

CHAPTER 2

What Happens during Global Recessions?

The world economy has experienced four global recessions over the past seven decades: in 1975, 1982, 1991, and 2009. During each of these episodes, annual real per capita global output contracted, and this contraction was accompanied by weakening of other key indicators of global economic activity. The global recessions were highly synchronized internationally, with severe economic and financial disruptions in many countries around the world. The 2009 global recession, set off by the global financial crisis, was by far the deepest and most synchronized of the four recessions. As the epicenter of the crisis, advanced economies felt the brunt of the recession. The subsequent expansion has been the weakest since World War II in advanced economies as many of them have struggled to overcome the legacies of the crisis. In contrast, most emerging market and developing economies weathered the 2009 global recession relatively well and delivered a stronger recovery than after previous global recessions.

Introduction

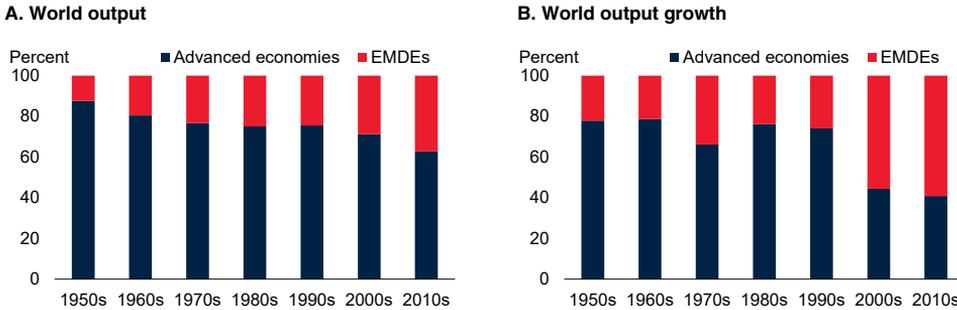
“Global recession” has been a recurrent topic of debate over the past decade, reflecting the breadth and severity of the 2007-09 global financial crisis, the halting nature of the recovery, and, recently, fears that the global economy was on the edge of another downturn. In 2009, the interest was understandably focused on the severity of the global recession and its devastating consequences. Attention shifted to the signs of a flourishing global recovery in 2010-11, but hopes that this recovery would be sustained were soon curtailed by the possibility of another global recession due to the euro area debt crisis. Financial pressures in the euro area eased in late 2012, but in 2015-16 fears of a global recession reemerged partly because of financial market turbulence in China. Since mid-2018, concerns about a global recession have returned as the world economy experienced a synchronized slowdown largely driven by extraordinary weakness in trade and manufacturing amid elevated trade tensions and heightened policy uncertainties.

Despite the interest in global recessions, the term does not have a widely accepted definition. It is difficult to map the most practical definition of national recessions—at least two consecutive quarters of decline in national output—to a global context, not only because reliable quarterly data for global output are unavailable without a significant lag but also because the global economy rarely registers a contraction: 2009 was the only year since World War II to register a decline in annual global output.

A better understanding of global recessions requires an appreciation of the growing importance of emerging market and developing economies (EMDEs) and of cross-border trade and financial linkages. First, the increasing role of EMDEs means that it is

FIGURE 2.1 Contributions of country groups to world output and growth

Contributions of EMDEs to world output and output growth have increased over the past seven decades.



Sources: Feenstra, Inklaar, and Timmer (2015); Kose and Terrones (2015); World Bank.

Note: EMDEs = emerging market and developing economies.

A. Bars show the average distribution of world output among country groups in the decade indicated (computed using market exchange rates). The 2010s period refers to 2010-19, which includes a forecast for 2019.

B. Bars correspond to the average of each country group's contribution to growth in world output in the decade indicated.

no longer sufficient to monitor cyclical fluctuations in advanced economies, the United States in particular, to understand the global business cycle. Advanced economies on average accounted for about 80 percent of global output and 75 percent of global growth over the period 1950-90 (figure 2.1). By the 2010s, however, the average share of advanced economies in world output had declined to about 60 percent and their contribution to world output growth had fallen to about 40 percent. As a result, business cycles in advanced economies have become a much less reliable proxy indicator for the global business cycle. The smaller contribution from advanced economies implies that a better understanding of the global business cycle requires going beyond the usual set of advanced economies to a much broader group that also includes EMDEs.

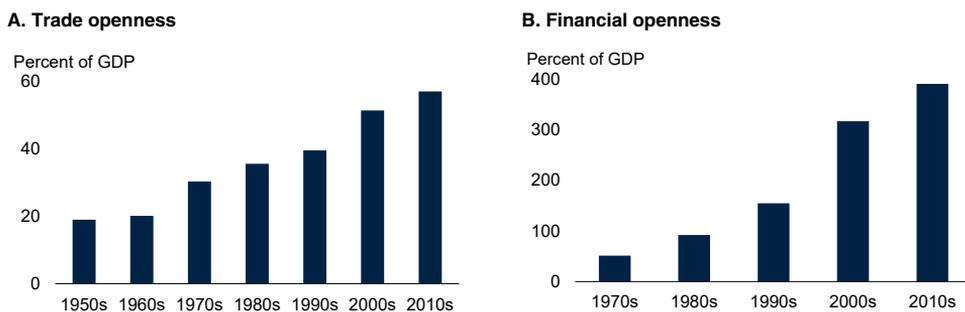
Second, cross-border trade and financial linkages have become stronger over the past seven decades. In the 1950s, global trade openness—measured by the sum of exports and imports of goods and services in percent of global gross domestic product (GDP)—was on average less than 20 percent (figure 2.2). By the 2010s, it had increased to more than 55 percent. Global financial openness, defined as the sum of foreign assets and liabilities in percent of GDP, also increased, from about 50 percent in the 1970s to almost 400 percent in the latest decade. These stronger linkages have increased the feedback, in both directions, between business cycles in advanced economies and those in EMDEs. They also ultimately raise the odds of more pronounced, and more synchronous, movements in the global business cycle.

Against this background, this chapter examines the main features of global recessions and the ensuing recoveries and expansions. Specifically, it addresses the following questions:

- What happens during global recessions and recoveries?

FIGURE 2.2 World trade and financial integration

Cross-border trade and financial linkages have become stronger over the past seven decades.



Sources: Feenstra, Inklaar, and Timmer (2015); International Monetary Fund; Lane and Milesi-Ferretti (2018); World Bank.

Note: Trade openness is the ratio of world exports and imports to world GDP. Financial openness is the sum of foreign assets and liabilities in percent of GDP across all countries. Each bar corresponds to the average in the decade indicated. The 2010s period refers to 2010-19, with estimates for 2019 based on data for the first two quarters.

- How do global recessions and recoveries vary across different groups of countries, particularly advanced economies, EMDEs, and low-income countries (LICs)?
- What happens during global expansions, and how does the current global expansion compare with previous ones?

Contributions. The chapter builds on an extensive literature on various aspects of global and national business cycles.¹ A branch of this research documents the growing importance of global business cycles in explaining national cycles. A second branch focuses on the roles played by trade and financial linkages in the cross-border transmission of business cycles. A third branch studies the turning points of the global business cycle and its phases.

Our study is closely related to Kose and Terrones (2015; KT going forward), who present the first detailed account of global recessions. KT mostly focus on global recessions and recoveries using annual data for 163 countries over 1960-2012. They present a detailed review of the relevant literature, analyze how financial crises lead to recessions, and examine the interactions between global and national cycles. Their work builds on Rogoff, Robinson, and Bayoumi (2002), who briefly examine whether the 2001 worldwide downturn was a global recession. That study focuses on movements in

¹ Most of the earlier studies in the literature focused on the dependence of EMDEs on advanced economies (for example, Chui et al. 2002; Currie and Vines 1988). For studies on the growing importance of the global business cycle, see Kose, Otrok, and Whiteman (2003, 2008) and Mumtaz, Simonelli, and Surico (2011). For transmission of cross-border business cycles, see Diebold and Yilmaz (2015); di Giovanni and Levchenko (2010); di Giovanni, Levchenko, and Mejean (2018); and Kose and Yi (2006). For the turning points of the global business cycle, see Camacho, Martínez-Martin (2015); Kose and Terrones (2015); and Martínez-García, Grossman, and Mack (2015). For forecasting global growth, see Cuba-Borda, Mechanick, and Raffo (2018); Ferrara and Marcellini (2019); Golinelli and Parigi (2014); and Rossiter (2010). Zarnowitz (1992) reviews earlier research program on business cycle fluctuations across countries.

per capita GDP growth to identify episodes that could be labeled as global recessions. It emphasizes the importance of statistical and judgmental approaches to identify the turning points of the global business cycle.

This chapter extends the literature in four dimensions. First, it covers a longer time span of annual series (1950-2018) and a larger set of economies (181). Second, the chapter is the first study that presents an analysis of the phases of the global business cycle with quarterly output series of 105 countries from 1960Q1 to 2019Q2. Third, it expands on the set of macroeconomic and financial variables that KT analyzed to present a broader perspective on the evolution of the global business cycle. Specifically, it analyzes the behavior of confidence, uncertainty, and measures of global financial conditions that have recently attracted increasing attention in research and policy circles. Fourth, it presents a detailed analysis of global expansions and puts the current global expansion in context by comparing it with previous such episodes.

Approach. This study, like KT, employs global real GDP per capita to track movements in the global business cycle. This variable is a primary indicator of global well-being that takes into account variations in population growth rates over time and across countries.

Turning points of the global business cycle are identified by means of two methods widely used in the analysis of national business cycles: a statistical method and a judgmental method. The former defines a global recession as taking place when there is a decline in annual global real GDP per capita. The judgmental method, similar to the method used for the United States by the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), considers whether there is strong evidence for a broad-based decline in multiple key indicators of global economic activity in a given year. This chapter focuses on six main global activity indicators: real GDP per capita, industrial production, trade, capital flows, oil consumption, and employment. These two methods together provide an intuitively appealing characterization of the turning points of the global business cycle and translate into a concrete definition of a global recession.

For the purposes of this study, and following KT, a global recession is defined as a contraction in global real GDP per capita accompanied by a broad decline in various other measures of global activity. The definition of a global recovery also closely follows the standard definition used in the context of national business cycles. The recovery phase is the period after the trough and defined here as the one- or three-year period following the trough of the cycle. The recovery is thus the earlier part of the expansion phase, which refers to the whole period between two recessions.

Main findings. In the seventy years since 1950, the world economy has experienced four global recessions: in 1975, 1982, 1991, and 2009. In each of these episodes, there was a contraction in annual real per capita global GDP and broad-based weakness in other key indicators of global economic activity. These episodes were highly synchronized internationally, involving severe economic and financial disruptions in many countries around the world. The 2009 global recession was by far the deepest and most synchronized episode among the four.

- *Global recoveries.* A global recovery usually involves a broad-based rebound in macroeconomic and financial activity. Among the four episodes, the strongest recovery occurred after the 1975 recession. Thanks to large, prompt, and globally coordinated policy support, the recovery following the 2009 recession was the second-strongest.
- *Impact across country groups and regions.* The impact of global recessions varied across different groups of countries. Average per capita growth declined more in advanced economies than in EMDEs during global recessions. LICs on average suffered larger declines in per capita growth than did the average EMDE. The East Asia and Pacific (EAP) and South Asia (SAR) regions even continued expanding during global recessions. The other four EMDE regions, particularly those with more reliance on exports of industrial commodities, experienced per capita output declines.
- *Relatively good performance of EMDEs during the latest global recession.* As the epicenter of the financial crisis, advanced economies felt the brunt of the 2009 global recession. In contrast, EMDE output growth remained positive during the recession, and EMDEs delivered a stronger recovery after 2009 than after any of the three previous episodes. LICs were able to continue growing during the most recent global recession whereas their per capita growth had plummeted in the previous episodes.
- *Global expansions.* The duration of the global expansions varied, with a minimum of six years (following the 1975 recession) and a maximum of 17 years (following the 1991 recession). The latest global expansion registered average per capita growth comparable with that of previous episodes. The post-2009 expansion was the weakest of the four in advanced economies, because many of them struggled to overcome the legacies of the global financial crisis. Among EMDEs, the recovery of per capita output growth has been exceptionally robust, despite a gradual slowdown after 2012.
- *Policies.* Monetary and fiscal policies often became expansionary going into global recessions, and they have typically supported the ensuing global recoveries. Following the 2009 global recession, monetary policy remained highly accommodative for most of the 2010s, with advanced economy central banks introducing a wide range of unconventional measures to ease credit. After the initial implementation of large, coordinated, fiscal stimulus programs during 2008-09, however, advanced economies withdrew fiscal support, out of concerns for the growth of public debt, and government expenditures fell after 2010. By contrast, EMDEs have generally employed expansionary fiscal and monetary policies during the current expansion, while adjusting the settings of their monetary policy instruments in response to cyclical conditions.

The remainder of this chapter is organized as follows. The following section introduces the database and methodology. It is followed by a discussion of the identification of the turning points of the global business cycle and a summary of the main events associated with each global recession. The next section documents the main features of global

recessions, recoveries and expansions. The last section concludes with a discussion of results and future research directions.

Identification of turning points of the global business cycle

Database. Multiple data sources are employed to construct world GDP growth at annual and quarterly frequencies over a long period. The annual GDP series covers 181 economies—36 advanced economies and 145 EMDEs—over the period 1950-2018, though the country sample size varies by year. The quarterly series covers 105 economies over the period 1960Q1-2019Q2.² In addition to data on GDP growth, a wide range of measures of global economic and financial activity are employed. Indicators of economic activity include trade, industrial production, unemployment, and oil consumption. Financial variables include capital flows, credit, equity and house prices, inflation, short-term nominal and real interest rates, and an index of broad financial conditions. In light of their roles in determining activity, some additional series, such as indicators of uncertainty and confidence, are also examined. Annex 2B presents the list of countries, and annex 2C includes a summary of all variables in the database with their definitions, coverage, and sources.

Measure of the global business cycle. The main measure of the global business cycle is the growth rate of world real GDP per capita.³ Real GDP per capita is considered as a primary measure of average economic well-being because it takes into account differences in population growth. The difference between per capita GDP growth rates in advanced economies and EMDEs is generally smaller than the difference between their aggregate GDP growth rates.⁴

The growth rate of world real GDP is a weighted average of national real GDP growth rates. Two types of weights are employed: market exchange rate weights and purchasing power parity (PPP) weights. The baseline results refer to market exchange rate weights, which are calculated as national GDP measured in domestic currencies, converted into U.S. dollar terms using market exchange rates, as a share of world GDP in U.S. dollar terms. Global trade and transactions in financial markets are conducted at market exchange rates, and the baseline specification uses this weighting scheme.

PPP exchange rates are calculated as the rates at which the currency of one country would have to be converted into the currency of another to equalize the values of a

²In addition to historical growth data, annual growth forecasts for 2019-20 are included in the database. Forecasts are taken from the World Bank's Global Economic Prospects report, which covers 181 economies. The quarterly data collected begin in 1950Q1, but data availability is quite limited during the 1950s, so data before 1960 were excluded.

³Hamilton (2019) develops a monthly indicator of global activity, based in the industrial production for countries in the Organisation for Economic Co-operation and Development (OECD) plus Brazil, China, India, Indonesia, the Russian Federation, and South Africa.

⁴Over the period 1950-2018, average GDP growth rate was 3.3 percent for advanced economies and 4.7 percent for EMDEs. Population growth in EMDEs (1.8 percent) was also higher than in advanced economies (0.8 percent) over 1950-2018. Per capita output growth was then, on average, 2.4 percent in advanced economies and 2.8 percent in EMDEs.

common and broadly defined basket of goods and services. PPP exchange rates differ from market exchange rates particularly because goods and services that are not traded internationally tend to be cheaper in lower-income countries than in higher-income countries. As a result, the value of output in lower-income countries tends to be relatively greater using PPP than using market exchange rates (Callen 2007). Thus, PPP weights, which are calculated as national GDP valued at PPP as a share of world GDP, tend to be higher for lower-income countries than do market exchange rate weights. As growth in lower-income countries tends to be greater than that in higher-income countries, global GDP growth is often higher with PPP weights than with market weights.⁵

For measuring living standards and aggregating welfare, PPP weights are more appropriate because they capture the amount of consumption affordable to households for comparable consumption baskets. Whereas PPP weights capture the fact that some goods are cheaper in lower-income countries, market rates capture how much an economy could “buy” in global markets. Hence, weights based on market exchange rates are used here to provide the baseline measure of economic size (Cooper 2014; Frankel 2014).

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

The statistical dating method used here was introduced by Harding and Pagan (2002).⁶ The method is convenient because the turning points identified are robust to the inclusion of newly available data. The method makes it possible to identify global recessions, defined as taking place when the annual growth rate of per capita global real GDP is negative. Per capita real GDP growth alone, however, may not be sufficient as an indicator of the cyclical evolution of economic activity. For this reason, the Business Cycle Dating Committees of the U.S. NBER and the Europe-based Centre for Economic Policy Research (CEPR) employ broad sets of economic indicators and apply a “judgmental method” to identify the turning points of national or regional cycles.

⁵ For example, the average annual growth rate of world GDP over the period 1950-2018 was 3.7 percent or 4.0 percent, using market weights and PPP weights, respectively. Average annual global GDP growth over the past 20 years was 2.9 percent with market weights and 3.7 percent with PPP weights. In per capita terms, average annual GDP growth was 1.7 percent with market weights and 2.5 percent with PPP weights.

⁶ It extends the algorithm developed by Bry and Boschan (1971), to identify the turning points in the log of per capita GDP (refer to Kose, Sugawara, and Terrones 2020 for details). This dating algorithm is widely used to identify the turning points of business and financial cycles (Claessens, Kose, and Terrones 2009, 2011, and 2012; Grjebine, Sczerbowicz, and Tripier 2018; Harding and Pagan 2016; Herman, Igan, and Solé 2017; Meller and Metiu 2017; Pagan and Sossounov 2003). Other methodologies consider how a variable fluctuates around its trend, but the estimation of trend is sensitive to sample period.

The judgmental method involves analyzing a broad set of macroeconomic indicators and reaching a judgment on whether the evidence points to expansion or recession. The NBER uses this method to determine the dates of cyclical turning points, expansions, and recessions in the U.S. economy; and the CEPR does so for the euro area. The NBER examines, for example, movements in real GDP, industrial production, retail sales, employment, and disposable income; it states that “[the] Committee does not have a fixed definition of economic activity” (NBER 2020). Because different indicators can exhibit conflicting signals about the direction of activity, the judgmental method may not be straightforward to apply in real time. The CEPR’s task may be considered even more complex than that of the NBER because it has to determine cyclical conditions in the multicountry context of the euro area.

The judgmental method is applied at the global level through analysis of a selected set of indicators of global activity—movements in real GDP per capita, industrial production, trade, capital flows, oil consumption, and unemployment. Some of the variables used by the NBER and CEPR are not available for a large enough number of countries over a sufficiently long period. The measures employed here, however, capture the essentials of the information supplied by the country-specific variables used by these institutions. Moreover, they provide a reasonably comprehensive perspective on the evolution of the global business cycle. In addition to the standard activity measures, such as GDP, industrial production, and unemployment, other variables capture the changes in global commerce and finance (trade and capital flows) and global energy consumption (oil consumption).

Using these two methods, a global recession is defined as an annual contraction in world real per capita GDP accompanied by a broad decline in various other measures of global economic activity. A global recession begins just after the world economy reaches a peak of activity and ends when it reaches its trough. The recovery is defined as the early part of the expansion phase.⁷ The recovery phase is often considered to be the first year following the trough of the business cycle; however, to obtain a broader understanding, developments in the first three years following a global recession are also examined. The global expansion phase is the period between the end of one recession and the beginning of the next one.

Global recessions and recoveries: Dates and events

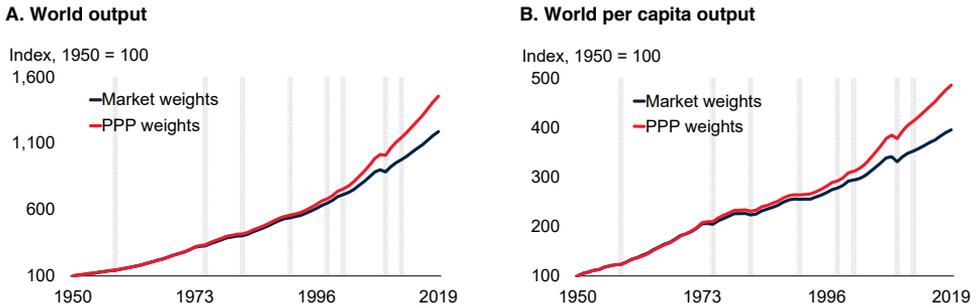
Turning points of the global business cycle

Global recessions. The baseline statistical method identifies four declines (troughs) in annual real global per capita GDP, using market exchange rate weights, since 1950—in

⁷In the context of national cycles, a number of studies examine the dynamics of recoveries (see Balke and Wynne 1995; Bec, Bouabdallah, and Ferrara 2015; Eckstein and Sinai 1986; Graetz and Michaels 2017; Mussa 2009; Stock and Watson 2012). Some studies focus on business cycles of subnational entities, such as U.S. states (Francis, Jackson, and Owyang 2018; Owyang, Piger, and Wall 2005). Hausmann, Rodríguez, and Wagner (2006) define the recovery as the time it takes for output to rebound from its trough to its peak level before the recession, whereas Cerra, Panizza, and Saxena (2013) assume that the recovery is the year of positive growth immediately after a sequence of years with negative growth. Others associate the recovery with growth achieved after a certain time period, such as four or six quarters, following the trough (Calderón and Fuentes 2014; Sichel 1994).

FIGURE 2.3 Evolution of world output and world output per capita

World per capita output declined during the four global recessions.



Sources: Feenstra, Inklaar, and Timmer (2015); Kose and Terrones (2015); World Bank.

Note: Shaded areas indicate global recessions in 1975, 1982, 1991, and 2009, and global downturns in 1958, 1998, 2001, and 2012. PPP = purchasing power parity.

1975, 1982, 1991, and 2009 (figure 2.3). The use of PPP weights rather than market exchange rate weights does not affect the dates of the troughs. With market exchange rate weights, which are tilted toward advanced economies, global per capita GDP growth is lower especially during global recessions when many advanced economies experience synchronized contractions in activity (figure 2.4). With both sets of weights, the dates of peaks in the global business cycle are found to be 1974, 1981, 1990, and 2008, with the annual data showing each global recession lasting just one year.⁸

Some employ the definition of global recession that relies on a simple threshold (The Economist 2001, 2008). The findings here suggest that it is misleading to employ a simple growth threshold (such as below 2.5 percent annual growth in global GDP) to identify global recessions. For example, if one assumes that a global recession takes place whenever world real GDP growth with market (PPP) weights is less than 2.5 percent, there are 16 (11) global recessions over the period 1950–2018 (figure 2.4). If per capita growth rates with market (PPP) weights are used and the threshold is 1 percent, then 14 (11) global recessions are identified over the same period. The annual growth of world real GDP needs to fall below 1.1 percent to register a contraction in per capita GDP given the population growth in 2018, but, of course, population growth is time variant with substantial changes from one decade to another.⁹

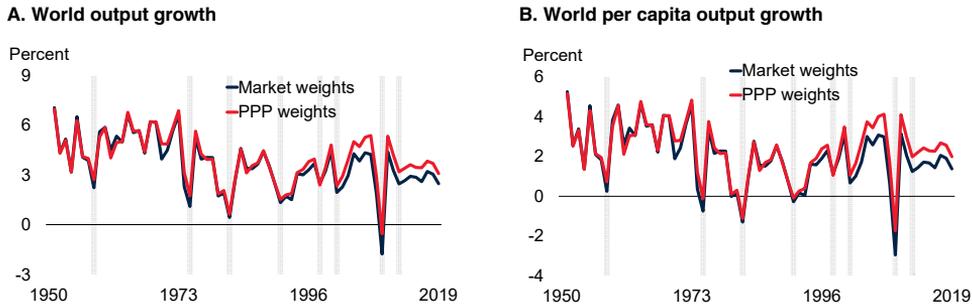
The judgmental method is applied at the global level by looking at movements in several indicators of global activity—real GDP per capita, industrial production, trade, capital flows, oil consumption, and employment. This method also results in the same four

⁸This finding echoes the results from the literature on national recessions. For example, Claessens, Kose, and Terrones (2012) report that the average duration of roughly 250 recessions in advanced economies and EMDEs since 1960 is about one year.

⁹Global population growth has slowed by 0.7 percentage point since the 1950s to 1.2 percent a year over 2010–18.

FIGURE 2.4 Growth of world output

Each recession saw a contraction in per capita world output, but the 2009 recession was the only one with a decline in world output.



Sources: Feenstra, Inklaar, and Timmer (2015); Kose and Terrones (2015); World Bank.

Note: Shaded areas indicate global recessions in 1975, 1982, 1991, and 2009, and global downturns in 1958, 1998, 2001, and 2012. PPP = purchasing power parity.

dates as the years of global recessions: most of these indicators point to an obvious contraction in global economic activity in these years, after a peak in the preceding year. The behavior of the indicators during the global recessions is discussed below.

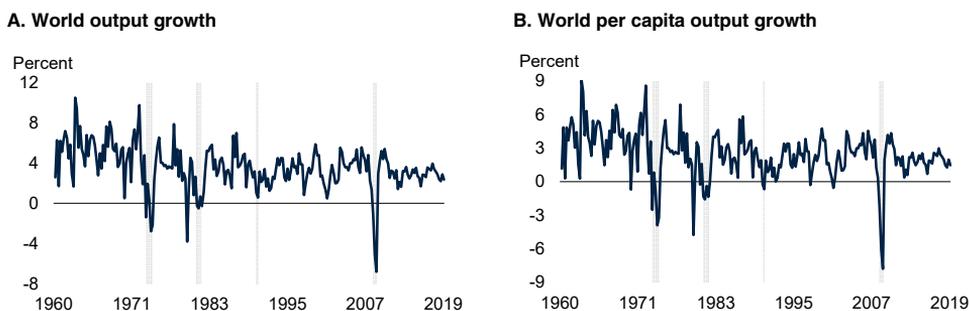
The turning points of the global business cycle identified using the quarterly data are consistent with those from the annual data series. The statistical approach identifies four global recessions in the quarterly series since 1960, including 1974Q1-1975Q1, 1981Q4-1982Q3, 1990Q4-1991Q1, and 2008Q3-2009Q1 (figure 2.5; table 2A.1). With the quarterly data, the average duration of global recessions was slightly less than one year. In addition to these four recession episodes, global per capita output contracted in 1970Q4 (-0.7 percent), 1980Q2 (-4.8 percent), 1981Q2 (-0.3 percent), 1998Q1 (-0.3 percent), and 2001Q3 (-0.6 percent).¹⁰ These contractions lasted for only a quarter without translating into global recessions. Some of these short-lived global contractions, however, were associated with recessions in major economies that took place ahead of global recessions (1982) or coincided with global downturns (1998 and 2001).¹¹

¹⁰ Global quarterly per capita growth is measured as the difference between quarter-on-quarter annualized growth of seasonally adjusted real GDP, aggregated with market weights, and annual population growth (annex 2C). For details about the database, see Kose, Sugawara, and Terrones (2020).

¹¹ The United States experienced a recession in 1969Q4-1970Q4 with per capita GDP contracting by more than 5 percent in 1970Q4. This recession coincided with one in Japan (where per capita growth dropped to negative 2.7 percent). Per capita output in the United States contracted by about 9 percent in 1980Q2, whereas a number of advanced economies also experienced contractions, including Japan (with a contraction in per capita output of about 4 percent) and the United Kingdom (with a decline of about 8 percent). Over 1960-2019, world per capita output growth was close to but above zero in several quarters because of contractions in some major economies, for example in 1960Q4 (contraction in the United States with expansions in other major economies), 1963Q1 (contractions in France, Germany, and the Netherlands), 1987Q1 (Germany), and 1989Q2 (Japan).

FIGURE 2.5 Growth of world output, quarterly

The dates of global recessions based on the quarterly per capita GDP series are consistent with those identified with the annual series.



Sources: Feenstra, Inklaar, and Timmer (2015); Haver Analytics; Organisation for Economic Co-operation and Development; World Bank.

Note: Shaded areas show global recessions, which are identified using per capita output data and the algorithm in Harding and Pagan (2002). Last observation is 2019Q2. Refer to annex 2C for details.

Global downturns. In addition to the four global recessions, the global economy experienced low growth in 1958, 1998, 2001, and 2012: in these four years, the global economy registered its lowest growth rates of the past seven decades, except for the years of global recession and the two years before and after each of them.¹² World output per capita grew by slightly less than 1 percent a year, on average, over these four downturns (table 2A.2). These downturns fall short of qualifying as global recessions because world real GDP per capita did not contract and there was no broad-based weakness in multiple indicators of global activity.

In 1958, global growth was weak because of low growth or outright recessions in several major economies, including the United States and some European economies (Federal Reserve Board 1958; United Nations 1959).¹³ In the United States, monetary policy was tightened to control inflation (Eckstein and Sinai 1986; Romer and Romer 2012). In some European countries, also, domestic demand weakened as policy measures to contain inflationary pressures were implemented. Growth in other parts of the world, however, remained resilient.

In 1997-98, economic activity in many EMDEs, particularly those in Asia, weakened sharply. In fact, the global economy experienced a contraction in per capita GDP in 1998Q1 as the East Asian financial crisis took a heavy toll on emerging market

¹²The statistical method identifies the local minimum in each episode. There were years in which global growth was lower than in the years of global downturns, but those years were always within two years before or after these recession and downturn episodes (for example, 1980).

¹³In 1958, per capita GDP contracted in the United States (by 2.4 percent), Canada (by 1 percent), and several European countries (for example, Belgium, by 1.2 percent; the Netherlands, by 2.4 percent; Switzerland, by 3.5 percent; and the United Kingdom, by 0.1 percent). Per capita growth was strong in other parts of the world, including Australia (4.6 percent), Germany (3.7 percent), Italy (4.1 percent), and Japan (5.3 percent).

economies in the region. The world economy did not experience a recession in 1998, however, because growth in advanced economies held up.

In 2001, many advanced economies experienced mild slowdowns or recessions: global per capita output declined in 2001Q3, when per capita growth turned negative in a number of advanced economies, including the United States (-2.7 percent, annualized) and Japan (-4.2 percent, annualized). Growth in some major EMDEs, such as China and India, remained robust, helping the global economy escape a recession.

The 2012 global downturn was mainly driven by the euro area debt crisis.¹⁴ Although world per capita output did not contract in any of the quarters of 2012, growth was very low (0.4 percent in 2012Q2). The global economy was supported by growth in the United States and some major EMDEs.

During these four global downturns, the behavior of other global indicators was mixed, again implying that these episodes do not qualify as global recessions. For example, industrial production, trade, and consumption did not suggest a broad-based weakness in the global economy in 1998. In 2001, although industrial production fell and the rate of global unemployment picked up slightly—and although equity prices and business confidence declined sharply and policy uncertainty increased significantly following the 9/11 terrorist attacks—both global trade flows and oil consumption continued increasing. During the 2012 global downturn, some activity indicators did not show much weakness, but capital flows slowed, equity prices collapsed, and inflation declined.

The U.S. economy during global recessions and downturns. Although the four global recessions coincided with recessions in the United States, not every U.S. recession was associated with a global recession. In fact, the United States experienced six additional recessions during 1950–2019, including recessions in 1958 and 2001 that coincided with global downturns. But its economy grew strongly during the 1998 global downturn and, to a lesser extent, during the 2012 global downturn.¹⁵

Events surrounding the global recessions

The four global recessions identified above were all characterized by severe economic and financial disruptions in many countries around the world. But each recession had its own unique features.¹⁶ In particular, the shocks that contributed to the global recessions

¹⁴Some euro area countries experienced financial crisis (Greece in 2012 and Cyprus in 2011–13), and some others went through periods of fiscal distress (Ireland and Portugal) (Laeven and Valencia 2018; Medas et al. 2018). A number of other euro area countries also registered relatively low economic growth during this period. The euro area recorded its lowest output growth (-0.9 percent) since 2009. Indeed, CEPR identifies the period 2011Q3 to 2013Q1 as a recession in the area.

¹⁵Average per capita GDP growth in the United States during the global recessions and global downturns identified previously was -2.1 percent and 0.6 percent a year, respectively. Whereas U.S. per capita output contracted in the 1958 global downturn (by 2.4 percent) and was virtually stable in 2001, it expanded in 1998 and 2012 (by 3.2 percent in the former case and 1.4 percent in the latter).

¹⁶The events surrounding these episodes are discussed in detail by Allen (2009), Knoop (2004), Kose and Terrones (2015), and Reinhart and Rogoff (2009). Baffes et al. (2015), Barsky and Kilian (2004), and Hamilton (2013) present surveys of the history of oil shocks and the associated economic downturns.

were different. The 1975 global recession was driven mainly by a global supply shock—the oil price shock of 1973-74. The 1982 episode followed a series of shocks, including the oil price shock of 1979; the subsequent rise in global inflation; monetary policy responses to that increase in inflation, especially the marked monetary tightening by the U.S. Federal Reserve; and the Latin American debt crisis.

Similarities also exist, however, across the global recessions, including in their origins. A number of countries experienced financial crises during the four global recessions.¹⁷ In the 1991 global recession, a wide range of national shocks were transmitted across borders, including financial disruptions and exchange rate crises in some advanced economies, especially in Europe, and a major shift in political and economic systems in many Eastern European countries. The 2009 episode originated mainly from problems in the U.S. financial sector that started to become evident in 2007. These problems rapidly propagated to other advanced economies and some EMDEs through trade and financial linkages.

The global recession of 1975 followed the shock to world oil prices from the Arab oil embargo initiated in October 1973. Although the embargo ended in March 1974, the supply shock and associated sharp rise in oil prices triggered a substantial increase in inflation and a significant weakening of growth in a number of countries. Monetary and fiscal policy easing, especially by some major advanced economies, helped spur a rebound of growth in 1976. Five of the Group of Seven (G7) countries—Canada, France, Italy, the United Kingdom, and the United States—however, experienced persistent and high inflation, and the 1975 global recession was the beginning of a half-decade of stagflation, with low output growth and high inflation (Knoop 2004).¹⁸

The global recession of 1982 was triggered by several developments, including the second oil shock of 1979, a tightening of monetary policies in the United States and other advanced economies, and the Latin American debt crisis. Oil prices rose sharply in 1979, partly owing to disruptions caused by the Iranian revolution, and helped push inflation to new highs in several advanced economies. Partly in response, monetary policies were tightened significantly in several major advanced economies, including Germany, Italy, Japan, the United Kingdom, and the United States, causing sharp declines in activity and significant increases in unemployment rates in many cases in 1982-83. The increase in global interest rates and a collapse in commodity prices that stemmed from the weakening of global growth made it difficult for many Latin American countries to service their debts, resulting in debt crises in the region. Advanced economies were generally able to begin their recoveries relatively quickly, although unemployment in some cases remained relatively high. But the debt crisis

¹⁷ Financial crises—including banking, currency, and sovereign debt crises—took place in 15, 62, 67, and 38 economies during the 1975, 1982, 1991, and 2009 global recessions, including the two years before and after the recession years (see Laeven and Valencia 2018). Most of the financial crises in the 1975 global recession were currency crises in EMDEs, whereas Chile and Spain experienced systemic banking crises.

¹⁸ The other two G7 economies are Germany and Japan. By 1980, immediately after the second oil shock, inflation had risen to levels higher than those seen after the first oil shock in all G7 countries except Japan and the United Kingdom, while inflation in Germany remained relatively moderate.

contributed to long-lasting growth slowdowns in many EMDEs, especially in Latin America and the Caribbean (LAC) and Sub-Saharan Africa (SSA).

The 1991 global recession also resulted from the confluence of a wide range of factors (Perry and Schultze 1993). The 1990-91 Gulf War was associated with heightened geopolitical uncertainty and another sharp increase in oil prices. In the United States, widespread weakness of lending institutions, evident since the mid-1980s, weighed on the housing market, especially during the credit crunch of 1990-91 (Bernanke and Lown 1991; Hall 1993). Scandinavian countries had severe banking crises in the early 1990s, following the liberalization of financial sectors and rapid expansion in credit markets in the 1980s. In Europe, problems with the European Monetary System's exchange rate mechanism (ERM) in 1992 were accompanied by sharp declines in activity in many member countries. In Japan, the bursting of an asset price bubble resulted in a recession and a prolonged period of low growth and near-zero inflation. In Central and Eastern Europe and the former USSR, the transition to market economies was accompanied by high inflation and output contractions.

The 2009 global recession followed the worst financial crisis since the Great Depression. The crisis started in mid-2007 in major advanced economies, and followed a period of loosening regulation and supervision of financial markets and institutions, asset price and credit booms in a number of countries, and the rapid expansion of high-risk lending, particularly in U.S. mortgage markets. The collapse of Lehman Brothers, in September 2008, triggered a full-blown financial and macroeconomic crisis. Although the initial trigger for the crisis was the U.S. mortgage markets, the high degree of interconnectedness between U.S. and other financial markets caused the crisis to spread to other advanced economies and some EMDEs. Banking crises erupted in many European countries in 2008, causing financial crises in the euro area in 2011-13. These events caused sharp asset price declines and severe credit crunches, a collapse in global trade, and highly synchronized recessions in a record number of countries around the world. As discussed in the next section, however, with the exception of some of those in the Europe and Central Asia (ECA) region, EMDEs weathered the 2009 global recession relatively well.

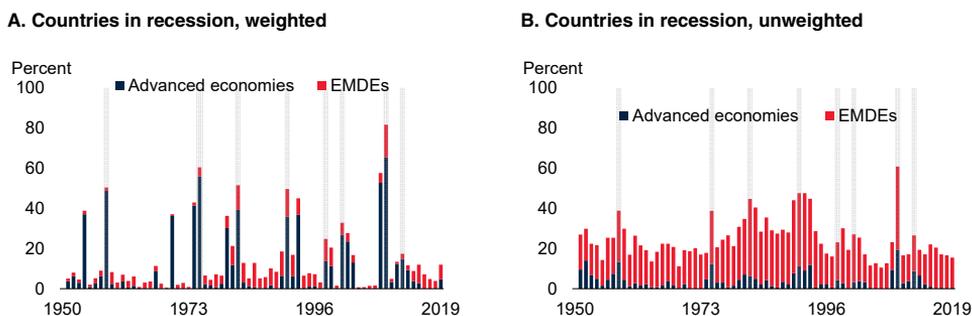
Synchronization of national recessions

Global recessions are highly synchronized events internationally. The fraction of countries in recession increased during the four global recessions (figure 2.6). The GDP-weighted fraction of countries in recession was about 50 percent in the first three global recessions, but rose to slightly more than 80 percent in the latest episode. The unweighted fraction of countries in recession reached local peaks during the global recession years. For example, it was about 60 percent during the 2009 episode.¹⁹ In all

¹⁹ Imbs (2010), using monthly industrial production data, concludes that the degree of cross-country business cycle correlation during the latest recession was the highest over the past three decades. Other research also indicates that shocks originating in credit markets have been influential in driving global activity during global recessions, including the 2009 episode (Bacchetta and van Wincoop 2016; Eickmeier and Ng 2015; Helbling et al. 2011; Perri and Quadrini 2018).

FIGURE 2.6 International synchronization of recessions

Global recessions are highly synchronized events, with many countries experiencing contractions in national per capita GDP.



Sources: Feenstra, Inklaar, and Timmer (2015); Kose and Terrones (2015); World Bank.

Note: Shaded areas indicate global recessions in 1975, 1982, 1991, and 2009, and global downturns in 1958, 1998, 2001, and 2012. Recessions are defined as a contraction in per capita GDP. EMDEs = emerging market and developing economies.

A. Weighted by GDP at 2010 prices and market exchange rates.

four global recessions, the fraction of countries in recession started picking up ahead of the recession year.

The number of countries in recession was often relatively low two to three years before each global recession. The 2006-07 period stands out for the historically low number of countries in recession, but this was followed by a sharp reversal of fortune. In 2009, almost all advanced economies (35 out of 36) and roughly half of EMDEs were in recession. The degree of international synchronicity in the last global recession was the highest in the past 70 years, possibly reflecting the unusual depth of the global financial crisis and much stronger international trade and financial linkages than in earlier episodes.

Main features of global recessions, recoveries, and expansions

Global recessions

The behavior of the main macroeconomic and financial variables displays a number of regularities during the four global recessions. The 2009 global recession, which saw by far the largest declines in many indicators of activity, otherwise followed a pattern broadly similar to the previous episodes. The impact of these episodes often varied across different groups of countries and regions.

Sharp contraction in real activity. In the four global recessions, per capita global output (market exchange rate weighted) declined on average by 1.3 percent, which is 3.5 percentage points below the average annual growth rate of 2.2 percent during the 1950-

2018 expansion years (table 2A.3). With PPP weights, the decline in per capita output during global recessions was, on average, 0.8 percent, whereas growth during expansion years was 2.5 percent.

Among the four global recessions, the 2009 episode was by far the deepest. It involved the only annual contraction in real global GDP since 1950.²⁰ The least severe episode in terms of per capita output growth was the 1991 recession. Average annual growth of output over the four global recession episodes was 0.3 percent, about 3.6 percentage points lower than average world growth during expansion years (3.9 percent).

World per capita output, industrial production, trade, and oil consumption often started to slow down two years before the global recessions (figure 2.7.A). Moreover, investment, industrial production, and trade typically declined much more than output during the global recessions. Although private consumption generally held up relatively well, its growth was much weaker than in nonrecession years. Oil consumption declined in every global recession except the 1991 episode.²¹

Depressed financial markets and business confidence. Asset prices and credit on average began decelerating about two years ahead of each global recession (figure 2.7.B). The average annual rate of credit growth during the global recessions was about two-fifths of the annual average observed in nonrecession years, and both house and equity prices fell, with the decline in the former on average three times larger than in the latter. Financial conditions often tightened before the global recessions but then quickly loosened as monetary policy became accommodative. Inflation typically fell during global recessions, which gave further license for central banks to reduce interest rates (figure 2.7.C).

The behavior of real interest rates varied widely across the episodes. For example, real rates declined in the 1991 and 2009 episodes, but went up during the 1975 and 1982 recessions. Business confidence fell in all global recession episodes. Economic policy uncertainty increased during the two episodes—1991 and 2009—for which data are available (Baker and Bloom 2013; Caldara et al. 2019).

Differences across country groups. The impact of global recessions has varied across different groups of countries and regions (table 2A.4). In advanced economies, average per capita growth fell to -1.1 percent during the global recession years, from 2.7 percent during nonrecession years. In EMDEs, the decline was to 0.2 percent from 3 percent (LICs on average suffered larger declines in per capita growth than did other EMDEs). Thus, the drop in growth was 1 percentage point greater for advanced economies than for EMDEs. In addition, both trade and industrial production registered much larger contractions in advanced economies than in EMDEs.

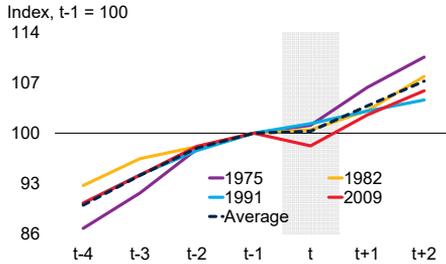
²⁰On the basis of the quarterly data, average annual per capita output growth in the four global recessions was -2.4 percent (table 2A.1). The deepest recession is again seen to be that of 2009 and the least severe that of 1991: average annual growth rates in the four recessions were -1.9 percent (1974Q1-1975Q1), -1.2 percent (1981Q4-1982Q3), -0.5 percent (1990Q4-1991Q1), and -5.4 percent (2008Q3-2009Q1). Per capita growth was negative in each quarter of the four recessions, except in 1974Q2 when growth picked up to 0.8 percent for one quarter only.

²¹Oil consumption declined in only 9 years of the past 70. These episodes coincided with the global recessions or were within two years before or after them.

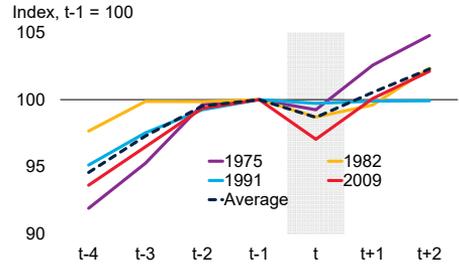
FIGURE 2.7.A Economic activity during global recessions

Global recessions have been associated with broad-based declines in multiple measures of economic activity.

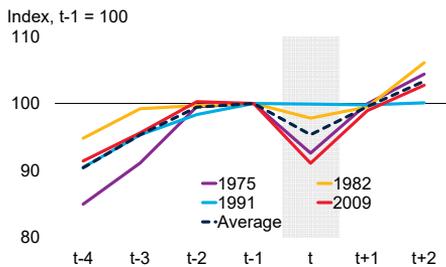
A. Output



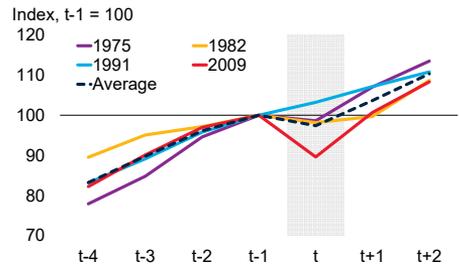
B. Output per capita



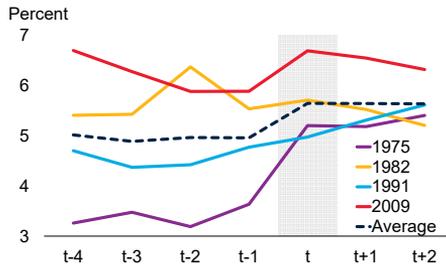
C. Industrial production



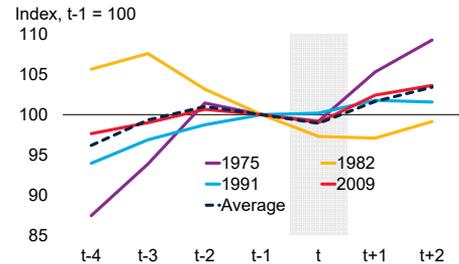
D. Trade



E. Unemployment rate



F. Oil consumption



Sources: British Petroleum; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.

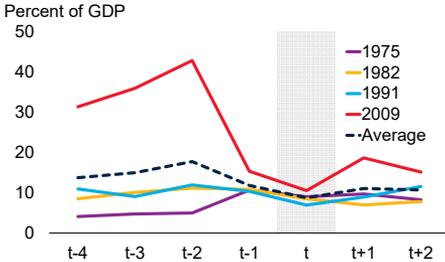
Note: Year “t” denotes the year of the respective global recessions (shaded in gray). Average refers to an average of four global recessions with available data. Output, output per capita, industrial production, trade, and oil consumption are index numbers equal to 100 one year before year “t” (that is, t-1 = 100). Aggregates for output, output per capita, and industrial production are market-weighted. Refer to annex 2C for details.

Some EMDE regions have been able to weather global recessions better than others. For example, the EAP and SAR regions continued expanding during the past four global recessions whereas the other four regions all on average experienced declines in per capita output (though aggregate output continued growing, on average, in LAC and SSA). One explanation for this outcome is that, whereas EAP and SAR mostly comprise relatively fast-growing commodity importers (including the large economies of China in

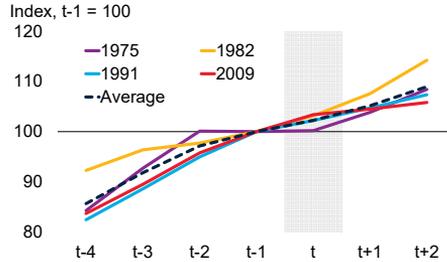
FIGURE 2.7.B Financial markets during global recessions

Substantial declines in financial markets have been a common feature of global recessions. As activity slowed, inflation often fell.

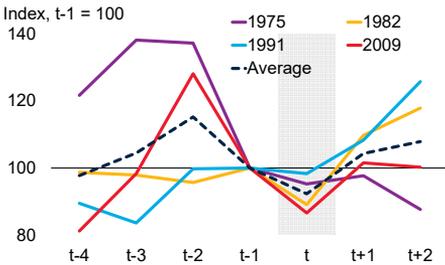
A. Capital flows



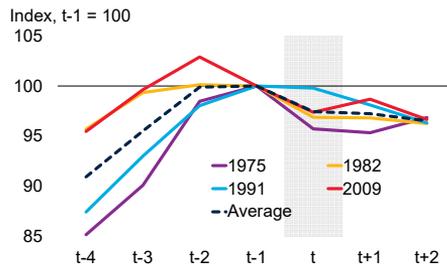
B. Credit



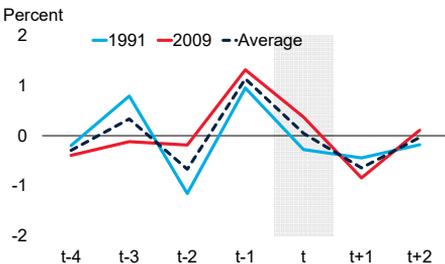
C. Equity prices



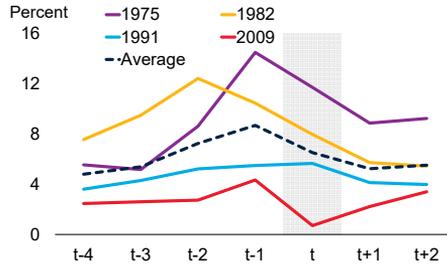
D. House prices



E. Financial conditions



F. Inflation



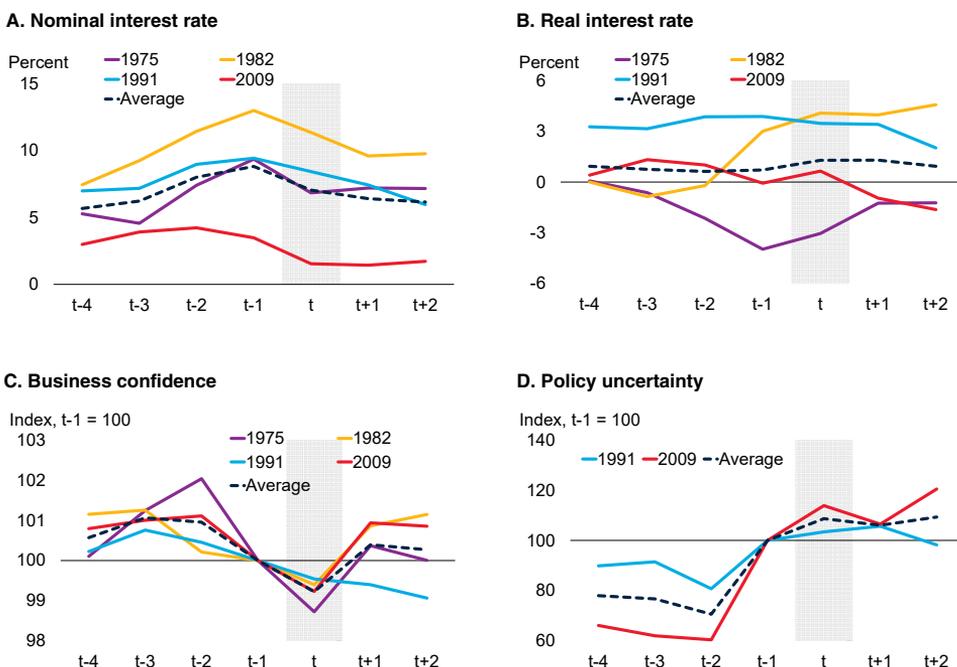
Sources: Bank for International Settlements; Bloomberg; Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.
 Note: Year “t” denotes the year of the respective global recessions (shaded in gray). Average refers to an average of four global recessions with available data. Equity prices, house prices, financial conditions, and inflation are weighted by GDP in U.S. dollars. Credit, equity prices, and house prices are index numbers equal to 100 one year before year “t” (that is, t-1 = 100). Refer to annex 2C for details.

EAP and India in SAR), the other four regions consist more of commodity exporters that have been severely affected by the collapses in demand for commodities associated with global recessions.

The 2009 recession. The unusually sharp declines in a wide range of economic indicators, especially growth in both aggregate and per capita global output, highlight

FIGURE 2.7.C Interest rates, confidence, and uncertainty during global recessions

Nominal interest rates fell in the year of each global recession as monetary policy turned expansionary. Confidence plummeted and policy uncertainty rose during global recessions.



Sources: Bank for International Settlements; Davis (2016); European Commission; Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; country sources; World Bank.

Note: Year “t” denotes the year of the respective global recessions (shaded in gray). Average refers to an average of four global recessions with available data. Variables are weighted by GDP in U.S. dollars at market exchange rates. Business confidence and policy uncertainty are index numbers equal to 100 one year before year “t” (that is, t-1 = 100). Refer to annex 2C for details.

the severity of the 2009 global recession. The global impact was amplified by the growing importance of international linkages through trade and financial flows. Although the globalization of national manufacturing chains was a major force driving the growth of world trade in the two decades before the global recession, it appears to have been instrumental in driving the sharp contraction of cross-border trade during 2009.²² The 2009 episode also saw the largest increase in the index of global policy uncertainty, and the second-sharpest decline in business confidence (the largest decline took place during the 1975 global recession).

²²The contraction in international trade also appears to have been driven partly by other factors, including a sharp fall in trade credit, the increased role of durable consumer goods (with relatively high income elasticity of demand) in trade, accumulated inventories by importing firms, and the strong cross-border spillovers associated with demand shocks. The collapse of trade (relative to output) during the 2009 global recession is much larger than that predicted by standard business cycle models. For potential explanations, see Alessandria, Kaboski, and Midrigan (2010); Amiti and Weinstein (2011); Bems, Johnson, and Yi (2010); Chor and Manova (2012); Freund (2009); and Levchenko, Lewis, and Tesar (2010).

Global capital flows registered their sharpest fall during the 2009 global recession. After overshadowing the growth of global trade flows over the previous two decades, global capital flows had reached unprecedented levels in 2007. But they rapidly dried up in the last quarter of 2008, as the global financial crisis spread from advanced economies to EMDEs. Variations among countries in the decline of capital flows appear to have been related to the degrees of trade and financial openness, the nature of financial linkages (for example, reliance on bank flows), and domestic macroeconomic conditions.²³

As the epicenter of the financial crisis, advanced economies felt its brunt the most (figure 2.7.D; table 2A.4). Almost all of them experienced much larger declines in output than in the previous global recessions, and on average their per capita output growth declined to -4.0 percent in 2009, more than 6 percentage points below their average growth rate during nonrecession years. Contractions in trade, industrial production, and employment were also much sharper in these economies than in EMDEs.

In contrast, EMDE output growth remained positive, although it did slow sharply, from 8.2 percent in 2007 to 5.7 percent in 2008 and 1.8 percent in 2009 (chapter 3). EMDEs delivered their strongest recovery following the 2009 episode, as discussed in the following section (Kose, Otrok, and Prasad 2012). LICs were also able to continue growing during the 2009 global recession whereas their growth fell to negative rates in per capita terms in the previous episodes.

In the 2009 episode, there were some stark differences across EMDE regions (figure 2.7.D; table 2A.5). ECA took the largest hit partly because the withdrawal of Western European banks caused a severe credit crunch, and the region's per capita output declined by more than 5 percent in 2009. Per capita output in LAC and the Middle East and North Africa (MNA) also contracted as commodity prices and exports collapsed. In EAP and SAR, expansions continued, partly reflecting heavy use of monetary and fiscal stimulus in the largest economies to support activity (World Bank 2009, 2010a, 2010b). Unlike in previous global recessions, when SSA experienced declines in per capita output, the region was able to avoid recession in 2009 partly because it had limited exposure to global financial markets but stronger linkages, especially through trade, with the large emerging market economies of EAP, which continued growing (Fosu 2013).

Global recoveries

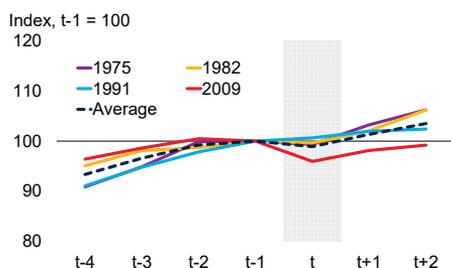
A global recovery typically involves broad-based rebounds in multiple measures of economic activity and financial markets. The strength of recoveries differs across countries and country groups. For instance, evidence suggests that the recovery in countries with fixed exchange rate regimes is weaker than that in countries with more flexible regimes (Terrones 2019). Following the 2009 global recession, advanced economies experienced the weakest recovery among the four episodes whereas EMDEs enjoyed their strongest.

²³ For discussion of movements in capital flows, see Claessens (2017); Koepke (2019); Lane and Milesi-Ferretti (2018); and Milesi-Ferretti and Tille (2011).

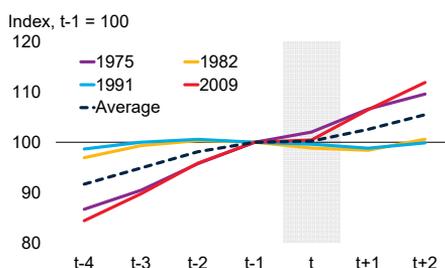
FIGURE 2.7.D Economic activity during global recessions, by country group

The impact of global recessions has differed between advanced economies and EMDEs. Output and trade have tended to decline more in advanced economies than in EMDEs.

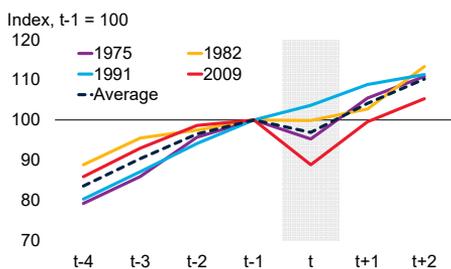
A. Output per capita, advanced economies



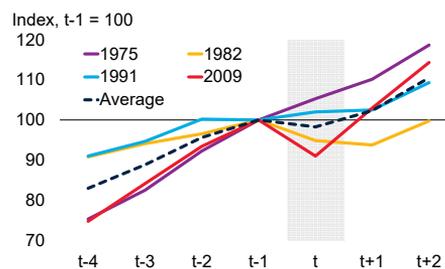
B. Output per capita, EMDEs



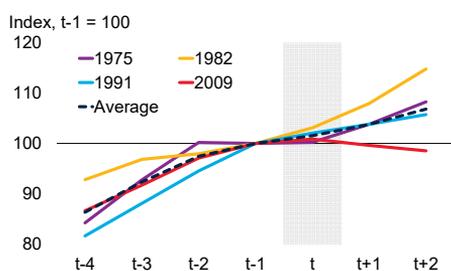
C. Trade, advanced economies



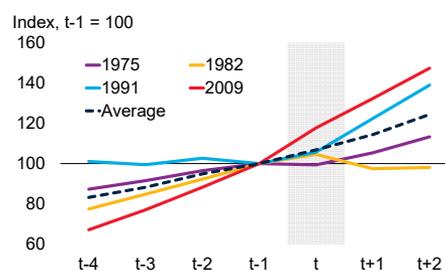
D. Trade, EMDEs



E. Credit, advanced economies



F. Credit, EMDEs



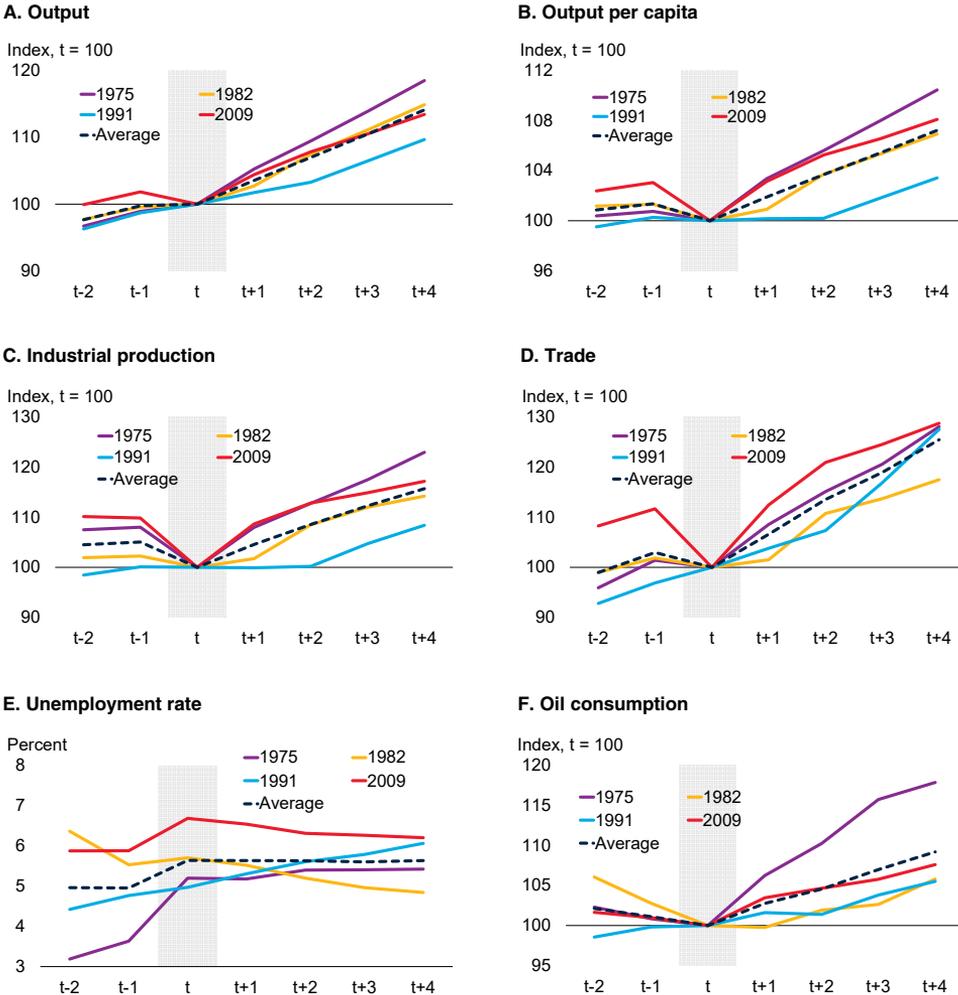
Sources: Bank for International Settlements; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); World Bank.

Note: Year "t" denotes the year of the respective global recessions (shaded in gray). Average refers to an average of four global recessions with available data. Variables are index numbers equal to 100 one year before year "t" (that is, $t-1 = 100$). Aggregates for output per capita are market-weighted. Refer to annex 2C for details. EMDEs = emerging market and developing economies.

Broad rebound in activity. Most indicators of global activity started expanding in the first year of each recovery (figure 2.8.A). The average growth rate of global output in the first year (or the first three years) of recoveries was close to the average growth rate in a typical year of the full sample period (table 2A.6). The growth rates of consumption, investment, and international trade picked up in the first year of each recovery while oil

FIGURE 2.8.A Economic activity during global recoveries

Global recoveries have typically involved a broad-based rebound in economic activity.



Sources: British Petroleum; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.

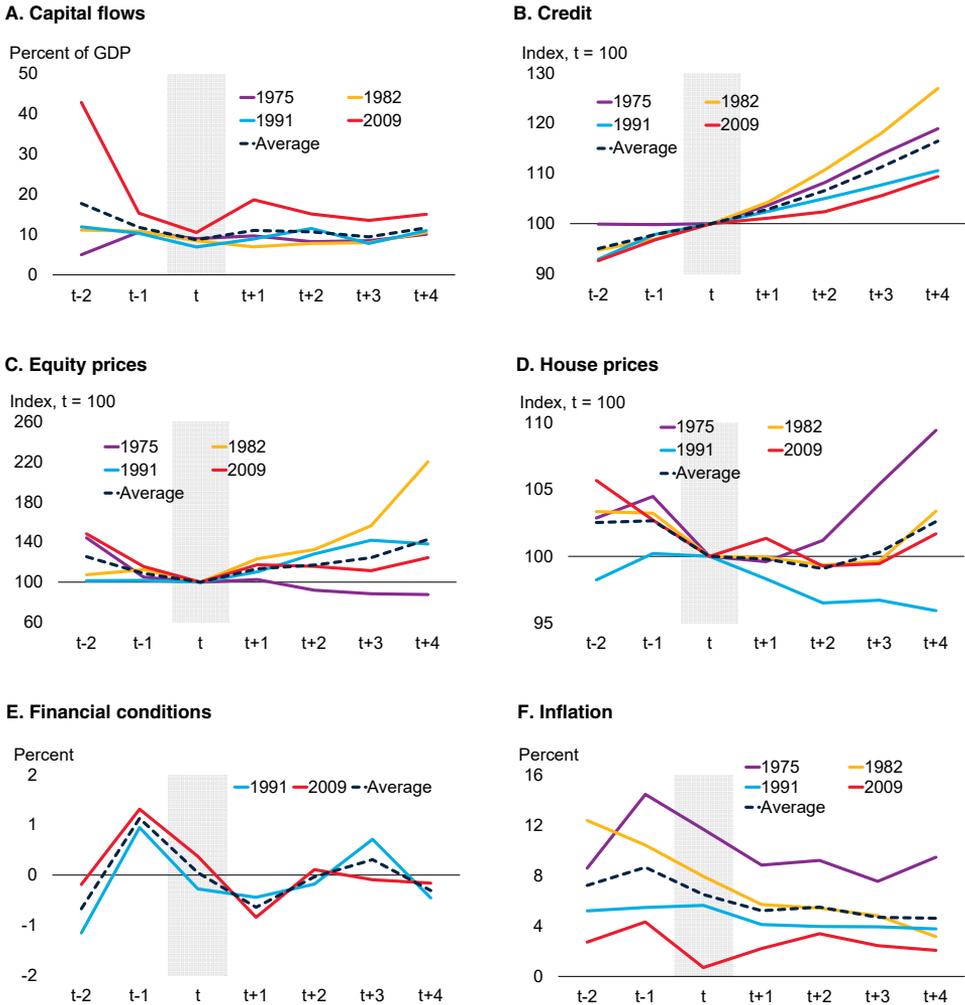
Note: Year “t” denotes the year of the respective global recessions (shaded in gray). Average refers to the average of the four global recessions identified. Output, output per capita, industrial production, trade, and oil consumption are index numbers equal to 100 in recession years. Aggregates for output, output per capita, and industrial production are market-weighted. Refer to annex 2C for details.

consumption tended to increase. The global recovery from the 1975 recession was the strongest in terms of average output growth in the first three years of the recovery, as well as in terms of growth in the first year. The recovery after the 1991 global recession was the weakest.

Recoveries in financial markets. Global financial markets have tended to rally as recoveries have strengthened over time (figure 2.8.B). In the recoveries from both the

FIGURE 2.8.B Financial markets during global recoveries

Global financial markets have tended to rally as recoveries have strengthened over time.



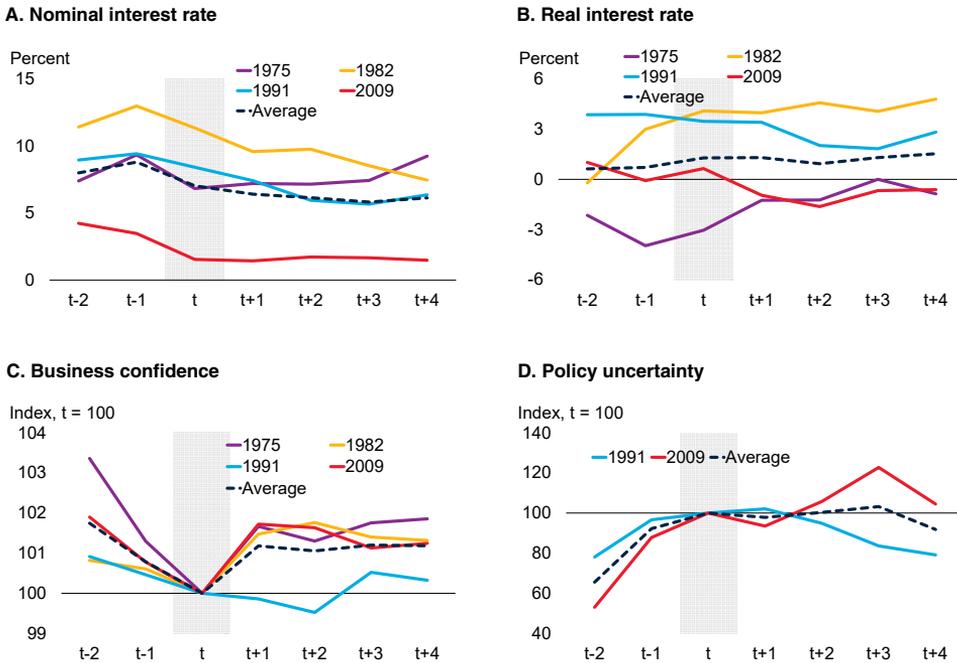
Sources: Bank for International Settlements; Bloomberg; Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: Year “t” denotes the year of the respective global recessions (shaded in gray). Average refers to an average of four global recessions with available data. Equity prices, house prices, financial conditions, and inflation are weighted by GDP in U.S. dollars. Credit, equity prices, and house prices are index numbers equal to 100 in recession years. Refer to annex 2C for details.

1991 and 2009 recessions, for which these estimates are available, broad financial conditions loosened further in the first year of the recovery but then gradually tightened. Although global equity prices on average have picked up quickly in the first year of recoveries, house prices have tended to remain depressed for two to three years. Credit growth has also generally taken longer to attain the rates observed during nonrecession periods. Housing markets were depressed mostly during the recoveries following the three most recent global recessions. Equity markets remained weak during the recovery

FIGURE 2.8.C Interest rates, confidence, and uncertainty during global recoveries

Nominal interest rates have usually declined during recoveries. Business confidence has often improved as policy uncertainty has faded.



Sources: Bank for International Settlements; Davis (2016); European Commission; Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; country sources; World Bank.
 Note: Year “t” denotes the year of the respective global recessions (shaded in gray). Average refers to an average of four global recessions with available data. Variables are weighted by GDP in U.S. dollars. Business confidence and policy uncertainty are index numbers equal to 100 in recession years. Refer to annex 2C for details.

from the 1975 recession, partly reflecting the stagflation in several major advanced economies.

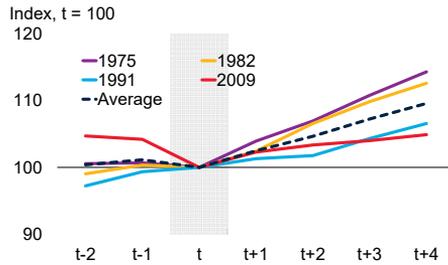
The 2009 episode, which saw the lowest rate of inflation during a recession, was followed in 2010 by a further dip of inflation to near zero. It thereafter rose quite modestly, to stabilize at a rate in the low single digits. Because of the depressed inflation after 2009, accommodative monetary policies kept nominal interest rates low, and real interest rates remained somewhat below zero (figure 2.8.C). Nominal rates declined during and after previous recessions too, but there was a less consistent pattern to real rates. For example, although real interest rates remained negative after the 1975 and 2009 episodes, they went up following the recession of 1982. Business confidence quickly recovered to the prerecession levels except after the 1991 recession because of the financial turbulence in Europe.

Differences across country groups. The four global recoveries featured many commonalities, but they also displayed important differences across country groups and

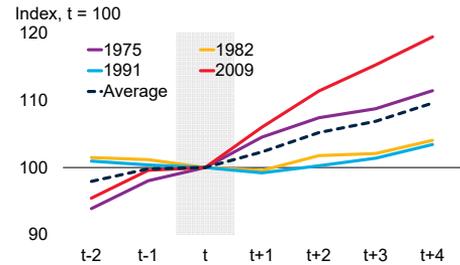
FIGURE 2.8.D Economic activity during global recoveries, by country group

Recoveries have differed between advanced economies and EMDEs. In advanced economies, the recovery from the most recent recession (over the first three years) was the weakest in the past 70 years in terms of output and output per capita. In contrast, EMDEs, as a group, enjoyed their strongest recovery of the past 70 years following the 2009 global recession.

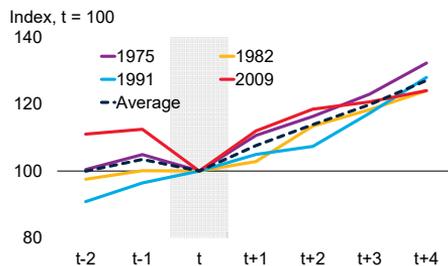
A. Output per capita, advanced economies



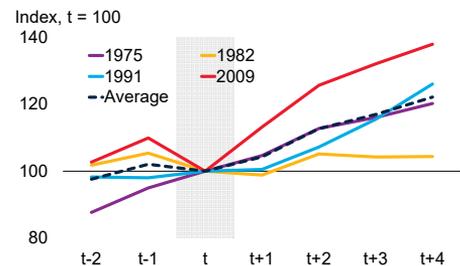
B. Output per capita, EMDEs



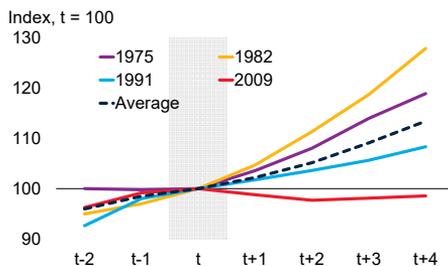
C. Trade, advanced economies



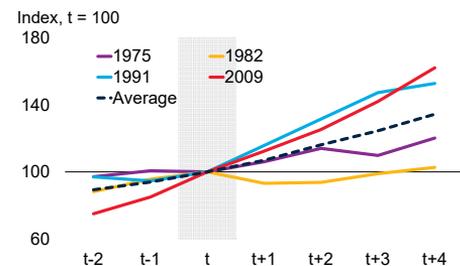
D. Trade, EMDEs



E. Credit, advanced economies



F. Credit, EMDEs



Sources: Bank for International Settlements; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); World Bank.

Note: Year “t” denotes the year of the respective global recessions (shaded in gray). Average refers to an average of the four global recessions identified. Variables are index numbers equal to 100 in recession years. Aggregates for output per capita are market-weighted. Refer to annex 2C for details. EMDEs = emerging market and developing economies.

EMDE regions (figure 2.8.D; table 2A.7). First, advanced economies on average delivered better per capita GDP growth outcomes (in the first three years) during the first three recoveries than did EMDEs. They also experienced faster trade growth during these episodes. Second, per capita GDP growth in LICs was much weaker than in the

broader group of EMDEs, as well as advanced economies, during the global recoveries. Third, whereas EAP and SAR experienced robust recoveries, other regions suffered significant contractions during some recovery episodes mostly because of region-specific factors (table 2A.8). For example, LAC and SSA saw slumps in per capita output during the 1983-85 recovery because of the debt crises engulfing these regions, and ECA experienced a serious recession during the 1992-94 global recovery driven by challenges of transition.

Recovery following the 2009 recession. The trajectory of per capita global output in the most recent recovery was slightly weaker than that of the period following the 1975 global recession (figure 2.8.A). After the latest recession, there were stronger rebounds in industrial production and trade in the first three years than in the previous three recoveries. The pattern of global unemployment during the latest global recovery follows that of the previous episodes, but the average rate of unemployment remained elevated in 2010-12.

Financial markets experienced a subdued recovery after 2009 (figures 2.8.B and 2.8.C). Credit registered its weakest growth among the four episodes while both housing and equity markets struggled in the first three years. The latest recovery was characterized by the lowest inflation and nominal interest rates. Capital flows, however, picked up quite strongly in the first year of the recovery, and then stabilized at a lower level than the average over the 2003-07 period.

The global recovery from the 2009 recession was significantly different from the previous three episodes, particularly in its uneven nature and especially in the differences in performance between advanced economies and EMDEs (figure 2.8.D; table 2A.7). Advanced economies were the engines of previous global recoveries, but EMDEs accounted for the lion's share of global growth after the 2009 global recession: the average contribution of advanced economies to global growth during the previous three global recoveries (that is, over 1976-78, 1983-85, and 1992-94) was 75 percent, but that average dropped to 35 percent in 2010-12.

For advanced economies, the most recent recovery, in 2010-12, was the weakest in terms of both output and output per capita. This reflects in part the legacies of the global financial crisis, particularly the deterioration in credit and housing markets as well as in labor markets. The balance sheets of households and financial sectors were severely damaged, resulting in a sharp contraction of investment, especially in construction. Some countries in the euro area, including Cyprus and Greece, also struggled to finance their public debt and experienced severe sovereign debt crises in 2011-13. Compared to the previous episodes, growth rates of consumption and investment were much weaker in advanced economies. Reflecting anemic income growth in these economies, unemployment declined only slowly during the recovery, especially in the euro area.

In contrast, EMDEs, as a group, enjoyed their strongest recovery following the 2009 global recession. Despite an unfavorable external environment, both industrial production and trade rebounded strongly, supported by a sharp increase in credit growth (table 2A.7). EMDEs weathered the global recession relatively well thanks to the large, prompt, and globally coordinated policy support, as discussed below. The strong

performance of EMDEs during the early years of the recovery also reflects previous structural improvements such as more well-regulated financial systems and stronger macroeconomic policy frameworks that allowed them to pursue more credible and effective countercyclical policies (Kose and Prasad 2010).

Although this period saw a relatively robust recovery for EMDEs generally, its strength differed among the regions, with growth stronger in EAP, SAR, and LAC than in ECA and MNA. For example, the ECA region suffered a financial shock qualitatively similar to that in many advanced economies, and its growth was slower than the other regions in the first year of the recovery.²⁴ Among the four global recoveries examined, the most recent was the first in which LICs were able to deliver positive per capita GDP growth, partly because of a sharp increase in their exports.

Policy responses during recessions and recoveries. In response to the prospect of large output and employment losses in the wake of the financial turbulence of 2008, a number of advanced economies and EMDEs employed wide-ranging expansionary fiscal policy measures during 2008–09. These coordinated measures were instrumental in supporting global demand at the height of the global financial crisis and in limiting the decline in activity. As public debt and financing requirements rose significantly, however, market pressures and—perhaps more important—political constraints led advanced economies to withdraw fiscal support in 2010.²⁵

The change in fiscal policy stance led to an unprecedented outcome, with advanced economies taking quite different paths for government expenditures than in past recoveries, when policy was expansionary for longer, with continued increases in real primary government expenditures (figure 2.9). In contrast, in EMDEs, the recovery was accompanied by expansionary fiscal policy (Kose et. al 2017). EMDE governments employed fiscal packages that included infrastructure investment, tax cuts, and social protection programs.

Monetary policies in advanced economies remained exceptionally accommodative during the latest recovery—more so than in earlier episodes (Arteta et al. 2015; Ha, Kose, and Ohnsorge 2019). Monetary policy played a key role in restoring financial sector health, limiting the economic downturn, and supporting the recovery. During the early stages of the global financial crisis, central banks in the major advanced economies sharply reduced interest rates, expanded their liquidity facilities, and started large-scale purchases of longer-term assets. The combination of near-zero policy interest rates and

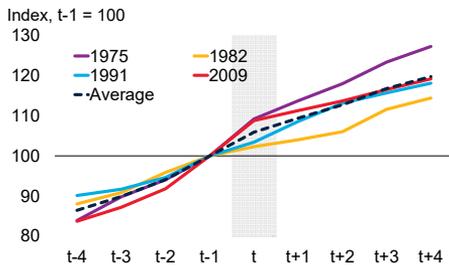
²⁴The incidence of sudden stops in capital inflows tipping countries into financial distress was about half of that before 2008, and centered in economies where precrisis credit booms were funded by large capital inflows and where banks had narrow deposit bases, such as some economies in ECA (Feyen et al. 2014). Data from Forbes and Warnock (2012) show that more than 80 percent of countries in the sample experienced sudden stops in 2009, whereas the share was about 46 percent, on average, in 1982 and 1991. In addition, many sudden stops episodes were observed during the global downturns of 1998 and 2001. Eichengreen and Gupta (2016) also document the high incidence of sudden stops during the 2009 global recession.

²⁵In advanced economies, government expenditures have increased gradually since 2015 as public investment picked up in major economies. A number of countries have implemented tax reforms to stimulate activity over the past decade (IMF 2019; OECD 2019).

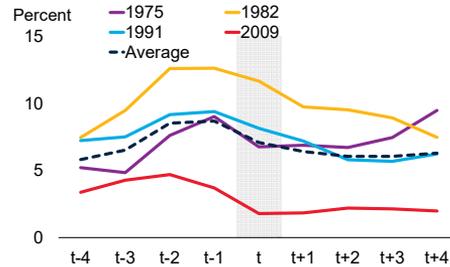
FIGURE 2.9 Fiscal and monetary policies during global recessions and recoveries

Unusually, fiscal and monetary policies followed different trajectories in advanced economies after the 2009 recession. Whereas monetary policies have remained highly accommodative during the recovery, fiscal policies were expansionary during the recession but have not supported activity during the recovery. In EMDEs, both fiscal and monetary policies have remained accommodative during the recovery.

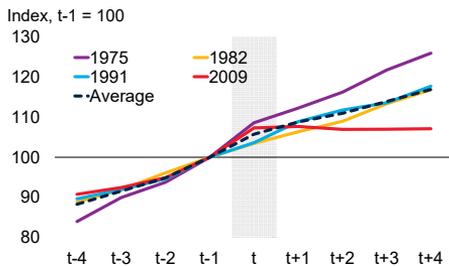
A. World, government expenditure



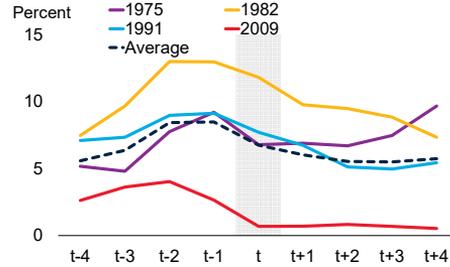
B. World, policy interest rate



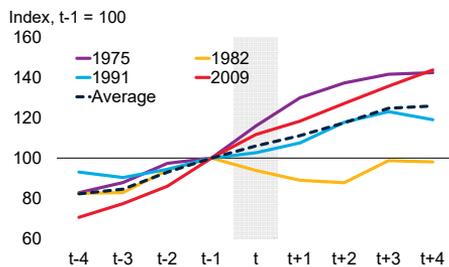
C. Advanced economies, government expenditure



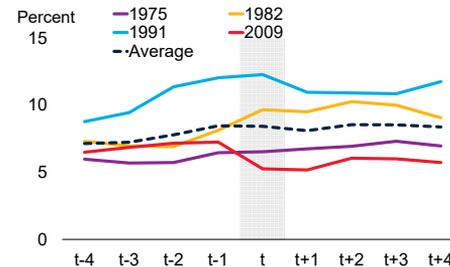
D. Advanced economies, policy interest rate



E. EMDEs, government expenditure



F. EMDEs, policy interest rate



Sources: Bank for International Settlements; Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Mauro et al. (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: Year “t” denotes the year of the respective global recessions (shaded in gray). Average refers to an average of four global recessions with available data. Government expenditure is an index number equal to 100 one year before year “t” (that is, t-1 = 100). Aggregates are market-weighted. Refer to annex 2C for details. EMDEs = emerging market and developing economies.

the record expansion of central bank balance sheets was unprecedented. Policy rates remained at, or close to, the zero lower bound, and below zero in some cases; and central bank balance sheets were expanded further. In addition, central banks began or intensified the use of forward guidance about the direction of monetary policy to help manage expectations and lower longer-term interest rates. EMDE central banks too lowered policy interest rates, which was made easier by their success in taming inflation before the crisis; and some EMDEs intervened in foreign exchange markets to support their currencies, having accumulated ample foreign reserves before the crisis (chapter 3).

Global expansions

The global expansion phase refers to the period between two global recessions. The world economy has experienced four expansions since the 1975 recession: 1976–81, 1983–90, 1992–2008, and the current expansion, which started in 2010.

Different durations. Global expansions since 1975 have varied in duration, between 6 years (following the 1975 recession) and 17 years (following the 1991 recession). The longest global expansion, 1992–2008, coincided with the information technology revolution, the integration of China and many other emerging market economies into the global economy, a sharp increase in commodity prices, and rapid growth in international trade and financial flows. Although this benign period of macroeconomic stability acquired the label of “The Great Moderation,” it did witness global downturns in 1998 and 2001, during which the world economy came close to outright recession. The latest global expansion, which turned 10 years old in 2019, has seen a global downturn episode in 2012, but also the longest U.S. expansion in history.

Changes in amplitude over time. The world economy on average registered 3.3 percent annual output growth in the four global expansions (figure 2.10.A; table 2A.9). The strongest expansion was the one that followed the 1982 recession. Reflecting the support of accommodative policies, recoveries in confidence, pent-up demand, and ample spare capacity, the growth of activity in the first year after each global recession has tended to be faster than average growth over the expansion phase.

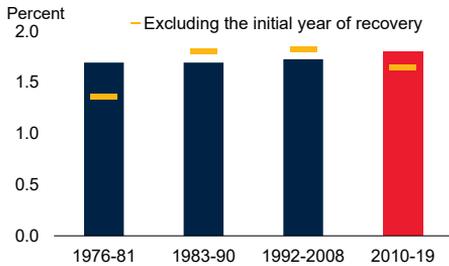
The post-2009 global expansion. The current global expansion has registered average annual per capita GDP growth similar to that of previous episodes. It is distinguished, however, by the lowest average growth in industrial production of all four expansions (when their initial years are excluded). The current expansion has also seen the weakest growth in global trade. Since 2011, average annual global trade growth has been 3.9 percent, well below the 5.7 percent average of previous global expansions. This weakening of trade growth has reflected a combination of factors, including weak demand growth in advanced economies, shifts in the composition of global demand, the maturation of global supply chains, and increased trade tensions between major economies, particularly involving the United States.

The current expansion has also seen the lowest growth in capital flows. Sluggish investment growth has been reflected in a decline in global capital flows since 2011. Capital flows to EMDEs have been sluggish, with repeated spikes in borrowing costs

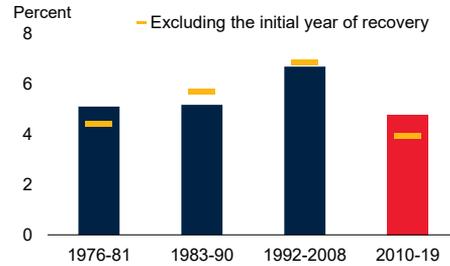
FIGURE 2.10.A Economic activity and financial markets during global expansions

Per capita output growth in the current expansion has been little different from previous ones.

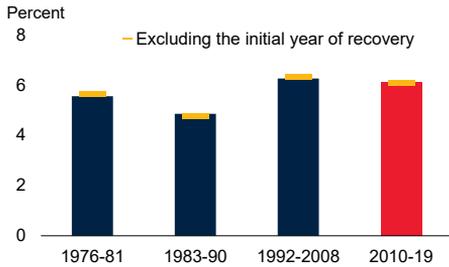
A. Output per capita



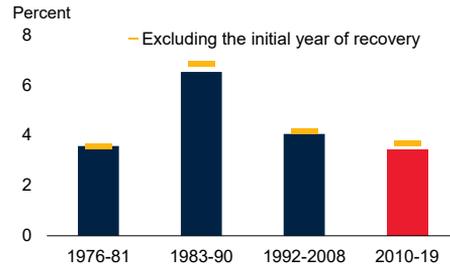
B. Trade



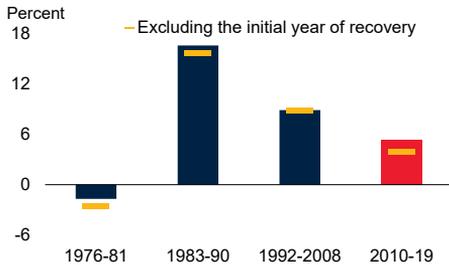
C. Unemployment rate



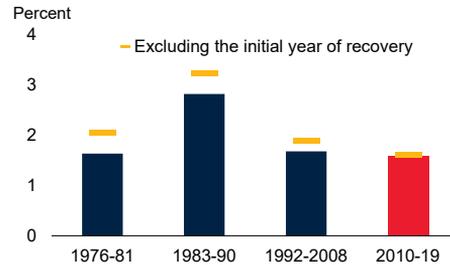
D. Credit



E. Equity prices



F. House prices



Sources: Bank for International Settlements; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.

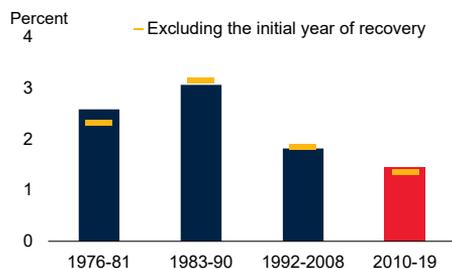
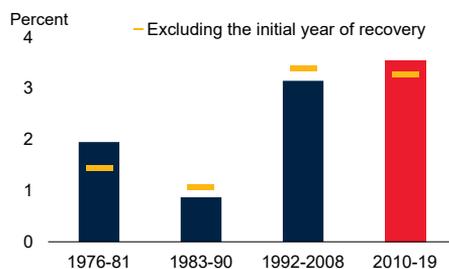
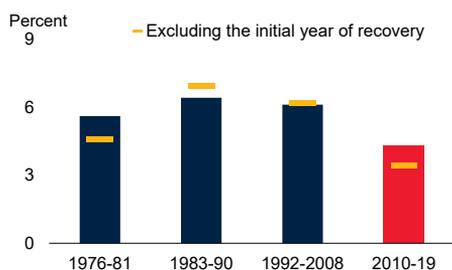
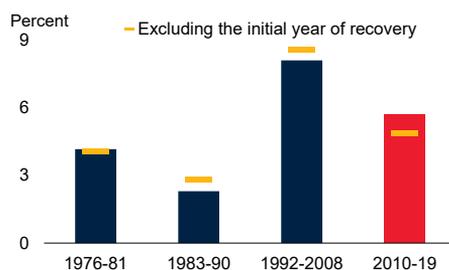
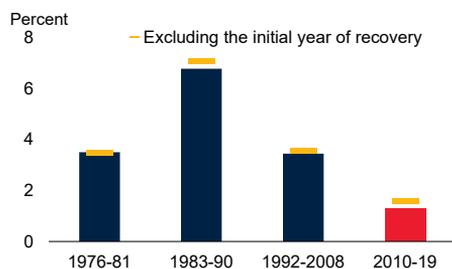
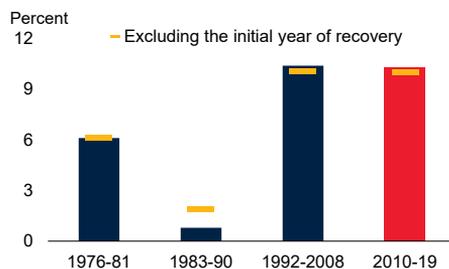
Note: Each bar represents average growth during the periods of global expansions. Aggregates for output per capita, equity prices, and house prices are market-weighted.

since mid-2013. Following an initial rebound after the recession, global capital flows have declined (chapter 3).

Weak expansion in advanced economies. The expansions in advanced economies following the 1991 and 2009 global recessions were the weakest of the four episodes. Despite the marked difference in the severity of these two recessions, their underlying

FIGURE 2.10.B Global expansions, by country group

Of the four expansions examined, the current expansion has been the weakest in advanced economies but the strongest in EMDEs.

A. Output per capita, advanced economies**B. Output per capita, EMDEs****C. Trade, advanced economies****D. Trade, EMDEs****E. Credit, advanced economies****F. Credit, EMDEs**

Sources: Bank for International Settlements; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); World Bank.

Note: Each bar represents average growth during the periods of global expansions. Aggregates for output per capita are market-weighted. EMDEs = emerging market and developing economies.

causes and the evolution of activity during the following expansions share remarkable similarities for advanced economies (figure 2.10.B; table 2A.10). Both recessions were associated with disruptions in credit and housing markets in the major advanced economies. In particular, the global expansion following the 1991 recession was adversely affected by the ripple effects of collapses in credit and asset markets in Japan and the United States. Similarly, the deep 2009 global recession was associated with

substantial problems in credit and housing markets in the United States and a number of other advanced economies, including France, Denmark, Iceland, Ireland, Spain, the United Kingdom, and the Baltic countries.

The expansions following the 1991 and 2009 global recessions were also both slowed by particular challenges in Europe. Both the latest expansion and the one following the 1991 global recession were hampered by problems in the European Monetary System—the ERM crisis in 1992 and crises in the euro area in 2011-13. Downturns in many European countries in the wake of the ERM crisis involved significant increases in interest rates in several countries and took a severe toll on confidence. The euro area debt crisis in 2012-13 also weakened growth in several of its members. Growth in the area has remained generally sluggish throughout the expansion, with the highest annual output growth of 2.4 percent in 2017, leaving unemployment still high in a number of countries.

Reversal of fortunes for EMDEs. The latest global expansion was the strongest one for EMDEs in terms of per capita output growth. After enjoying the strongest recovery immediately following the 2009 global recession, EMDEs have since experienced a protracted slowdown following the drop in commodity prices in 2012 (figure 2.10.B; tables 2A.10 and 2A.11). EMDE GDP growth slowed from 7.4 percent in 2010 to a trough of 3.8 percent in 2015 (Didier et. al 2015). The growth slowdown during 2011-15 was synchronous (affecting more than three-fifths of EMDEs) and protracted, with the steepest slowdowns in LAC and the mildest in SAR. In LICs, GDP growth slowed from 6.9 percent in 2012 to a trough of 4.9 percent in 2016. In 2017, many EMDEs saw a mild cyclical recovery, led by growth in exports and investment as global manufacturing and trade picked up, but EMDE growth has since weakened again.

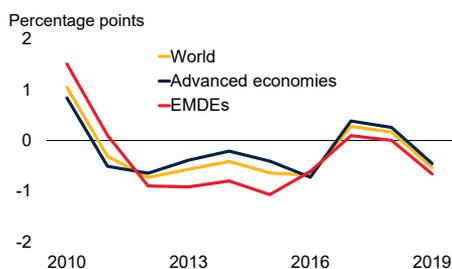
Weakening global economic growth has coincided with country-specific challenges in some large EMDEs. In China, for example, with the unwinding of policy stimulus, efforts have also been made to guide the economy away from investment- and export-driven growth toward more balanced growth that relies more on consumer spending. The resultant slowdown in China, from growth of 8.9 percent on average during the previous global expansions to 6.6 percent in 2018, has weighed on growth in its trading partners and in commodity exporters (Huidrom et al. 2019; World Bank 2016). In some other major EMDEs, episodes of policy uncertainty, social tensions, geopolitical events, and civil wars have caused sharp losses in confidence (chapter 3).

Repeated short-term growth disappointments. The latest global recovery has also seen repeated downgrades in short-term global growth forecasts (figure 2.11). Over 2010-19, on average, current-year growth projections in consensus forecasts have been downgraded from a year earlier in about 55 percent of economies. Downgrades affected growth forecasts for both advanced economies (54 percent of economies) and EMDEs (57 percent of economies), but with forecasts for EMDEs revised down by a wider margin. For EMDEs, since 2009, growth has been revised down by an average of 0.3 percentage point for the current year forecast, relative to the one made a year earlier.

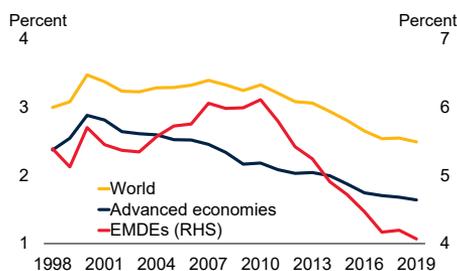
FIGURE 2.11 Global growth forecasts

There have been multiple downgrades in short-term global growth forecasts since the 2009 global recession. Long-term, 10-year-ahead, global growth forecasts have also been downgraded repeatedly.

A. Current-year growth forecast revisions



B. Long-term growth forecasts



Sources: Consensus Economics; World Bank.

A. Differences in growth forecasts for current years as of September of the year and those made a year ago, in percentage points. The latest forecast survey in 2019 is September. Sample includes 85 economies, consisting of 33 advanced economies and 52 emerging market and developing economies (EMDEs), weighted by GDP in U.S. dollars.

B. The horizontal axis refers to the year of consensus forecast surveys. Annual averages of results from multiple surveys conducted in each year are presented. Forecasts in 2019 are based on surveys in January, April, and July. Sample includes 38 economies, consisting of 20 advanced economies and 18 EMDEs, weighted by GDP in U.S. dollars.

Diminishing long-term growth projections. The 2009 global recession marked a turning point in long-term (10-year-ahead) global growth projections. Long-term forecasts for global GDP growth increased from 3.0 percent in 1998 to 3.3 percent in 2008. Since then, they have steadily declined, to 2.5 percent in 2019. Growth forecasts for advanced economies began to be downgraded after the 1991 global recession. After a brief period of upgrades in the late 1990s, they resumed their gradual decline in the early 2000s. In contrast, EMDEs enjoyed improving growth prospects up to the 2009 global recession. Since then, long-term forecasts have materially deteriorated for both groups of economies.

Before the 2009 global recession, growth prospects were supported by a rapid expansion of investment, trade, and financial flows. During the most recent global expansion, however, cyclical factors, such as the anemic recovery in advanced economies, a sharp collapse in commodity prices, and weak investment growth, have been compounded by structural weaknesses, including slower productivity growth, and a slowdown in the growth of working-age populations.

These structural factors have been eroding global potential growth—the growth rate that the global economy would sustain at full capacity utilization and full employment. In 2013–17, global potential growth is estimated to have been roughly 1 percentage point a year lower than a decade earlier, as a result of weaker productivity growth, sluggish expansion of investment, and a broadening slowdown in working-age population growth. Annual potential growth estimates for advanced economies were reduced to 1.4 percent on average in 2013–17, from 2.2 percent a decade earlier. Potential output growth in EMDEs is also estimated to have slowed, from 5.9 percent a year in the mid-

2000s to 4.8 percent a year in 2013-17, reflecting the effects of weak investment, adverse demographic trends, and slower productivity growth.

In light of the protracted weakness of economic growth, together with chronically low inflation (persistently below target in most cases), and despite unprecedented monetary policy accommodation maintained over several years and historically low long-term interest rates, some observers have argued that advanced economies have been facing “secular stagnation,” owing to structural weakness in aggregate demand (Rachel and Summers 2019; Summers 2015; Teulings and Baldwin 2014).²⁶ Many factors may have contributed to such demand weakness, including increased saving originating partly from demographic factors, and reduced investment spending stemming partly from the reduced costs of capital goods, which have increasingly embodied information technology. Financial crises may also have contributed through higher risk aversion, increased costs of financial intermediation, and increased debt overhangs. Recent research concludes that, in light of the Japanese experience after its banking crisis in the early 1990s, some major euro area economies might suffer a long period of stagnation because of structural headwinds associated with demographic trends and persistent weakness in productivity growth (Hoshi and Kashyap 2015).

Conclusion

The year 2019 is the 10th anniversary of the last global recession. Yet 2019 also marks an intensifying speculation about whether another such episode is looming. Over the past year, global growth forecasts have been repeatedly downgraded as a highly synchronized slowdown has enveloped both advanced economies and EMDEs. Trade tensions between major economies have led to unprecedented policy uncertainty and taken a heavy toll on global industrial production and trade.

In light of the resurgence of interest on the topic, this chapter analyzes the main features of global recessions and the ensuing global recoveries and expansions.

What happens during global recessions and recoveries? Both statistical and judgmental methods identify four global recessions since 1950: in 1975, 1982, 1991, and 2009. During these four years, there was a contraction in annual real per capita global GDP and broad-based weakness in the main indicators of global activity. Quarterly data yield similar recession dates, and confirm that the duration of a typical global recession is about one year—which is also the average duration of national recessions. Global recessions are highly synchronized events, with severe economic and financial disruptions occurring simultaneously in many countries around the world. Although the four global recessions coincided with recessions in the United States, not every U.S. recession coincided with a global recession: in fact, the United States experienced six additional recessions during 1950-2019.

²⁶Hansen (1939) argues that the Great Depression could lead to a prolonged period of stagnation and high unemployment because of the decline in the birth rate and excessive savings that constrain aggregate demand. For a theoretical formulation of secular stagnation, see Eggertsson, Mehrotra, and Robbins 2019. Hamilton et al. (2016) argue that the secular stagnation hypothesis confuses a delayed recovery with chronically weak aggregate demand. Others consider the case for secular stagnation to be weak (Rogoff 2013; Taylor 2014).

The world economy suffered a sizable contraction in per capita output during the four global recessions since 1950: the average decline in per capita output (market exchange rate weighted) was about 1.3 percent, 3.5 percentage points lower than the average annual growth rate (2.2 percent) in the years of expansion during 1950-2018. Financial conditions tended to tighten, business confidence declined, and policy uncertainty increased during the global recessions. The 2009 global recession was by far the deepest and most internationally synchronized among the four: it saw the only outright annual contraction in global output and the largest declines in global trade, capital flows, and industrial production.

In addition to the four global recessions, the global economy experienced relatively slow growth in 1958, 1998, 2001, and 2012. During these episodes, which we refer to as “global downturns,” the global economy registered its lowest growth rates of the past seven decades, except for the years of and around the four global recessions. These episodes fall short of qualifying as recessions, however, because world real GDP per capita did not contract and because several activity indicators remained robust.

Global recoveries have generally been characterized by a broad-based rebound in economic activity and normalization of financial conditions. The average growth rate of global output in the first year (or over the first three years) of recoveries has been close to the longer-term average. Financial conditions often remained loose in the first year of the recovery but then gradually tightened. Among the four episodes, the recovery from the 1975 recession saw the steepest acceleration in growth in its first year. Thanks to large, prompt, and globally coordinated policy support, the recovery following the 2009 recession was the second-strongest.

How do global recessions and recoveries vary across different groups of countries? First, per capita output growth declined more in advanced economies than in EMDEs during global recessions, with some EMDE regions consistently faring better than others. The EAP and SAR regions continued expanding in each of the past four global recessions whereas the other four regions all experienced declines in average per capita output. Second, LICs on average suffered larger declines in growth than did the broader group of EMDEs. Third, in all four global recessions, both trade and industrial production registered much larger contractions in advanced economies than in EMDEs.

The magnitude of the 2009 global recession varied across the country groups. As the epicenter of the financial crisis, advanced economies felt the initial brunt of the recession but also suffered the weakest recovery in terms of output and output per capita compared with previous episodes. In contrast, EMDE output growth remained positive during the 2009 recession, and EMDEs’ subsequent recovery was the strongest of the four global recessions examined. LICs also were able to continue growing during the 2009 global recession, whereas their growth plummeted in the previous episodes.

What happens during global expansions, and how does the current global expansion compare with previous ones? The duration of global expansions has varied from six years (following the 1975 recession) to 17 years (following the 1991 recession). The latest global expansion turned 10 years old in 2019. It includes a global downturn in 2012 but also the longest U.S. expansion in history. The latest expansion has registered

average per capita growth comparable with previous episodes, but it has also seen the weakest growth in global trade and capital flows.

The current expansion has been the weakest in advanced economies because many of them have struggled to overcome the legacies of the global financial crisis and structural weaknesses in demand. In contrast, it has been the strongest one for EMDEs in terms of per capita output growth. EMDEs have, however, also experienced a slowdown in growth during the expansion as a result of both external and domestic factors.

Monetary and fiscal policies often become expansionary leading into global recessions, and typically continue supporting the ensuing global recoveries. In advanced economies, monetary policies remained highly accommodative for almost the whole post-2009 decade, with central banks introducing a wide range of unconventional measures to ease credit conditions. After the implementation of large, coordinated, fiscal stimulus programs during 2008-09, however, fiscal support was withdrawn shortly into the recovery. By contrast, EMDEs have generally employed expansionary fiscal and monetary policies during most of the expansion, apart from some adjustments of monetary policy in response to cyclical conditions and financial stability concerns.

Short- and long-term global growth forecasts have both been repeatedly downgraded during the latest global expansion. During 2010-19, on average, current-year global growth forecasts have been downgraded from a year earlier in about 55 percent of countries. The long-term forecasts for global GDP growth have also steadily declined, from 3.3 percent in 2008 to 2.5 percent in 2019. These downgrades reflect not just persistently mediocre growth outturns in many countries but also protracted weakness in the fundamental drivers of growth, including productivity and investment.

Despite significant progress in our understanding of the global business cycle and its phases since the 2009 global recession, there remain a number of research avenues to explore. First, there is clear need to better understand the sources of the subdued growth performance that has been the hallmark of the current global expansion. Second, future work needs to focus on the cross-border spillovers and their interactions with domestic real and financial cycles. Third, global spillovers from national macrofinancial linkages require further scrutiny in light of the strong connections among financial entities in different countries.

ANNEX 2A Main features of recessions, recoveries, and expansions

TABLE 2A.1 Main features of recessions and expansions (with quarterly series)

	Duration (quarters)	Amplitude (percent)	Average (percent)
Recessions			
1974Q1-1975Q1	5	-9.3	-1.9
1981Q4-1982Q3	4	-4.5	-1.2
1990Q4-1991Q1	2	-0.9	-0.5
2008Q3-2009Q1	3	-15.3	-5.4
<i>Average</i>	3.5	-7.5	-2.2
Quarters with negative growth			
1970Q4		-0.7	-0.7
1980Q2	1	-4.8	-4.8
1981Q2	1	-0.3	-0.3
1998Q1	1	-0.3	-0.3
2001Q3	1	-0.6	-0.6
Expansions			
1975Q2-1981Q3	26		2.5
1982Q4-1990Q3	32		2.7
1991Q2-2008Q2	69		2.2
2009Q2-2019Q2	41		2.1
<i>Average</i>	42		2.4

Sources: Feenstra, Inklaar, and Timmer (2015); Haver Analytics; Organisation for Economic Co-operation and Development; World Bank.

Note: The table shows the periods identified as recessions and expansions, using the algorithm in Harding and Pagan (2002), or those with negative per capita growth. Amplitude and average are based on per capita global GDP growth. "Amplitude" is measured as a percent change in per capita output during each period (that is, a cumulative change over the denoted period). "Average" refers to average annualized growth during each period.

TABLE 2A.2 Output growth during global downturns

	Global downturns				Average	Global recessions	Non-recessions	All years
	1958	1998	2001	2012				
World								
Output	2.2	2.5	1.9	2.5	2.3	0.3	3.9	3.7
Output per capita	0.2	1.1	0.7	1.2	0.8	-1.3	2.2	2.0
Output (PPP)	2.7	2.4	2.3	3.2	2.7	0.8	4.2	4.0
Output per capita (PPP)	0.7	1.0	1.1	2.0	1.2	-0.8	2.5	2.3
Advanced economies								
Output	1.6	2.7	1.5	1.2	1.8	-0.4	3.5	3.3
Output per capita	0.4	2.1	0.9	0.6	1.0	-1.1	2.7	2.4
Output (PPP)	1.5	2.7	1.5	1.2	1.7	-0.4	3.5	3.3
Output per capita (PPP)	0.3	2.1	0.9	0.6	1.0	-1.1	2.7	2.5
EMDEs								
Output	6.2	1.8	3.2	4.9	4.0	2.1	4.9	4.7
Output per capita	3.8	0.3	1.8	3.5	2.4	0.2	3.0	2.8
Output (PPP)	6.4	1.9	3.4	5.0	4.2	2.4	4.9	4.8
Output per capita (PPP)	4.0	0.4	2.0	3.6	2.5	0.5	3.0	2.9

Sources: Feenstra, Inklaar, and Timmer (2015); Kose and Terrones (2015); World Bank.

Note: All variables show percent changes. "Global recessions" refers to average growth rates during the four global recessions (1975, 1982, 1991, and 2009). "Nonrecessions" refers to averages during 1950-2018 excluding years of global recessions. "All years" refers to averages of all years. EMDEs = emerging market and developing economies; PPP = purchasing power parity.

TABLE 2A.3 Main features of global recessions

	Global recessions					Non-recessions	Global downturns	All years
	1975	1982	1991	2009	Average			
Activity								
Output	1.1	0.4	1.3	-1.8	0.3	3.9	2.3	3.7
Output per capita	-0.7	-1.3	-0.3	-3.0	-1.3	2.2	0.8	2.0
Industrial production	-7.4	-2.2	-0.1	-8.9	-4.6	4.0	0.3	3.5
Trade	-1.4	-1.8	3.2	-10.4	-2.6	6.3	2.2	5.8
Unemployment rate	1.6	0.2	0.2	0.8	0.7	0.0	0.2	0.1
Oil consumption	-0.8	-2.7	0.2	-1.0	-1.1	2.6	0.9	2.3
Investment	0.7	-1.1	-1.0	-5.0	-1.6	4.7	2.0	4.4
Consumption	2.6	1.6	1.9	-0.1	1.5	3.7	2.7	3.6
Output (PPP)	1.8	0.6	1.5	-0.6	0.8	4.2	2.7	4.0
Output per capita (PPP)	-0.1	-1.1	-0.1	-1.7	-0.8	2.5	1.2	2.3
Financial markets								
Capital flows	-1.6	-2.3	-3.2	-4.8	-3.0	0.5	-3.8	0.2
Credit	0.2	3.2	2.2	3.4	2.2	5.5	3.8	5.3
Equity prices	-4.8	-10.9	-1.7	-13.5	-7.7	6.2	-2.9	5.3
House prices	-4.3	-3.1	-0.2	-2.6	-2.6	2.2	1.5	1.8
Financial conditions	...	...	-0.3	0.4	0.0	0.0	0.1	0.0
Inflation	-2.8	-2.5	0.2	-3.6	-2.2	0.2	-0.2	0.0
Interest rates, confidence, and uncertainty								
Nominal interest rate	-2.5	-1.6	-1.0	-1.9	-1.8	0.1	-0.4	0.0
Real interest rate	0.9	1.1	-0.4	0.7	0.6	-0.1	0.1	0.0
Business confidence	-1.3	-0.6	-0.5	-0.8	-0.8	0.1	-0.7	0.0
Policy uncertainty	...	...	3.5	13.9	8.7	3.3	31.5	3.6
Policies								
Government expenditure	9.2	2.3	3.4	8.8	5.9	4.7	4.8	4.8
Policy rate	-2.3	-1.0	-1.2	-1.9	-1.6	0.1	-0.6	0.0

Sources: Bank for International Settlements; Bloomberg; British Petroleum; Davis (2016); European Commission; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Mauro et al. (2015); Organisation for Economic Co-operation and Development; U.S. Energy Information Administration; country sources; World Bank.

Note: All variables show percent changes, except in capital flows, unemployment rate, inflation, nominal and real interest rates, and policy rate, in which percentage-point changes of these variables are reported. "Nonrecessions" refers to averages during 1950-2018 excluding years of global recessions. "All years" refers to averages of all years. "Global downturns" refers to averages during the four global downturns (1958, 1998, 2001, and 2012). "..." indicates that data are either unavailable or not reported because country samples to compute data for aggregated groups are too small to be representative. PPP = purchasing power parity.

TABLE 2A.4 Main features of global recessions, by country group

	Global recessions					Non-recessions	Global downturns	All years
	1975	1982	1991	2009	Average			
Advanced economies								
Output	0.2	0.3	1.3	-3.4	-0.4	3.5	1.8	3.3
Output per capita	-0.7	-0.3	0.6	-4.0	-1.1	2.7	1.0	2.4
Industrial production	-7.8	-2.5	-0.2	-12.4	-5.7	3.6	-0.3	3.0
Trade	-4.7	-0.1	3.7	-11.1	-3.1	6.4	1.7	5.9
Unemployment rate	1.5	1.3	0.6	2.2	1.4	-0.1	0.0	0.0
Output (PPP)	0.2	0.3	1.3	-3.3	-0.4	3.5	1.7	3.3
Output per capita (PPP)	-0.7	-0.4	0.6	-4.0	-1.1	2.7	1.0	2.5
Credit	0.2	3.1	2.0	0.9	1.6	4.9	3.0	4.7
Government expenditure	8.6	3.5	3.6	7.3	5.7	4.1	3.5	4.2
Policy rate	-2.4	-1.2	-1.4	-2.0	-1.7	0.1	-0.7	0.0
EMDEs								
Output	4.2	0.9	1.5	1.8	2.1	4.9	4.0	4.7
Output per capita	2.0	-1.2	-0.4	0.4	0.2	3.0	2.4	2.8
Industrial production	...	...	0.4	-0.2	0.1	5.4	3.1	5.0
Trade	5.3	-5.1	2.0	-9.0	-1.7	6.1	3.8	5.6
Unemployment rate	...	-0.4	0.1	0.4	0.0	-0.1	0.2	-0.1
Output (PPP)	4.2	1.1	1.9	2.3	2.4	4.9	4.2	4.8
Output per capita (PPP)	2.1	-0.9	0.0	0.9	0.5	3.0	2.5	2.9
Credit	-0.7	4.5	5.7	17.7	6.8	8.0	9.8	7.9
Government expenditure	16.0	-6.2	2.6	11.7	6.0	5.8	6.5	5.8
Policy rate	0.1	1.5	0.2	-2.0	0.0	0.0	0.4	0.0
LICs								
Output	0.1	1.0	-0.5	5.9	1.6	3.9	3.6	3.8
Output per capita	-2.3	-1.6	-3.3	3.0	-1.1	1.3	0.9	1.1
Trade	3.6	-5.6	-1.4	4.6	0.3	6.4	7.5	6.0
Output (PPP)	0.5	0.9	-0.2	5.0	1.6	4.0	3.6	3.9
Output per capita (PPP)	-1.9	-1.7	-3.1	2.1	-1.2	1.4	1.0	1.2

Sources: Bank for International Settlements; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Mauro et al. (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: All variables show percent changes, except in unemployment rate and policy rate, in which percentage-point changes of these variables are reported. "Nonrecessions" refers to averages during 1950-2018 excluding years of global recessions. "All years" refers to averages of all years. "Global downturns" refers to averages during the four global downturns (1958, 1998, 2001, and 2012). "..." indicates that data are either unavailable or not reported since country samples to compute data for aggregated groups are too small to be representative. EMDEs = emerging market and developing economies; LICs = low-income countries; PPP = purchasing power parity.

TABLE 2A.5 Main features of global recessions, by region

	Global recessions					Non-recessions	Global downturns	All years
	1975	1982	1991	2009	Average			
East Asia and Pacific								
Output	6.6	6.3	8.3	7.5	7.2	7.0	6.7	7.0
Output per capita	4.4	4.6	6.7	6.7	5.6	5.4	5.4	5.4
Industrial production	...	...	11.1	8.0	9.5	10.0	6.3	9.9
Trade	0.2	-2.1	16.6	-6.4	2.1	9.0	4.0	8.6
Output (PPP)	6.4	6.0	8.2	7.3	7.0	6.9	6.2	6.9
Output per capita (PPP)	4.3	4.3	6.6	6.5	5.4	5.3	5.0	5.3
Europe and Central Asia								
Output	6.2	3.0	-5.8	-5.1	-0.4	3.5	1.5	3.2
Output per capita	5.3	2.1	-6.2	-5.4	-1.0	2.9	1.3	2.6
Industrial production	...	...	...	-8.7	-8.7	3.8	1.3	3.3
Trade	8.5	-1.5	-17.1	-14.3	-6.1	5.8	3.0	5.0
Output (PPP)	6.2	3.1	-5.9	-5.4	-0.5	3.4	1.4	3.2
Output per capita (PPP)	5.2	2.2	-6.3	-5.6	-1.1	2.8	1.3	2.6
Latin America and the Caribbean								
Output	3.8	-0.6	3.3	-1.8	1.2	4.1	2.6	3.9
Output per capita	1.4	-2.8	1.4	-2.9	-0.7	2.0	0.8	1.8
Industrial production	...	...	0.3	-6.5	-3.1	2.1	0.4	1.7
Trade	-1.7	-10.4	11.2	-10.9	-3.0	6.1	2.5	5.5
Output (PPP)	3.7	-0.8	3.6	-2.0	1.2	4.0	2.6	3.8
Output per capita (PPP)	1.3	-2.9	1.7	-3.1	-0.8	1.9	0.8	1.8
Middle East and North Africa								
Output	-1.3	-6.4	6.9	0.5	-0.1	5.3	5.0	5.0
Output per capita	-4.0	-9.5	4.4	-1.6	-2.7	2.7	2.8	2.4
Industrial production	...	...	...	...	...	...	...	...
Trade	5.0	-7.3	13.4	-7.0	1.0	5.4	7.5	5.2
Output (PPP)	-0.5	-5.1	7.2	0.4	0.5	5.2	4.7	4.9
Output per capita (PPP)	-3.2	-8.2	4.7	-1.6	-2.1	2.7	2.6	2.4
South Asia								
Output	7.5	3.8	2.3	4.8	4.6	5.0	5.3	5.0
Output per capita	5.0	1.3	0.1	3.3	2.4	3.0	3.5	3.0
Industrial production	...	...	...	...	...	...	...	...
Trade	6.7	5.3	7.4	-6.5	3.2	6.9	4.8	6.7
Output (PPP)	7.6	3.9	2.3	4.7	4.6	5.1	5.3	5.0
Output per capita (PPP)	5.1	1.4	0.1	3.2	2.5	3.0	3.4	3.0
Sub-Saharan Africa								
Output	0.3	0.3	0.2	3.2	1.0	4.0	3.7	3.8
Output per capita	-2.3	-2.6	-2.6	0.4	-1.8	1.2	1.0	1.1
Industrial production	...	...	...	...	...	...	...	...
Trade	6.4	-10.3	4.5	-9.9	-2.3	4.7	2.7	4.3
Output (PPP)	0.3	0.4	0.3	3.6	1.1	4.0	3.8	3.9
Output per capita (PPP)	-2.4	-2.5	-2.6	0.8	-1.6	1.3	1.1	1.1

Sources: Feenstra, Inklaar, and Timmer (2015); Haver Analytics; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: All variables show percent changes. "Nonrecessions" refers to averages during 1950-2018 excluding years of global recessions. "All years" refers to averages of all years. "Global downturns" refers to averages during the four global downturns (1958, 1998, 2001, and 2012). "..." indicates that data are either unavailable or not reported because country samples to compute data for aggregated groups are too small to be representative. PPP = purchasing power parity.

TABLE 2A.6 Main features of global recoveries

Activity	Global recoveries (initial year)				Global recoveries (first three years)				All years		
	1976	1983	1992	2010	Average	1976-78	1983-85	1992-94		2010-12	Average
Output	5.2	2.7	1.7	4.4	3.5	4.4	3.6	2.1	3.4	3.4	3.7
Output per capita	3.4	0.9	0.2	3.1	1.9	2.6	1.7	0.6	2.1	1.8	2.0
Industrial production	7.9	1.7	-0.1	8.6	4.5	5.5	3.9	1.6	4.8	3.9	3.5
Trade	8.5	1.5	3.8	12.4	6.6	6.4	4.4	5.4	7.6	6.0	5.8
Unemployment rate	0.0	-0.2	0.3	-0.1	0.0	0.1	-0.2	0.3	-0.1	0.0	0.1
Oil consumption	6.2	-0.2	1.6	3.4	2.8	5.0	0.9	1.3	1.9	2.2	2.3
Investment	5.6	1.8	-1.8	5.3	2.7	5.0	2.8	0.3	5.0	3.3	4.4
Consumption	4.7	3.3	2.7	3.0	3.4	4.3	3.5	2.7	2.7	3.3	3.6
Output (PPP)	5.6	2.8	1.8	5.3	3.9	4.6	3.5	2.3	4.2	3.7	4.0
Output per capita (PPP)	3.8	1.0	0.3	4.1	2.3	2.8	1.7	0.8	3.0	2.1	2.3
Financial markets											
Capital flows	0.5	-1.5	2.0	8.1	2.3	-0.2	-0.1	0.3	1.0	0.2	0.2
Credit	3.7	4.3	2.4	1.1	2.9	4.4	5.7	2.5	1.8	3.6	5.3
Equity prices	2.6	23.2	10.2	17.3	13.3	-3.9	16.2	12.4	4.1	7.2	5.3
House prices	-0.4	-0.1	-1.7	1.3	-0.2	1.8	-0.1	-1.1	-0.2	0.1	1.8
Financial conditions	...	...	-0.4	-0.8	-0.6	...	...	0.0	-0.3	-0.1	0.0
Inflation	-2.8	-2.3	-1.5	1.5	-1.3	-1.4	-1.0	-0.6	0.6	-0.6	0.0
Interest rates, confidence, and uncertainty											
Nominal interest rate	0.4	-1.8	-1.0	-0.1	-0.6	0.2	-0.9	-0.9	0.0	-0.4	0.0
Real interest rate	1.8	-0.1	-0.1	-1.6	0.0	1.0	0.0	-0.5	-0.4	0.0	0.0
Business confidence	1.7	1.5	-0.1	1.7	1.2	0.6	0.5	0.2	0.4	0.4	0.0
Policy uncertainty	...	...	2.1	-6.5	-2.2	...	...	-5.6	7.5	1.0	3.6
Policies											
Government expenditure	4.1	1.7	5.0	2.3	3.3	4.1	2.9	3.8	2.3	3.3	4.8
Policy rate	0.1	-1.9	-1.0	0.0	-0.7	0.2	-0.9	-0.8	0.1	-0.3	0.0

Sources: Bank for International Settlements; Bloomberg; British Petroleum; Davis (2016); European Commission; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Mauro et al. (2015); Organisation for Economic Co-operation and Development; U.S. Energy Information Administration; country sources; World Bank.

Note: All variables show percent changes, except in capital flows, unemployment rate, inflation, nominal and real interest rates, and policy rate, in which percentage-point changes of these variables are reported. "All years" refers to averages of all years. "..." indicates that data are either unavailable or not reported because country samples to compute data for aggregated groups are too small to be representative. PPP = purchasing power parity.

TABLE 2A.7 Main features of global recoveries, by country group

	Global recoveries (initial year)				Global recoveries (first three years)				All years		
	1976	1983	1992	2010	Average	1976-78	1983-85	1992-94		2010-12	Average
Advanced economies											
Output	4.8	3.1	2.0	2.9	3.2	4.2	3.8	2.1	1.9	3.0	3.3
Output per capita	3.9	2.4	1.3	2.3	2.5	3.5	3.2	1.4	1.3	2.3	2.4
Industrial production	7.8	2.3	-0.3	7.6	4.3	5.5	3.9	1.3	3.4	3.5	3.0
Trade	10.7	2.8	5.0	12.0	7.6	7.2	5.8	5.5	6.5	6.3	5.9
Unemployment rate	0.0	0.3	0.6	0.3	0.3	0.0	-0.1	0.3	0.0	0.1	0.0
Output (PPP)	4.9	3.2	2.1	3.0	3.3	4.3	3.9	2.2	2.0	3.1	3.3
Output per capita (PPP)	4.1	2.5	1.4	2.4	2.6	3.6	3.2	1.5	1.4	2.4	2.5
Credit	3.6	4.7	1.7	-1.2	2.2	4.5	5.9	1.8	-0.6	2.9	4.7
Government expenditure	3.4	2.8	5.1	0.4	2.9	3.9	3.1	3.1	-0.1	2.5	4.2
Policy rate	0.1	-2.0	-1.0	0.0	-0.7	0.2	-1.0	-0.9	0.0	-0.4	0.0
EMDEs											
Output	6.7	1.6	0.9	7.4	4.2	5.0	2.8	2.1	6.3	4.0	4.7
Output per capita	4.5	-0.5	-0.8	6.0	2.3	2.9	0.7	0.5	4.9	2.2	2.8
Industrial production	...	...	1.4	11.0	6.2	...	...	3.6	7.9	5.7	5.0
Trade	4.6	-1.2	0.5	13.2	4.3	5.1	1.4	5.0	9.8	5.3	5.6
Unemployment rate	...	-0.5	0.3	-0.3	-0.2	...	-0.3	0.3	-0.2	-0.1	-0.1
Output (PPP)	6.7	2.2	1.4	7.5	4.5	5.0	2.9	2.4	6.3	4.2	4.8
Output per capita (PPP)	4.6	0.2	-0.3	6.1	2.6	2.9	0.9	0.7	4.9	2.3	2.9
Credit	6.0	-6.8	15.8	12.4	6.9	3.3	-0.2	13.8	12.4	7.3	7.9
Government expenditure	12.1	-5.2	4.8	6.0	4.4	7.0	2.0	6.3	6.7	5.5	5.8
Policy rate	0.2	-0.1	-1.3	-0.1	-0.3	0.3	0.1	-0.5	0.2	0.0	0.0
LICs											
Output	0.9	1.3	-1.7	6.9	1.9	0.7	2.0	-0.4	6.4	2.2	3.8
Output per capita	-1.5	-1.4	-4.5	4.0	-0.8	-1.7	-0.8	-3.3	3.5	-0.6	1.1
Trade	-2.3	0.9	-6.3	15.1	1.8	4.7	7.9	-0.8	13.8	6.4	6.0
Output (PPP)	1.3	1.4	-1.3	7.2	2.1	1.0	2.1	0.0	6.3	2.3	3.9
Output per capita (PPP)	-1.1	-1.4	-4.1	4.2	-0.6	-1.4	-0.7	-2.9	3.3	-0.4	1.2

Sources: Bank for International Settlements; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Mauro et al. (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: All variables show percent changes, except in unemployment rate and policy rate, in which percentage-point changes of these variables are reported. "All years" refers to averages of all years. "... " indicates that data are either unavailable or not reported because country samples to compute data for aggregated groups are too small to be representative. EMDEs = emerging market and developing economies; LICs = low-income countries; PPP = purchasing power parity.

TABLE 2A.8 Main features of global recoveries, by region

	Global recoveries (initial year)				Global recoveries (first three years)				All years		
	1976	1983	1992	2010	Average	1976-78	1983-85	1992-94		2010-12	Average
East Asia and Pacific											
Output	3.4	7.5	10.9	9.8	7.9	6.7	8.3	11.0	8.6	8.6	7.0
Output per capita	1.4	5.8	9.5	8.9	6.4	4.8	6.5	9.6	7.8	7.2	5.4
Industrial production	...	...	10.4	14.5	12.5	...	...	13.0	11.6	12.3	9.9
Trade	2.6	7.7	16.0	18.1	11.1	8.6	9.3	17.8	12.3	12.0	8.6
Output (PPP)	3.9	7.1	10.5	9.6	7.8	6.8	7.8	10.6	8.4	8.4	6.9
Output per capita (PPP)	1.9	5.4	9.0	8.8	6.3	4.9	6.0	9.2	7.6	6.9	5.3
Europe and Central Asia											
Output	6.1	4.3	-9.4	4.6	1.4	4.9	2.7	-7.3	4.6	1.2	3.2
Output per capita	5.2	3.4	-9.8	4.2	0.8	4.0	1.9	-7.6	4.1	0.6	2.6
Industrial production	...	...	-1.7	9.5	3.9	...	...	-0.7	7.6	3.5	3.3
Trade	5.9	0.9	-22.4	11.9	-0.9	6.8	5.3	-7.1	8.4	3.3	5.0
Output (PPP)	6.1	4.3	-9.8	4.5	1.3	4.9	2.7	-7.8	4.4	1.1	3.2
Output per capita (PPP)	5.2	3.4	-10.1	4.2	0.7	4.0	1.9	-8.1	4.1	0.5	2.6
Latin America and the Caribbean											
Output	6.0	-2.5	2.5	6.7	3.2	4.8	1.8	4.0	4.6	3.8	3.9
Output per capita	3.5	-4.6	0.7	5.5	1.3	2.4	-0.4	2.2	3.5	1.9	1.8
Industrial production	...	...	0.6	7.9	4.2	...	...	4.2	3.2	3.7	1.7
Trade	1.9	-5.3	12.1	17.6	6.6	5.1	1.6	10.5	9.8	6.8	5.5
Output (PPP)	5.4	-2.4	2.9	6.7	3.1	4.6	1.6	4.2	4.7	3.8	3.8
Output per capita (PPP)	3.0	-4.5	1.0	5.5	1.2	2.2	-0.6	2.3	3.5	1.9	1.8

TABLE 2A.8 Main features of global recoveries, by region (continued)

	Global recoveries (initial year)			Global recoveries (first three years)					All years		
	1976	1983	1992	2010	Average	1976-78	1983-85	1992-94		2010-12	Average
Middle East and North Africa											
Output	15.7	-1.5	5.8	4.8	6.2	6.1	-0.4	3.2	4.5	3.3	5.0
Output per capita	12.5	-4.8	3.5	2.6	3.4	3.1	-3.7	1.1	2.2	0.7	2.4
Industrial production	...	...	...	...	...	...	...	...	...	...	...
Trade	6.2	-3.9	6.6	1.3	2.6	2.4	-7.0	2.3	4.8	0.6	5.2
Output (PPP)	15.6	-0.5	5.3	4.1	6.1	5.9	0.1	2.9	3.5	3.1	4.9
Output per capita (PPP)	12.4	-3.8	3.0	2.0	3.4	2.9	-3.2	0.7	1.3	0.5	2.4
South Asia											
Output	2.3	6.7	5.3	9.6	6.0	4.9	5.4	5.3	7.3	5.7	5.0
Output per capita	-0.1	4.1	3.1	8.0	3.8	2.5	2.9	3.1	5.8	3.6	3.0
Industrial production	...	...	...	...	...	...	...	...	...	...	...
Trade	8.0	9.0	14.6	14.6	11.6	9.3	4.4	12.7	13.7	10.0	6.7
Output (PPP)	2.3	6.7	5.3	9.6	6.0	5.0	5.5	5.3	7.2	5.7	5.0
Output per capita (PPP)	-0.1	4.2	3.1	8.0	3.8	2.5	3.0	3.1	5.8	3.6	3.0
Sub-Saharan Africa											
Output	4.9	-1.5	-0.8	6.5	2.3	2.3	1.2	0.3	5.2	2.3	3.8
Output per capita	2.1	-4.3	-3.5	3.7	-0.5	-0.4	-1.7	-2.5	2.4	-0.6	1.1
Industrial production	...	...	...	...	...	...	...	...	...	...	...
Trade	-1.0	-7.2	-3.8	7.4	-1.2	4.1	-0.9	3.5	6.3	3.2	4.3
Output (PPP)	5.1	-1.5	-0.6	6.8	2.5	2.5	1.2	0.3	5.3	2.3	3.9
Output per capita (PPP)	2.3	-4.3	-3.4	4.0	-0.3	-0.2	-1.7	-2.5	2.5	-0.5	1.1

Sources: Feenstra, Inklaar, and Timmer (2015); Haver Analytics; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: All variables show percent changes. "All years" refers to averages of all years. "..." indicates that data are either unavailable or not reported because country samples to compute data for aggregated groups are too small to be representative. PPP = purchasing power parity.

TABLE 2A.9 Main features of global expansions

Activity	Global expansions					Global expansions (excluding initial years)					All years
	1976-81	1983-90	1992-2008	2010-19	Average	1977-81	1984-90	1993-2008	2011-19	Average	
Output	3.5	3.5	3.1	3.0	3.3	3.1	3.6	3.2	2.8	3.2	3.7
Output per capita	1.7	1.7	1.7	1.8	1.7	1.4	1.8	1.8	1.6	1.7	2.0
Industrial production	3.7	3.5	2.8	2.9	3.2	2.8	3.7	3.0	2.3	3.0	3.5
Trade	5.1	5.2	6.7	4.7	5.4	4.4	5.7	6.9	3.9	5.2	5.8
Unemployment rate	0.1	-0.1	0.1	-0.1	0.0	0.1	-0.1	0.0	-0.1	0.0	0.1
Oil consumption	1.6	1.8	1.5	1.7	1.7	0.7	2.1	1.5	1.5	1.4	2.3
Investment	3.4	3.8	3.4	3.8	3.6	2.9	4.1	3.8	3.7	3.6	4.4
Consumption	3.4	3.4	3.1	2.7	3.2	3.1	3.5	3.1	2.7	3.1	3.6
Output (PPP)	3.6	3.5	3.6	3.7	3.6	3.2	3.6	3.7	3.5	3.5	4.0
Output per capita (PPP)	1.8	1.7	2.2	2.5	2.1	1.4	1.8	2.4	2.4	2.0	2.3
Financial markets											
Capital flows	0.3	0.2	0.5	0.2	0.3	0.2	0.5	0.4	-0.8	0.1	0.2
Credit	3.6	6.5	4.1	3.8	4.5	3.6	6.8	4.2	4.1	4.7	5.3
Equity prices	-1.7	16.6	8.9	5.3	7.3	-2.5	15.7	8.8	3.9	6.5	5.3
House prices	1.6	2.8	1.7	1.6	1.9	2.0	3.2	1.9	1.6	2.2	1.8
Financial conditions	...	0.2	0.0	-0.1	0.0	...	0.2	0.0	0.0	0.1	0.0
Inflation	-0.2	-0.3	-0.1	0.1	-0.1	0.3	0.0	0.0	0.0	0.1	0.0
Interest rates, confidence, and uncertainty											
Nominal interest rate	1.0	-0.2	-0.3	0.1	0.1	1.2	0.0	-0.2	0.1	0.2	0.0
Real interest rate	1.0	0.0	-0.2	-0.1	0.2	0.9	0.0	-0.2	0.1	0.2	0.0
Business confidence	0.1	0.2	0.0	0.1	0.1	-0.2	0.0	0.0	0.0	-0.1	0.0
Policy uncertainty	...	0.0	2.8	5.7	2.8	...	0.0	2.9	7.0	3.3	3.6
Policies											
Government expenditure	4.2	3.0	4.1	2.8	3.5	4.3	3.2	4.0	2.9	3.6	4.8
Policy rate	1.0	-0.3	-0.3	0.1	0.1	1.2	-0.1	-0.2	0.1	0.2	0.0

Sources: Feenstra, Inklaar, and Timmer (2015); Haver Analytics; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: All variables show percent changes, except in capital flows, unemployment rate, inflation, nominal and real interest rates, and policy rate, in which percentage-point changes of these variables are reported. "All years" refers to averages of all years. "..." indicates that data are either unavailable or not reported because country samples to compute data for aggregated groups are too small to be representative. PPP = purchasing power parity.

TABLE 2A.10 Main features of global expansions, by country group

	Global expansions				Global expansions (excluding initial years)				All years		
	1976-81	1983-90	1992-2008	2010-19	Average	1977-81	1984-90	1993-2008		2011-19	Average
Advanced economies											
Output	3.3	3.7	2.5	1.9	2.9	3.0	3.8	2.5	1.8	2.8	3.3
Output per capita	2.6	3.1	1.8	1.4	2.2	2.3	3.2	1.8	1.4	2.2	2.4
Industrial production	3.5	3.5	2.0	1.9	2.7	2.7	3.7	2.1	1.2	2.4	3.0
Trade	5.6	6.4	6.1	4.3	5.6	4.6	6.9	6.2	3.4	5.3	5.9
Unemployment rate	0.2	-0.2	0.0	-0.3	-0.1	0.3	-0.3	-0.1	-0.4	-0.1	0.0
Output (PPP)	3.4	3.8	2.6	2.0	2.9	3.1	3.8	2.6	1.9	2.8	3.3
Output per capita (PPP)	2.6	3.1	1.9	1.5	2.3	2.3	2.0	2.0	1.4	2.2	2.5
Credit	3.5	6.8	3.4	1.2	3.7	3.5	7.1	3.5	1.5	3.9	4.7
Government expenditure	3.9	3.3	2.9	1.1	2.8	4.1	3.3	2.8	1.2	2.8	4.2
Policy rate	1.0	-0.3	-0.3	0.0	0.1	1.2	-0.1	-0.3	0.0	0.2	0.0
EMDEs											
Output	4.0	3.0	4.7	4.9	4.1	3.5	3.2	4.9	4.6	4.0	4.7
Output per capita	2.0	0.9	3.2	3.5	2.4	1.4	1.1	3.4	3.3	2.3	2.8
Industrial production	...	...	5.6	5.1	5.3	...	...	5.8	4.5	5.1	5.0
Trade	4.2	2.3	8.1	5.6	5.0	4.1	2.8	8.6	4.8	5.1	5.6
Unemployment rate	-3.5	0.0	0.1	0.0	-0.9	-3.5	0.0	0.1	0.0	-0.9	-0.1
Output (PPP)	4.0	3.2	4.8	5.2	4.3	3.4	3.3	5.1	4.9	4.2	4.8
Output per capita (PPP)	1.9	1.1	3.3	3.8	2.5	1.4	1.2	3.6	3.6	2.4	2.9
Credit	6.1	0.8	10.4	10.7	7.0	6.1	1.9	10.1	10.5	7.1	7.9
Government expenditure	6.9	1.4	7.1	5.7	5.3	5.8	2.4	7.2	5.7	5.3	5.8
Policy rate	0.3	0.3	-0.3	0.0	0.1	0.3	0.4	-0.2	0.0	0.1	0.0
LICs											
Output	1.3	2.5	4.0	5.9	3.4	1.4	2.6	4.3	5.8	3.5	3.8
Output per capita	-1.1	-0.4	1.1	3.0	0.6	-1.1	-0.3	1.5	2.8	0.7	1.1
Trade	1.7	4.5	7.4	8.8	5.6	2.5	5.0	8.2	8.2	6.0	6.0
Output (PPP)	1.6	2.6	4.2	6.1	3.6	1.6	2.8	4.5	6.0	3.7	3.9
Output per capita (PPP)	-0.9	-0.3	1.3	3.1	0.8	-0.8	-0.1	1.6	3.0	0.9	1.2

Sources: Bank for International Settlements; Feenstra, Inklaar, and Timmer (2015); Haver Analytics; International Monetary Fund; Kose and Terrones (2015); Mauro et al. (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: All variables show percent changes, except in unemployment rate and policy rate, in which percentage-point changes of these variables are reported. "All years" refers to averages of all years. "... " indicates that data are either unavailable or not reported because country samples to compute data for aggregated groups are too small to be representative. EMDEs = emerging market and developing economies; LICs = low-income countries; PPP = purchasing power parity.

TABLE 2A.11 Main features of global expansions, by region

	Global expansions					Global expansions (excluding initial years)					All years
	1976-81	1983-90	1992-2008	2010-19	Average	1977-81	1984-90	1993-2008	2011-19	Average	
East Asia and Pacific											
Output	6.8	8.0	8.7	7.1	7.6	7.5	8.0	8.5	6.8	7.7	7.0
Output per capita	5.0	6.0	7.6	6.4	6.2	5.7	6.1	7.5	6.1	6.3	5.4
Industrial production	...	12.7	10.4	8.0	10.4	...	12.7	10.4	7.3	10.1	9.9
Trade	10.2	10.1	12.5	7.2	10.0	11.7	10.4	12.2	6.0	10.1	8.6
Output (PPP)	6.8	7.7	8.3	7.0	7.5	7.4	7.8	8.2	6.7	7.6	6.9
Output per capita (PPP)	5.0	5.8	7.3	6.3	6.1	5.7	5.8	7.2	6.0	6.2	5.3
Europe and Central Asia											
Output	2.8	1.9	2.2	3.2	2.5	2.1	1.6	2.9	3.0	2.4	3.2
Output per capita	1.9	1.1	2.1	2.7	1.9	1.2	0.8	2.8	2.5	1.8	2.6
Industrial production	...	...	3.5	4.2	3.9	...	...	3.9	3.6	3.7	3.3
Trade	4.5	1.0	6.2	4.9	4.2	4.3	1.0	8.0	4.2	4.3	5.0
Output (PPP)	2.8	1.9	2.1	3.0	2.4	2.1	1.5	2.8	2.9	2.3	3.2
Output per capita (PPP)	1.9	1.1	2.0	2.6	1.9	1.2	0.7	2.7	2.4	1.8	2.6
Latin America and the Caribbean											
Output	4.9	2.0	3.2	2.2	3.1	4.7	2.6	3.3	1.7	3.1	3.9
Output per capita	2.5	-0.1	1.7	1.1	1.3	2.3	0.6	1.8	0.6	1.3	1.8
Industrial production	...	...	3.0	0.5	1.7	...	...	3.1	-0.3	1.4	1.7
Trade	7.5	4.6	7.2	4.7	6.0	8.6	6.1	6.9	3.3	6.2	5.5
Output (PPP)	4.8	1.9	3.2	2.4	3.1	4.7	2.5	3.3	1.9	3.1	3.8
Output per capita (PPP)	2.4	-0.2	1.7	1.2	1.3	2.3	0.4	1.8	0.8	1.3	1.8

TABLE 2A.11 Main features of global expansions, by region (continued)

	Global expansions				Global expansions (excluding initial years)				All years		
	1976-81	1983-90	1992-2008	2010-19	Average	1977-81	1984-90	1993-2008		2011-19	Average
Middle East and North Africa											
Output	4.5	1.8	4.1	3.0	3.3	2.3	2.3	4.0	2.8	2.8	5.0
Output per capita	1.4	-1.3	2.1	0.9	0.8	-0.8	-0.8	2.1	0.7	0.3	2.4
Industrial production	...	...	...	...	...	...	...	...	...	...	...
Trade	0.7	0.0	5.4	3.2	2.3	-0.4	0.6	5.3	3.4	2.2	5.2
Output (PPP)	4.1	2.0	4.0	2.6	3.2	1.8	2.3	3.9	2.5	2.6	4.9
Output per capita (PPP)	1.0	-1.1	2.1	0.7	0.7	-1.3	-0.7	2.0	0.5	0.1	2.4
South Asia											
Output	4.1	5.6	6.1	6.9	5.7	4.5	5.4	6.2	6.7	5.7	5.0
Output per capita	1.6	3.1	4.2	5.6	3.6	2.0	3.0	4.2	5.3	3.6	3.0
Industrial production	...	...	...	...	...	...	...	...	...	...	...
Trade	7.2	5.1	13.0	7.0	8.1	7.0	4.5	12.9	6.2	7.7	6.7
Output (PPP)	4.1	5.6	6.1	6.9	5.7	4.5	5.4	6.2	6.7	5.7	5.0
Output per capita (PPP)	1.7	3.2	4.2	5.6	3.7	2.0	3.0	4.3	5.4	3.7	3.0
Sub-Saharan Africa											
Output	2.5	2.2	4.0	3.7	3.1	2.0	2.7	4.3	3.4	3.1	3.8
Output per capita	-0.2	-0.7	1.3	0.9	0.3	-0.7	-0.2	1.6	0.6	0.3	1.1
Industrial production	...	...	...	...	...	...	...	...	...	...	...
Trade	3.9	1.0	7.2	3.6	3.9	4.9	2.2	7.9	3.1	4.5	4.3
Output (PPP)	2.5	2.3	4.1	3.9	3.2	2.0	2.9	4.4	3.6	3.2	3.9
Output per capita (PPP)	-0.3	-0.6	1.4	1.1	0.4	-0.8	-0.1	1.7	0.8	0.4	1.1

Sources: Feenstra, Inklaar, and Timmer (2015); Haver Analytics; Kose and Terrones (2015); Organisation for Economic Co-operation and Development; World Bank.

Note: All variables show percent changes. "All years" refers to averages of all years. "..." indicates that data are either unavailable or not reported because country samples to compute data for aggregated groups are too small to be representative. PPP = purchasing power parity.

ANNEX 2B List of economies in the database

Advanced economies (36)			
Australia	France	Korea, Rep.	Singapore
Austria	Germany	Latvia	Slovak Republic
Belgium	Greece	Lithuania	Slovenia
Canada	Hong Kong SAR, China	Luxembourg	Spain
Cyprus	Iceland	Malta	Sweden
Czech Republic	Ireland	Netherlands	Switzerland
Denmark	Israel	New Zealand	Taiwan, China
Estonia	Italy	Norway	United Kingdom
Finland	Japan	Portugal	United States
Emerging market and developing economies (145)			
East Asia and Pacific (22)			
Cambodia	Malaysia	Papua New Guinea	Tonga
China	Marshall Islands	Philippines	Tuvalu
Fiji	Micronesia, Fed. Sts.	Samoa	Vanuatu
Indonesia	Mongolia	Solomon Islands	Vietnam
Kiribati	Myanmar	Thailand	
Lao PDR	Palau	Timor-Leste	
Europe and Central Asia (24)			
Albania	Croatia	Moldova	Serbia
Armenia	Georgia	Montenegro	<i>Tajikistan</i>
Azerbaijan	Hungary	North Macedonia	Turkey
Belarus	Kazakhstan	Poland	Turkmenistan
Bosnia and Herzegovina	Kosovo	Romania	Ukraine
Bulgaria	Kyrgyz Republic	Russian Federation	Uzbekistan
Latin America and the Caribbean (31)			
Antigua and Barbuda	Colombia	Guyana	Peru
Argentina	Costa Rica	<i>Haiti</i>	St. Kitts and Nevis
Bahamas, The	Dominica	Honduras	St. Lucia
Barbados	Dominican Republic	Jamaica	St. Vincent and the Grenadines
Belize	Ecuador	Mexico	Suriname
Bolivia	El Salvador	Nicaragua	Trinidad and Tobago
Brazil	Grenada	Panama	Uruguay
Chile	Guatemala	Paraguay	

Emerging market and developing economies (145) - continued			
Middle East and North Africa (16)			
Algeria	Iran, Islamic Rep.	Lebanon	Saudi Arabia
Bahrain	Iraq	Morocco	Tunisia
Djibouti	Jordan	Oman	United Arab Emirates
Egypt, Arab Rep.	Kuwait	Qatar	West Bank and Gaza
South Asia (8)			
<i>Afghanistan</i>	Bhutan	Maldives	Pakistan
Bangladesh	India	<i>Nepal</i>	Sri Lanka
Sub-Saharan Africa (44)			
Angola	Côte d'Ivoire	Lesotho	<i>Rwanda</i>
<i>Benin</i>	Equatorial Guinea	<i>Liberia</i>	Senegal
Botswana	<i>Eritrea</i>	<i>Madagascar</i>	Seychelles
<i>Burkina Faso</i>	Eswatini	<i>Malawi</i>	<i>Sierra Leone</i>
<i>Burundi</i>	<i>Ethiopia</i>	<i>Mali</i>	South Africa
Cabo Verde	Gabon	Mauritania	Sudan
Cameroon	<i>Gambia, The</i>	Mauritius	<i>Tanzania</i>
<i>Chad</i>	Ghana	<i>Mozambique</i>	<i>Togo</i>
Comoros	<i>Guinea</i>	Namibia	<i>Uganda</i>
<i>Congo, Dem. Rep.</i>	<i>Guinea-Bissau</i>	<i>Niger</i>	Zambia
Congo, Rep.	Kenya	Nigeria	Zimbabwe

Source: World Bank.

Note: The number of countries is in parentheses next to the country group name. Those in italics are low-income countries (based on the World Bank classification for FY2020).

ANNEX 2C Definitions and sources of variables

Variable	Definition	Source
Activity		
Output	GDP in constant 2010 U.S. dollars (market weighted), taken from the World Bank. Before 1960, the series is extended using data from the Penn World Tables 9.1 (PWT 9.1). Sample includes 181 economies, including 36 advanced economies and 145 EMDEs. For PPP-weighted series, GDP is in constant 2010 international dollars.	Feenstra, Inklaar, and Timmer (2015); World Bank
Output per capita	GDP per capita, in constant 2010 U.S. dollars (market weighted), taken from the World Bank. Before 1960, both GDP and population series are extended using data from PWT 9.1. Sample includes 181 economies. For PPP-weighted series, GDP per capita is in constant 2010 international dollars.	Feenstra, Inklaar, and Timmer (2015); World Bank
Industrial production	Industrial production index (if not available, manufacturing production index is used). Data are obtained at a quarterly frequency and used as annual averages of year-on-year growth rates. For aggregated groups, market-weighted output is used as a weight. The main source of the series is the World Bank and, for economies and quarters without data, the series is extended using growth rates of data from the OECD and Haver Analytics.	Haver Analytics, OECD, World Bank
Trade	Exports plus imports of goods and services, in constant 2010 U.S. dollars, taken from the World Bank. Before 1960, the series of exports and imports are extended using data from PWT 9.1. Trade for aggregated groups is the sum of exports and imports of individual economies.	Feenstra, Inklaar, and Timmer (2015); World Bank
Unemployment rate	Unemployment, in percent of labor force, taken from the International Monetary Fund. Data for aggregated groups are computed as the sum of those unemployed in individual economies divided by the sum of labor force.	International Monetary Fund
Oil consumption	Oil consumption, in thousand barrels per day. Oil consumption in advanced economies and EMDEs is computed as the sum of consumption in individual economies. If there are differences between the world total and the sum of advanced economies and EMDEs, the residuals are added to the EMDE aggregate. The number of world oil consumption for 2019 is based on data over the first nine months of the year.	British Petroleum, U.S. Energy Information Administration

ANNEX 2C Definitions and sources of variables (continued)

Variable	Definition	Source
Financial market		
Capital flows	Total capital flows, defined as the sum of absolute values of outflows (net acquisition of financial asset, including direct, portfolio, and other assets) and inflows (net incurrence of liabilities, including direct, portfolio, and other liabilities), in current U.S. dollars, taken from the International Monetary Fund Balance of Payments Statistics (sixth edition). The figures for 2019 show data over the first two quarters of the year. For the historical series, the statistics based on the fifth edition are also used. The series is shown as a percent of GDP, which is taken from the World Bank and PWT 9.1.	Feenstra, Inklaar, and Timmer (2015); International Monetary Fund; World Bank
Credit	Nominal credit provided by banks and other financial corporations, deflated by the consumer price index (CPI). Data are at a quarterly frequency and shown as annual averages of year-on-year growth of real credit. Nominal credit series is taken from the International Monetary Fund's International Financial Statistics (IFS), titled claims on private sector (by depository or financial corporations), and the Bank for International Settlements. CPI is taken from the Bank for International Settlements, Haver Analytics, and the International Monetary Fund. Credit for aggregated groups is computed as follows. First, real credit (in local currency) is converted to constant 2010 U.S. dollars, and then U.S.-dollar real credit in individual economies is aggregated into respective groups.	Bank for International Settlements, Haver Analytics, International Monetary Fund
Equity prices	Share price index, deflated by CPI. Data are at a quarterly frequency and used as annual averages of year-on-year growth of real equity prices. Data are from the International Monetary Fund (IFS) and Haver Analytics and available as period averages and end-of-period values. The one with longer data availability is used as the main series. Growth in aggregated groups is computed with market-weighted output as a weight. CPI is taken from the Bank for International Settlements, Haver Analytics, and the International Monetary Fund.	Bank for International Settlements, Haver Analytics, International Monetary Fund, World Bank
House prices	House (or property) prices, deflated by CPI. Data are at a quarterly frequency and used as annual averages of year-on-year growth of real house prices. Data are from the Bank for International Settlements, Haver Analytics, and OECD. Growth in aggregated groups is computed with market-weighted output as a weight. CPI is taken from the Bank for International Settlements, Haver Analytics, and the International Monetary Fund.	Bank for International Settlements, Haver Analytics, International Monetary Fund, OECD, World Bank

ANNEX 2C Definitions and sources of variables (continued)

Variable	Definition	Source
Financial conditions	An index of financial conditions, computed as a weighted average of short-term and long-term interest rates, trade-weighted dollar, an index of credit spreads, and the ratio of equity prices to the 10-year average of earnings per share, as explained in Hatzius and Stehn (2018). Higher index numbers reflect tighter financial conditions. Data are at a monthly frequency and used as annual averages of year-on-year growth of the index. Growth in aggregated groups is computed with market-weighted output as a weight.	Bloomberg, Goldman Sachs, World Bank
Inflation	Change in CPI in percent. Data are at a quarterly frequency and used as annual averages of year-on-year percent changes of CPI. The series is taken from the Bank for International Settlements, Haver Analytics, and the International Monetary Fund. Inflation in aggregated groups is computed with market-weighted output as a weight. In order to eliminate an effect of countries with a history of high inflation, countries whose average inflation over the entire sample period (based on quarterly data) is above the top 20th percentile, are excluded.	Bank for International Settlements, Haver Analytics, International Monetary Fund, World Bank
Interest rates, confidence, and uncertainty		
Short-term interest rate (nominal and real)	Treasury bill rates or money market rates, with the maturity of three months or less. In countries where 3-month rates are unavailable, shorter maturity rates (including overnight rates) are used. Data are at a quarterly frequency and used as annual averages. The real short-term interest rate is the difference between nominal rate and inflation in the following quarter (as a proxy of expected inflation). Data are taken from different sources, and the data series with the longest time coverage is used as the main series. Then, the main series is spliced with those from other data sources. Data for aggregated groups are computed with market-weighted output as a weight.	Bank for International Settlements, Haver Analytics, International Monetary Fund, OECD, World Bank
Business confidence	Business confidence index, originally taken from the European Commission, OECD, and country sources (including statistical offices, central banks, academic institutions, and think tanks). The series is obtained as quarterly data and used as annual averages. Data from different sources are first standardized and converted to an index equal to 100 in 2015-18. Confidence for aggregated groups is computed with market-weighted output as a weight.	European Commission, OECD, country sources, World Bank
Policy uncertainty	Economic policy uncertainty index, which is based on the frequency of articles in domestic newspapers mentioning economic policy uncertainty. Country-level indexes are at a monthly frequency and used as annual averages. Data are first converted to a 6-month moving average and then an index equal to 100 in 2015-18. Aggregated policy uncertainty is computed with market-weighted output as a weight, based on 20 economies with available data.	Davis (2016); World Bank

ANNEX 2C Definitions and sources of variables (continued)

Variable	Definition	Source
Policies		
Government expenditure	Government primary expenditure (that is, government total expenditure excluding interest expense) in local currency, deflated by GDP deflator. The expenditure series is first taken from the International Monetary Fund and then extended with data in Mauro et al. (2015). GDP deflator is taken from the International Monetary Fund, PWT 9.1, and the World Bank. Real government expenditure growth in aggregated groups is computed with market-weighted output as a weight.	International Monetary Fund; Mauro et al. (2015); World Bank
Policy interest rate	Nominal central bank policy rates. Data are at a quarterly frequency and used as annual averages. Data are taken from different sources, and the data series with the longest time coverage is used as the main series. Then, the main series is spliced with those from other data sources. Data for aggregated groups are computed with market-weighted output as a weight.	Bank for International Settlements; Haver Analytics; International Monetary Fund; OECD; World Bank
Quarterly series		
Output (per capita) growth	Quarterly real GDP is taken from Haver Analytics and OECD. Quarter-on-quarter annualized growth rates of seasonally adjusted real GDP are computed. If the original data are not seasonally adjusted, the U.S. Census X-13 program is used to perform seasonal adjustment first. Quarterly growth for aggregated groups is computed with market-weighted annual output as a weight—the same weights are applied to four quarters in given years. In computing per capita growth, population data are used on an annual basis and taken from the World Bank and PWT, and therefore, the same population growth numbers are used in four quarters in given years. As a result, output per capita growth is calculated as the difference between aggregated annualized quarterly GDP growth and annual population growth. When computing growth rates over two quarters with different samples, economies are restricted to the common samples between these two quarters and with GDP and population. Sample includes 105 economies, though the sample size varies by quarter, over 1960:1-2019:2. Data for the 1950s are excluded because of the limited data availability.	Feenstra, Inklaar, and Timmer (2015); Haver Analytics; OECD; World Bank

Source: World Bank.

Note: Country-group aggregates are not computed, if the sample size is limited—specifically, data need to be available for at least 10 economies in all variables except in financial conditions, short-term interest rates, business confidence, and policy uncertainty (at least 4 economies, because of more limited data availability in the original series). The sample coverage mentioned in the table is the maximum number of countries and the sample size varies by year or quarter. Output from other data sources is also used for comparison purposes: the International Monetary Fund World Economic Outlook (October 2019) has annual data available since 1980 and the United Nations National Accounts Database has annual data starting in 1970. OECD = Organisation for Economic Co-operation and Development.

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