruments to achieve low inflation targets and have established credible track records of achieving them (Bernanke 2006; Bordo et

[3] For the remainder of this paper, we refer to forecasts collected by Consensus Economics as "consensus forecasts." Consensus forecasts used in this study are based on data surveyed in August 2022.

al. 2007; Eichengreen 2022). Building on this record, with inflation having risen significantly above these targets during 2021-22, monetary policy now needs to be employed consistently to restore, in a timely manner, price stability, defined by established inflation targets. Fiscal policy can assist in this endeavor by eschewing broad-based accommodative measures and providing targeted support to vulnerable groups.

A globally synchronized tightening of monetary and fiscal policies will likely help reduce inflation. However, because these policies are highly synchronous across countries, they could be mutually compounding in their effects—tightening financial conditions and steepening the global growth slowdown more than envisioned. Tightened financial conditions would especially hurt the more vulnerable EMDEs. The prospect of this compounding suggests that national policymakers should take into account potential spillovers of globally synchronous tightening of policies (Obstfeld 2022a, 2022b).

After analyzing the recent evolution of activity and policies, we study three plausible scenarios for the global economy over 2022-24 using a large-scale, cross-country, semi-structural model. Two of the scenarios correspond to the materialization of specific risks: an upward drift in inflation expectations requiring additional synchronous monetary policy tightening and the eruption of acute global financial stress. These scenarios are compared with a baseline scenario that aligns closely with recent consensus forecasts of growth and market-based expectations for policy interest rates.

The baseline scenario implies that the degree of global monetary policy tightening currently expected by market participants will not be enough to restore low inflation in a timely fashion. For this reason, the second scenario (sharp downturn) assumes an increase in inflation expectations, which will trigger additional synchronous monetary policy tightening by major central banks. The global economy would still avoid a recession in 2023 under this scenario but would experience a sharp downturn. Some advanced economies would have short-lived recessions while EMDEs would experience a moderate growth slowdown.

The experience of previous global recessions suggests that additional shocks and/or contractionary policy measures could be the trigger for the next global recession. In the third scenario (global recession), an even larger upward shift in inflation expectations leads to additional policy tightening—well more than that assumed in the second scenario. In turn, aggressive increases in policy rates trigger a sharp re-pricing of risk in global financial markets, exacerbating already heightened macroeconomic vulnerabilities and deepening the ongoing deterioration in confidence. As a result, the global economy would suffer a recession in 2023 similar in magnitude to the one in 1982. In this scenario, output contractions in advanced economies would be within the range of those experienced in previous global recessions. Growth in EMDEs would also sharply decline in 2023. The additional monetary policy tightening—and the associated global recession—would result in significantly lower core inflation over the next two years.

Section VI concludes with a summary of key results and policy messages. While trying to navigate the multiple challenges confronting the global economy, policymakers find themselves in an extremely uncomfortable position. A slowdown typically calls for countercyclical policy

accommodation to support activity. However, the threat of inflation and limited fiscal space are forcing policymakers in many countries to withdraw policy support even as the global economy is experiencing a sharp slowdown. Policymakers need to continue implementing such policies until they securely establish price stability. They also need to carefully calibrate, clearly communicate, and credibly implement these policies while considering the potential spillovers from globally synchronous policy withdrawal. In addition, they can aid in the fight against inflation by putting in place supply-side measures to ease constraints confronting labor markets, energy markets, and trade networks. These supply-side measures offer the added benefit of improving long-term growth prospects.

II. GLOBAL RECESSIONS SINCE 1970

II.1. Main characteristics

A global recession is defined as a contraction in annual global real per capita GDP (Kose and Terrones 2015). Over 1970-2021, the global economy experienced five recessions: in 1975, 1982, 1991, 2009, and 2020 (Figure 2A, Table I.1).[4] During these episodes, per capita global output (market exchange rate weighted) declined by an average of 1.9 percent—3.9 percentage points below the average annual growth rate of 2.0 percent during the 1970-2021 expansion years (Figure 2B). Given the latest projections of population growth, this definition implies that the global economy will experience a recession in the forecast period if real annual world GDP growth declines below about 1 percent. Global output did increase during the first three recessions, but it declined in the 2009 and 2020 episodes. In addition to declines in per capita GDP, global recessions are accompanied by slowdowns in global industrial production, trade, capital flows, employment, and oil consumption—all of which are highly synchronized internationally.[5]

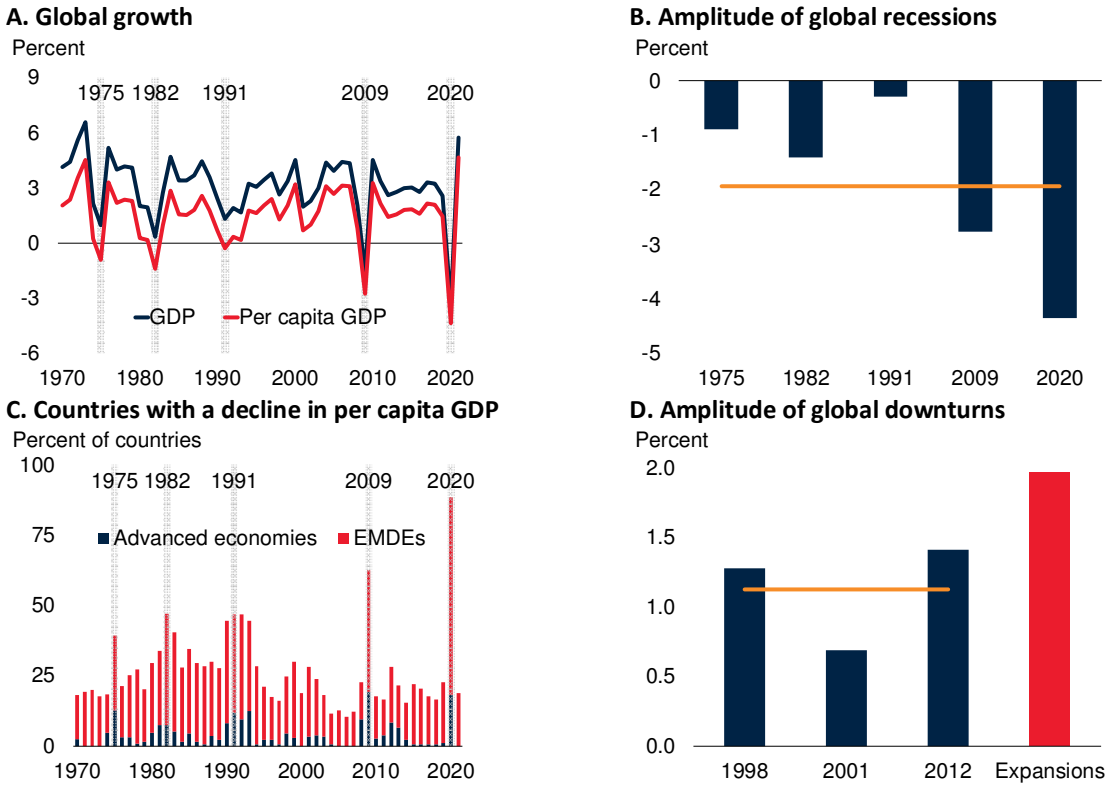
The fraction of countries that experienced annual declines in per capita GDP increases sharply during global recessions (Figure 2C). The pandemic-induced global recession in 2020 was by far the deepest and the most internationally synchronized. The United States experienced a recession in every global recession. Many advanced economies and EMDEs also went through recessions or sharp growth slowdowns during global recessions.[6]

[4] Some employ an alternative definition of global recession as annual global GDP growth below a certain threshold. Such a constant threshold of 2.0 percent, for example, would imply that there were ten or eight global recessions over 1970–2021, depending on whether the global GDP data are aggregated using market exchange rates or PPP weights.

[5] Appendix I explains two methods (a statistical method and a judgmental method) that are used to identify turning points of global business cycles (Kose, Sugawara and Terrones 2020; Rogoff, Robinson, and Bayoumi 2002). Both approaches result in broadly similar turning points, whether annual or quarterly data series are used (Table I.2). They also suggest that global recessions during 1970-2021 lasted about one year.

[6] For example, in four out of the past five global recessions, GDP contracted in Canada (1982, 1991, 2009 and 2020), Germany (1975, 1982, 2009, and 2020), and the United Kingdom (1975, 1991, 2009, and 2020). GDP in France and Italy also contracted in the 1975, 2009, and 2020 global recessions.

Figure 2. Global recessions



Sources: Kose, Sugawara, and Terrones (2020); World Bank.
A. C. Shaded areas indicate global recessions in 1975, 1982, 1991, 2009, and 2020. The last observation is 2021.
B. Global per capita GDP growth in respective years. The orange line shows the average per capita GDP growth during global recessions.
C. The proportion of countries with an annual contraction in per capita GDP.
D. Global per capita GDP growth in respective years. The red bar shows the average global per capita GDP growth over 1970–2021 excluding the years of global recessions (1975, 1982, 1991, 2009, and 2020). The orange line shows the average per capita GDP growth during global downturns.

In addition to these global recessions, since 1970, the global economy experienced downturns in 1998, 2001, and 2012 since 1970 (Figure 2D, Table I.3). In these three years, the global economy registered its lowest growth rates of the past five decades, except for the years of global recession and the two years before and after each of them. World output per capita grew by slightly over 1 percent a year, on average, during these three downturns. These episodes fall short of qualifying as global recessions because world real GDP per capita did not contract and there was no accompanying broad-based weakness in multiple indicators of global activity.

II.2. Events during global recessions and downturns

The global recessions were associated with confluences of various concurrent or preceding factors, including financial crises (1982; 1991; 2009), large changes in policies (1982), sharp movements in oil prices (1975; 1982), and a pandemic (2020). The recent supply shocks, increases in inflation, stagflationary headwinds, and policy actions make the 1975 and 1982 recessions particularly informative for the current situation which we discuss in detail below.

The global recession of 1975 followed a shock to oil prices from the Arab oil embargo initiated in October 1973. The embargo ended a year later, but the supply shock and associated sharp rise in oil prices triggered a substantial increase in inflation, which occurred after a period of rapid global growth and hikes in other commodity prices, and a significant weakening of growth in many countries. Section IV describes the policy accommodation during this episode, which was instrumental in driving the recovery but was also responsible for the subsequent years of elevated inflation.

The global recession of 1982 was triggered by a sharp tightening of monetary policies in the United States and some other advanced economies to reduce inflation. Oil prices had risen sharply in 1979, partly because of disruptions caused by the Iranian revolution, and helped push inflation to new highs in several advanced economies. The aggressive monetary policy response in the late 1970s and early 1980s did reduce inflation, but it also caused sharp declines in activity and increases in unemployment in many countries, including EMDEs. In 1982, GDP growth in EMDEs, at 0.8 percent, was the second lowest since 1970, second only to 2020; in per capita terms, EMDE GDP contracted by 1.2 percent.

The increase in global interest rates, together with an accompanying collapse in commodity prices and global trade made it difficult for many Latin American countries to service their debts, marking the beginning of the Latin American debt crisis in 1982. Many low-income countries, especially in sub-Saharan Africa, also experienced financial stress and faced sovereign debt crises in the 1980s.[7]

The 1991 global recession was partly associated with an abrupt tightening of credit conditions in the United States. The tightened financial conditions spawned monetary and banking crises in many European countries, combined with collapses in activity linked to the initial stages of the transition away from central planning in many Eastern European countries. ***The 2009 global recession*** was preceded by a bursting of the housing bubble in the United States and other advanced economies that caused the deepest financial crisis since the Great Depression and led to recessions in major advanced economies. ***The 2020 global recession*** was unique. It was triggered by the COVID-19 pandemic and led to the sharpest contraction in global GDP, in both aggregate and per capita terms, since the World War II (Kose and Sugawara 2022).

The global downturns of the past 50 years were primarily associated with financial stress in particular country groups. ***The 1998 downturn***, for example, followed the Asian financial crisis, and economic activity in many EMDEs, particularly in Asia, weakened sharply (Table I.3). In fact, the global economy experienced a contraction in per capita GDP in 1998Q1, but the world economy did not experience a recession in 1998, because growth in advanced economies held up well (Table I.2). ***In 2001***, many advanced economies experienced mild slowdowns or recessions partly because of the dotcom bust—global per capita output declined in 2001Q3, when per capita growth turned negative in many advanced economies. Growth in major EMDEs, such as China and India, remained robust, helping the global economy escape a recession. ***The***

[7] By contrast, in the 1975 global recession, GDP growth in EMDEs was 4.0 percent and, in per capita terms, 1.8 percent. Growth in EMDEs in 1975 was still lower than average growth over 1970-2021, which was 4.5 percent in terms of aggregate GDP and 2.8 percent per capita.

2012 global downturn was mainly driven by the euro area debt crisis. World per capita output did not contract in any of the quarters of 2012, and the global economy was supported by growth in the United States and major EMDEs.

III. GLOBAL ACTIVITY

III.1. Evolution of growth forecasts

Headwinds—including Russia's invasion of Ukraine, persistent supply disruptions resulting partly from the pandemic, and macroeconomic policy tightening to reduce inflation and reverse the exceptional expansionary measures taken during the pandemic—have triggered material downgrades to global growth forecasts. In this section, we analyze the recent evolution of forecasts published by Consensus Economics, a firm that periodically surveys professional forecasters and presents timely compilations of their forecasts. Forecasts published by Consensus Economics reflect the perspectives of many institutions that use a wide range of methodologies.[8]

In January 2022, consensus forecasts were for global GDP growth of 4.1 percent in 2022 and 3.3 percent in 2023. By August, these projections had been downgraded to 2.8 percent for 2022 and 2.3 percent for 2023 (Figure 3A). Consensus growth projections for 2022 and 2023 have been downgraded for most countries—more than 90 percent of advanced economies and 80 percent of EMDEs for 2023 (Figure 3B).

Downgrades have been particularly large for the advanced economies, with the consensus growth forecast reduced since the January by 1.5 percentage points to 2.3 percent in 2022 and by 1.3 percentage points to 1.2 percent in 2023 (Figure 3C). For the United States, for example, consensus growth forecasts for 2022 and 2023 have been lowered since January by 2.2 and 1.9 percentage points, respectively, to 1.7 percent and 0.7 percent.[9] Interestingly, in an environment of sharply deteriorating growth prospects for the advanced economies, forecasts for EMDE growth in 2023 have been relatively robust—at 4.1 percent in August, compared to 4.5 percent in January.[10]

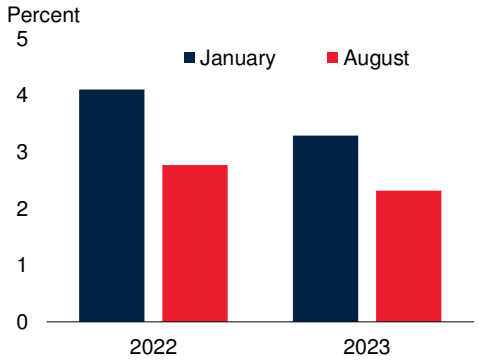
[8] The analysis in this section focuses on 2022 and 2023 since consensus forecasts published on a monthly basis report forecasts for this year and the next year.

[9] For the euro area, consensus growth forecasts for 2022 and 2023 have been lowered by 1.2 percentage points in both years to 2.8 percent and 1.3 percent, respectively.

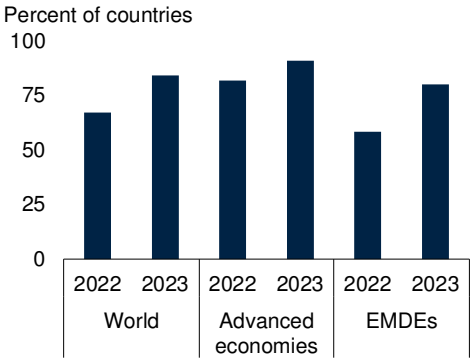
[10] Consensus growth forecasts for EMDEs in 2023 are even stronger when the Russian Federation and Ukraine are excluded—at 4.7 percent in the August projections, compared to 4.3 percent last January. For EMDE commodity exporters, consensus growth forecasts for 2023 have been downgraded to 1.6 percent in August from 2.9 percent in January, or, when the Russian Federation and Ukraine are excluded, to 2.4 percent in August from 3 percent in January. For EMDE commodity importers, consensus growth forecasts for 2023 have been reduced only marginally, to 4.9 percent in August from 5.1 percent in January. For China, consensus growth forecasts for 2022 have been lowered by 1.3 percentage points to 3.7 percent, and, for 2023, forecasts still suggest 5.4 percent growth in August.

Figure 3. Growth forecasts

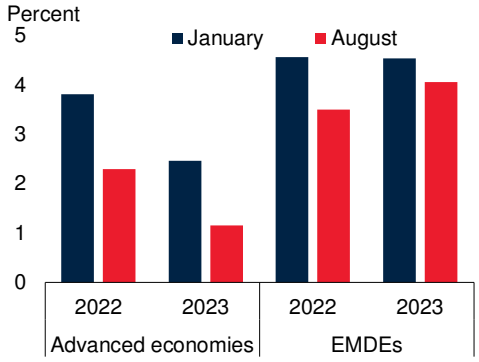
A. Consensus global growth forecasts for 2022 and 2023



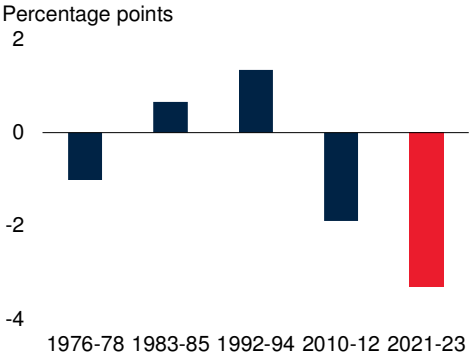
B. Countries with downgrades in consensus growth forecasts between January and August 2022



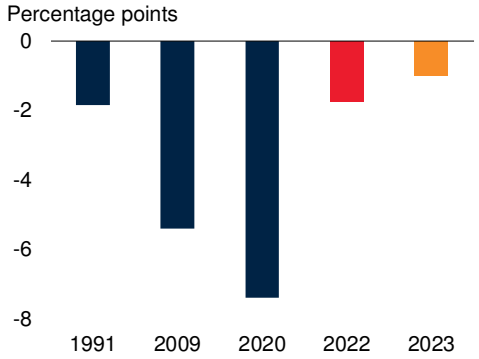
C. Consensus growth forecasts for 2022 and 2023, major country groups



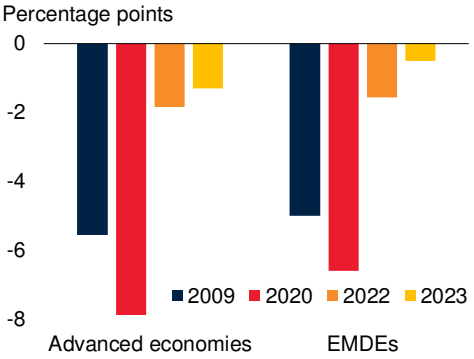
D. Changes in global growth after global recessions



E. Revisions in consensus global growth forecasts



F. Revisions in consensus growth forecasts, major country groups



Sources: Consensus Economics; Kose, Sugawara, and Terrones (2020); World Bank.

A.C. Consensus global growth forecasts (Panel A) and consensus growth forecasts for advanced economies and EMDEs (Panel C) for 2022 and 2023, based on the monthly consensus forecasts in January and August 2022. Sample includes 86 countries—33 advanced economies and 53 EMDEs.

B. Sample includes 88 countries—33 advanced economies and 55 EMDEs.

D. Changes in global growth between respective periods, covering the two years following a rebound from each global recession (1975, 1982, 1991, 2009, and 2020). Data for 2021-23 are based on consensus forecasts in August 2022.

E.F. The largest declines in consensus growth forecasts over 12 months for respective years, based on the monthly consensus forecasts, except for 2023. It presents changes from May 1990 to May 1991 for 1991, from June 2008 to June 2009 for 2009, from June 2019 to June 2020 for 2020, and from August 2021 to August 2022 for 2022. For 2023, it shows a seven-month change from January to August 2022. Data for 1991 cover advanced economies only.

III.2. Recent developments in historical context

After a historic collapse in global GDP during 2020, global growth surged to 5.7 percent in 2021—its strongest post-global recession pace in at least 50 years. Although it is normal for the global economy to slow after last year's record growth, the expected steepness of the slowdown is highly unusual: the projected global growth path over 2021–23 constitutes the steepest decline in growth following an initial rebound from global recession since 1970 (Figure 3D).[11] Between 2021 and 2023, global growth is projected to slow by 3.4 percentage points, cutting short the recovery from the pandemic recession in its second year, well before activity has returned to its pre-pandemic trend.

These downgrades in growth forecasts do not imply that a global recession will take place in 2022 and 2023. Indeed, compared to the periods preceding past global recessions, consensus forecast downgrades for 2022 (and 2023) have been relatively small (Figures 3E and 3F). However, these forecasts imply that the world economy is set to experience weaker growth next year than it is this year.

But if previous global recessions are a guide, there are still at least two reasons to be concerned about the risk of a global recession in the near term.

First, *given the current weak growth outlook, even a moderate negative shock could push the global economy into recession.* Every global recession since 1970 was preceded by a year of relatively weak global growth.[12] Quarterly global output growth has slowed considerably since the beginning of this year and is estimated by some analysts to have turned negative in 2022Q2.[13] Historically, indicators of global economic activity, such as world industrial production, trade, and oil consumption tended to slow down in the two years before global recessions. Resembling this experience, several high-frequency indicators of activity have weakened over the past year (Figures 4A–4C). For some indicators, including global GDP growth, the pace of the projected decline over the past year has been much faster than that during periods preceding earlier global recessions.[14]

[11] The projected slowdown would be the fourth steepest since 1970. The steepest three were: 2018–2020 (-6.6 percent); 2007–2009 (-5.9 percent); and 1973–75 (-5.6 percent). Over 1972–74, global growth also slowed by 3.4 percentage points.

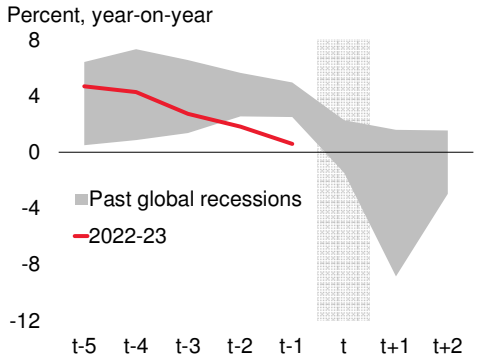
[12] Global GDP growth in 1981 and 2008 was 2.0 percent, while in 1974, 1990, and 2019 it was 2.2, 2.4, and 2.6 percent, respectively. These growth rates are lower than the mean (3.1 percent) and median (3.3 percent) global growth rates of 1970-2021 and among the weakest of the past 50 years. See Table I.4 for a list of the lowest and highest global growth rates since 1970.

[13] Oxford Economics estimates that global GDP growth (q/q saar) fell from 1.8 percent in 2022Q1 to -0.5 percent in 2022Q2. Quarterly global growth rates estimated by J.P. Morgan, as of September 9, were 2.6 percent for 2022Q1 and -0.6 percent for 2022Q2. For 2022, a global annual growth rate of 2.8 percent as expected by Consensus Economics reflects significant carry-over from 2021 and thus masks considerable weakness in sequential terms.

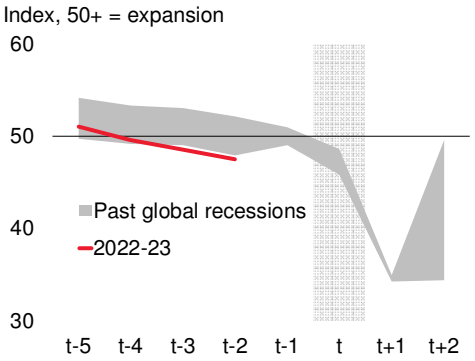
[14] Recessions are difficult to forecast. Several studies report that forecasters often fail in predicting recessions and their magnitudes (An, Jalles, and Loungani 2018; Lewis and Pain 2015).

Figure 4. Recent developments and global recessions

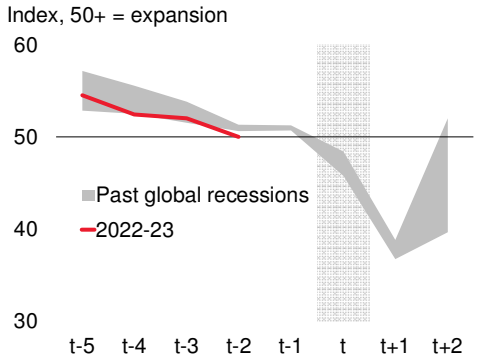
A. Global GDP growth during global recessions



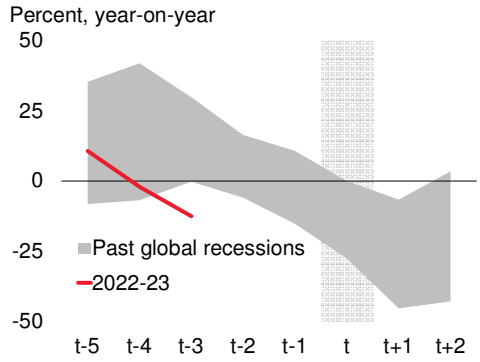
B. Global manufacturing new export orders during global recessions



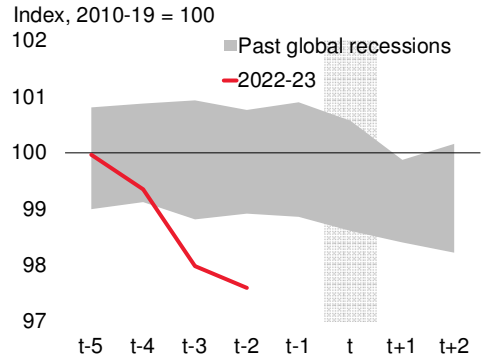
C. Global PMI during global recessions



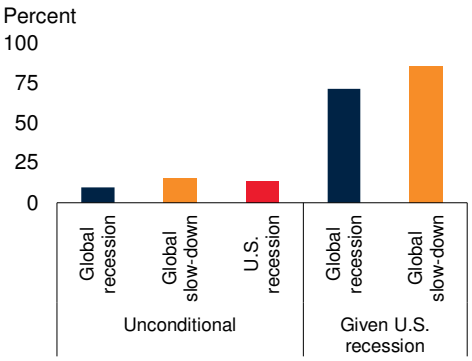
D. Global equity price growth during global recessions



E. Global consumer confidence during global recessions



F. Probability of global recessions and downturns



Sources: Haver Analytics; Kose, Sugawara, and Terrones (2020); Organisation for Economic Co-operation and Development; World Bank.
A.-E. Global GDP growth (Panel A), global manufacturing new export orders (Panel B), global Purchasing Managers' Index (PMI; Panel C), GDP-weighted global real (CPI-adjusted) stock price growth (Panel D), and GDP-weighted global consumer confidence (Panel E) around the five global recessions, as well as in recent period, based on the quarterly data. Past global recessions show the range for the five global recessions (i.e., 1975, 1982, 1991, 2009, and 2020), and time "t" denotes the beginning of respective global recessions: 1974Q1, 1981Q4, 1990Q4, 2008Q3, and 2020Q1, respectively. For 2022-23, time "t" shows 2023Q1. In Panel A, data over t-3 to t-1 in 2022-23 (i.e., 2022Q2 to 2022Q4) are computed with consensus forecasts of quarterly growth in 45 countries.
F. Probabilities are based on annual data over the period 1970-2021. A bar for global slowdown includes both global recessions and global downturns.

Other indicators also point to the risk of more weakness ahead in activity. For example, global asset prices and business and consumer confidence have tended to decline ahead of past global recessions (Figures 4D and 4E). Many of these indicators have deteriorated in recent months. Global stock prices declined by almost 22 percent in the second quarter of 2022. Global house price growth cooled to an annual rate of 4.7 percent in the first quarter of 2022, after growing an average of 6.2 percent over 2021. Business and consumer confidence fell prior to all global recession episodes, and global consumer confidence has registered a much sharper decline over recent quarters than that prior to previous global recessions.

Second, the recent slowdown in global GDP growth reflects pronounced declines in growth in several major economies. For example, U.S. GDP is estimated to have contracted at an annualized rate of 0.9 percent in the second quarter of 2022, the second consecutive quarter of negative growth.[15] All previous global recessions coincided with sharp slowdowns or outright recessions in several major economies. For example, all previous global recessions coincided with recessions in the United States. The United States is the world's largest economy, accounting for almost a quarter of global GDP at market exchange rates, and the largest importer of goods and services It also plays a predominant role in global financial markets.[16] As discussed in the previous section, growth forecasts for the euro area and China have also been lowered. The three economies—the United States, euro area, and China—on average accounted for about 55 percent of global GDP and 62 percent of global growth over the 2015-19 period. As growth forecasts for the United States and other major economies have been downgraded for 2023, the risk of a global recession next year has risen (Figure 4F). Amid a substantial increase in the cost of borrowing, a sharp slowdown in the United States and other major economies could trigger acute financial stress in EMDEs, resulting in a significant deterioration in EMDE and global growth.

IV. POLICY RESPONSES

IV.1. Evolution of policies

Policy support during the pandemic. In 2020, policymakers provided unprecedented monetary and fiscal policy support for demand and activity to mitigate the impact of the COVID-19

[15] Two consecutive quarters of negative growth is a popular definition of recession at the national level. In the United States, however, the convention is for recessions to be identified, along with cyclical turning points, by the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), on the basis of a wider set of data than GDP alone (see Appendix I). The Committee has not declared a cyclical peak yet and thus a recession since the trough of April 2020. While early GDP estimates indicate activity contracting, other typical indicators the NBER Committee focuses on paints a mixed picture of the state of the U.S. economy: unemployment rate and jobless claims point to steady labor market conditions and retail sales suggest consumers remain resilient.

[16] Not every U.S. recession was associated with a global recession, however. In fact, the United States experienced a mild recession in 2001 that coincided with a global downturn. But it grew strongly during the 1998 global downturn and, to a lesser extent, during the 2012 global downturn. Business cycles in the United States, other advanced economies, and EMDEs have been highly synchronous. This partly reflects cross-border spillovers of shocks and policy actions, especially those originating in the United States because of the strength of global trade and financial linkages between the U.S. economy and the rest of the world. For a detailed discussion of the role of the United States in the global economy, see Kose et al. (2017).

pandemic. Central banks acted rapidly and decisively to ease monetary conditions (Figure 5A). The easing occurred nearly simultaneously across the world, with more than 70 percent of advanced economies and 90 percent of EMDEs cutting short-term policy interest rates in 2020 to their lowest levels, in both nominal and real terms, since before 1970 (Figure 5B). The fiscal policy response to the pandemic was equally exceptional and highly synchronous. In 2020 alone, government spending in advanced economies and EMDEs increased by more than US$ 4 trillion, equal to nearly 20 percent of global GDP (Figure 5C). To finance the increases in fiscal expenditures, governments around the world issued record amounts of debt. Globally, government debt registered its biggest single-year jump, to roughly 100 percent of GDP—its highest level in more than half a century (Figure 5D).[17]

Policy support after 2020. The strong rebound in activity and persistent inflationary pressures have resulted in a significant shift in monetary and fiscal policies since the beginning of 2020. The synchronous rollout of large-scale monetary and fiscal support measures across countries, coupled with a temporary lull in the pandemic, resulted in a rapid, V-shaped recovery in global activity starting in the second half of 2020. Global GDP growth surged to 5.7 percent in 2021—its strongest post-global recession pace in 50 years. However, global growth is now expected to slow sharply in 2022 and 2023, as documented in the previous section.

Monetary policy. After declining sharply in the early stages of the pandemic, global inflation started to pick up in mid-2020 with increases in oil and food prices. The increase in inflation was triggered by supply disruptions reflecting pandemic-related stoppages, and the sharp recovery of demand fueled by unprecedented policy support and the easing of the lockdowns that had been introduced during the first wave of the pandemic.[18] More recently, the Russian invasion of Ukraine in February 2022 and associated international sanctions added to global inflationary pressures by further raising the prices of commodities—particularly energy and food—and by contributing further to global supply disruptions (World Bank 2022a).

In concert with persistent supply bottlenecks, the rapid recovery in demand amid elevated energy and food prices sent consumer price inflation rates to multi-decade highs by mid–2022 (Figure 6A). Global annual consumer price inflation rose from less than 2 percent in May 2020 to over 9 percent in July 2022—the highest since 1994. The pickup has been broad-based, occurring in almost all countries for which data is available. Inflation is now running well above central bank inflation targets in almost all advanced economies and most inflation-targeting EMDEs.

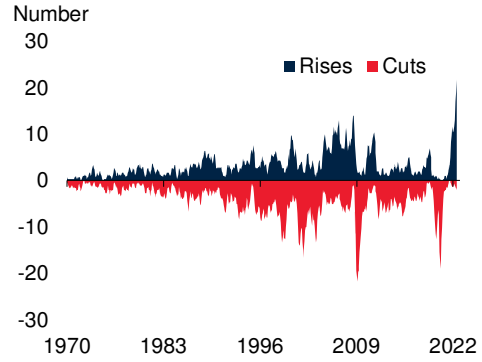
Starting at various times in 2021, central banks began pivoting towards tightening monetary policy to reduce above-target inflation. The tightening in many EMDEs began in the first half of

[17] The increase in government debt was nearly universal. It rose in almost 90 percent of countries and at its fastest pace in at least half a century in around one-quarter of countries. Globally, private debt also rose at a record pace and to an unprecedented high in 2020 as output collapsed, lockdowns closed businesses, and fiscal, monetary, and regulatory policy measures supported credit extension (Kose et al. 2021).

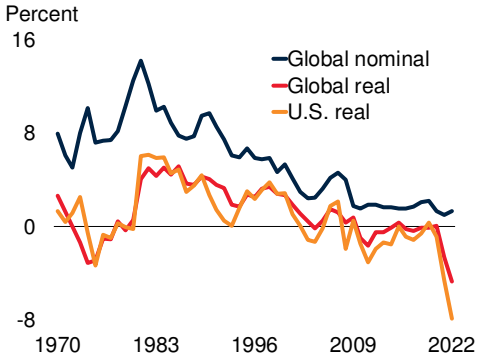
[18] The strong fiscal and monetary policy support in some advanced economies likely contributed to higher inflation (de Soyres, Santacreu and Young 2022; Jorda et al. 2022). Supply disruptions have also played a prominent role, accounting for an estimated 40 to 50 percent of the rise in inflation in the United States (Kalemli-Özcan et al. 2022; Shapiro 2022).

Figure 5. Interest rates, government expenditures, and debt

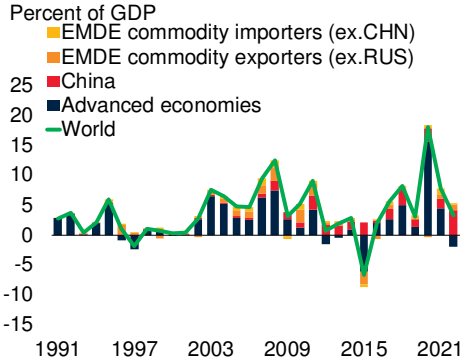
A. Global policy rate rises and cuts



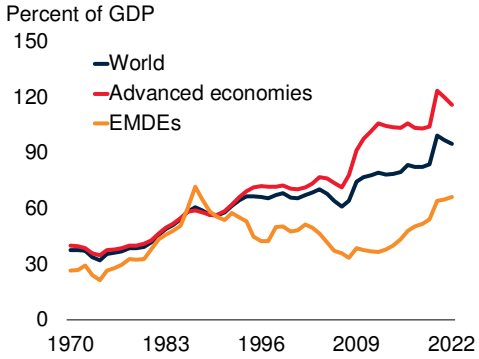
B. Policy interest rates



C. Annual change in global general government expenditures



D. Government debt



Sources: Bank for International Settlements; Federal Reserve Economic Data; Havers Analytics; International Monetary Fund; Kose et al. (2022); Oxford Economics; World Bank.

A. Three-month average of the number of policy rate rises and cuts over the month for 38 countries including euro area. The last observation is July 2022.

B. 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 118 countries, though the sample size varies by year. Data for 2022 are based on the numbers in the first two quarters of the year.

C. Annual changes in total general government expenditure in U.S. dollars as a share of global GDP in respective country groups over 1991–2022. Data for 2022 are forecasts based on IMF World Economic Outlook, April 2022. EMDE commodity exporters and global aggregates exclude the Russian Federation.

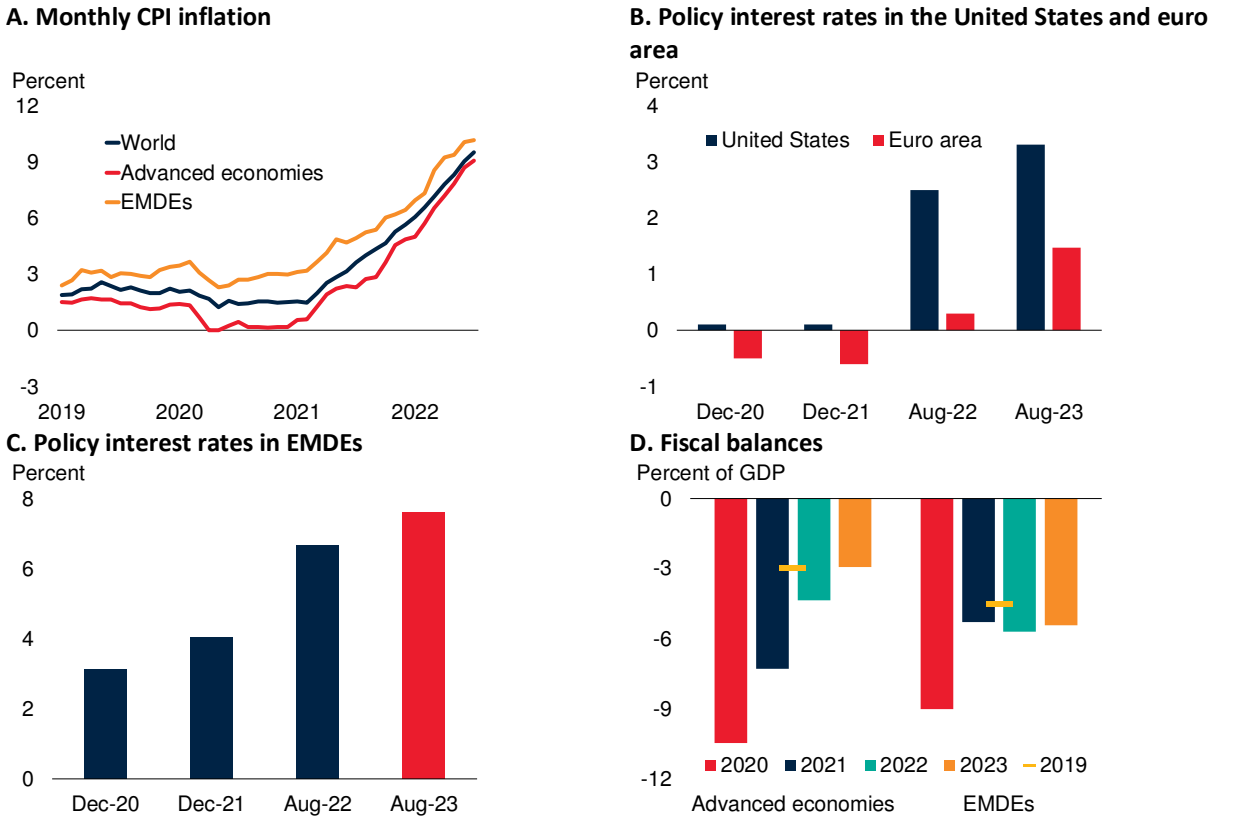
D. Nominal GDP-weighted averages of general government debt. Data for 2022 are forecasts based on IMF World Economic Outlook, April 2022.

2021, but withdrawal of monetary policy accommodation in most advanced economies did not begin in earnest until early 2022 (Figures 6B and 6C).

Fiscal policy. Pandemic-era fiscal support policies were scaled back and reversed amid rising interest rates, tightening global financial conditions, and in many advanced economies, fears of stoking inflation (Figure 6D). As a result, the growth of global government expenditures is projected to fall sharply from an unprecedented high of 18 percent of global GDP in 2020 to 3 percent in 2022, a level more in line with its 2010-19 average (Figure 5C).[19] In most EMDEs, higher

[19] In the United States, according to some estimates, the countercyclical fiscal expansion of 2020 and 2021 boosted GDP growth by 1.8 and 3.1 percentage points, respectively, in the two years. The subsequent

Figure 6. Inflation, interest rates, and fiscal balances



Sources: Consensus Economics; Ha, Kose, and Ohnsorge (2021); Haver Analytics; International Monetary Fund; Kose et al. (2022): World Bank.
A. Lines show group median year-on-year inflation for 81 countries, of which 31 are advanced economies and 50 are EMDEs. The last observation is July 2022.
B. Three-month Treasury bill rate and Euro rate for the United States and euro area in denoted months, respectively, taken from consensus forecasts in respective months. Data for August 2023 refer to one-year-ahead rates based on August 2022 consensus forecast surveys.
C. Blue bars show 3-month Treasury bill rates (or policy rates) for 16 EMDEs in denoted months. A red bar shows one-year-ahead rate based on August 2022 consensus forecast surveys.
D. Figure shows nominal GDP-weighted averages of overall net lending/borrowing in each country group. Data for 2022–23 are forecasts, based on IMF World Economic Outlook, April 2022.

sovereign borrowing rates and elevated debt levels have sharply reduced fiscal space, constraining the ability of fiscal policy to support activity (Bonam and Lukkezen 2019).[20]

IV.2. Recent policy actions in historical context

Although monetary and fiscal policies have often become expansionary going into global recessions, there have been significant differences in the magnitude and timing of policy support. The policies adopted during the 1975 and 1982 global recessions are particularly relevant to the

withdrawal of fiscal support is projected to reduce GDP growth by 2.0 percentage points in 2022 and 3.0 percentage points in 2023 (Asdourian, Salwati, and Sheiner 2022).

[20] EMDE government expenditures are projected to increase in 2022, but only because of expanded fiscal support in China and several commodity-exporting EMDEs. Governments in commodity-importing EMDEs, excluding China, are expected to barely increase their expenditures despite robust nominal output expansion projected for 2022 (Kose et al. 2022).

current episode. The highly synchronous tightening of monetary and fiscal policies being deployed now by many countries differ from the policies adopted around the 1975 global recession but are similar to those implemented ahead of the 1982 recession.

Policy responses during global recessions. Expansionary monetary and fiscal policies historically played a key role in supporting activity during global recessions (Figures 7A–7C). In the last two global recessions (2009 and 2020), these policies were exceptionally accommodative, principally in advanced economies.[21] They were critical to limiting the economic downturn, supporting the recovery, and restoring financial sector health. In the 2009 episode, many advanced economies and EMDEs coordinated policy measures (Kose and Ohnsorge 2019). Although somewhat smaller in scale, monetary and fiscal support measures were also employed to support activity ahead of and during the 1991 global recession.

In the 1975 global recession, monetary and fiscal policies were also supportive of activity—despite elevated inflation. Monetary policy was eased significantly in the United States. The federal funds rate fell from about 13 percent in July 1974 to about 5 percent in May 1975 even though annual consumer price inflation exceeded 10 percent through most of this period. Fiscal policies were also accommodative, with a significant increase in global government expenditures (Figure 7C). Subsequently, inflation remained high, with many advanced economies experiencing stagflation during the late 1970s and early 1980s.[22] In the United States, annual consumer price inflation remained above 5 percent until after the 1982 recession.

In response to persistent inflation in the late 1970s and early 1980s, monetary policy was tightened significantly in several major advanced economies, which contributed to substantial declines in activity and increases in unemployment. In the United States, the federal funds rate rose from 4.6 percent in January 1977 to 10.1 percent in January 1979, and then more sharply to 17.6 percent in April 1980 and 19.1 percent in June 1981. Policy rates were also raised in other major advanced economies. The Bank of England raised its policy rate from 5 percent in October 1977 to a peak of 17 percent in November 1979; the Bank of Japan raised its discount rate from 3.5 percent in March 1979 to 9 percent in March 1980; and the Bundesbank increased its discount rate from 3.5 percent in December 1978 to 9.5 percent in May 1980.

Demand and activity weakened generally following these interest rate increases. U.S. output contracted by more than 2 percent between early 1981 and mid–1982 and unemployment reached a peak of 10.8 percent in late 1982. Unemployment rates peaked in Germany at 8.3

[21] Romer and Romer (1994) document that fiscal policy played only a limited role in moderating recessions in the United States before 2000 and that monetary policy was the main tool that supported activity. In the 2009 and 2020 recessions, large fiscal and monetary support measures were critical in driving recoveries in the United States. Pontusson and Raess (2012) document that fiscal policy was employed more prominently to respond to some recent recessions in several major advanced economies than earlier.

[22] After two decades of exceptional global growth in the 1950s and 1960s, the 1970s saw a transition to a lower long-run growth path. The decade was marked by a global recession in 1975 and two recessions in the United States (1969-70, 1973-75) with a third U.S. recession (1980) ushering in the subsequent decade. Overall, global growth in the 1970s averaged 4.1 percent per year, well below the 5.5 and 5.1 percent, respectively, of the 1960s and 1950s. The two oil price shocks of the 1970s drove up inflation. These shocks, in conjunction with fundamental supply-side factors in advanced economies, reduced the growth rate of potential output.

percent in April 1983 and at 11.9 percent in the United Kingdom more than a year later. The synchronous tightening of monetary policy across the major advanced economies succeeded in dramatically reducing inflation, but at a high cost in foregone output and employment. Global consumer price inflation declined to an average of 5.4 percent per year in 1983–90.[23]

Fiscal policies do not seem to have been supportive of activity at the global level during the 1982 global recession. In the United States, while there were significant changes in fiscal policy in 1981, the first year of the Reagan administration, these changes were geared towards promoting long-term growth and reducing inflation rather than supporting near-term activity (Romer and Romer 1994). There was a decline in the federal government's cyclically adjusted primary balance in 1982, indicating fiscal support for activity, but it amounted to only 0.9 percentage point of potential GDP, compared to a 2.7 percentage point decline in 1975.[24] Fiscal policy stances in 1982 varied widely among other major advanced economies, with primary balances shrinking in Canada and France while increasing in Japan and the United Kingdom.

The experience of the 1970s, the policy responses to the 1975 global recession, and the subsequent persistent stagflation and global recession of 1982 illustrate the risk of allowing inflation to remain elevated for a prolonged period while growth is weak. That is because the strong monetary policy response that eventually will be needed to reduce inflation could trigger a global recession and a string of financial crises—including among EMDEs. A key lesson from the 1970s is that in the face of elevated inflation policymakers need to take timely action to reduce it. As for monetary policy, central banks must act promptly, optimally in a pre-emptive manner, to avoid a loss of confidence in their commitment to maintaining price stability—specified today in their inflation targets—and to prevent inflation expectations from being de-anchored. Fiscal policy also needs to do its part, in part because monetary policy will struggle to be credible if fiscal positions are unsustainable. But fiscal policy must also help restrain demand while providing targeted support to vulnerable groups.

Potential consequences of globally synchronous policy tightening. As noted above, large-scale monetary and fiscal support for demand and activity was provided by many countries in 2020 to mitigate the pernicious economic effects of the pandemic. These policy actions were important to containing the global recession. Partly because of the withdrawal of this policy support, the global economy is in the midst of one of the most synchronous tightening episodes of monetary and fiscal policy of the past five decades.

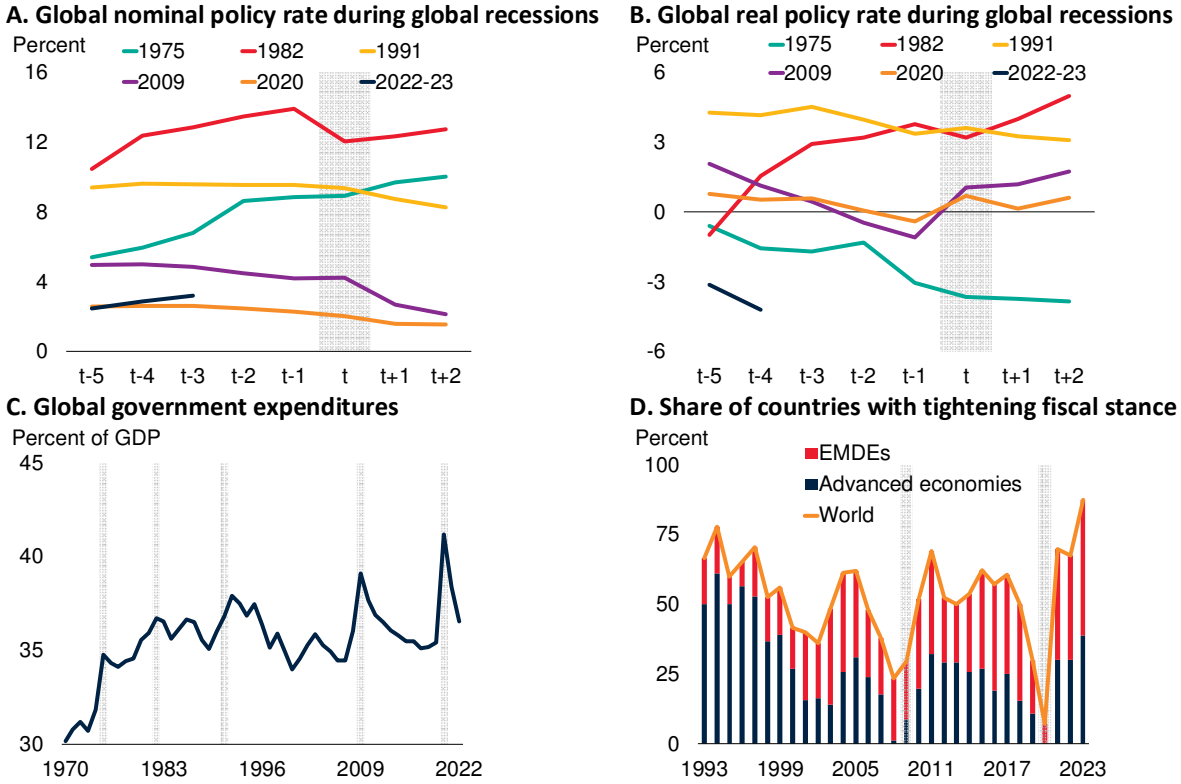
On the monetary policy front, the number of policy rate hikes globally began to increase in the second half of 2021 and their monthly number reached a record high in July 2022 (Figure 5A). Synchronous tightening of monetary policy is expected to continue into next year. The withdrawal of fiscal support has also been exceptionally sharp and is projected to continue in the

[23] Sablik (2013) discusses the evolution of the monetary policy during the U.S. recession of 1981-82 and notes that *"As the recession worsened, Volcker faced repeated calls from Congress to loosen monetary policy, but he maintained that failing to bring down long-run inflation expectations now would result in 'more serious economic circumstances over a much longer period of time.'"*

[24] This amount of fiscal support pales in comparison to 2009 and 2020, when the cyclically-adjusted primary balance decreased by 6.6 and 9.7 percentage points of potential GDP, respectively.

near term. The fraction of countries tightening their fiscal policies next year is expected to reach its highest level since at least 1992, with global government expenditure relative to GDP declining sharply (Figure 7D).[25] The synchronous withdrawal of monetary and fiscal policy support will constitute a major brake on demand growth and help moderate price pressures, but it will also reduce the growth of output and employment.

Figure 7. Policies during global recessions



Sources: Haver Analytics; International Monetary Fund; Kose et al. (2022); Kose, Sugawara, and Terrones (2020); World Bank.
A.B. GDP-weighted global nominal (Panel A) and real (CPI inflation-adjusted; Panel B) policy rate around the five global recessions, as well as in recent period, based on the quarterly data. For 1975, 1982, 1991, 2009, and 2020, time "t" denotes the beginning of respective global recessions: 1974Q1, 1981Q4, 1990Q4, 2008Q3, and 2020Q1, respectively. For 2022–23, time "t" shows 2023Q1.
C. Global government expenditure in percent of GDP. Shaded areas indicate global recessions in 1975, 1982, 1991, 2009, and 2020. Data for 2022 are forecasts, based on IMF World Economic Outlook, April 2022.
D. Tightening fiscal stance is defined as the positive change in the cyclically-adjusted primary balance from the previous year. Shaded areas indicate global recessions in 2009 and 2020. Data for 2022-23 are forecasts, based on IMF Fiscal Monitor, April 2022. Sample includes 84 countries, though the sample size varies by year.

These policies essential to re-establish price stability and eliminate the risk of prolonged stagflation. However, the cumulative effects of international spillovers from the highly synchronous tightening of monetary and fiscal policies could cause more damage to growth than would be expected from a simple summing of the effects of the policy actions of individual countries in a highly integrated global economy. These synchronous policies also have the

[25] The increase in nominal global government expenditures is set to fall close to zero in 2022 after peaking at over US$ 4 trillion in 2020. By 2023, two-thirds of advanced economies are expected to have unwound most of the fiscal stimulus undertaken in 2020, and, by 2024, two-thirds of EMDEs are expected to have done so.

potential to trigger a sharp global downturn, if not an outright global recession, which will be discussed in the next section.

Obstfeld (2022a and 2022b) also argue that recent highly synchronous fiscal and monetary policies risk reinforcing each other and could lead to a global recession. In the context of monetary policy, he makes a strong case for central banks to take into account spillovers of actions by other central banks due to the magnified impact of synchronous policy tightening on global inflation and output.[26] A few earlier studies identify potentially large international spillovers from fiscal consolidations—particularly when they are synchronized, occur in monetary unions, and affect major export markets (Goujard 2017; in't Veld 2013). The exchange rate channel plays a key role in moderating the domestic growth effects of fiscal consolidations, through currency depreciation and the consequent expansion of net exports. When many countries engage in fiscal contraction simultaneously, this channel is muted (Triggs 2018).

V. GLOBAL GROWTH SCENARIOS

As discussed in section III, consensus global growth forecasts have been downgraded considerably since the beginning of the year but still project a slowdown rather than a recession. This would not necessarily be a bad outcome because the breakneck growth rate of 2021 would not be sustainable, as demonstrated by the widespread evidence of overheating that has emerged. However, the historical experience, the recent weakening of multiple indicators of global activity, and rapid deterioration of growth prospects in the major economies, suggest that additional shocks and/or policy shifts could trigger not just a downturn, but a global recession.

Over the past 50 years, global recessions have occurred when the world economy has experienced exceptionally large supply shocks (oil shock in 1973-74; pandemic in 2020), financial turmoil, often linked to accumulated financial imbalances (1982, 1991, and 2009), or sharp shifts in policy (1982). Since the global economy has already suffered a severe supply shock earlier this year, the key additional risk to the outlook would appear to be the possibility of larger-than-anticipated policy adjustments accompanied by acute financial stress.[27] Specifically, central banks may have to do more to reduce inflation to their target levels than financial markets currently anticipate, just as in many advanced economies the extent of monetary policy tightening exceeded expectations before the 1982 recession. Moreover, this type of sharp policy adjustment could trigger financial market stress as it did during the 1982 episode, which marked the beginning of a decade-long debt crisis in many EMDEs.

In the remainder of this section, we quantify the implications of these risks using a large-scale, cross-country, semi-structural projection model (see Appendix II for details about the model).

[26] Obstfeld (2022b) argues that, if the impact of external factors is increasingly more important (than domestic factors) in explaining inflation, each central bank should be able tighten less to have the same reduction on inflation since central banks abroad help amplify the external factors through their efforts to lower domestic inflation. Ha, Kose, and Ohnsorge (2019) provide empirical evidence suggesting that global factors have indeed become more important in explaining domestic inflation over time.

[27] Our scenario analysis focuses predominantly on shocks to aggregate demand and monetary policy shocks. To simplify the scenarios, we do not explore the macroeconomic consequences of additional positive or negative supply shocks.

We first describe a *baseline scenario* in which the model is calibrated to produce growth outcomes for 2022-24 broadly consistent with those from the Consensus Economics surveys, as described in Section III.[28] We then develop two alternative downside scenarios. In a *sharp downturn scenario*, the global economy experiences a pronounced reduction in growth as an upward drift in inflation expectations results in additional synchronous monetary tightening. In a *global recession scenario*, world financial markets react sharply to an even more aggressive shift in monetary policy which, following a period of gradual policy pronouncements amid an upward drift in inflation expectations, is deemed necessary to re-anchor inflation expectations. This more forceful tightening, well above that included in the sharp downturn scenario and combined with acute financial stress, triggers a global recession. This latter scenario mimics in part the 1982 global recession.

V.1. Baseline scenario

In the *baseline* scenario, we assume that headwinds from commodity markets and supply-chain disruptions subside. With respect to monetary policy, global short-term interest rates, measured as GDP-weighted averages of national rates, are assumed to rise from 1.6 percent in 2021 to a peak of 3.8 percent in 2023 (Table 1). This reflects market-based expectations of further tightening in several major economies. For example, benchmark policy rates are set to rise to 3.7 percent in the United States by the first quarter of 2023.[29]

In this scenario, global growth slows from 2.9 percent in 2022 to 2.4 percent in 2023, before recovering to 3 percent in 2024 (Figure 8A, Table 2A).[30] The global economy would experience a slowdown next year with growth in per capita terms approaching that of the downturn episodes of 1998 and 2012. Global trade growth is projected to cool alongside the broad-based weakening of demand in 2023 and then accelerate in 2024 (Figure 8C). Growth in advanced economies would slow from 2022 to 2023 before recovering somewhat in 2024 (Figure 8D). In contrast to advanced economies, growth in EMDEs would steadily accelerate from 2022 to 2024 as global headwinds fade, allowing the post-pandemic recovery to continue (Figure 8E).[31]

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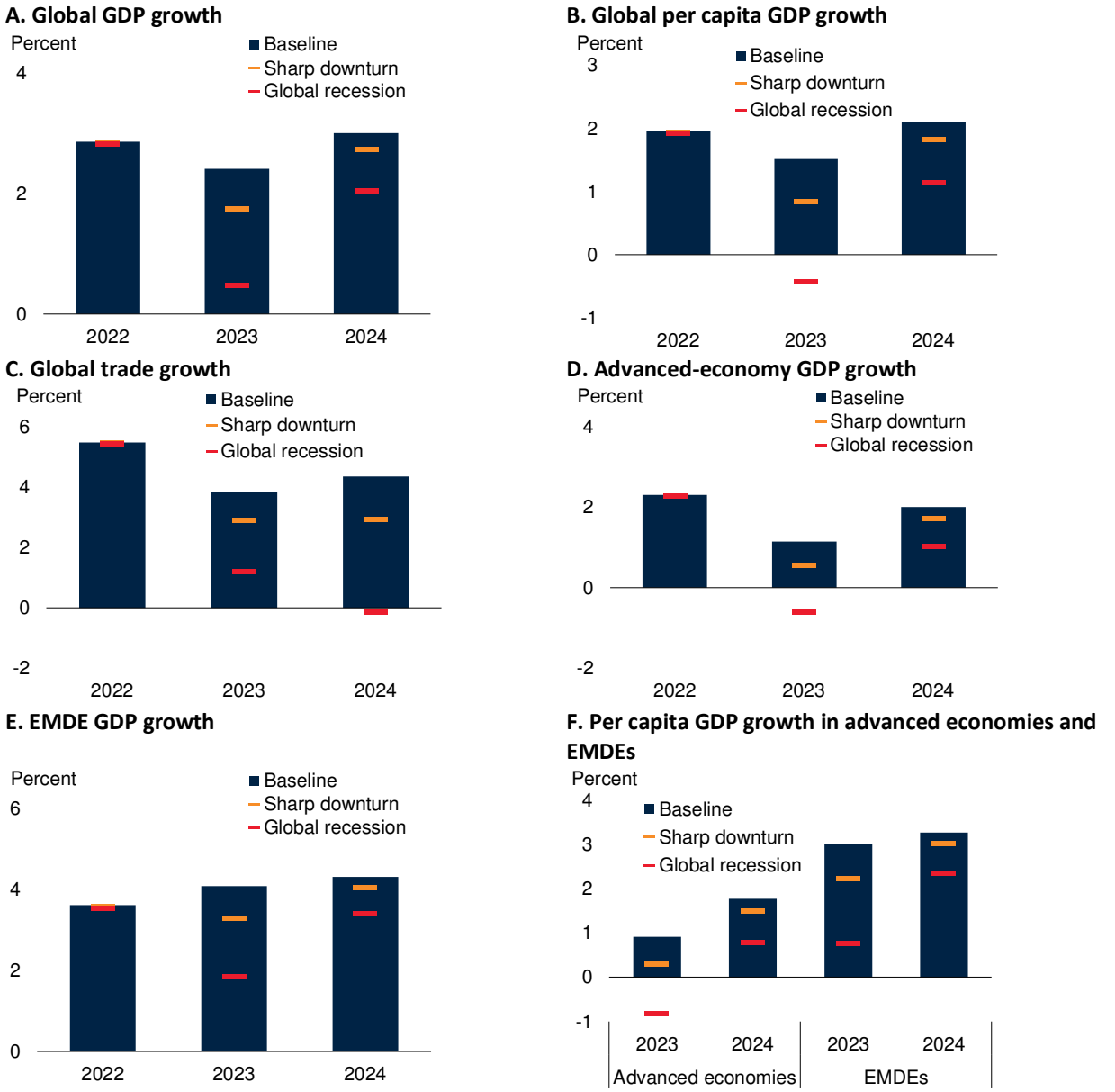
[28] The baseline scenario is a custom Oxford Economics Global Economic Model scenario informed by the latest consensus estimates for several major economies. In the two alternative scenarios, shocks are applied to a smaller set of countries, including 15 advanced economies and 10 EMDEs. These countries collectively accounted for roughly 85 percent of global GDP and 90 percent of global growth in 2019 (Appendix II).

[29] We impose market-implied policy rates for the United States, the euro area, Japan and the United Kingdom as recorded on August 15, 2022. For China, we impose the 1-year prime lending rate as reported in the July 2022 long-run Consensus Economics survey.

[30] The model predicts global labor market outcomes in line with historically estimated Okun's Law parameters (Ball et al. 2019). However, these are of limited use for our purposes here as these parameters can deviate significantly during times of recession and prolonged recovery (Daly et al. 2014). Some argue that a reduction in aggregate demand in an environment of high job vacancies need not noticeably raise the unemployment rate (Figura and Waller 2022). Blanchard, Domash, and Summers (2022) document that the U.S. Federal Reserve likely will need to push unemployment far higher than its 4.1 percent projection in June if it is to succeed in bringing inflation down to its 2 percent target by the end of 2024 (Ball, Leigh, and Mishra 2022).

[31] Under this scenario, projected GDP growth in advanced economies in 2023 would be the seventh lowest since 1970 (Table I.4). In contrast, in both 2023 and 2024, growth in EMDEs would be above its estimated

Figure 8. Global scenarios: GDP and trade growth



Sources: Oxford Economics; World Bank.
A.-F. These scenarios are produced using the Oxford Economics Global Economic Model.

After peaking at 7.7 percent in 2022, global headline CPI inflation in the baseline scenario remains elevated relative to the inflation "target" into 2023, at 4.6 percent.[32] However, the projection for

potential rate of about 4 percent (World Bank 2021). Excluding China, EMDE growth is expected to slow from 3.5 percent in 2022 to 2.8 percent in 2023 before bouncing back to 3.9 percent in 2024.

[32] For 2022, the inflation targets for the world, advanced economy, and EMDE aggregates are estimated to be 2.5 percent, 2 percent, and 3.5 percent, respectively. Appendix II presents details of the computation of the aggregate inflation targets.

2024, at 3.2 percent, is in line with a gradual approach to targets, which is about 2.5 percent at the global level in GDP-weighted terms (Figure 9A, Appendix II). Inflation in EMDEs is projected to decline rapidly from 9.4 percent in 2022 to 4.5 percent in 2024, but remains above its aggregate target of around 3.5 percent. The decline in core CPI inflation, which excludes the volatile energy component, would be more sluggish (Figure 9B).[33] Given this inflation outlook and the expected path of policy rates, short-term interest rates remain negative, or near zero, in real terms throughout most of the projection horizon (Figures 9D and 9E). This is one of the indicators of the "mildness" of the monetary policy stance implied by current interest rate expectations.

Indeed, the baseline scenario suggests that the expected degree of global monetary policy tightening would be insufficient to return global core inflation to a rate compatible with central bank targets within the usual time horizon of about two years. This highlights the risk of an upward drift in inflation expectations which could complicate the return of inflation to its target. This risk is readily apparent when reviewing the actions of the U.S. Federal Reserve during previous tightening episodes (Figure 9F). Specifically, the market-implied path of policy interest rates over 2022-23 is still much lower than the recent trend of core inflation prints, in contrast to the historical experience since the late 1970s. As discussed in the previous section, the experience of the 1970s suggests that the delay in implementing the necessary increases in policy rates until late in the decade ultimately made the required increase much greater.

V.2. Sharp downturn scenario

If inflationary pressures were to be more persistent or if inflation expectations were to drift upwards, a steeper-than-anticipated policy tightening would be needed to return inflation to target (Ha, Kose, and Ohnsorge 2022a; World Bank 2022a). Historically, at the start of policy tightening episodes, market-based interest rate expectations in the United States have underestimated the subsequent rate increases by an average of 85 basis points (Wessel 2022).

We analyze the implications of an upward drift in global inflation expectations triggering an additional synchronous monetary policy tightening in the *sharp downturn* scenario. In this scenario, inflation expectations in major economies are assumed to rise by one standard deviation over the next several quarters, thereby increasing the persistence of the global inflation shock.[34] In response, major central banks in advanced economies and EMDEs are assumed to raise their benchmark policy rates by a cumulative 100 basis points above baseline assumptions over 2022Q4-2023Q1, and opt to sustain this differential through 2024 (Table 1).[35] These additional rate hikes would cause the global real short-term interest rate to rise from -4.7 percent

[33] Excluding energy, global CPI inflation would slow from 5.9 percent in 2022 to 4.9 percent in 2023 and 3.8 percent in 2024. A portion of the projected decline in global headline consumer price inflation relates to the dissipation of past energy price shocks followed by the prospective declines in global energy prices (Figure 9C).
[34] Reiss (2022) discusses how misplaced beliefs about inflation expectations have been partly responsible for the failure of central banks in preventing the sharp increase in inflation during 2021-22.
[35] The tighter policy rate path is imposed exogenously and uniformly for all major advanced economies and EMDEs. The magnitude of the policy rate shock is calibrated to be 50 basis points above baseline in 2022Q4 and 100 basis points above baseline over 2023Q1-2024Q4.

in 2022 to an average of 0.6 percent over 2023–24, implying a modest tightening of global financial conditions relative to the baseline scenario.

Under this scenario, the global economy would still escape a recession. It would, however, experience a global downturn (in per capita terms) on par with the one in 2001 and worse than those in 1998 and 2012 (Table 2B).[36] Global activity in this scenario recovers in 2024, but the projected GDP growth rate of 2.7 percent remains 0.3 percentage point below the baseline rate. In this scenario, the slowdown in global trade growth is deepened. Advanced economies overall would avoid an annual output contraction in 2023, with growth at 0.5 percent. But the additional tightening of monetary policy causes technical recessions, defined as two consecutive quarters of negative quarter–over–quarter growth, in both the United States and the euro area in 2023. The model-estimated growth effects for EMDEs relative to the baseline scenario would be a bit larger than those for advanced economies, reflecting the added impact of adverse financial spillovers from monetary tightening in the United States. In particular, activity is expected to slow more sharply in those EMDEs that are heavily exposed to the United States via trade and financial channels, as well as those commodity-exporting EMDEs exposed via the commodity price channel.

Table 1. Global scenarios: global inflation, nominal and real interest rates

		2015-19	2020	2021	2022	2023	2024
CPI inflation (year-on-year)	Baseline	2.9	2.8	4.4	7.7	4.6	3.2
	Sharp downturn				7.7	4.1	3.7
	Global recession				7.7	3.0	3.5
Core CPI inflation (year-on-year)	Baseline	2.5	2.7	2.7	5.9	4.9	3.8
	Sharp downturn				5.9	5.0	3.7
	Global recession				5.9	4.8	2.9
Nominal short-term interest rate	Baseline	2.6	1.5	1.6	2.8	3.8	3.3
	Sharp downturn				3.0	4.8	4.3
	Global recession				3.1	5.8	5.3
Real short-term interest rate	Baseline	-0.3	-1.2	-2.8	-4.9	-0.8	0.2
	Sharp downturn				-4.7	0.7	0.6
	Global recession				-4.6	2.8	1.8

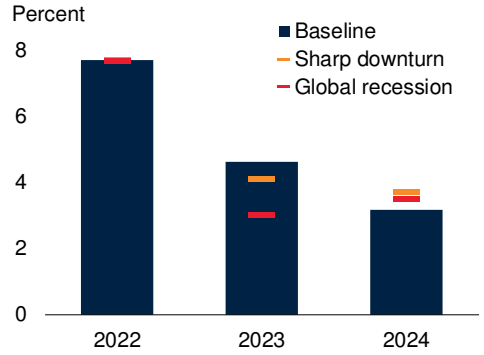
Sources: Oxford Economics; World Bank.
Note: Global nominal short-term interest rate is measured as GDP-weighted averages of national rates from Oxford Economics. Global real short-term interest rate is global nominal rate minus global headline CPI inflation. Global core CPI inflation excludes energy and is GDP-weighted aggregate of 15 advanced economies and 10 EMDEs. These scenarios are produced using the Oxford Economics Global Economic Model.

Global headline inflation registers a sharper decline in 2023 than that in the baseline scenario, but this is only due to a faster fall in global energy prices consistent with the reduction in global aggregate demand. While headline inflation continues its downward trajectory in 2024, it does so at a slower pace. The decline in core inflation, on the other hand, is broadly unchanged relative

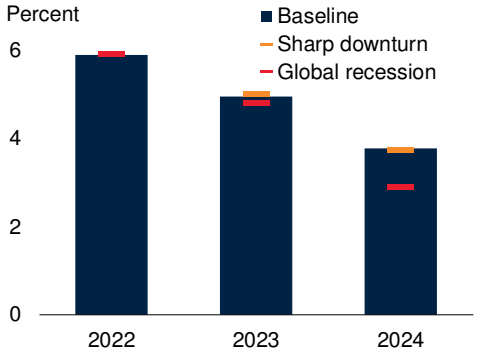
[36] In per capita terms, global growth would slow to 0.8 percent in 2023—its slowest rate since 2008 (excluding the 2009 and 2020 global recessions).

Figure 9. Global scenarios: inflation, interest rates, and oil prices

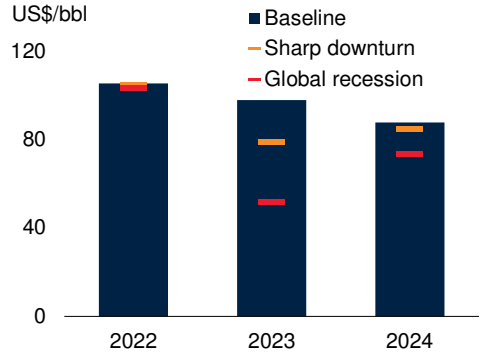
A. Global CPI inflation



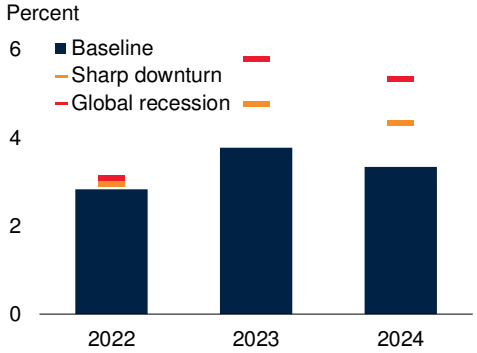
B. Global core CPI inflation (excluding energy)



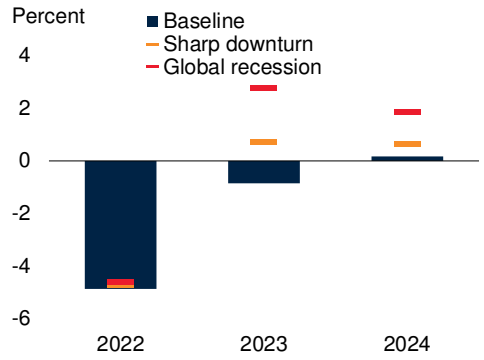
C. Brent oil prices



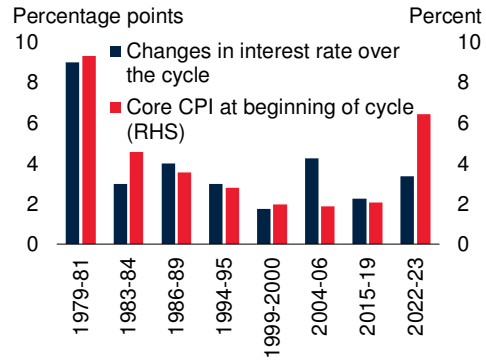
D. Global nominal short-term interest rate



E. Global real short-term interest rate



F. Changes in interest rates and U.S. core CPI during previous Federal Reserve tightening cycles



Sources: Oxford Economics; World Bank.

A.-E. These scenarios are produced using the Oxford Economics Global Economic Model.

A.B. Global aggregate is computed by Oxford Economics using 2015 market exchange rates and prices.

C. Global oil price, Brent crude spot, computed by Oxford Economics.

D. Global nominal short-term interest rate is measured as GDP-weighted averages of national rates. The baseline assumptions are broadly in line with consensus expectations 3 months and 12 months ahead.

E. Global real short-term interest rate is computed as a difference between global nominal rate and global headline CPI inflation rate.

F. Blue bars show the extent of policy rate increases during previous tightening episodes: 1979 (1979-81), 1983 (1983-84), 1986 (1986-89), 1994 (1994-95), 1999 (1999-2000), 2003 (2004-06), 2015 (2015-19). Value for 2023 is an estimate based on market expectations for the level of the Fed Funds rate in mid-2023. Core CPI for 2023 shows the latest data associated with tightening episode.

to the baseline scenario as the upward pressure from higher inflation expectations roughly counterbalances the muted impact of widening output gaps.

This scenario offers the possibility that a further increase in policy rates globally may not be sufficient to bring inflation rates back to target in a timely fashion if inflation expectations were to begin drifting upwards. Moreover, even with financial markets adjusting in an orderly fashion to a higher rate environment, there are significant costs in terms of lost output.[37]

V.3. Global recession scenario

The potential for abrupt policy shifts in major economies to lead to acute global financial stress is clear in the historical record of global recessions reviewed in section II. Such an outcome is studied here under the *global recession* scenario. This scenario assumes that policymakers in major economies observe an even larger increase in inflation expectations than assumed in the *sharp downturn* scenario. They respond by implementing a larger-than-expected, synchronous, policy tightening around the turn of the year, raising policy rates by 200 basis points above the baseline over 2023Q1-2024Q4 (Table 1). Global real short-term rates would surge as a result, rising 560 basis points from 2021 to 2023—an increase roughly comparable to the 440-basis-point rise that took place between 1980 and 1982 (Figure 5B). At 2.8 percent, the real rate for 2023 in the *global recession* scenario would be at its highest level since 1998.

This policy move is assumed to trigger a sharp re-pricing of risk in global financial markets, while exacerbating already heightened macroeconomic vulnerabilities. The heightened need to focus on inflation reduction limits the ability of central banks to provide relief to stressed financial markets, although they could still provide targeted credit easing to alleviate acute liquidity shortages in key funding markets, as lenders of last resort. Fiscal policy is assumed to face similar constraints, which prevents governments from implementing large-scale support measures.

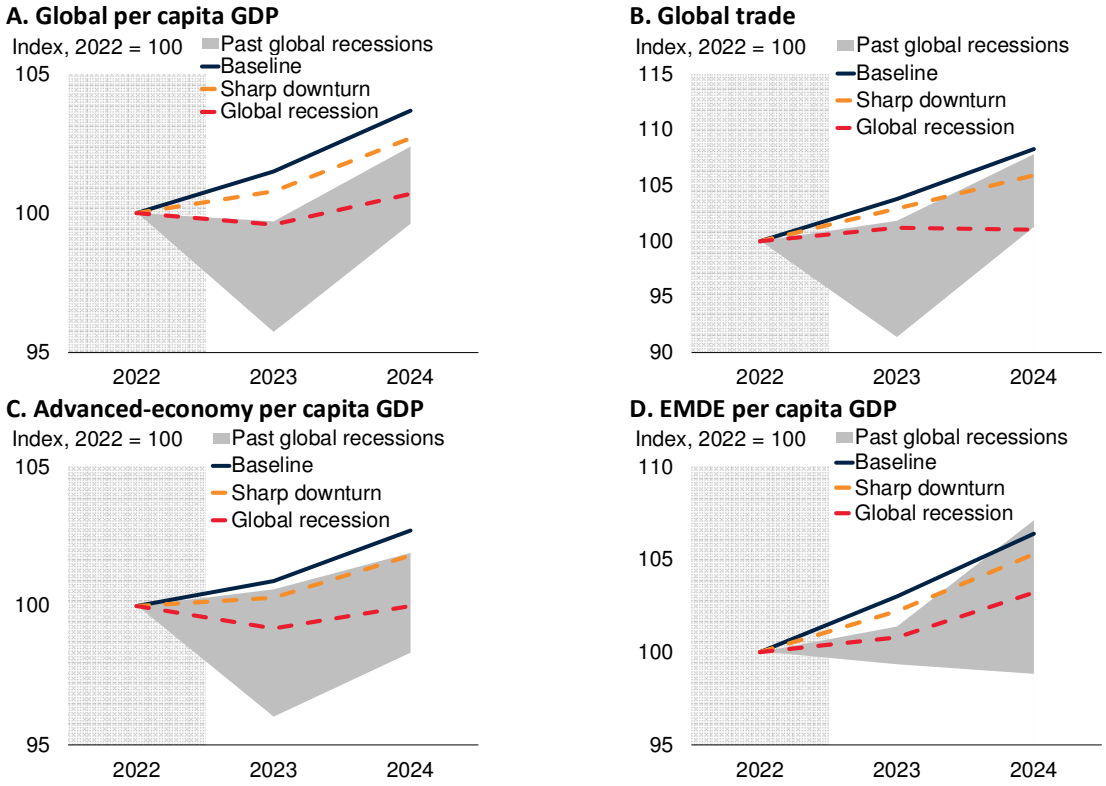
The macroeconomic effects of sharply deteriorating global financial conditions, as well as weaker confidence, would compound the headwinds from globally synchronous policy tightening. As a result, this scenario would imply that global GDP growth would be reduced by 1.9 percentage points in 2023 and 1 percentage point in 2024, relative to the baseline (Table 2A; Figure 8A). In 2023, the global economy would experience a recession similar in magnitude to the one in 1982, with growth slowing to 0.5 percent. In per capita growth terms, the 0.4 percent contraction would be in line with the 1991 recession but would be milder than the 1982 episode because population grew faster in 1982.

The evolution of global output under this scenario would be within historical experience of global recessions over the past five decades (Figure 10A). Global trade would be hard hit as in previous

[37] Some recent analysis also confirms this finding: Del Negro et al. (2022) present a model-based projection of the U.S. economy using the NYFED DSGE model. The model predicts that reducing inflation will be a difficult and time-consuming process owing to the U.S. economy's relatively flat Phillips Curve. Despite several quarters of negative or weak growth, including a recession in 2023, core inflation is not expected to return to its 2 percent target until 2025. Similarly, the Bank of England (2022) predicts that the United Kingdom will experience a prolonged recession in part due to its efforts to return inflation to target. For the model employed here, the slope of the Phillips curve for the United States is also quite flat.

global recessions, with trade growth declining from 5.4 percent in 2022 to 1.2 percent in 2023 (Figure 10B). More specifically, the 4.2 percentage point deceleration (from 2022 to 2023) would be comparable to the sharp 4.9 percentage point plunge in global trade growth experienced in 1982. While the lack of policy support would be in sharp contrast to the global recessions of 2009 and 2020, it would be comparable to the policy responses that contributed to the 1982 global recession.

Figure 10. Scenarios in relation to past global recessions



Sources: Oxford Economics; World Bank.

A.-D. These scenarios are produced using the Oxford Economics Global Economic Model and expressed as the values in 2022 equal to 100. For past global recessions, the range shows the minimum-maximum range of past five global recessions and the values one year prior to each global recession (for example, 1974 for the 1975 global recession, and 2019 for the 2020 global recession) are equal to 100.

The trajectory of output (per capita) in both advanced economies and EMDEs would be within the range of previous global recessions (Figures 10C and 10D). Subdued recovery in 2024 largely reflects the absence of countercyclical policy support in major economies, and in EMDEs specifically, adverse spillovers from advanced economies and limited policy space. The sharp tightening of global financial conditions would threaten especially those EMDEs that have large current account deficits and rely heavily on foreign capital inflows as well as those with high levels

Table 2A. Global scenarios: GDP growth

		Global recessions					Global downturns			Forecasts		
		1975	1982	1991	2009	2020	1998	2001	2012	2022	2023	2024
World	**Historical**	1.0	0.3	1.3	-1.6	-3.3	2.6	2.0	2.6			
	Scenarios											
	Baseline									2.9	2.4	3.0
	Sharp downturn									2.8	1.7	2.7
	Global recession									2.8	0.5	2.0
Advanced economies	**Historical**	0.1	0.2	1.2	-3.4	-4.6	2.8	1.5	1.2			
	Scenarios											
	Baseline									2.3	1.2	2.0
	Sharp downturn									2.3	0.5	1.7
	Global recession									2.3	-0.6	1.0
EMDEs	**Historical**	4.0	0.8	1.7	2.2	-1.6	2.1	3.4	5.2			
	Scenarios											
	Baseline									3.6	4.1	4.3
	Sharp downturn									3.6	3.3	4.1
	Global recession									3.5	1.8	3.4

Source: Oxford Economics; World Bank.
Note: These scenarios are produced using the Oxford Economics Global Economic Model.

Table 2B. Global scenarios: Per capita GDP growth

		Global recessions					Global downturns			Forecasts		
		1975	1982	1991	2009	2020	1998	2001	2012	2022	2023	2024
World	**Historical**	-0.9	-1.4	-0.3	-2.8	-4.3	1.3	0.7	1.4			
	Scenarios											
	Baseline									2.0	1.5	2.1
	Sharp downturn									1.9	0.8	1.8
	Global recession									1.9	-0.4	1.1
Advanced economies	**Historical**	-0.7	-0.4	0.6	-4.0	-4.9	2.2	0.8	0.7			
	Scenarios											
	Baseline									2.0	0.9	1.8
	Sharp downturn									2.0	0.3	1.5
	Global recession									2.0	-0.8	0.8
EMDEs	**Historical**	1.8	-1.2	-0.1	0.8	-2.7	0.6	2.0	3.8			
	Scenarios											
	Baseline									2.5	3.0	3.3
	Sharp downturn									2.5	2.2	3.0
	Global recession									2.4	0.8	2.4

Source: Oxford Economics; World Bank.
Note: These scenarios are produced using the Oxford Economics Global Economic Model.

of short-term or foreign-currency-denominated government or private debt. Because of a severe slowdown in external demand, commodity-exporting EMDEs would face the added headwind of collapsing commodity prices (Figure 9C).

As a result of the global recession, global headline CPI inflation declines more rapidly—to 3.0 percent in 2023 before increasing to 3.5 percent in 2024. Much of the initial reduction in headline inflation reflects energy price dynamics, which would be expected to react quickly to a large-scale deterioration in global aggregate demand. Core inflation declines to 2.9 percent in 2024—much closer to target than in the previous scenarios—by virtue of the wider output gaps.

The global recession scenario illustrates the importance of the value of clarity and consistency in formulating and communicating monetary policy (Ha et al. 2022; Kose et al. 2019; Shin 2022). Transparency in the conduct of policy reduces the risk of abrupt market dislocations and financial stress, and increases the chances that public expectations will align with announced policy goals. Should global financial stress erupt, EMDEs will likely be severely affected. This risk makes it necessary to formulate a comprehensive set of policies, which are discussed in the next section.

VI. CONCLUSION

In 2022, the specter of a global recession has increasingly haunted policymakers as they have observed the rapid deterioration of growth prospects amid rising inflation. Drawing on insights from previous global recessions, we have presented a systematic analysis of the recent evolution of economic activity and policies, as well as a model-based assessment of possible near-term macroeconomic outcomes. Recent consensus forecasts suggest that the global economy will experience its steepest decline in growth over the next two years following an initial rebound from global recession since 1970. Growth forecasts for the United States, euro area, and China have also been lowered significantly. These developments do not augur well for the likelihood that a global recession can be avoided because there was significant weakness in global growth during the year preceding every global recession since 1970, which all occurred concurrently with a recession in the United States.

Against this backdrop, policymakers face a difficult balancing act. Concerns about high inflation and the rising risk of de-anchoring inflation expectations have already led to significant monetary policy tightening in many countries. At the same time, a marked erosion of fiscal space, especially across most EMDEs, and excess demand pressures in many advanced economies, as well as a diminishing impact of the pandemic, have led to withdrawals of fiscal support. As a result, the global economy is in the midst of one of the most synchronous episodes of monetary and fiscal policy tightening of the past five decades. These policy actions are necessary to contain inflationary pressures and are akin to the counter-inflationary policies implemented in the late 1970s and early 1980s, ahead of the 1982 global recession.

If the degree of global monetary policy tightening currently anticipated by markets is not enough to lower inflation to targets, experience from past global recessions suggests that the requisite additional tightening could give rise to significant financial stress and trigger a global recession in 2023. This would entail a recession in advanced economies within the range of the contractions that occurred in the past five global recessions. A global recession would also translate into a

sharp decline in growth in EMDEs.[38] In light of elevated vulnerabilities in many of these economies, they would face severe challenges associated with financial stress (Figure 11A).

During the 1982 global recession, monetary policy tightening in advanced economies sharply increased the cost of borrowing, especially in Latin America and the Caribbean (Kose et al. 2021). A steep growth slowdown weakened debt servicing capacity further, and more than three dozen debt crises erupted in EMDEs during the 1980s (Figure 11B). These crises were accompanied by a decade of lost growth in the Latin America and the Caribbean region. GDP per capita in the region recovered to its precrisis level only in 1993. Many low-income countries also found it increasingly difficult to service their debt obligations in the 1980s. The resolution of debt crises took about two decades during which GDP per capita fell in low-income countries.

Our analysis indicates that the global economy could escape a recession even if additional monetary policy tightening beyond current market expectations is needed to reduce inflation. However, this would require the additional tightening to be implemented in such a way as to generate an orderly adjustment in financial markets. More importantly, policymakers need to utilize the full menu of options available to get ahead of inflation and reduce the likelihood of a sharper decline in growth.

Monetary policy. Central banks must communicate their policy decisions clearly within credible monetary policy frameworks, while safeguarding their independence. This would help anchor inflation expectations more strongly, reducing the degree of policy tightening needed to achieve the desired disinflation. In the long term, the benefits of price stability, including reduced policy uncertainty and macroeconomic volatility, will outweigh the costs of tight monetary policy in the near term (Clarida 2021).

Fiscal policy. The pace and magnitude of withdrawal of fiscal support must be finely calibrated and closely aligned with credible medium-term fiscal plans. Moreover, policymakers in EMDEs need to address concerns about long-run debt sustainability by strengthening fiscal frameworks, enhancing debt transparency, upgrading debt management functions, and improving resource mobilization and expenditure efficiency. At the same time, fiscal policy needs to provide targeted relief to shield vulnerable households, rather than introducing distortionary measures such as subsidies and price controls.

Spillovers from globally synchronous policies. The simultaneous tightening of monetary and fiscal policies across the world will likely prove complementary in reducing inflation. However, since they are highly synchronous across countries, they could be mutually compounding, and produce cumulative effects that are larger than envisioned—both in tightening financial conditions and in steepening the global growth slowdown. Tighter financial conditions would have a particularly adverse impact on the more vulnerable EMDEs. This implies that national policymakers need to take into account the potential spillovers of globally synchronous domestic policies (Eichengreen et al. 2011; Taylor 2013).

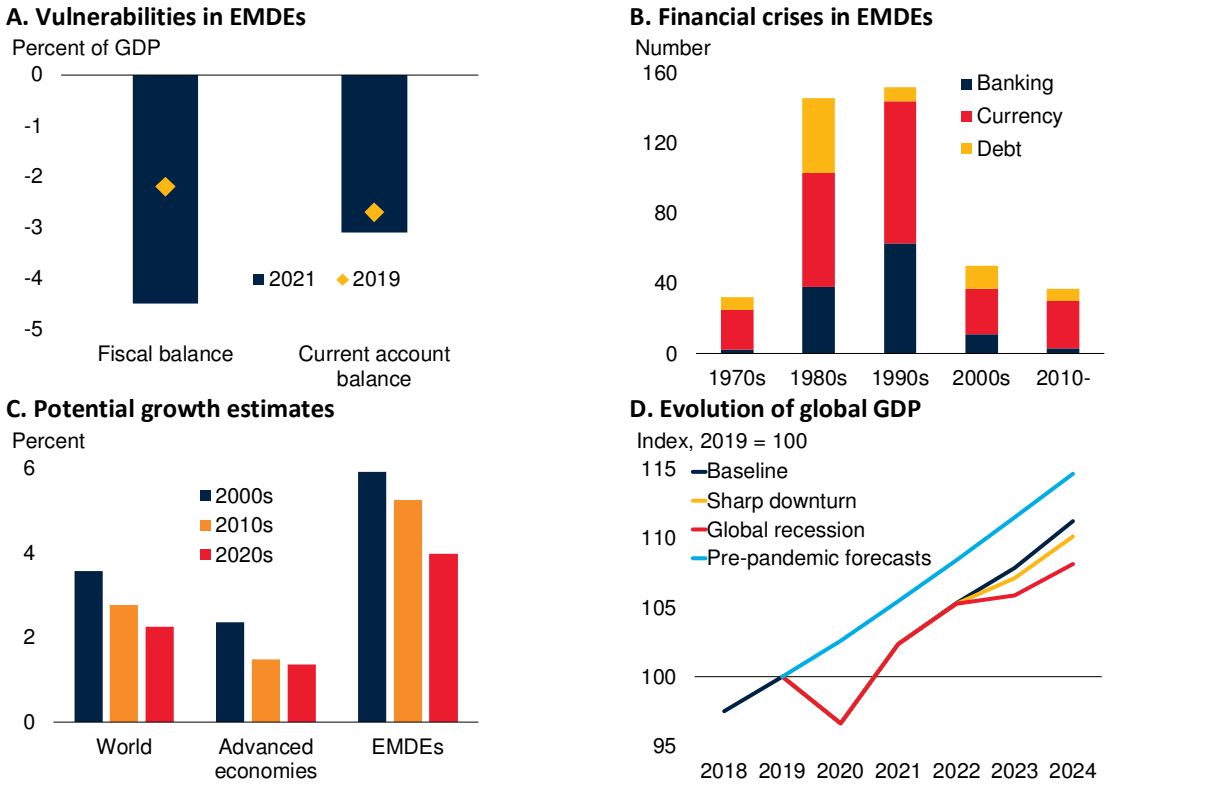
Financial policies. Policymakers need to rebuild foreign exchange reserve buffers and realign prudential policy to prepare for potential financial stress. Such policies could also help lower

[38] Partly because of the sharp interest increase by the U.S. Fed, the dollar has strengthened significantly since mid-2021. Obstfeld and Zhou (2022) present evidence suggesting that a rising dollar could cause downturns in many EMDEs.

inflation by dampening demand pressures. Because of tightening financial conditions, banking system exposure to exchange rate volatility and rollover risk must be monitored carefully and, if necessary, contained through prudential policies. Credit quality and nonperforming loans need to be reported transparently so that prompt corrective action can be taken. Banks' capital and liquidity buffers should be sufficiently sound to be able to absorb shocks.

Supply-side measures. Although fiscal, monetary, and financial policies are helpful in managing near-term demand pressures, policymakers also need to confront supply constraints affecting energy markets, labor markets, and international trade.[39] These supply-side measures can aid in

Figure 11. Vulnerabilities, crises, and growth



Sources: Consensus Economics; International Monetary Fund; Kilic Celik, Kose, and Ohnsorge (2020); Laeven and Valencia (2020); Oxford Economics; World Bank.
A. Medians based on a sample of up to 155 EMDEs.
B. Total number of banking, currency, and sovereign debt crises in EMDEs over respective periods.
C. Potential growth estimates based on a production function approach as described in Kilic Celik, Kose and Ohnsorge (2020). Sample covers 82 countries—29 advanced economies and 53 EMDEs.
D. Data are shown as an index (2019 = 100). The pre-pandemic forecasts are based on growth forecasts in the January 2020 long-term consensus forecasts over 2020–24.

the fight against inflation and offer the added benefit of improving productivity and long-term growth prospects. These measures are particularly important in the current context, because the pandemic has exacerbated the downward trend in potential growth (Figure 11C). If the ongoing global slowdown turns into a recession, the global economy could end up experiencing even larger permanent output losses relative to its pre-pandemic trend (Figure 11D). This would have

[39] For some recent proposals on supply-side interventions, see Goldberg (2022) and Spence (2022).

severe consequences for the long-term growth prospects in EMDEs that were already hit hard by the pandemic-induced global recession.[40]

Widespread labor shortages in several major economies have slowed their recoveries and put significant upward pressure on wages. This reflects a combination of declines in labor supply and persistent mismatches between available jobs and worker preferences and skills. Active labor market policies that facilitate the reallocation of displaced workers and the recruitment of domestic and overseas workers can foster increased labor force participation, reduce price pressures, and contribute to growth (OECD 2021).

Globally coordinated efforts can help boost the supply of commodities. For energy commodities, policymakers could draw on strategic stockpiles, accelerate transitions to low-carbon energy sources, and introduce measures to reduce energy consumption (IEA 2022). Policymakers also need to actively participate in efforts to alleviate global supply bottlenecks. One of the most pressing priorities in this context is the need to renew support for a rules-based international economic order, guarding against the threat of protectionism and fragmentation that could further disrupt trade networks (World Bank 2022a).

[40] Past global recessions were associated with highly persistent output losses due to several factors: depressed capacity utilization discouraged investment and led to a legacy of obsolete capacity; elevated uncertainty and expectations of weak growth depressed investment; weak investment delayed the adoption of capital-embodied productivity-enhancing technologies; and protracted unemployment caused losses of human capital and reduced job-search activity. Five years after the average country-specific recession, potential output was still about 6 percent below baseline in EMDEs (Sugawara 2021; World Bank 2020 and 2021). Recessions in EMDEs that were accompanied by financial crises were associated with even larger potential output losses in these economies, of 8 percent relative to baseline after five years.

APPENDIX I. IDENTIFYING THE TURNING POINTS OF THE GLOBAL BUSINESS CYCLE

Two methods are employed to identify the turning points of the global business cycle: one is a statistical and the other judgmental method. The methods are complementary but employ different information sets. Both follow the "classical" definition of a business cycle, under which business cycle expansions are marked by increases in many measures of economic activity, and contractions by broad declines in activity (Burns and Mitchell 1946). Both are widely used in the context of national business cycles, and often arrive at similar turning points.

The methods are complementary but employ different information sets. The statistical method simply identifies global recessions as declines in world per capita GDP. This method is convenient, because the turning points are robust to the inclusion of newly available data. The judgmental method is similar to the approaches employed by the Business Cycle Dating Committees of the U.S. National Bureau of Economic Research (NBER) and the Europe-based Centre for Economic Policy Research (CEPR). It considers a broad set of global economic indicators to capture the cyclical evolution and reaches a judgment on whether the evidence points to expansion or recession. Because different indicators can show conflicting signals about the direction of activity, the judgmental method may not be straightforward to apply in real time.

Both approaches identify similar turning points of the global business cycle. The turning points identified using the quarterly data are also broadly consistent with those from annual data series. They both suggest that previous global recessions have lasted about one year (Tables I.1 and I.2).

Table I.1. GDP growth during global recessions

	Global recessions							
	1975	1982	1991	2009	2020	Average	Non-recessions	All years
World								
GDP	1.0	0.3	1.3	-1.6	-3.3	-0.5	3.5	3.1
Per capita GDP	-0.9	-1.4	-0.3	-2.8	-4.3	-1.9	2.0	1.6
Advanced economies								
GDP	0.1	0.2	1.2	-3.4	-4.6	-1.3	2.9	2.5
Per capita GDP	-0.7	-0.4	0.6	-4.0	-4.9	-1.9	2.3	1.9
EMDEs								
GDP	4.0	0.8	1.7	2.2	-1.6	1.4	4.9	4.5
Per capita GDP	1.8	-1.2	-0.1	0.8	-2.7	-0.3	3.1	2.8

Sources: Kose, Sugawara, and Terrones (2020); World Bank.
Note: Percent changes in GDP and per capita GDP in respective groups are presented. The sample period is 1970-2021. "Non-recessions" refers to all years excluding the five global recession years.

Table I.2. Global recessions: duration and amplitude (with quarterly series)

	Durations (quarters)	Amplitude (quarters)	Average (quarters)
Recessions			
1974Q1-1975Q1	5	-10.2	-2.1
1981Q4-1982Q4	5	-5.9	-1.2
1990Q4-1991Q1	2	-1.9	-1.0
2008Q3-2009Q1	3	-15.5	-5.4
2020Q1-2020Q2	2	-34.4	-18.8
Average	3	-13.6	-5.7
Other quarters with negative growth			
1960Q4	1	-0.5	-0.5
1970Q4	1	-1.0	-1.0
1980Q2	1	-5.2	-5.2
1981Q2	1	-0.5	-0.5
1998Q1	1	-0.3	-0.3
2001Q3	1	-0.7	-0.7

Sources: Haver Analytics; Kose, Sugawara, and Terrones (2020); Organisation for Economic Co-operation and Development; United Nations; World Bank.
Note: The table shows the periods identified as global recessions and expansions, using the algorithm in Harding and Pagan (2002), or those with negative global per capita growth. Amplitude and average are based on per capita global GDP growth. "Amplitude" is measured as a percent change in per capita GDP during each recession (i.e., a cumulative change over the denoted period). "Average" refers to average annualized growth during each period.

Table I.3. GDP growth during global downturns

	Global downturns						
	1998	2001	2012	Average	Global recessions	Non-recessions	All years
World							
GDP	2.6	2.0	2.6	2.4	-0.5	3.5	3.1
Per capita GDP	1.3	0.7	1.4	1.1	-1.9	2.0	1.6
Advanced economies							
GDP	2.8	1.5	1.2	1.8	-1.3	2.9	2.5
Per capita GDP	2.2	0.8	0.7	1.2	-1.9	2.3	1.9
EMDEs							
GDP	2.1	3.4	5.2	3.5	1.4	4.9	4.5
Per capita GDP	0.6	2.0	3.8	2.1	-0.3	3.1	2.8

Sources: Kose, Sugawara, and Terrones (2020); World Bank.
Note: Percent changes in GDP and per capita GDP in respective groups are presented. The sample period is 1970-2021. "Global recessions" refers to average growth rates during the five global recessions (1975, 1982, 1991, 2009, and 2020). "Non-recessions" refers to all years excluding the five global recession years.

Table I.4. List of lowest and highest growth rates

A. GDP growth

World				Advanced economies				EMDEs			
Lowest		Highest		Lowest		Highest		Lowest		Highest	
2020	**-3.3**	1973	6.6	**2020**	**-4.6**	1973	6.1	**2020**	**-1.6**	1970	8.9
2009	**-1.6**	2021	5.7	**2009**	**-3.4**	1972	5.3	**1982**	**0.8**	2007	8.4
1982	**0.3**	1972	5.6	**1975**	**0.1**	2021	5.1	1990	1.3	1973	8.2
1975	**1.0**	1976	5.2	**1982**	**0.2**	1976	4.8	1992	1.4	2006	8.0
1991	**1.3**	1984	4.7	2008	0.3	1984	4.8	1983	1.6	2004	7.6
1993	1.7	2010	4.5	1974	1.0	1988	4.7	**1991**	**1.7**	2010	7.6
1992	1.9	2000	4.5	**1991**	**1.2**	1978	4.3	1981	1.9	2005	6.9
1981	2.0	1988	4.5	1980	1.2	2000	4.0	***1998***	***2.1***	1971	6.8
2001	***2.0***	1971	4.4	1993	1.2	1989	3.9	**2009**	**2.2**	2011	6.6
1980	2.0	2006	4.4	***2012***	***1.2***	1979	3.9	1985	2.4	2021	6.6
2008	2.0	2004	4.4	2013	1.4	1971	3.8	1989	2.7	1972	6.5
1974	2.2	2007	4.3	***2001***	***1.5***	1985	3.7	1993	3.1	1974	6.5
2002	2.3	1978	4.2	2002	1.5	1977	3.7	1999	3.1	1976	6.4
1990	2.4	1970	4.1	2011	1.7	1987	3.6	1994	3.3	2008	6.0
2019	2.6	1979	4.1	2019	1.7	1999	3.5	***2001***	***3.4***	2000	5.9
2012	***2.6***	1977	4.0	2016	1.8	1997	3.4	1978	3.6	2003	5.9
1998	***2.6***	2005	3.9	2003	2.0	1994	3.2	1988	3.8	2013	5.2
1983	2.8	1997	3.8	1981	2.0	2004	3.2	1987	3.8	***2012***	***5.2***

B. Per capita GDP growth

World				Advanced economies				EMDEs			
Lowest		Highest		Lowest		Highest		Lowest		Highest	
2020	**-4.3**	2021	4.7	**2020**	**-4.9**	1973	5.2	**2020**	**-2.7**	2007	7.0
2009	**-2.8**	1973	4.5	**2009**	**-4.0**	2021	4.8	**1982**	**-1.2**	2006	6.5
1982	**-1.4**	1972	3.5	**1975**	**-0.7**	1972	4.4	1990	-0.6	1970	6.3
1975	**-0.9**	1976	3.3	**1982**	**-0.4**	1984	4.1	1983	-0.5	2010	6.2
1991	**-0.3**	2010	3.3	2008	-0.4	1988	4.0	1992	-0.3	2004	6.2
1993	0.2	2000	3.2	1974	0.1	1976	4.0	1981	-0.1	1973	5.8
1981	0.2	2006	3.1	1980	0.5	1978	3.6	**1991**	**-0.1**	2005	5.5
1974	0.2	2004	3.1	**1991**	**0.6**	2000	3.4	1985	0.3	2021	5.4
1980	0.3	2007	3.1	1993	0.6	1989	3.2	***1998***	***0.6***	2011	5.2
1992	0.4	1984	2.9	***2012***	***0.7***	1979	3.1	1989	0.6	2008	4.6
2001	***0.7***	2005	2.7	***2001***	***0.8***	1985	3.1	**2009**	**0.8**	2003	4.5
1990	0.7	1988	2.6	2013	0.9	1987	3.0	1993	1.4	2000	4.5
2008	0.8	1997	2.4	2002	0.9	1977	2.9	1978	1.6	1971	4.4
1983	1.0	1978	2.4	2011	1.1	1999	2.8	1994	1.6	1976	4.3
2002	1.0	1971	2.4	1981	1.3	1971	2.8	1999	1.6	1974	4.2
1998	***1.3***	1979	2.3	2003	1.3	1997	2.8	1987	1.6	1972	4.2
2012	***1.4***	1977	2.2	2016	1.3	1994	2.6	1988	1.7	2013	3.8
2019	1.5	2011	2.2	2019	1.4	1986	2.5	**1975**	**1.8**	***2012***	***3.8***

Source: World Bank.

Note: Lowest and highest refer to the bottom and top thirds of growth rates in respective country groups over 1970-2021 (N = 52), respectively. The years of global recessions are in bold and those of global downturns are in *bold italics*. For global growth, years that are not highlighted in bold nor in italic are all within two years before and after global recessions and downturns.

APPENDIX II. GLOBAL ECONOMIC MODEL

The Oxford Economics Global Economic Model is a large-scale, cross-country, semi-structural projection model well suited to the analysis of alternative projections for the global economy (Oxford Economics 2019). The model includes 81 countries (35 advanced economies and 46 EMDEs), most of which have data available at a quarterly frequency, with behavioral equations governing domestic economic activity, monetary and fiscal policy, global trade, and commodity prices. For the purpose of the alternative scenarios, shocks are applied to a reduced set of countries. This set of countries is subsequently aggregated to produce advanced economy, EMDE, and world aggregates. The regionally representative reduced set of countries includes 15 advanced economies and 10 EMDEs for which a broad set of data is available at a quarterly frequency.[41]

The model is structured as a set of error-correction equations, with macroeconomic variables constantly adjusting towards theoretically motivated targets, including a desired level of personal consumption linked to the permanent income hypothesis and a desired level of investment informed by an optimal ratio of capital per output and the user cost of capital. Expectations are considered adaptive, with the lags in the error-correction equations representing a mixture of past frictions and shifting expectations. That said, the model's set of Phillips curves, which govern the relationship between aggregate economic activity and prices, includes an explicit inflation expectations variable that captures the medium-term inflation expectations of economic agents.[42] As a result of the mechanisms above, the model exhibits standard features with respect to quantity, price, and policy variables: in the short run, factor prices are sticky and cyclical movements in output are primarily determined by aggregate demand. In the long-run, prices adjust fully and the growth outcomes are driven mainly by supply factors.

In general, central banks follow historically estimated reaction functions. Specifically, monetary policy responds in a smooth fashion to changes in aggregate demand, as proxied by the output gap, and prices, as proxied by deviations of core inflation from the central bank's target. Regarding fiscal policy, the model allows for automatic stabilizers to operate in major economies such as the United States. For most EMDEs, however, the path of fiscal expenditures is exogenously determined.

Inflation targets. Aggregate inflation targets are computed by extracting inflation targets from the Oxford Economics Global Economic Model. In inflation-targeting economies, these estimates reflect either mandated targets or the mid-point of inflation target ranges, and in other economies, a suitable target based on recent history. Aggregates are constructed using model

[41] Advanced economies in the set are Australia, Canada, the Czech Republic, France, Germany, Italy, Japan, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. EMDEs are Brazil, China, India, Indonesia, Malaysia, Mexico, Nigeria, the Russian Federation, South Africa, and Türkiye.

[42] This variable is set exogenously rather than being an endogenous outcome of the forward-looking behavior of agents in the model. In the case of the United States, for instance, the inflation expectations variable is the University of Michigan Survey's expected inflation rate over the next five years. In most other inflation-targeting economies, the inflation expectations variable is set equal to the central bank's target, consistent with the assumption that inflation expectations are well anchored.

data from 29 advanced economies and 42 EMDEs weighted with constant real US$ GDP at 2015 prices and exchange rates.

EMDE inflation expectations. The model's inflation expectations variable for several major EMDEs is augmented with a simple feedback rule to reflect the tendency of positive inflation surprises to raise inflation expectations in EMDEs. The rules are calibrated based on Ha, Kose, and Ohnsorge (2022b) who find that a 1 percent positive unanticipated increase in inflation raises inflation expectations in EMDEs by about 0.2 percentage point. A similar rule is already embedded in the Global Economic Model for Mexico and Brazil.

Shocks to inflation expectations. Inflation expectations in the model can be shocked to assess the quantitative implications of an upward drift in inflation expectations. A temporary increase in inflation expectations translates into an upward drift in core inflation which can be counteracted by additional monetary tightening. In the *sharp downturn* scenario, inflation expectations in major economies are assumed to temporarily increase by one standard deviation of headline inflation, while they temporarily increase by 1.5 standard deviations in the *global recession* scenario. When computed over the 2010-19 period, one standard deviation amounts to +0.9 percentage point for headline CPI inflation in advanced economies and +2 percentage points for headline CPI inflation in major EMDEs.

Transmission of monetary policy. To increase the realism of the *global recession scenario*, particularly the domestic and international transmission of monetary policy, we include several enhancements informed by the empirical and macroeconomic modelling literature. First, in major advanced economies, the domestic transmission of monetary policy is augmented by including domestic credit condition shocks. These are calibrated to yield a total growth impact in the neighborhood of well-established models such as Smets and Wouters (2007) and Gomes, Jacquinot and Pisani (2010), in addition to recent empirical findings (Ramey 2016; Willems 2019).

Second, for the United States, monetary policy shocks are assumed to raise corporate bond yields and the excess bond premium (as proxied by the VIX) by magnitudes consistent with the findings of Gertler and Karadi (2015). Third, U.S. monetary policy shocks are also expected to reduce both domestic and foreign equity prices given their documented effects on the global financial cycle (Caballero and Kamber 2019; Miranda-Agrippino and Rey 2020). The magnitude of this effect is calibrated in the neighborhood of estimates in the empirical literature (Bernanke and Kuttner 2005; Laeven and Tong 2012). Fourth, the domestic transmission of monetary policy shocks in EMDEs is enhanced with a combination of confidence and equity shocks. These shocks are calibrated to produce growth impacts in the neighborhood of other models (Blagrave et al. 2020) and recent empirical estimates (Brandao-Marques et al. 2020; Willems 2019).

Financial shock. In the *global recession* scenario, on the basis of behavior in previous global recession episodes, we introduce an exogenous global financial shock as proxied by a spike in financial market volatility. The VIX would rise in excess of that of the initial COVID-19 crisis, but much less than the spike at the beginning of the global financial crisis. The 14-point rise in the VIX between 2022Q3 and 2023Q1 is broadly similar to the average spike of 20 points that occurred during the 1998, 2002, 2008 and 2020 episodes. Similarly, the 25 percent peak to through decline in the global stock market is close to the average decline witnessed during these episodes of acute financial stress (20.5 percent).

Oil prices. The price of Brent crude is assumed in the baseline to fall from an average of $105 per barrel in 2022 to $98 in 2023 and $88 in 2024. In the *sharp downturn* scenario, Brent oil prices decline to $79 per barrel in 2023 before edging up to $85 per barrel in 2024, which is $19 and $3 less, respectively, than in the baseline scenario. In the *global recession* scenario, Brent oil prices would average $52 per barrel in 2023 compared to $98 in the baseline. Global oil prices would quickly recover in 2024 however as the global economy exited recession, averaging $74 per barrel over the year. But this would still be much lower than the $88 per barrel average envisioned for 2024 in the baseline scenario. The large gyrations in oil prices in the global recession scenario are caused by a tight link between U.S. (global) financial shocks and financialized commodities such as oil. This link proxies for speculative demand shocks in times of financial stress.

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