Section 3 Escalating inflationary pressures

1. Rising inflation

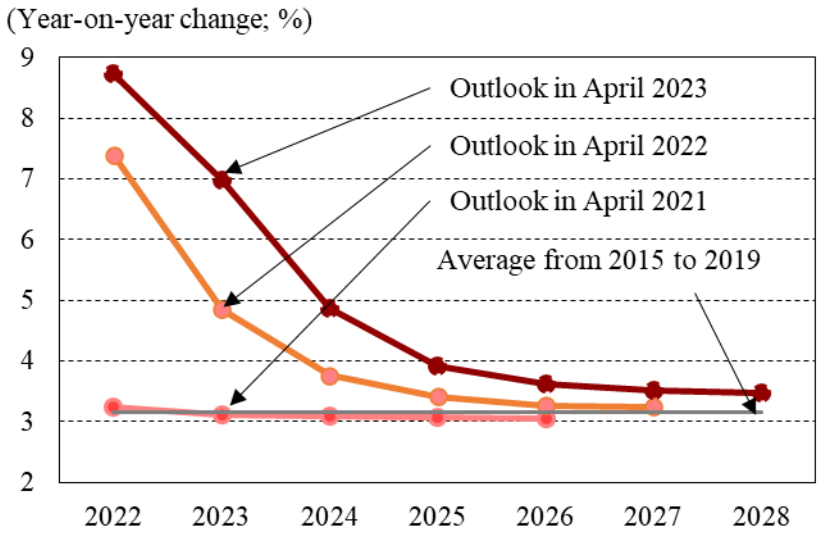
As described in Chapter 1, Section 1, Subsection 1, rising global inflation has become a factor of the slowdown of economic growth. This subsection will provide an overview of the projections of the inflation rate in the world and developed, emerging, and developing countries based on data published by the IMF. It will also look at the different background factors and situations of inflation across developed countries.

(1) Current state of inflation

(A) Global inflation rate

The global inflation rate is projected to decline in 2023 and 2024 after peaking in 2022 because of falls in fuel and commodity prices due to weak global demand and the effects of monetary tightening, according to the IMF. However, the projections of the inflation rate have been revised upward from the previous projections made in 2021 and 2022 to 7.0% for 2023 and 4.9% for 2024, indicating the strength of inflationary pressures (Figure I-1-3-1).

Figure I-1-3-1. Outlook of the global inflation rate

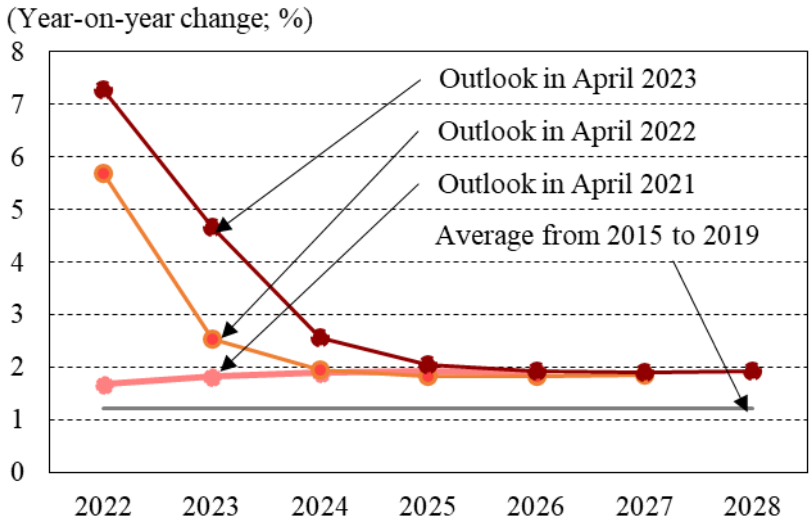


Note: Estimated and forecast values are annual averages.
Source: *WEO* (IMF).

(B) Inflation rates in developed countries

According to the IMF's World Economic Outlook report in April 2023, the inflation rate in developed countries is projected to come to 4.7% in 2023 and 2.6% in 2024 after peaking in 2022 because of active monetary tightening by the countries' central banks (Figure I-1-3-2).

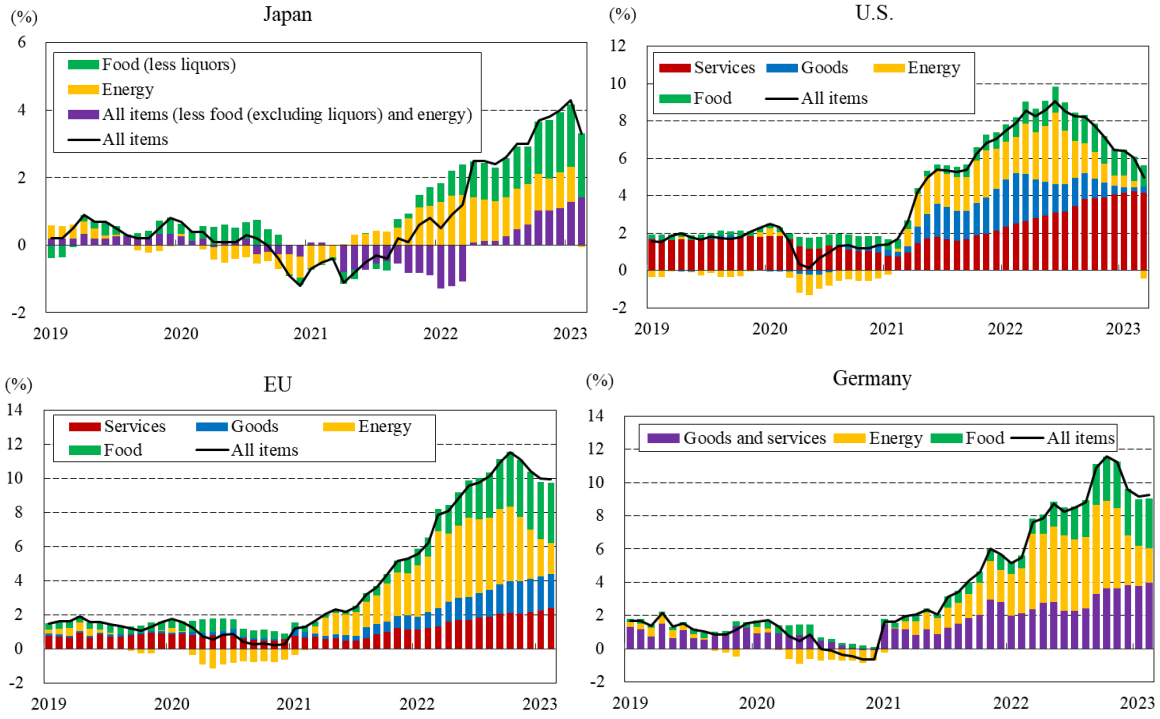
Figure I-1-3-2. Outlook of the inflation rate in developed countries

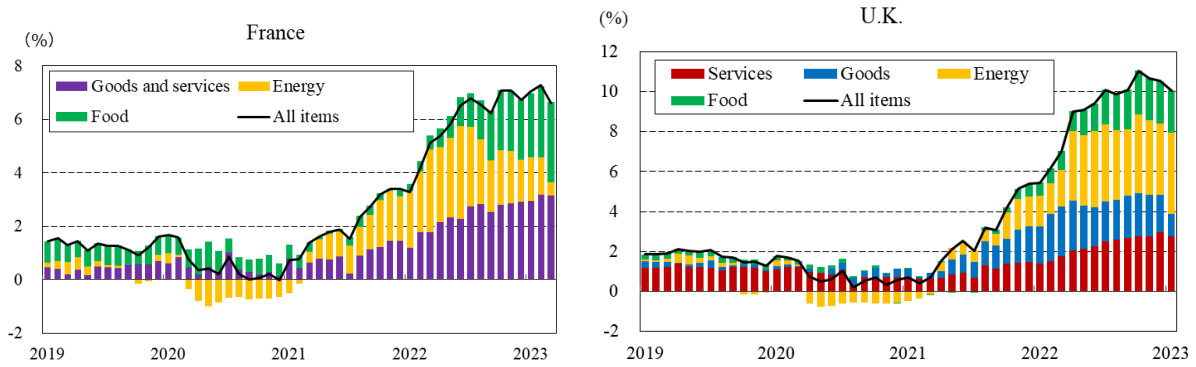


Note: Estimated and forecast values are annual averages.
Source: *WEO* (IMF).

When we look at the situation of inflation in developed economies in terms of changes in the inflation rate and the contributions made to inflation by food, energy, and other goods and services in Japan, the United States, the EU, Germany, France and the United Kingdom, we can see that inflation rose in all those economies in 2022 and also that the impact of energy price increases was large in all of them (Figure I-1-3-3).

Figure I-1-3-3. Changes in the contributions to inflation in developed countries





Note 1: The consumer price index in Japan is general index including fresh food.
Note 2: The consumer price indices in the EU, Germany and France are the Harmonised Indices of Consumer Prices (HICP). Note that HICP does not cover the imputed rent of an owner-occupied house.
Note 3: The consumer price index in the U.K. is called "consumer prices indices" (CPI). Note that the CPI does not cover the imputed rent of an owner-occupied house.
Source: U.S. Department of Labor, Eurostat, the Office for National Statistics of the U.K., *Consumer Price Index* (MIC), CEIC.

On the other hand, in those economies, the recent inflation and price trends have differed from economy to economy because of the different background factors.

In Japan, items other than food and energy made negative contributions to inflation in 2021 amid rising inflation in other countries, with the result that the Japanese consumer price index (CPI) for all items, less fresh food and energy (core core CPI) was not at a high level. On the other hand, in 2022, the inflation rate in Japan climbed due to rises in energy and food prices and the effects of rising inflation started to spread to the core core CPI as well around the middle of 2022. In January 2023, the inflation rate registered a year-on-year increase of 4.3%. On the whole, inflation peaked in January 2023, but the core core index has continued to trend upward.

In the United States, the inflation rate registered a year-on-year increase of 9.1% in June 2022, and although it peaked later, the inflation rate has still remained high. In March 2023, the CPI for all items rose 5.0% year on year, but the contributing factors were significantly different compared with 2021. In 2021-2022, energy and goods pushed up the inflation rate, but recently, the contributions by those items have been small, while food and services have been the predominant contributing factors. In March 2023, the core CPI was higher than the CPI for all items.

In the EU, because of the effects of Russia's aggression against Ukraine, energy prices in particular pushed up the inflation rate considerably. Although there were concerns over energy shortages, the contribution by energy prices has been declining due to the historically warm winter. On the other hand, as prices of food, goods and services remained high, the CPI for all items recorded a year-on-year increase of 9.9% in February 2023. In particular, in Germany, which depends heavily on Russia for the supply of crude oil and natural gas,[12] inflation rose against the backdrop of energy shortages and the diversification of energy procurement sources. In October 2022, the inflation rate in Germany increased 11.6% year on year. Although the contribution by energy prices declined later, the inflation rate in

[12] Agency for Natural Resources and Energy (2022) *Annual Report on Energy 2022.*

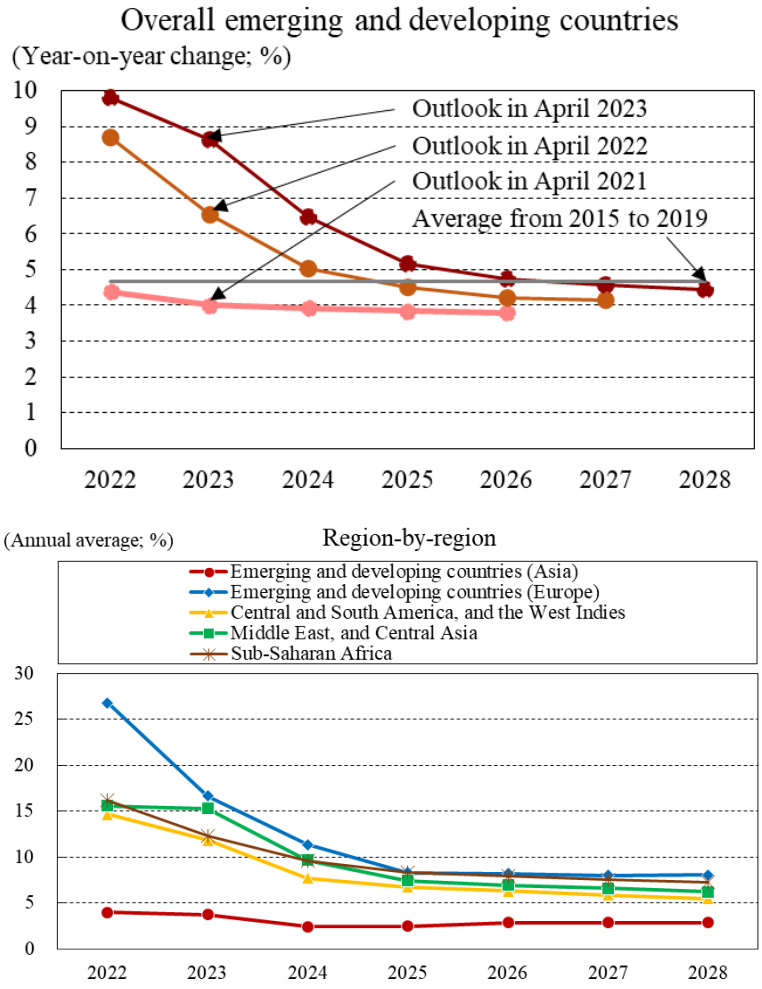
February 2023 remained high, 9.3% year on year, against the backdrop of rising prices of food, goods, and services. In the United Kingdom, as the contribution by energy prices continued to be large, around 40%, the rate of increase in the CPI for all items remained high, 10.4%, in February 2023.

(C) Inflation rate in emerging and developing countries

According to the IMF's World Economic Outlook in April 2023, the inflation rate in emerging and developing countries is projected to record year-on-year increases of 8.6% in 2023 and of 6.5% in 2024, which are figures revised sharply upward compared with the projections for the global inflation rate and the inflation rate in developed economies (Figure I-1-3-4).

Although the inflation rate in emerging and developing countries rose steeply in 2022 due to a rise in import prices, inflation is projected to slow down in 2023 and 2024 because of the easing of the effects of commodity price increases.

Figure I-1-3-4. Outlook of inflation rate in emerging and developing countries



Note: Estimated and forecast values are annual averages.
Source: *WEO* (IMF).

(2) Factors of inflation and countermeasures

Above, we looked at the situations of inflation at the global and regional levels and in each developed economy. While the level of inflation and background factors differ from economy to economy, common factors and countermeasures can be summarized as below (Table I-1-3-5).

Table I-1-3-5. Main factors of inflation and countermeasures

	Main factors	Countermeasures
Commodity price increase	- COVID-19 pandemic - Russia's aggression against Ukraine	Support for low-income households
Tightening of the supply-demand balance (increase in demand)	- Large-scale financial support - Monetary easing measures (interest rate cuts, increase in money supply)	Monetary tightening measures (interest rate hikes, reduction of money supply)
Tightening of the supply-demand balance (decrease in supply)	- Surge in logistics prices against the backdrop of supply chain disruptions in the COVID-19 pandemic - Supply shortages and pressures to raise wages caused by labor shortages	Increase of production capacity

Source: *WEO* (IMF), *2023NEN NO SEKAI KEIZAI MITOOSHI* (Marubeni Research Institute), *FY2023-FY2024 Economic Outlook* (Mizuho Research & Technologies, Ltd.).

Global commodity prices increased during the COVID-19 pandemic as well, but Russia's aggression against Ukraine further accelerated the rise in food and energy prices. Governments have taken intensive countermeasures against rising prices on behalf of low-income households, which are most vulnerable to the effects of food and energy price upsurges. The details of the countermeasures will be mentioned later.

As for the tightening of the supply-demand balance, the increase in demand in particular arose from the release of pent-up demand due to large-scale fiscal support during the COVID-19 crisis and easing of the restrictions on activities. In addition, monetary easing measures implemented in the early stage of the COVID-19 pandemic, such as interest rate cuts and an increase in money supply, caused excess demand. One countermeasure that has been actively promoted by central banks since 2022 is monetary tightening, including interest rate hikes and the reduction of money supply. The monetary tightening measures taken by individual countries and their effects will be described in detail in the next subsection.

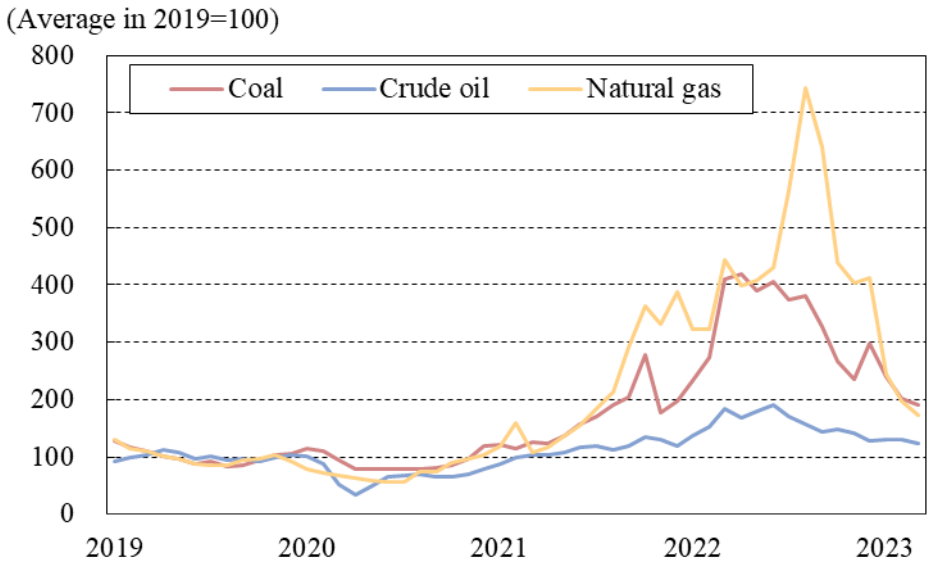
Regarding the supply-side factors of the tightening of the supply-demand balance, supply shortages have occurred against the backdrop of labor shortages. In addition, as labor shortages exert upward pressure on wages, they have become a critical factor that may prolong inflation. The importance of increasing supply capacity for containing inflation in the medium to long term will be explained in detail in the next chapter.

(A) Commodity price increase

Commodity prices have shown volatile fluctuations because of factors involving uncertainty, such as the COVID-19 pandemic, Russia's aggression against Ukraine, and climate change. As a commodity price increase leads to higher product cost, it may serve as inflationary pressure.

The energy price upsurge has peaked, with prices of various types of energy gradually becoming stable, but a careful watch should be kept on future price developments (Figure I-1-3-6).

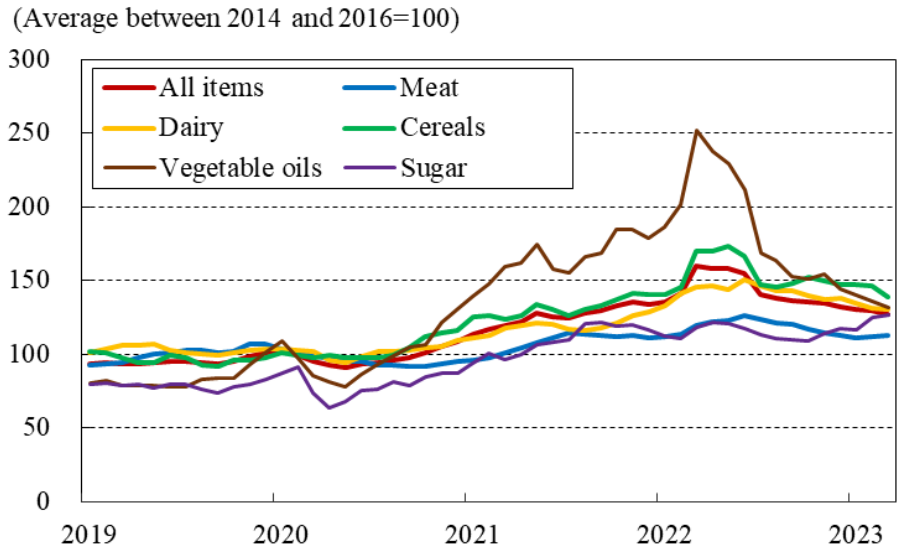
Figure I-1-3-6. Changes in major energy prices



Note: Crude oil: Average values of WTI, Brent and Dubai; Coal: Weighted average values of South Africa; Natural gas: Weighted average values of Europe, the U.S. and Japan (LNG).
Source: World Bank Commodity Price Data (World Bank).

Data on the food price index for all items and indexes for individual items, compiled by the Food and Agriculture Organization (FAO), show the following trends.

Figure I-1-3-7. Food price indices by item



Note: Average between 2014 and 2016 = 100.
Source: FAO.

The food price index for all items, which was pushed up by upsurges in prices of cereals and vegetable oils, peaked in March 2022, and prices declined later, with the recent prices of vegetable oils dropping

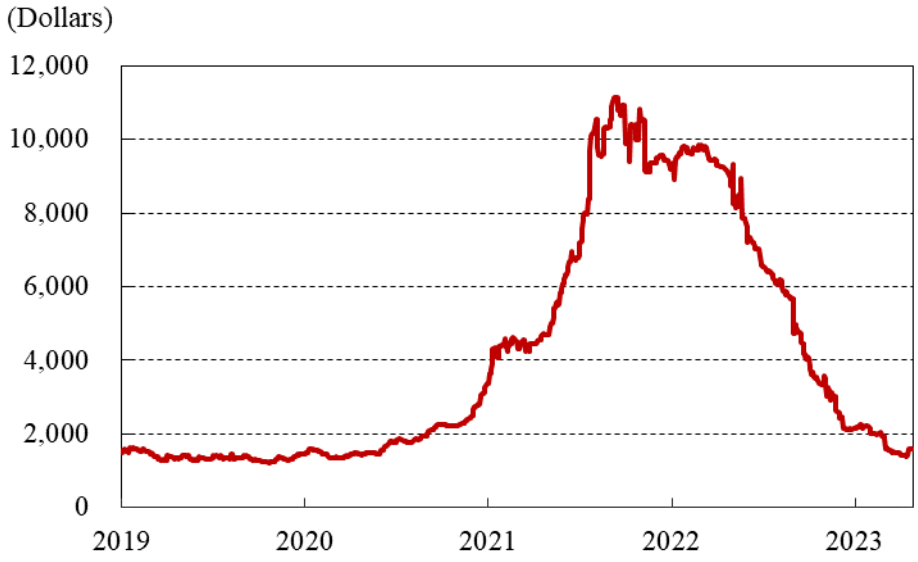
to around half of the peak level. On the other hand, with respect to all items, prices remained at a high level compared with the level before the COVID-19 pandemic, so a careful watch should be kept on the effects on low-income households, particularly in developed countries, as well as in emerging and developing countries.

(B) Tightening of the supply-demand balance

Regarding the tightening of the supply-demand balance, let us focus on supply-side factors, such as supply constraints occurring in supply chains and the labor market situation, and look at the trends in relevant price indexes and economic indicators. As mentioned earlier, monetary tightening as a countermeasure against excess demand will be described in detail in the next section.

With respect to supply constraints in supply chains, the White Paper on International Economy and Trade 2022 described the logistical turmoil that happened against the backdrop of the restrictions imposed on activities during the COVID-19 pandemic, shortages of port workers, and a rapid increase in demand associated with fiscal measures. In April 2023, the container price index was at a level similar to the one before the COVID-19 pandemic (Figure I-1-3-8).

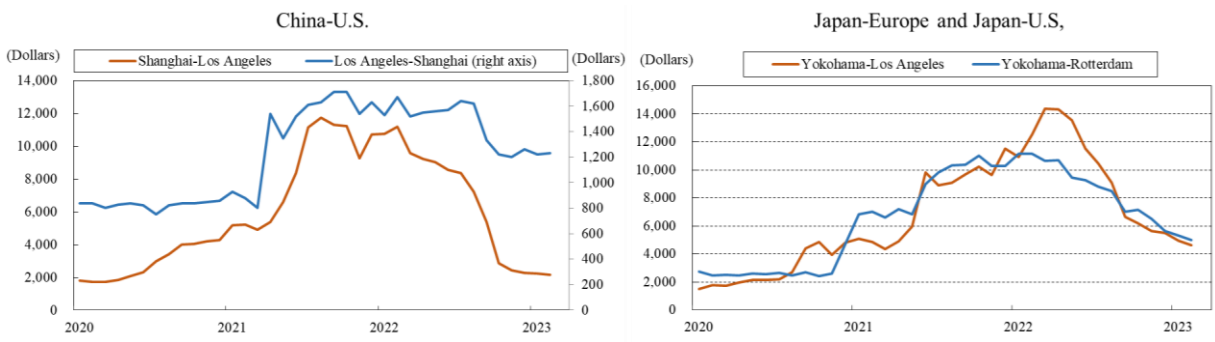
Figure I-1-3-8. Trends in the Baltic container indices



Source: Data from the Department of Transportation of the U.S. stored in CEIC.

By shipping route, container charges on the Shanghai-Los Angeles route, which rose in 2022, have returned to the level seen before the COVID-19 pandemic, while container charges on the Japan-Europe and Japan-U.S. routes are also gradually returning to the level seen before the COVID-19 pandemic (Figure I-1-3-9).

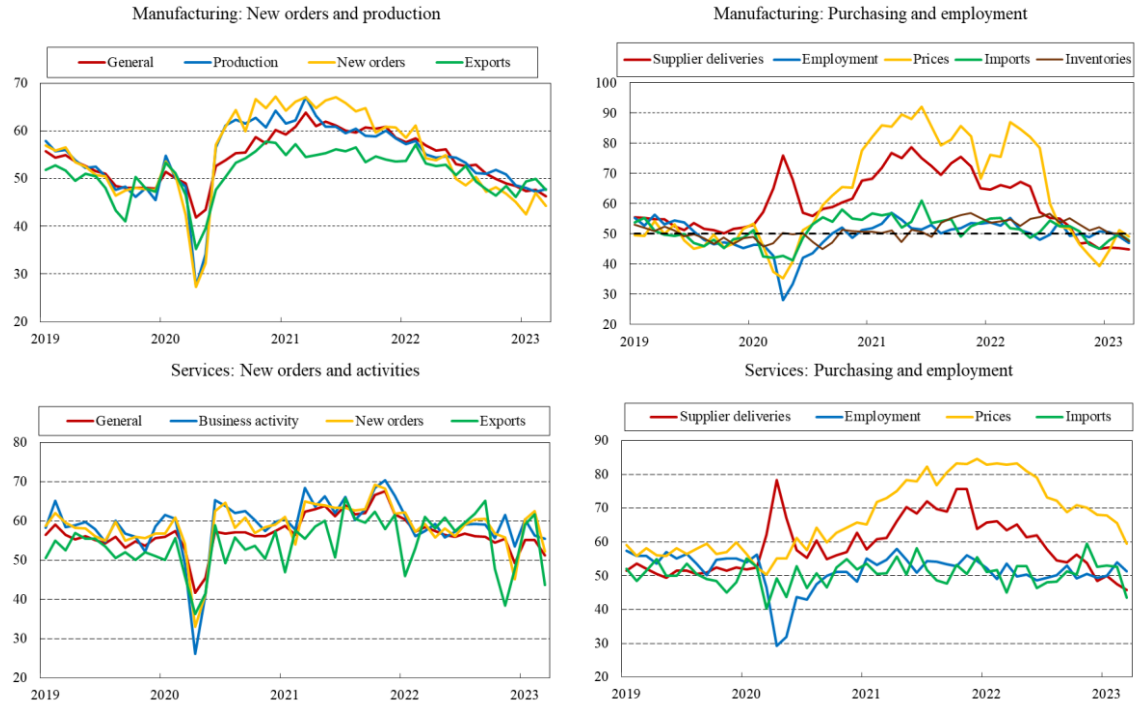
Figure I-1-3-9. Trends in container charges



Source: Data from the Department of Transportation of the U.S. stored in CEIC.

Let us look at the ISM economic index, which is an indicator of economic sentiment in the manufacturing and services sectors in the United States while taking into consideration the abovementioned circumstances. In 2021 and in early 2022, the indexes regarding order receipts and production rose, reflecting a rapid increase in demand, and the price index increased due to delays in supplier deliveries and rises in transportation charges caused by the logistical turmoil. Recently, due to the easing of the logistical turmoil, the index regarding supplier deliveries has been declining in both manufacturing and services sectors. In the manufacturing sector in particular, demand has declined, with both of the index regarding new orders and the overall index falling below 50 (Figure 1-1-3-10).

Figure I-1-3-10. ISM economic index in the U.S. (manufacturing and service industries)

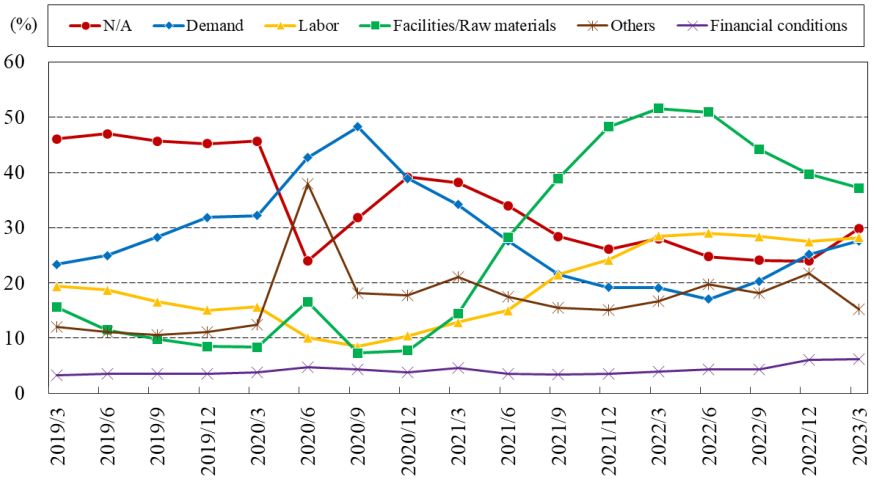


Note: The figure "50.0" is a referential figure showing a divergence point between economic expansion and contraction.

Source: Institute for Supply Management (ISM) of the U.S., CEIC.

Next, regarding developments related to constraining factors in the manufacturing sector in Europe, while demand was the main constraining factor in the early stage of the COVID-19 crisis, facilities and raw materials have become the main constraining factors in early 2022, reflecting energy shortages and price upsurges, according to the results of a survey of companies conducted by the European Commission. Recently, the impact of those factors has peaked, but they still continue to be the main constraining factors. In addition to facilities and raw materials, demand and labor have also become major constraining factors (Figure I-1-3-11).

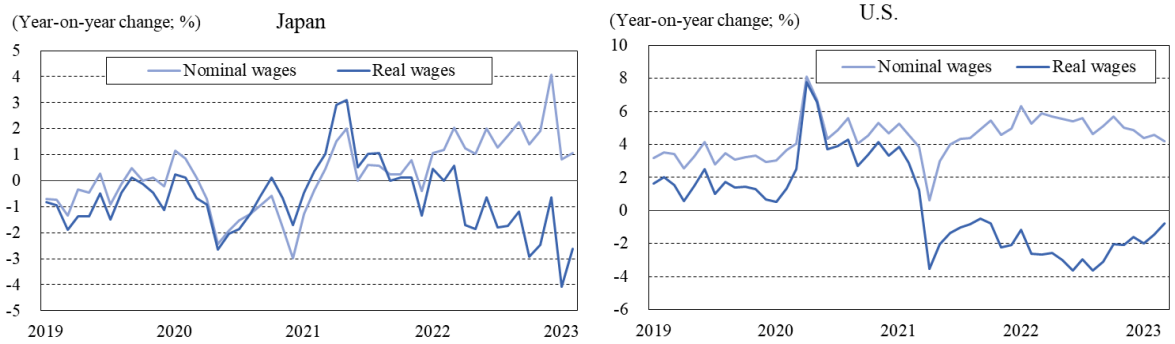
Figure I-1-3-11. Constraining factors for the manufacturing sector in Europe

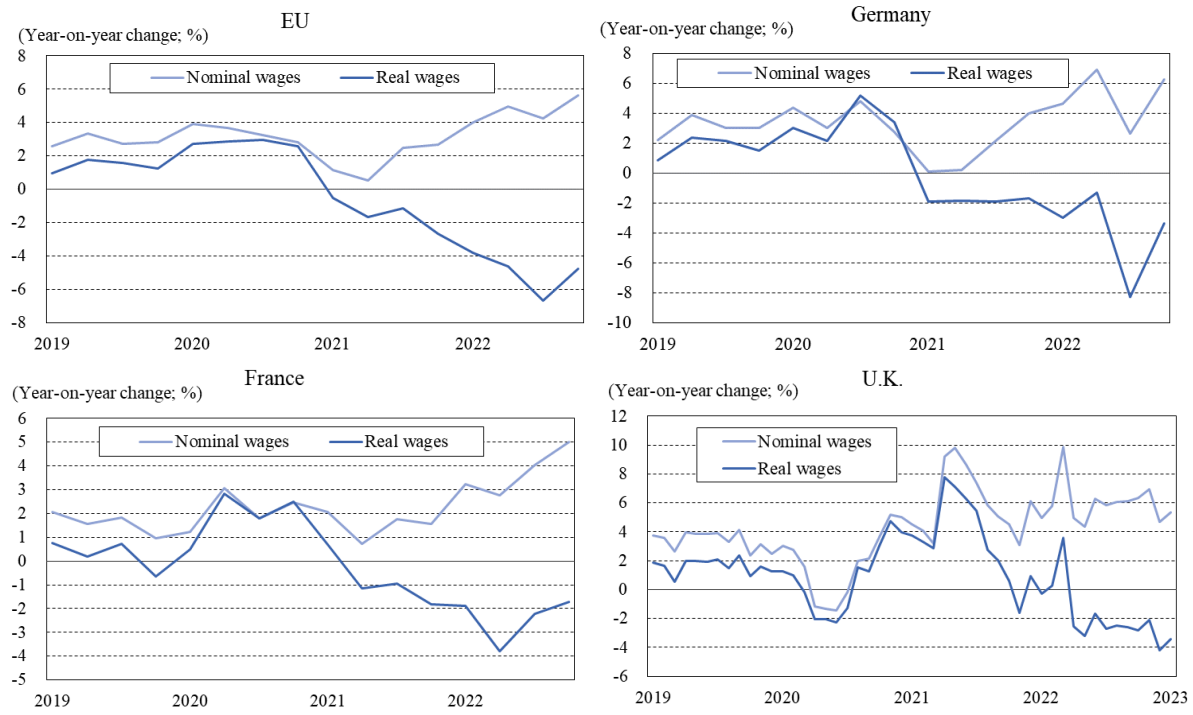


Note: Multiple answers possible.
Source: Eurostat, CEIC.

A labor shortage not only causes a supply shortage regarding goods and services relative to demand but also exerts upward pressure on wages, so it could accelerate inflation. If we look at the trends in the growth rates of nominal wages and real wages in developed economies while taking into consideration the inflation rate, we can see that the growth rate of real wages has remained negative in all those economies (Figure I-1-3-12).

Figure I-1-3-12. Changes in growth rates of nominal wages and real wages in developed countries





Note 1: The data in these figures for Japan, the U.S., and the U.K. are monthly data on nominal and real wages.

Note 2: The data in these figures for the EU, Germany and France are quarterly data calculated based on the seasonally adjusted labor cost indices adjusted by the number of working days and the year-on-year change in the consumer price indices (HICP).

Source: *Monthly Labour Survey* (MHLW), U.S. Department of Labor, Eurostat, ONS, CEIC.

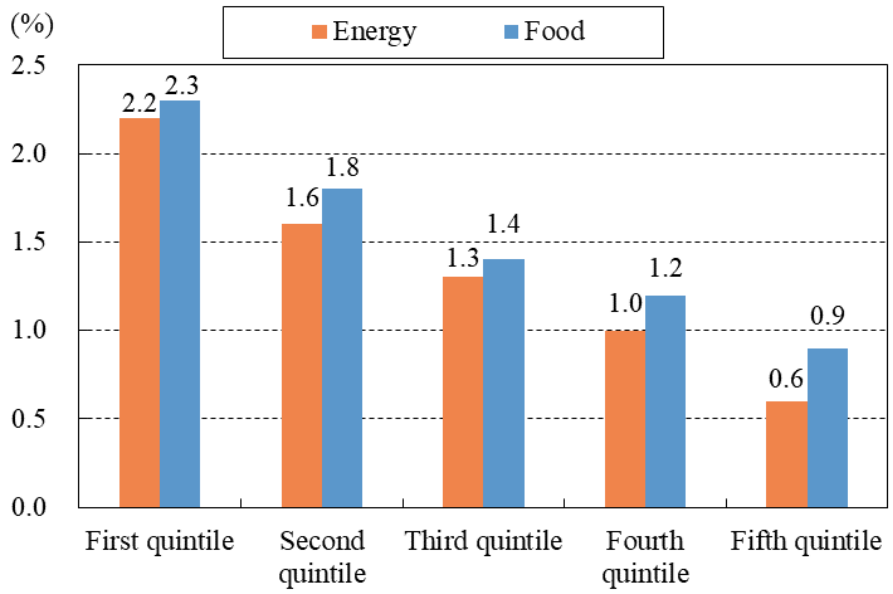
Before the COVID-19 crisis, nominal wages rose at a higher rate than the rate of increase in the CPI in many countries, and as a result, the growth rate of real wages remained positive. Although the negative growth in real wages is gradually improving in the United States due to the peaking of inflation, the growth rate of nominal wages has remained high, indicating the presence of a labor shortage. In the EU countries and the United Kingdom, real wages have continued to register high rates of decline because the growth rate of nominal wages is rising and also because the inflation rate has remined high.

(3) Countermeasures taken against inflation in developed economies

On the abovementioned situation of inflation, the IMF argued that broad-based fiscal relief measures introduced in order to counter inflation should be withdrawn and recommended that fiscal support should be targeted at those most affected by elevated food and energy prices.[13] Looking at the increase in the cost burden related to energy and food by income bracket (quintile) in Japan, the rate of increase in the burden is higher for households in lower income brackets (Figure I-1-3-13).

[13] IMF *WEO* (https://www.imf.org/ja/Publications/WEO/Issues/2023/01/31/world-economic-outlook-update-january-2023).

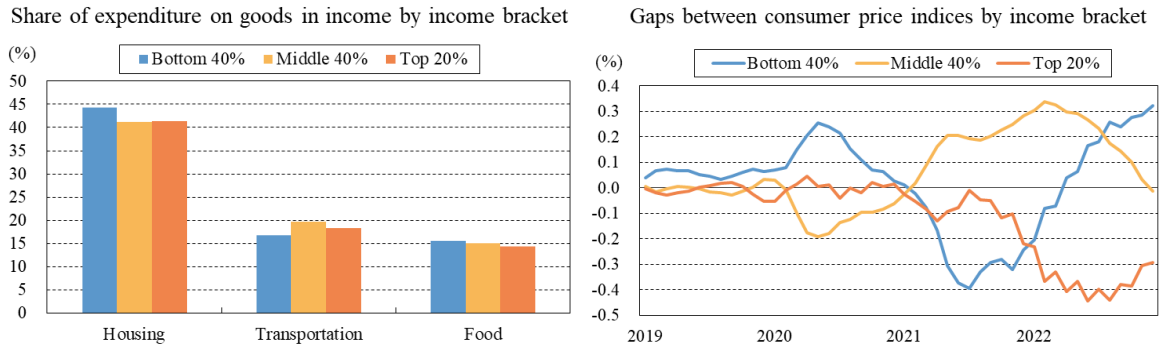
Figure I-1-3-13. Increase in the cost burden related to energy and food from 2019 average in Japan (% in income)



Note 1: The figure shows the data as of January 2023 and annual equivalent.
Note 2: Each quintile shows the households of two or more persons. Average annual income is 2.56 million yen for the first quintile, 3.87 million yen for the second quintile, 5.32 million yen for the third quintile, 7.21 million yen for the fourth quintile, and 11.93 million yen for the fifth quintile.
Source: *Consumer Price Index, Family Income and Expenditure Survey* (MIC) based on the information shown at the 8th meeting of the Headquarters for Comprehensive Measures on Prices, Wages, and Livelihoods

In the United States, the effects of inflation on housing and transportation as well as on food are analyzed by income bracket (Figure I-1-3-14).[14]

Figure I-1-3-14. Gaps between the shares of expenditures on goods by income bracket and the inflation rate by income bracket (U.S.)



Note: According to the Federal Reserve Bank of New York, income levels in the above analysis are generally as follows: income of $50,000 or less for the bottom 40%, income between $50,000 and $150,000 for the middle 40%, and income of$150,000 or more for the top 20%.

[14] Federal Reserve Bank of New York, "Inflation Disparities by Race and Income Narrow" (https://libertystreeteconomics.newyorkfed.org/2023/01/inflation-disparities-by-race-and-income-narrow/).

Source: U.S. Department of Labor, Federal Reserve Bank of New York.

First, regarding the shares of expenditures on goods by income bracket, the share for low-income households is the largest with respect to expenditure on housing and food. On the other hand, with respect to transportation-related expenditure, the share for middle-income households is the largest. As a result, in 2021-2022, when inflation was rising, mainly because of energy price increases, the inflation rate for middle-income households was higher than the overall inflation rate, which means that those households were most affected by inflation. Meanwhile, as mentioned earlier, now that energy price rises have subsided, low-income households have recently been most affected by inflation.

The table below shows the major countermeasures taken by developed countries in light of the abovementioned situation (Table I-1-3-15).

Table I-1-3-15. Countermeasures for consumers taken against inflation in major countries

Country	Packages	Details
Germany	Package III: Measures to address rising energy prices Total amount: 65 billion euros (about 9.1 trillion yen) Economic defense against the impact of Russia's aggression Total amount: 200 billion euros (about 28 trillion yen) [Published in September 2022] Note: The data in the right column show major measures.	[Electricity and gas price brake] Period: From January 2023 to April 2024 (Note: The brake was applied to the gas price from March 2023.) Target: All households (including SMEs) Subsidy amount for households: 40 cents (about 58 yen) per kilowatt hour for electricity and 12 cents (about 17 yen) per kilowatt hour for gas, up to 80% of the previous year's consumption. Note: Subsidy amount for industries: 13 cents (about 18 yen) per kilowatt hour for electricity and 7 cents (about 10 yen) per kilowatt hour for gas, up to 70% of the previous year's consumption. [Subsidy amount of heating expenses] (lump sum) Period: From September 2022 Target: Recipients of housing allowances Subsidy amount: 415 euros (about 58,000 yen) for a single person household and 540 euros (about 75,000 yen) for a two-person household Note: The subsidy increases by 100 euros (about 14,000 yen) for each additional person.

Country	Packages	Details
U.K.	Living expense support package Total amount: 16.7 billion pounds (about 2.8 trillion yen) [Published in May 2022] Other living expenses support measures Total amount: 11.3 billion pounds (about 1.9 trillion yen) [Published in September 2022] Energy price guarantee Total amount: 37.6 billion pounds (about 6.3 trillion yen) [Published in September 2022] Note: The data on each amount is based on the *Mid-Term Financial Plan* (published in November), showing the total amount in FY2022 and FY2023.	[Support for households in addressing energy price hikes] Conducted only once in 2022 Period: From October 2022 Target: All households Discount amount: 400 pounds (about 66,000 yen) [Other living expense support] Conducted only once in 2023 Target: Low-income households: 900 pounds (about 150,000 yen) Pensioner households: 300 pounds (about 50,000 yen) Disability allowances: Increase by 150 pounds (about 25,000 yen) [Setting the upper limit to energy prices for households] Period: For one and a half years from October 1, 2022 Target: All households Effect: Savings of nearly 500 pounds (about 80,000 yen) per household in one year from April 1, 2023 to March 31, 2024. Note: These numerals are the result of dramatically controlling the upper limit from the market trend. (The upper limit was originally scheduled to be raised from 1,971 pounds (about 330,000 yen) to 3,549 pounds (about 590,000 yen) from October.); Set values: Before March 31, 2023: 2,500 pounds per year (about 420,000 yen); From April 1, 2023, to March 31, 2024: 3,000 pounds per year (about 500,000 yen).
France	Policy package for supporting purchasing power Total amount: 20 billion euros (about 2.8 trillion yen) [Published in August 2022]	[Discount of fuel rates] Period: By the end of 2022 Discount amount: 0.3 euros (about 42 yen) from September to mid-November 0.1 euros (about 14 yen) from late November to December Note: Per liter of gasoline [Extension of gas price freeze] Period: By the end of 2022 Target: General households and small enterprises [Control of the growth rates of gas price] Period: From January 2023 Target: General households and small enterprises Effect: Control of the growth rates of prices (15%) [Control of the growth rates of electricity price] Period: By the end of January 2023 (4%) From February 2023 (15%) Target: General households and small enterprises

Country	Packages	Details
		[Inflation allowances] (lump sum) Period: From September 2022 Target: Households receiving public assistance, etc., and scholarship recipients (about 8 million households) Subsidy amount: 100 euros (about 14,000 yen) per adult, and 50 euros (about 7,000 yen) per child Note: These were provided for the purpose of subsidizing food expenses. [Heating allowances] (lump sum) Period: From November 2022 Target: About 1.6 million households (targeting past voucher users, which was expanded upon request) Subsidy amount: [i] 100 euros (about 14,000 yen) [ii] 200 euros (about 28,000 yen) Note: A voucher equivalent to the above amount was provided as a petroleum allowance, depending on the taxable income per household: [i] between 10,800 euros and 20,000 euros (between about 1.5 million yen and 2.8 million yen) and [ii] less than 10,800 euros (about 1.5 million yen). [Utility allowance] (provided once a year) Period: From December 2022 Target: [i] About 6 million households (low-income households) [ii] About 6 million households (households at the high poverty level, in particular) Note: The total number of these households accounts for 40% of all households. Subsidy amount: [i] 100 euros (about 14,000 yen) [ii] 200 euros (about 28,000 yen)
U.S.	Unique efforts by each state [Published in August 2022]	In case of the State of California: [Tax refunds to the middle and lower classes] Period: From October 2022 Target: Middle and lower classes Subsidy amount: Up to 3.50 million dollars (about 48,000 yen) (for a single household)

Japan	- Total amount of 6.2 trillion yen (national expenditure) under the "Comprehensive Emergency Measures to Address Soaring Crude Oil and Commodity Prices and Related Matters" during the COVID-19 pandemic [Published in April 2022] - Total amount of 39.0 trillion yen (including the national expenditure of 35.6 trillion yen) under the Comprehensive Economic Measures to Overcome Rising Prices and Realize Economic Revival [Published in October 2022] - Note: In addition to the measures above, Japan has taken a series of measures under the FY2022 reserve funds.	[Emergency Support Subsidy for Addressing Surging Electricity, Gas, Food, and Other Prices] (Cabinet Office) Target: Low-income households (households exempt from inhabitants taxation) Subsidy amount: 50,000 yen per household [Subsidy to Local Governments for Focusing on Addressing Surging Electricity, Gas, Food, and Other Prices] (Cabinet Office) Period: From April 2022 Target: Citizens and businesses [Special Subsidy for Supporting Low-Income Households Raising a Child or Children] (Children and Families Agency) Target: Low-income households raising a child or children* (*Note: Single-parent households receiving child-support allowance, households raising a child or children who are exempt from residential taxation, households whose income has recently decreased, etc.) Subsidy amount: 50,000 yen per child [Project for Measures to Mitigate Dramatic Changes in Electricity and Gas Prices] (METI) Period: Discounts started from a bill for January 2023. Unit price for discount: (1) Electricity: [i] Low-voltage contract: 7 yen/kWh (3.5 yen/kWh in September), [ii] High-voltage contract: 3.5 yen/kWh (1.8 yen/kWh in September); (2) City gas: 30 yen/m^3 (15 yen/m^3 in September); Note: The discount applies to households and companies with annual contract volume less than 10 million m^3. [Project for Measures to Mitigate Dramatic Changes in Fuel Oil Prices] (METI) Period: From January 2022 Subsidy amount: Price control of gasoline, diesel, kerosene, heavy fuel oil, and aircraft fuel (for gasoline prices, the unit price for provision is up to 41.4 yen and is 14.1 yen from May 11 to May 17, 2023). [Project for Measures to Further Enhance Efficient Use of Electricity (Project for Promoting Programs for Electricity Saving)] (METI) Period: From December 2022 to March 2023 Subsidy amount: 1. Support for program registration Low-voltage contract: Privileges equivalent to 2,000 yen granted; high-voltage contract: Privileges equivalent to 200,000 yen granted 2. Support for implementation Note: The program will add the privileges provided by the government to the privileges and premium points provided by the electricity companies.

Country	Packages	Details
		(1) Monthly Type (kWh) Program: If a consumer reduces a certain amount of electricity compared to the same month of the previous year, the consumer will receive additional privileges: privileges equivalent to 1,000 yen per month for low-voltage contract; and privileges equivalent to 20,000 yen per month for high-voltage/special high-voltage contract. (2) Designated-time type (kW) program: A consumer will receive the same additional privileges as mentioned above up to 40 yen/kWh during the issuance of a warning or an alert for the tightening of the supply-demand balance, and up to 20 yen/kWh during other time periods.

Note: The data as of May 15, 2023.
Source: *World Economic Trends 2022 II*, *Comprehensive Economic Measures to Overcome Rising Prices and Realize Economic Revival*, etc. (CAO).

As described above, amid rising global inflation, governments have taken fiscal measures targeted at low-income households, which are struggling with inflation, while central banks are accelerating monetary tightening in order to contain inflation. The next section will describe in detail the acceleration of monetary tightening by central banks. Meanwhile, the next chapter will point out the importance of increasing supply capacity in the medium to long term given that the ongoing inflation is attributable in large part to supply shortages.

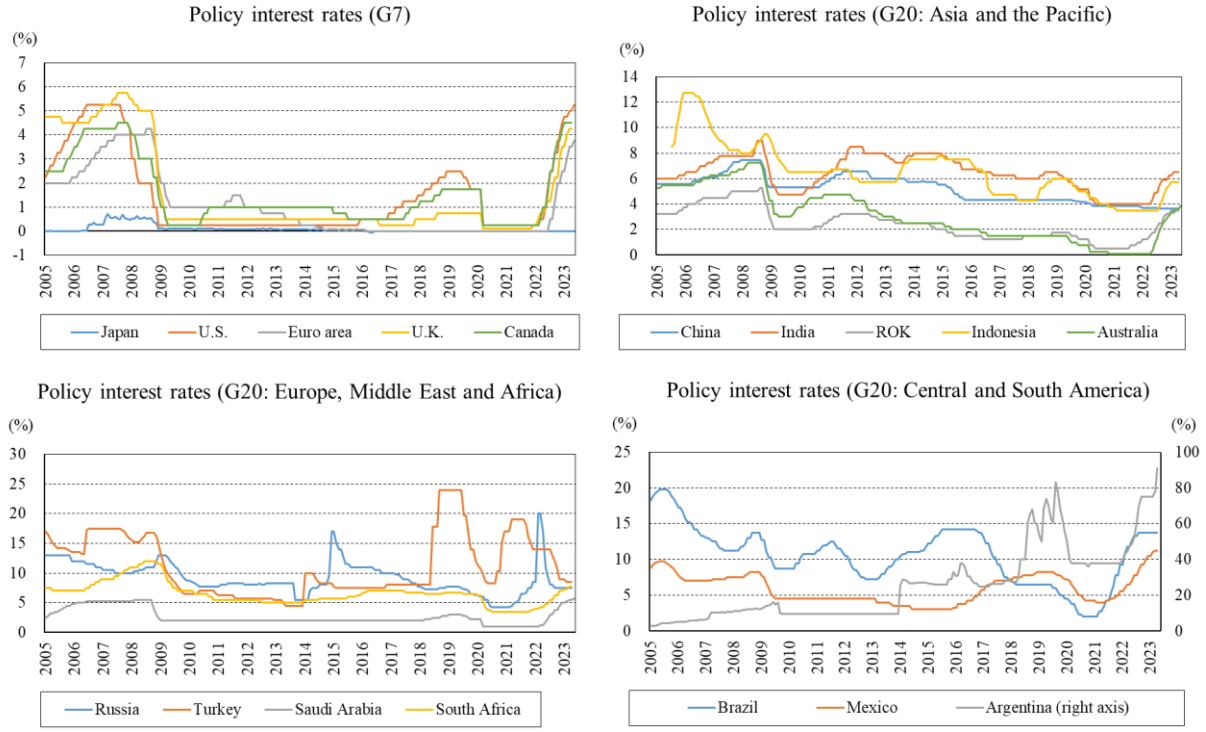
2. Acceleration of monetary tightening

(1) Central banks focusing on containing inflation

The previous subsection looked at the rising global inflationary pressures in detail. This subsection will look at what economic effects inflationary pressures could have.

To counter the rising global inflation, central banks in countries and regions across the world have taken swift actions amidst the lingering economic effects of the COVID-19 pandemic. The figure below (Figure I-1-3-16) shows policy interest rates set by the central banks of the G20 countries and regions. According to this figure, most central banks, represented by the U.S. Federal Reserve Board (FRB), have been raising policy interest rates at a rapid pace and by large margins, since around the middle of 2022, when global inflationary pressures started to grow.

Figure I-1-3-16. Changes in policy interest rates in G20 countries and regions



Note: Some countries have discontinuous data since the interest rates referred as the policy rates changed during the period extracting the data.
Source: Refinitiv, BIS.

This policy response indicates that the central banks are demonstrating their position that containing inflation is important while being aware that monetary tightening could become a risk for the economy. Specifically, the table below (Table I-1-3-17) shows the economic projections for the abovementioned countries and regions published by the central banks. The projection of the growth rate of real GDP for 2022 has continually been revised downward for many countries and regions because of the impact of the turmoil caused by Russia's aggression against Ukraine, but the projection of the inflation rate has continually revised upward. Although the rise in the inflation rate is expected to run its course in 2023, the growth rate of real GDP is generally projected to be sluggish due to the effects of elevated prices and large-scale monetary tightening. As described above, the central banks have been implementing monetary tightening in order to contain inflation while expecting a slowdown in the economic growth rate.

Table I-1-3-17. Changes in economic projections in G20 countries and regions

Countries and regions	Target of projection	Indicator	Oct. 2021	Nov. 2021	Dec. 2021	Jan. 2022	Feb. 2022	Mar. 2022	Apr. 2022	May 2022	Jun. 2022	Jul. 2022	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	Results
Japan	FY2022	Real GDP				3.8			2.9			2.4			2.0			1.9			1.2	1.2
		Consumer price, excluding fresh food				1.1			1.9			2.3			2.9			3.0				3.0
	FY2023	Real GDP				1.1			1.9			2.0			1.9			1.7			1.4	
		Consumer price, excluding fresh food				1.1			1.1			1.4			1.6			1.6			1.8	
U.S.	2022	Real GDP			4.0			2.8			1.7			0.2			0.5					2.1
		Personal consumption deflator			2.6			4.3			5.2			5.4			5.6					6.3
		Personal consumption deflator, excluding food and energy			2.7			4.1			4.3			4.5			4.8					5.0
	2023	Real GDP			2.2			2.2			1.7			1.2			0.5			0.4		
		Personal consumption deflator			2.3			2.7			2.6			2.8			3.1			3.3		
		Personal consumption deflator, excluding food and energy			2.3			2.6			2.7			3.1			3.5			3.6		
Euro area	2022	Real GDP			4.2			3.7			2.8			3.1			3.4			3.6		3.5
		Consumer price			3.2			5.1			6.8			8.1			8.4					8.4
		Consumer price, excluding food and energy			1.9			2.6			3.3			3.9			3.9					3.9
	2023	Real GDP			2.9			2.8			2.1			0.9			0.5			1.0		
		Consumer price indices			1.8			2.1			3.5			5.5			6.3			5.3		
		Consumer price, excluding food and energy			1.7			1.8			2.8			3.4			4.2			4.6		
U.K.	2022	Real GDP		5.00			3.75			3.75			3.50			4.25			4.00			4.10
		Consumer price		3.50			5.75			10.25			13.00			10.75			10.75			10.75
	2023	Real GDP		1.50			1.25			-0.25			-1.50			-1.50			-1.50			
		Consumer price		2.25			2.50			3.50			5.50			5.25			4.00			
Canada	2022	Real GDP				4.0			4.2			3.5			3.3			3.6			3.4	3.7
		Consumer price				4.2			5.3			7.2			6.9			6.8			6.8	6.8
	2023	Real GDP				3.5			3.2			1.8			0.9			1.0			1.4	
		Consumer price				2.3			2.8			4.6			4.1			3.6			3.5	
India	FY2022	Real GDP	7.8						7.2					7.0								7.0
		Consumer price	4.5						5.1					5.8								6.2
	FY2023	Real GDP							6.3					6.5							6.5	
		Consumer price							5.5					5.2							5.2	
ROK	2022	Real GDP		3.0			3.0			2.7			2.6			2.6						2.6
		Consumer price		2.0			3.1			4.5			5.2			5.1						5.1
		Consumer price, excluding food and energy		1.8			2.6			3.2			3.6			3.6						3.6
	2023	Real GDP		2.5			2.5			2.4			2.1			1.7			1.6			
		Consumer price indices		1.7			2.0			2.9			3.7			3.6			3.5			
		Consumer price, excluding food and energy		1.6			2.0			2.6			3.1			2.9			3.0			
Australia	2022	Real GDP		5.00			5.50			4.50			4.00			4.00			3.75			3.6
		Consumer price		2.25			3.25			6.00			7.75			8.00						7.8
		Trimmed mean inflation rate		2.25			2.75			4.75			6.00			6.50						6.9
	2023	Real GDP		3.00			2.50			2.75			2.25			2.00			2.25			
		Consumer price		2.50			2.75			3.25			4.25			4.75			4.75			
		Trimmed mean inflation rate		2.50			2.75			3.25			3.75			3.75			4.25			
Russia	2022	Real GDP	2.4		2.4		2.4	-8.0	-9.2		-7.5	-6.0		-4.2	-3.5		-2.9		-2.5			-2.1
		Consumer price	4.2		4.8		5.5	20.0	22.0		17.0	15.0		12.9	12.5		12.3					11.9
	2023	Real GDP	2.2		2.0		2.1	1.0	0.0		0.0	-1.3		-1.8	-2.1		-2.4		-1.5	-1.1	-0.1	
		Consumer price	4.0		4.0		4.0	8.0	7.6		6.7	6.1		6.0	6.0		5.8		6.0	6.0	5.9	

Countries and regions	Target of projection	Indicator	Oct. 2021	Nov. 2021	Dec. 2021	Jan. 2022	Feb. 2022	Mar. 2022	Apr. 2022	May 2022	Jun. 2022	Jul. 2022	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	Results
Turkey	2022	Real GDP	3.3						2.7						5.0							5.6
		Consumer price	11.8			23.2			42.8			60.4			65.2							64.3
	2023	Real GDP	3.3						3.0						3.0						2.7	
		Consumer price	7.0			8.2			12.9			19.2			22.3			22.3				
Brazil	2022	Real GDP			1.0			1.0			1.7			2.7			2.9					2.9
		Consumer price			4.7			6.3			8.8			5.8			6.0					5.8
	2023	Real GDP												1.0			1.0			1.2		
		Consumer price			3.2			3.1			4.0			4.6			5.0			5.8		
Mexico	2022	Real GDP			3.2			2.4			2.2			2.2		3.0						3.1
		Consumer price			3.3			4.0			6.4			8.1		8.3						8.0
		Consumer price, excluding agricultural products, energy, and utility			3.5			4.3			5.9			7.6		8.3						8.4
	2023	Real GDP			2.7			2.9			2.4			1.6		1.8				1.6		
		Consumer price						3.1			3.2			3.2		4.1				4.9		
		Consumer price, excluding agricultural products, energy, and utility						2.7			3.1			3.2		4.1				5.0		
South Africa	2022	Real GDP				1.7		2.0		1.7		2.0		1.9		1.8		2.5				2.0
		Consumer price				4.9		5.8		5.9		6.5		6.5		6.7		6.9				6.9
		Consumer price, excluding food and energy				3.8		4.2		3.9		4.3		4.3		4.3		4.3				4.3
	2023	Real GDP				1.8		1.9		1.9		1.3		1.4		1.1		0.3		0.2		
		Consumer price indices				4.5		4.6		5.0		5.7		5.3		5.4		5.4		6.0		
		Consumer price, excluding food and energy				4.4		5.0		5.1		5.6		5.4		5.5		5.2		5.1		

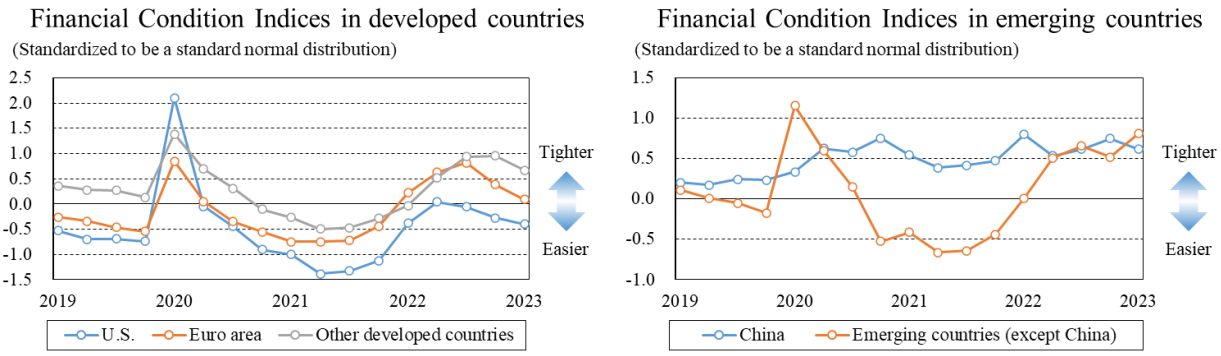
Note 1: The data on Turkey's real GDP projection is based on IMF.
Note 2: Data for Japan and India are extracted from those for the fiscal year (the period from April of the given year to March of the following year).
Note 3: The inflation forecasts and results for the U.K., India, Australia, Russia, Turkey, Brazil, and Mexico are values as of the fourth quarter of each year (or each fiscal year). The data for the U.K., India, and Mexico are quarterly average, while the data for other countries are the values at the end of the quarter.
Note 4: For the U.S. data, the real GDP forecasts and results are the values as of the fourth quarter, while the inflation forecasts and results are the average values of the fourth quarter.
Note 5: The results for 2022 (or FY2022) may be revised based on future revisions.

(2) Tightening of financial conditions and its various effects

As described above, the central banks have implemented monetary tightening measures in order to contain inflation. What economic effects could those measures have?

The central banks' monetary policies have critical effects on whether financial conditions are easy or tight except in emergencies, such as the global financial crisis and the COVID-19 pandemic. The figure below (Figure I-1-3-18) shows changes in the Financial Conditions Index, which provides an overall picture of the national and regional financial conditions based on various financial indicators. The larger the value of this index, the tighter the financial conditions, and the smaller the value of the index, the easier the financial conditions. In 2022, when the central banks started earnest monetary tightening, the Financial Conditions Index rose in developed countries in the first half, while the rise in the index became conspicuous in emerging countries except for China. In short, the financial conditions became tight globally.

Figure I-1-3-18. Financial Conditions Indices in countries and regions

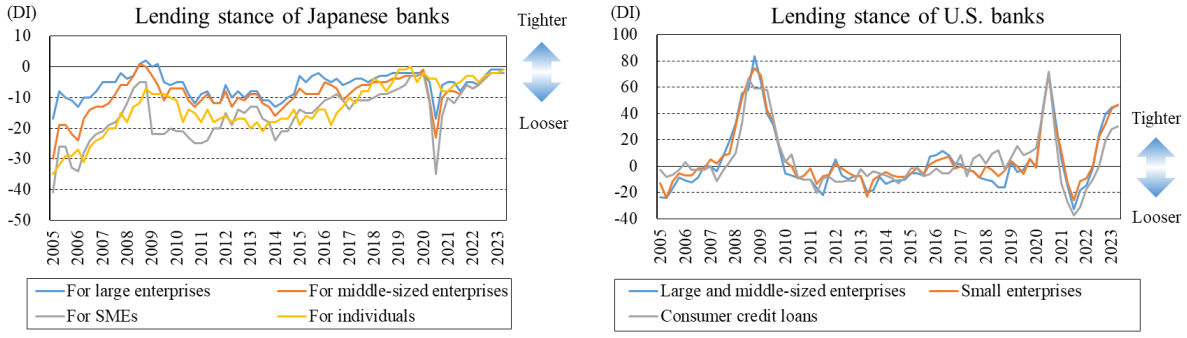


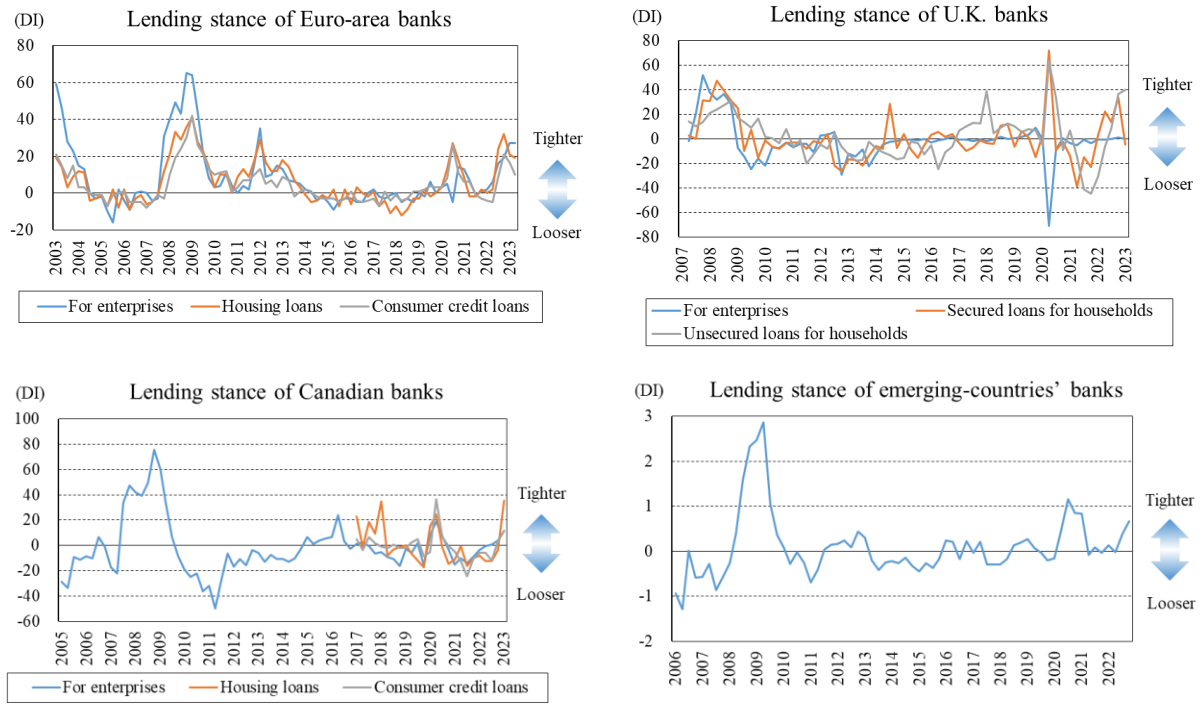
Note: The financial conditions indices use the data from 1996 onward. This is an index standardized to have a standard normal distribution (where the mean is 0 and the variance is 1). The following data are used in the calculation: real short-term interest rates, interbank interest rate spreads, term spreads, spreads of emerging-market government bond rates against the U.S. or Germany, spreads of emerging-market dollar-denominated government bonds against the U.S., spreads of emerging market corporate bonds against the U.S., spreads of emerging-market dollar-denominated corporate bonds against the U.S., price-to-book ratios of the stocks included in the stock indices, stock market volatility, exchange rates, and real house prices.

Source: *Global Financial Stability Report (April 2023)* (IMF).

One of the main channels through which a monetary policy change affects the real economy is financial institutions' provision of credit to companies and households. Generally, the effects of a policy interest rate hike by a central bank are transmitted to interest rates on financial institutions' lending rates to households and companies, resulting in an increase in profit margins on loans. On the other hand, an interest rate rise means an increase in the cost of repayment for borrowers, and that itself raises concerns over an economic slowdown and default. As a result, financial institutions may become cautious when making decisions on the provision of credit. On the whole, a rise in market interest rates caused by a policy interest rate hike may become a factor that could encourage financial institutions to either loosen or tighten their credit conditions. The results of surveys on bank loans conducted by central banks (Figure I-1-3-19) in light of the abovementioned effects show that, in the period since 2022, when policy interests have been raised globally, financial institutions' stance on lending has generally become cautious, suggesting that financial institutions are increasingly expecting that the rising policy interest rates will slow down the economy.

Figure I-1-3-19. Changes in banks' stance on lending in countries and regions

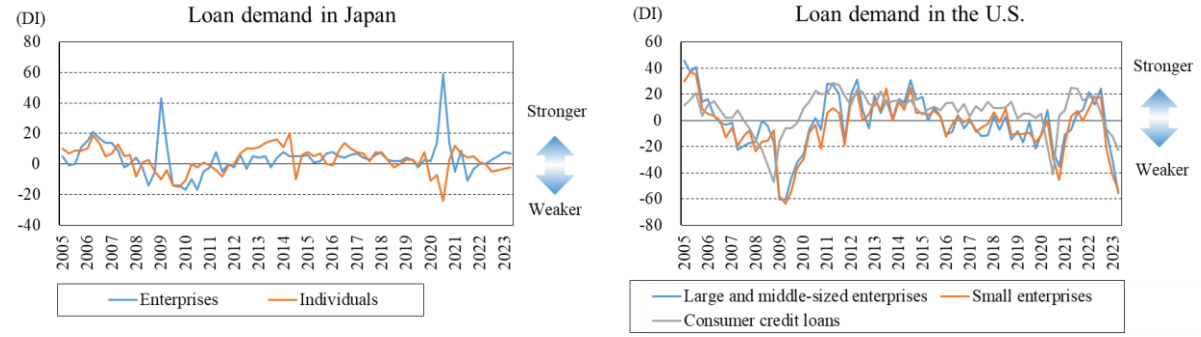


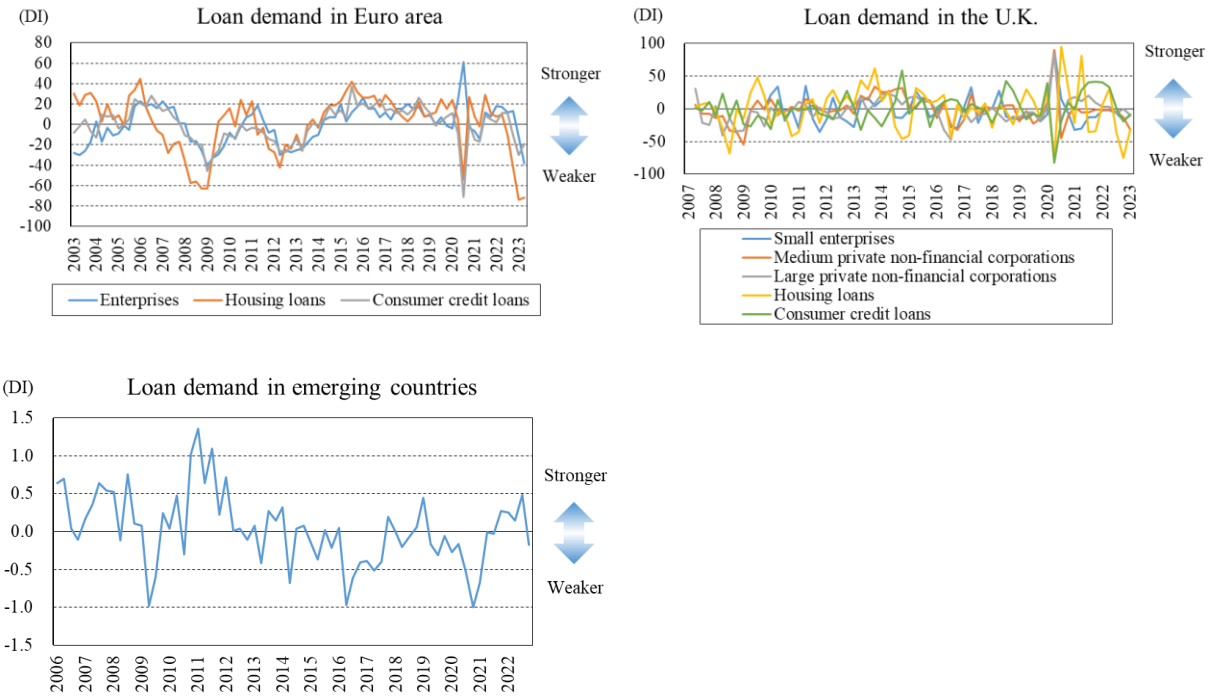


Source: Central banks for the data on developed countries and regions; *Global Financial Stability Report (April 2023)* (IMF) for the data on emerging countries.

At the same time, according to the results of the surveys on bank loans in countries and regions where the results on the demand side are published (Figure I-1-3-20), since the central banks' monetary tightening became conspicuous in particular, demand for loans, mainly from individuals, has generally declined. This finding suggests that if viewed from the standpoint of those who need funds, a rise in interest rates has become a factor that curbs demand for loans through an increase in the repayment burden.

Figure I-1-3-20. Changes in demand for loans in countries and regions

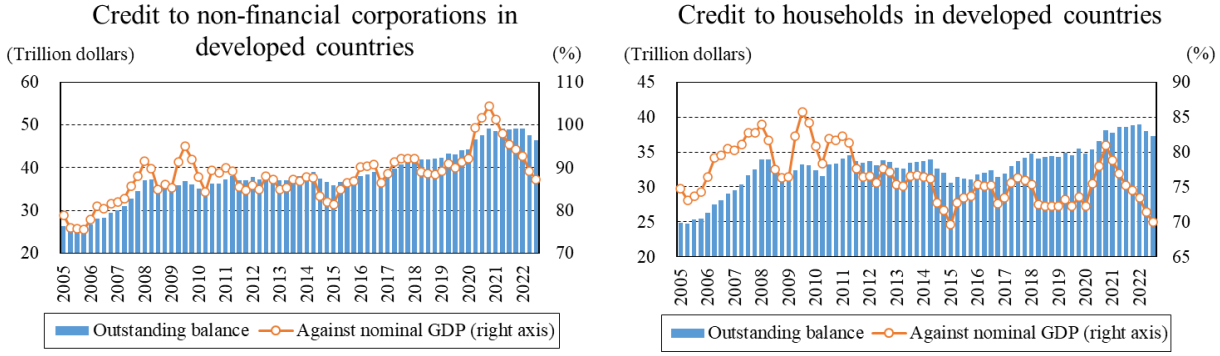


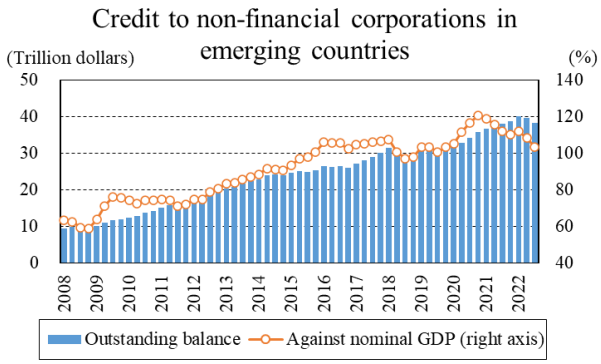


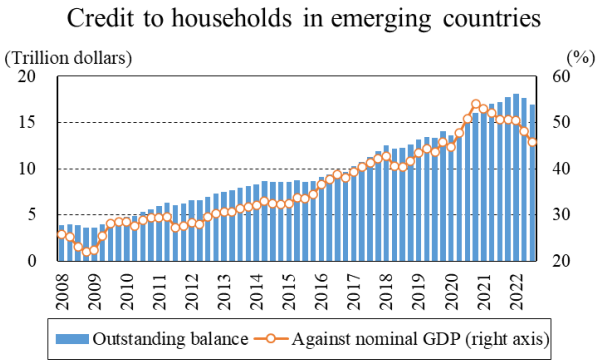
Source: Central banks for the data on developed countries and regions; *Global Financial Stability Report (April 2023)* (IMF) for the data on emerging countries.

Changes in the outstanding balance of credit provided to non-financial corporations and households in developed and emerging countries (Figure I-1-3-21) in light of the above results of the surveys on bank loans show that there has been no major change in the level of the outstanding balance although there have been significant changes in the outstanding balance relative to nominal GDP since 2020 due to the economic turmoil caused by the COVID-19 pandemic. This indicates that the current financial conditions are not leading to a credit crunch.

Figure I-1-3-21. Changes in the outstanding balance of credit to non-financial corporations and households



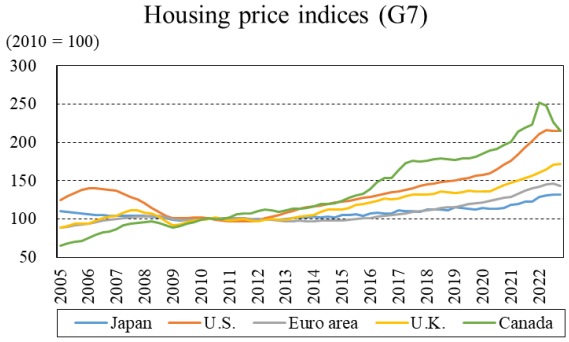


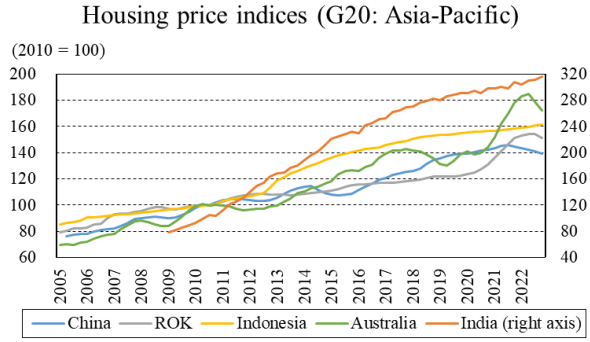


Source: BIS.

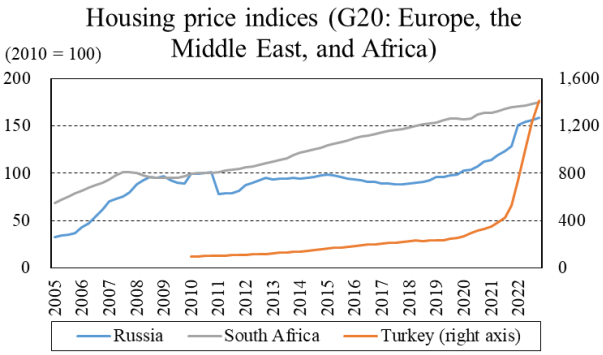
While concerns about the economic effects of a credit crunch are not overly high, particular attention should be paid to the trend in housing prices in relation to the increase in the outstanding balance of credit provided to households. Although the COVID-19 pandemic brought about global recession, monetary easing policy measures implemented by central banks and the promotion of telework may have pushed up housing prices.[15] As for the trend in housing prices (Figure I-1-3-22), in 2020, when the COVID-19 crisis deepened and recession became pronounced, housing prices rose, a trend that continued in 2021. As a result of increased inflationary pressures, in 2022, interest rates rose because of monetary tightening by the central banks, but housing prices continued to rise moderately in the G20 countries and regions, except for some countries, such as Canada, China, and Australia. However, as mentioned above, interest rate rises due to monetary tightening have reduced loan demand from households, and this may start to affect housing prices with a time lag. A steep fall in the prices of houses, which are physical assets, could become a factor that causes the balance sheets of households to deteriorate through an increase in real loan value. At present, there appears to be no need for immediate concern, but attention should be paid to the effects of monetary tightening on housing prices.

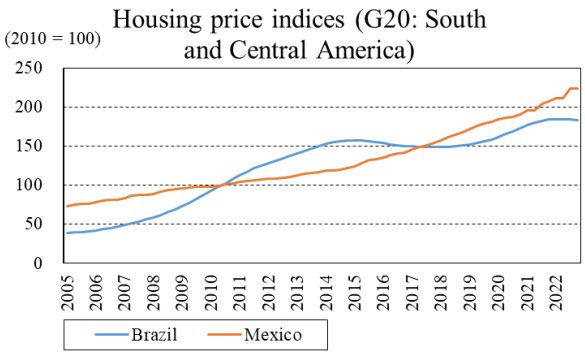
Figure I-1-3-22. Housing prices in G20 countries and regions





[15] Ministry of Economy, Trade and Industry (2022), *White Paper on International Trade and Economy 2022.*



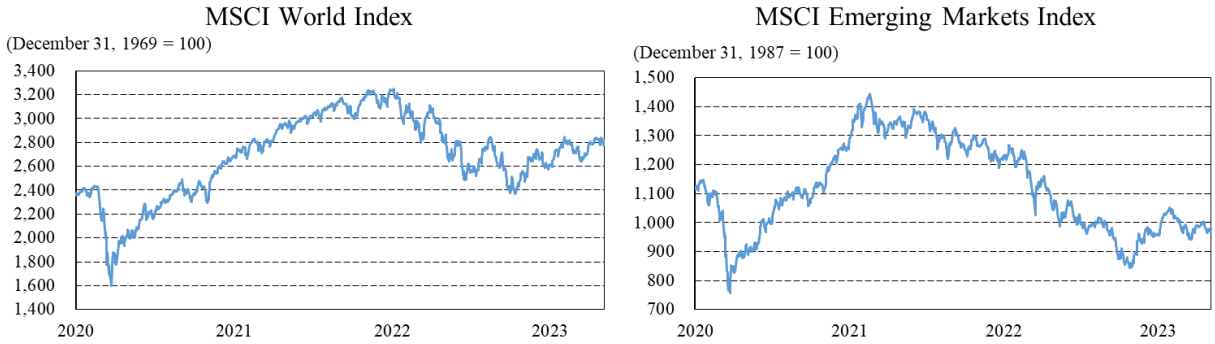


Source: BIS.

Furthermore, a monetary policy change affects companies' borrowing cost through a change in policy interest rates, so its impact on the stock market, which reflects corporate earnings and the market's view, is also important. Stock price volatility may affect personal consumption by changing the outstanding balance of financial assets held by households, a phenomenon known as the wealth effect, which is considered to be one of the transmission channels of monetary policy.

The figure below (Figure I-1-3-23) shows the MSCI World Index, which is a major indicator of stock market trends in developed countries, and the MSCI Emerging Markets Index, which is a major indicator of stock market trends in emerging countries. The MSCI World Index started to fall markedly in early 2022, reflecting rapid and steep policy interest rate hikes in developed countries in particular, while the downtrend in the MSCI Emerging Markets Index, which started in 2021, continued until late 2022. There are concerns that those stock price declines may have a negative wealth effect, which pushes down personal consumption by reducing households' financial assets through falls in the value of direct investments in corporate stocks and the value of indirect investments made in the form of equity in investment trusts.

Figure I-1-3-23. Stock markets in developed and emerging countries

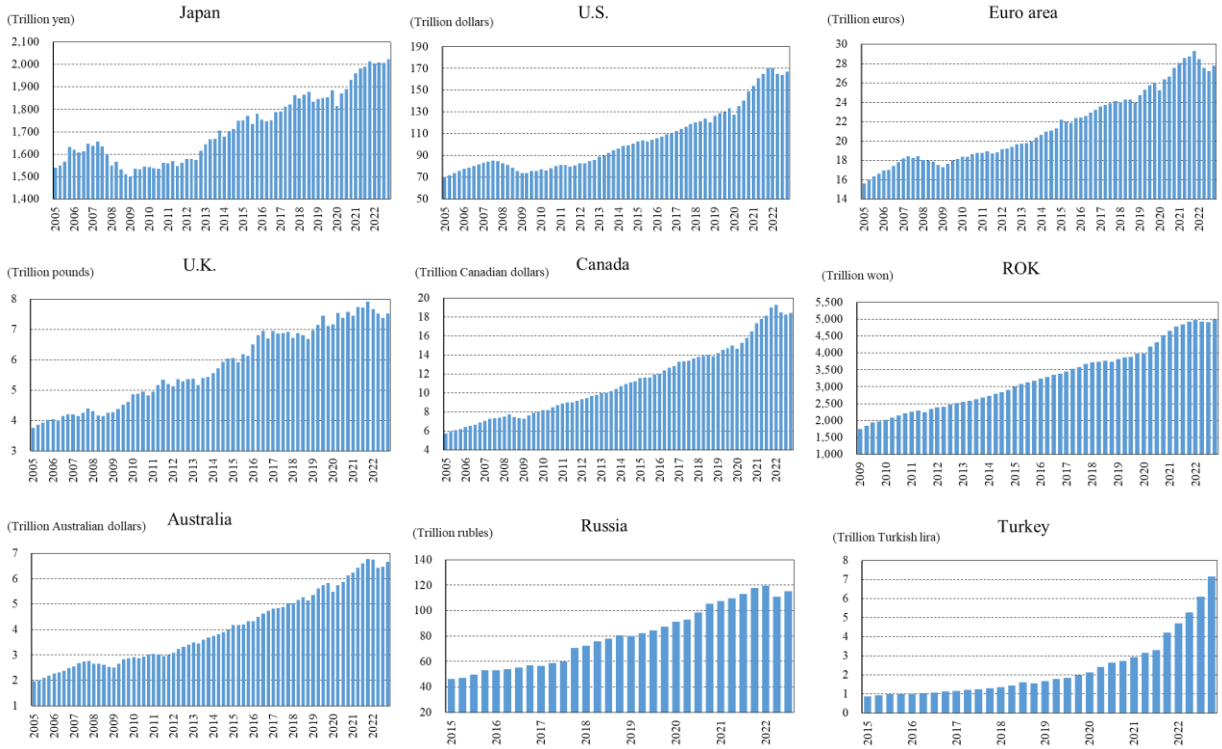


Source: Refinitiv.

Indeed, regarding the outstanding balance of financial assets held by households in countries and regions (Figure I-1-3-24), among developed countries, the outstanding balance of household financial assets in Japan, which has refrained from large-scale monetary tightening, has not shown any significant change, but in other countries and regions, a decline in the outstanding balance became pronounced in 2022. In emerging countries, the outstanding balance of household financial assets generally declined

in 2022 except in Turkey although data availability is limited compared with the case of developed countries. Attention should be paid to the possibility that the decline in household financial assets, combined with the deterioration of households' economic sentiment, may increase downward pressure on consumption.

Figure I-1-3-24. Outstanding balance of financial assets held by households in countries and regions



Source: Statistics on countries and regions stored in the CEIC.