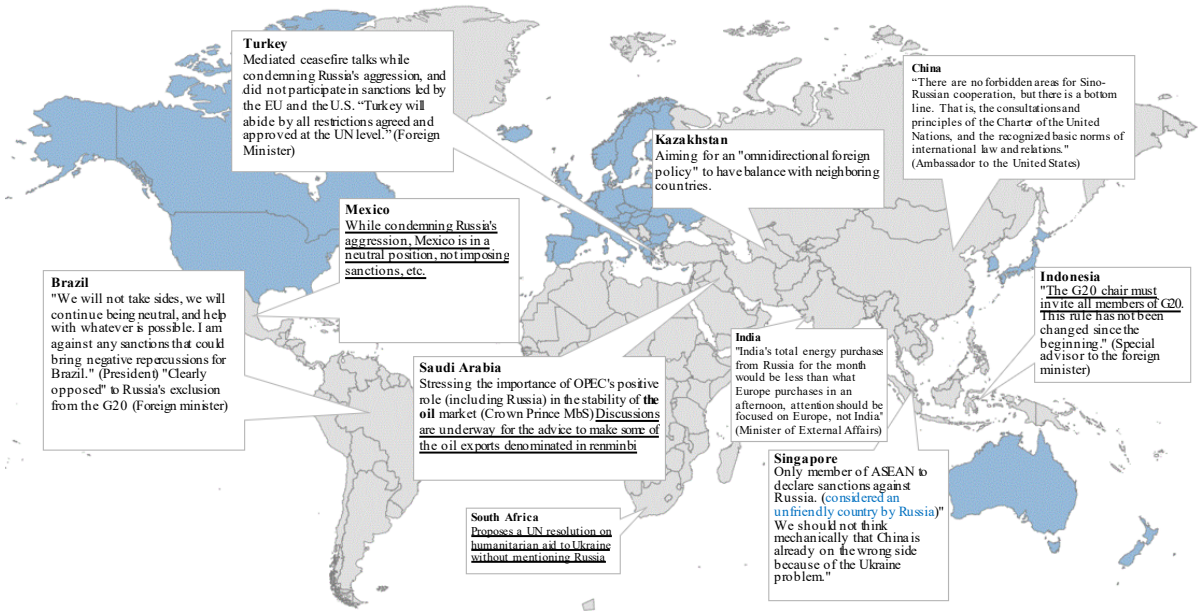
Chapter 1 Increasing Geopolitical Uncertainty and Economic Risks in Relation to the Global Economy

Section 1 The impact of Russia's aggression against Ukraine on the global economy

On February 24 2022, Russia commenced military aggression against Ukraine. The following day, Prime Minister Fumio Kishida declared Russia's actions to be an attempt to unilaterally change the status quo by force, an infringement of Ukraine's sovereignty and territorial integrity, and a blatant violation of international law. It was also stated that Japan condemned the aggression as an unacceptable act that would undermine the foundations of the international order, and that Japan would work closely with the G7 and the rest of the international community to strongly urge Russia to withdraw its troops immediately and abide by international law.

The G7 and other developed countries promptly responded to the situation by imposing unprecedentedly large-scale economic sanctions against Russia in the energy and many other sectors, and have been rapidly reviewing their economic and political relations. This has led to the highest level of concern over economic division since the end of the Cold War, and the resulting emphasis on national particularism and economic security will add impetus to the polarization in the international economy. The aggression may prove to be a historic turning point in the international economic order. In addition, many emerging and developing countries are reluctant to impose further economic sanctions or take other measures against Russia, preferring to adopt a neutral stance (Figure I-1-1-1). This section will look at what impacts this aggression could have on the world economy.

Figure I-1-1-1. Responses to Russia by various countries



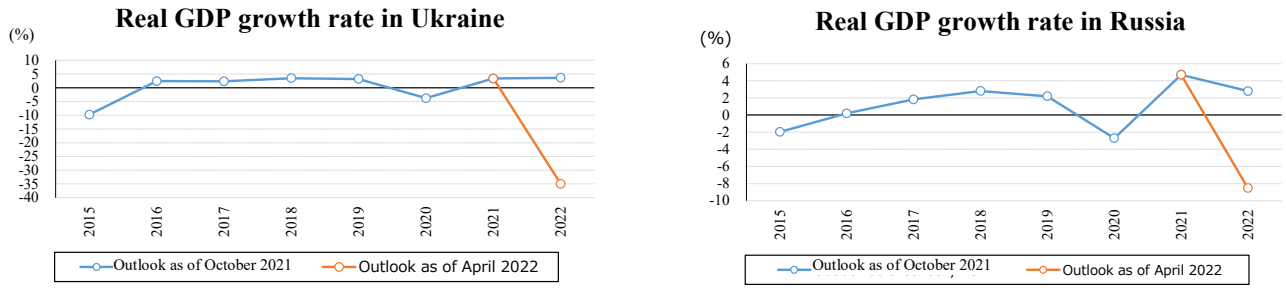
Note: Blue areas are countries and regions that have been designated as unfriendly by Russia (as of March 24, 2022)
Source: Various press materials.

1. Unrest in the world economy and the financial and commodity markets

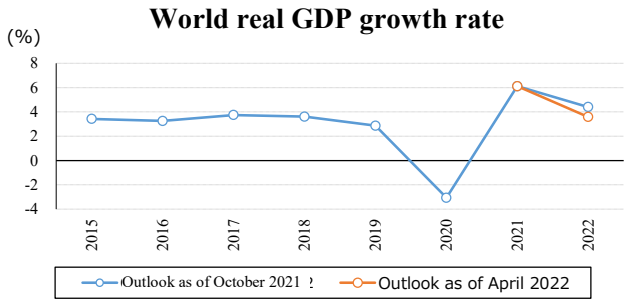
When Russia commenced its military aggression against Ukraine on February 24 2022, the initial reaction was significant disturbances in the financial and commodity markets. A report[1] released by the OECD in March stated that although Russia and Ukraine are not large as economies (according to the IMF, in terms of nominal GDP and global share, Russia ranked 11th in the world in 2021 with $1.8 trillion and 1.8%, and Ukraine ranked 54th with $0.2 trillion), their main exports are food, minerals, and energy resources. Consequently, the crisis is having a major impact on the world economy and financial markets by driving the commodity prices, with food and energy prices skyrocketing in particular. The report's analysis estimates that if Russia's aggression against Ukraine is not withdrawn soon, in its first year, the shock it causes to the financial and commodity markets will push the global real GDP growth rate down by 1.08 percentage points (pp), and the global consumer price inflation rate up by 2.47 pp. With its strong trade and investment ties with Russia, the eurozone real GDP growth rate is estimated to fall by 1.4 pp. The crisis is expected to push the Russian economy's growth rate down by more than 10 pp, and its inflation rate up by nearly 15 pp.

The IMF World Economic Outlook April 2022 takes a similar view to the OECD, predicting that Russia's aggression against Ukraine will severely shrink the latter's economy, create turmoil in the former's, cause prices to soar in the food, energy, and other commodity markets, and have financial impacts that will spread to the world economy. According to the IMF Outlook, Ukraine's real GDP is expected to shrink substantially in 2022, with a growth rate of -35.0%. Russia's is also expected to shrink with a growth rate of -8.5% due to the economic sanctions and other measures. The IMF has lowered the outlook for both countries significantly compared with the previous figures (3.6% as of October 2021 for Ukraine and 2.8% as of January 2022 for Russia). It has revised down the global real GDP growth rate forecast to 3.6%, 0.8 pp down from the 4.4% predicted in January 2022. It also foresees a major economic impact on countries not directly involved in the aggression and has revised down the eurozone's growth rate forecast from 3.9% to 2.8%—a substantial drop of 1.1 pp. A comparatively large impact is also predicted for Asia's emerging economies (Figure I-1-1-2).

Figure I-1-1-2. Real GDP growth rates for Ukraine, Russia, the world, the eurozone, and Asia's emerging regions



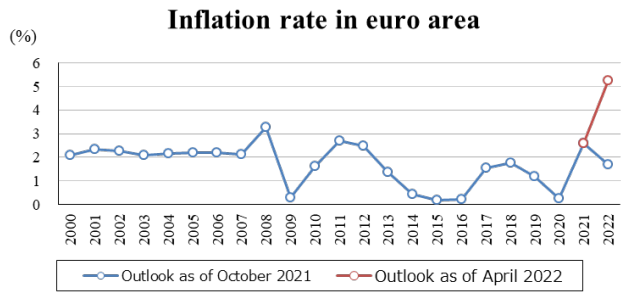
[1] *Economic and Social Impacts and Policy Implications of the War in Ukraine* (OECD)

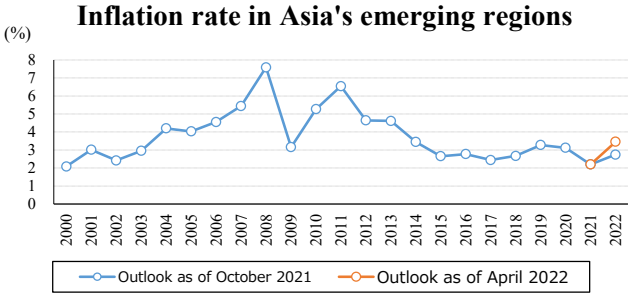


Note: Values for 2022 are predictions by the IMF.
Source: *World Economic Outlook Database* (IMF).

The IMF World Economic Outlook also predicts that inflation will rise to severe levels in 2022 (Figure I-1-1-3). (However, it has not released an outlook for Ukraine.) Specifically, Russia's inflation rate is expected to leap up from 6.7% in 2021 to 21.3% in 2022 compared to previous forecast of 4.8% as of October 2021, owing to rising resource prices and the disrupted supply of goods due to the economic sanctions and other measures. In addition, the world economy's inflation rate is predicted to rise from 4.7% in 2021 to 7.4% in 2022 compared to previous forecast of 3.8% as of October 2021, and the eurozone's to rise from 2.6% in 2021 to 5.3% in 2022 compared to previous forecast of 1.7% as of October 2021. The inflation rate of Asia's emerging regions is predicted to rise from 2.2% in 2021 to 3.5% in 2022 compared to previous forecast of 2.7% as of October 2021. The eurozone's inflation rate is therefore predicted to rise particularly significantly—as is to be expected given that many of its countries are heavily dependent on Russia for energy.

Figure I-1-1-3. Inflation rates in Russia, the world, the eurozone, and Asia's emerging regions





Note: Values for 2022 are predictions by the IMF.
Source: *World Economic Outlook Database* (IMF).

The World Bank and Russian authorities are also predicting a difficult economic outlook for Russia. The economic outlook released by the Central Bank of Russia in May 2022 predicts that the real GDP growth rate will be significantly negative in 2022 lying between -8.0% and -10.0%, and that the economic growth rate's recovery will be small in 2023 and 2024. In addition, it expects the inflation rate to rise significantly to between 18.0% and 23.0% in 2022 due to soaring commodity markets and disruption to the supply of goods within Russia caused by its aggression against Ukraine. It also predicts that inflation will remain high in 2023 and 2024 as well. The World Bank's April 2022 report predicts that Russia's real GDP growth rate in 2022 will be -11.2% (revised to -8.9% in the Global Economic Prospects report released in June 2022), and that its inflation rate will be 22.0%. Like the other outlooks therefore, it predicts a significant economic depression and soaring inflation (Table I-1-1-4).

Table I-1-1-4. Russia's economic outlook according to the Central Bank of Russia and the World Bank

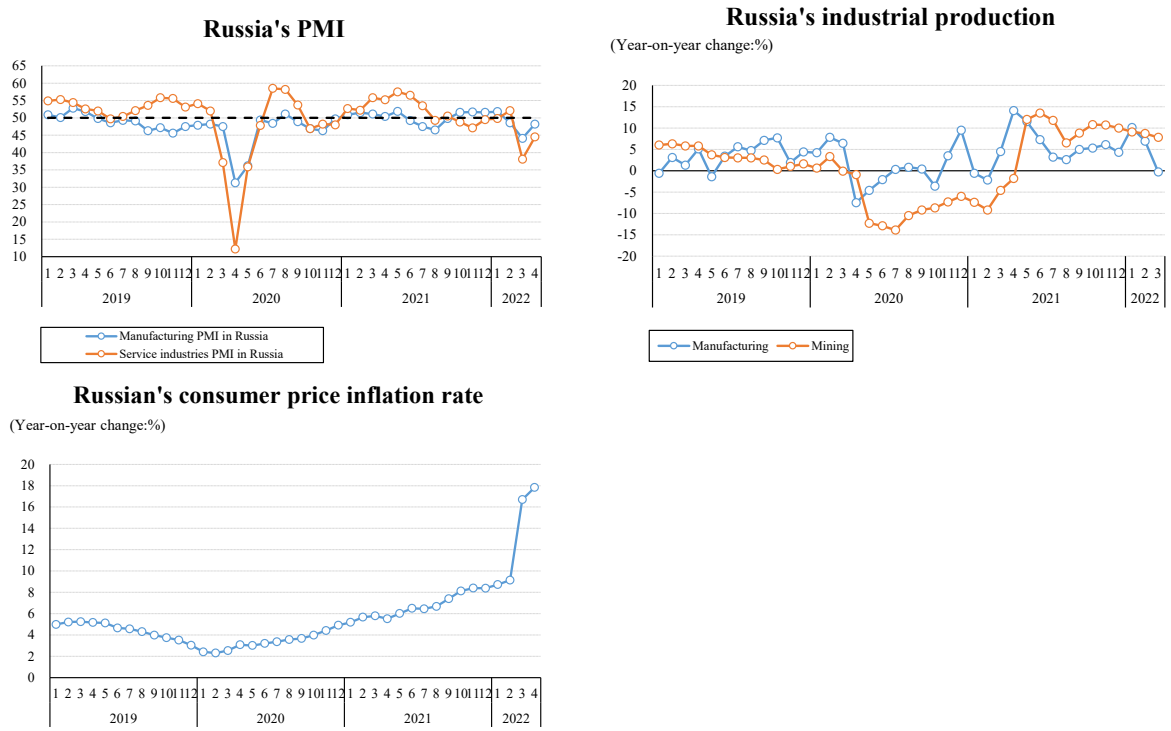
		2021 (Actual)	2022	2023	2024
Real GDP growth rate	Central Bank of Russia (As of May 2022)	4.7	-8.0 to -10.0	-3.0 to 0.0	2.5 to 3.5
	World Bank (As of April 2022)		-11.2	0.6	1.3
Inflation rate	Central Bank of Russia (As of May 2022)	8.4	18.0 to 23.0	5.0 to 7.0	4.0
	World Bank (As of April 2022)		22.0	13.0	8.0

Note: In the Global Economic Prospects report it released in June 2022, the World Bank has further revised its forecasts for Russia's real GDP growth to -8.9% for 2022, -2.0% for 2023, and 2.2% for 2024.
Source: Central Bank of Russia, *War in the Region* (World Bank).

Major indicators for the Russian economy have been consistent with the above difficult outlook, and the economic sanctions and other measures already appear to be having an effect (Figure I-1-1-5).

Specifically, the Purchasing Manager Index (PMI), which indicates the level of business confidence among Russian companies, was below the threshold value of 50 for April 2022. Likewise, manufacturing production for March was down -0.3% year on year. Furthermore, the consumer price index for April was up 17.8% year on year, hinting at the effects of the soaring commodity markets and disrupted supply of goods.

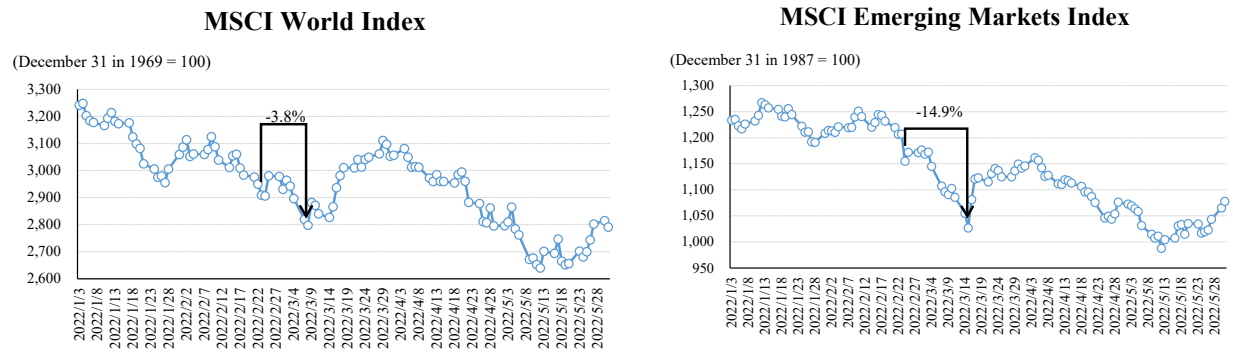
Figure I-1-1-5. Russia's PMI, industrial production, and consumer price index (CPI)



Source: Data belonging to the S&P Global PMI and the Russian Federal State Statistics Service, obtained from CEIC.

Looking at the financial and commodity market trends, MSCI's world index, which includes shares of developed countries and emerging market index fell by -3.8% (as of March 8, 2022) and -14.9% (as of March 15) respectively compared with their values immediately before Russia's aggression against Ukraine (February 23). Share prices in emerging countries therefore fell particularly sharply (Figure I-1-1-6). The indices are expected to remain unstable while the conflict continues.

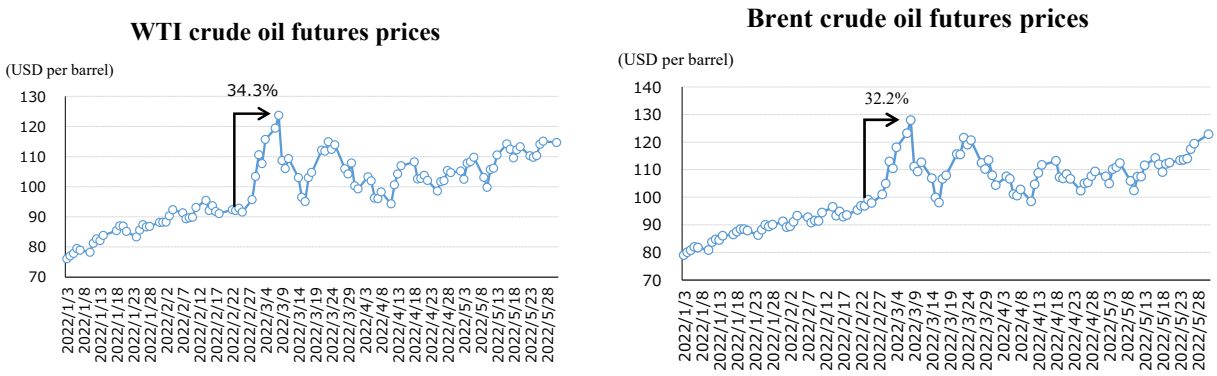
Figure I-1-1-6. Financial markets since Russia's aggression against Ukraine began

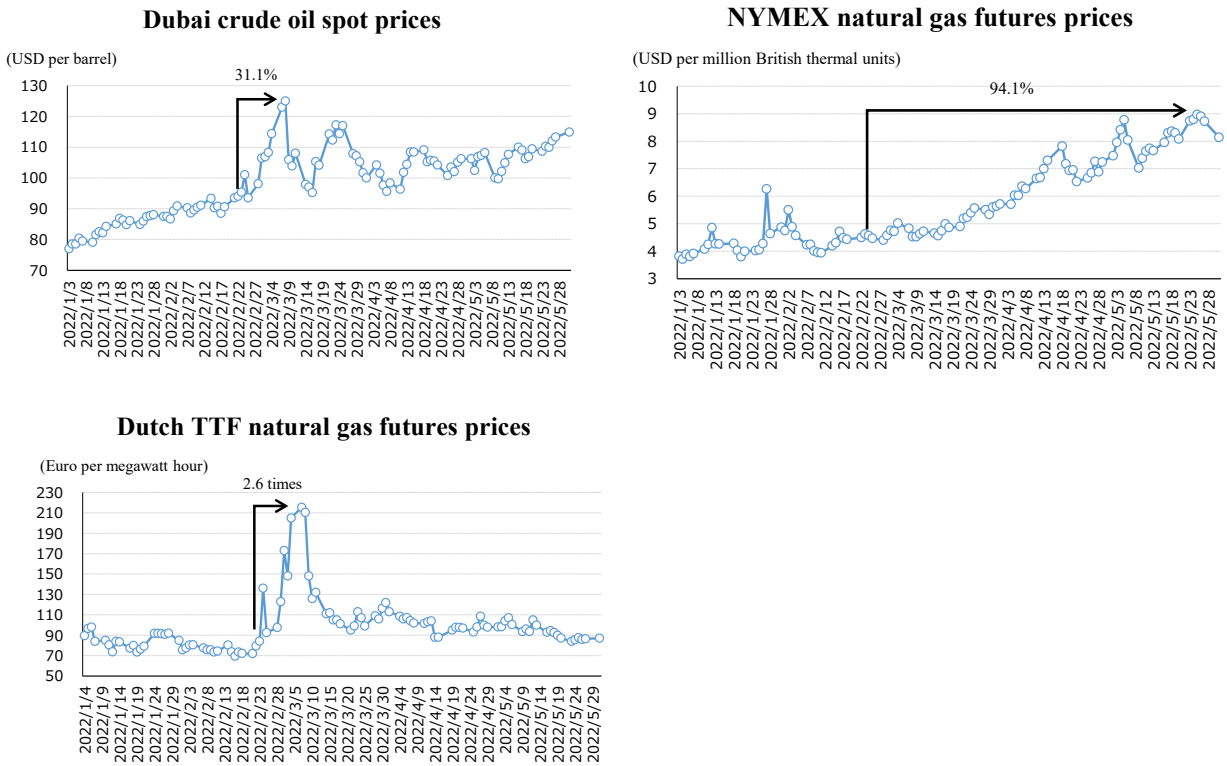


Source: Refinitiv.

As discussed below, Russia's oil, natural gas, and other energy sectors account for around 50% of its exports, while Ukraine's main exports are foods such as grains. Looking at the changes in the commodity markets since Russia's aggression against Ukraine began (Figure I-1-1-7), heightened concern that the crisis would destabilize the supply of crude oil from Russia caused WTI crude oil futures prices to exceed $100 a barrel in March 2022—the first time since June 2014, and a significant increase of 34.3% (as of March 8) compared with immediately before the aggression began with similar trends seen for other major oil prices. Moreover, on May 31, the EU announced that it would place an embargo on Russian crude oil (excluding via pipeline) by the end of the year, heightening concerns over unstable supplies. This caused the price of Brent crude oil to rise. Furthermore, futures prices for natural gas rose 94.1% (as of May 25) on the New York Mercantile Exchange (NYMEX) compared with before Russia's aggression began. The Dutch TTF, which indicates price trends in Europe, also saw a sharp increase by 2.6 times (as of March 7).

Figure I-1-1-7. Price trends for crude oil and natural gas since Russia's aggression against Ukraine began

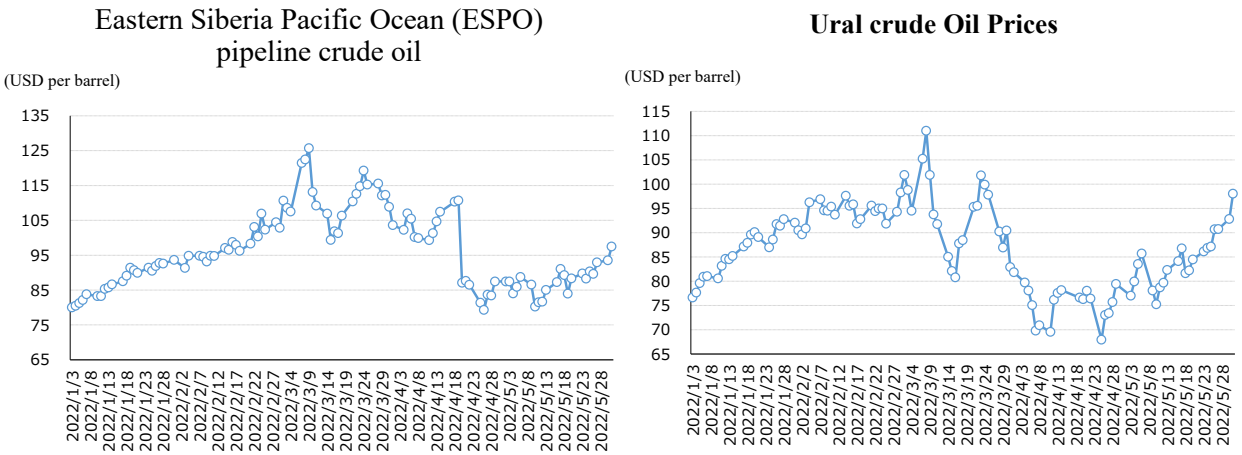




Source: Refinitiv.

While major international commodity market trends are seen as above, Russian commodity markets are showing rather different trends. Specifically, looking at benchmark indicators for the trends in Russian crude oil prices, prices were stagnating for crude oil via the Eastern Siberia–Pacific Ocean (ESPO) pipeline,which is mainly for Asia, and after Russia's aggression against Ukraine began, prices were falling for Ural crude oil, which is mainly for Europe (Figure I-1-1-8). As will be discussed below, European countries have started to restrict energy imports from Russia as part of their sanctions, and the resulting increase in crude oil stocks within Russia appear to lie behind these price trends.

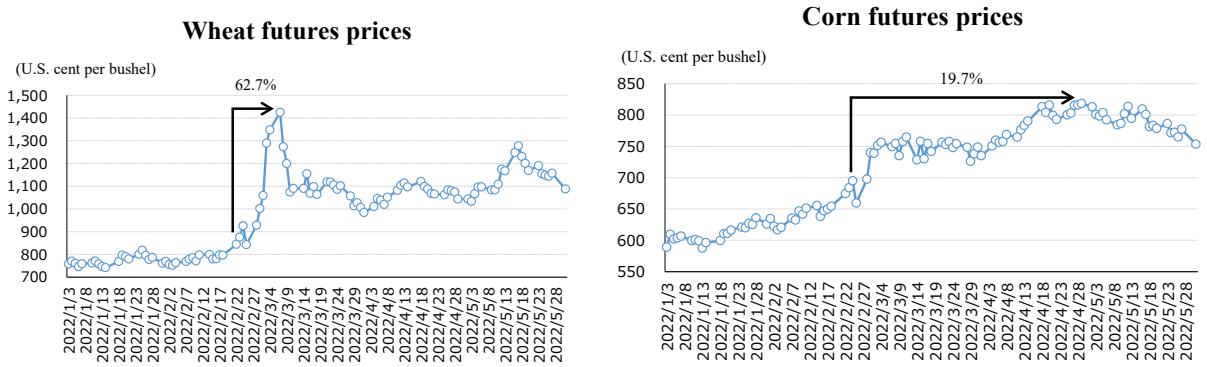
Figure I-1-1-8. Price trends for Russian crude oil



Source: Refinitiv.

In terms of grain prices, looking at the trends in futures prices for wheat (a major export item for both Russia and Ukraine) and corn (a major export item for Ukraine) (Figure I-1-1-9), wheat futures prices rose as much as 62.7% compared with immediately before the aggression began (as of March 7), and corn futures prices rose 19.7% (as of April 29). To summarize, the turmoil in the commodity markets has been caused by the heightened sense of uncertainty in the world economy triggered by Russia's aggression against Ukraine.

Figure I-1-1-9. Grain futures prices since Russia's aggression against Ukraine began



Source: Refinitiv.

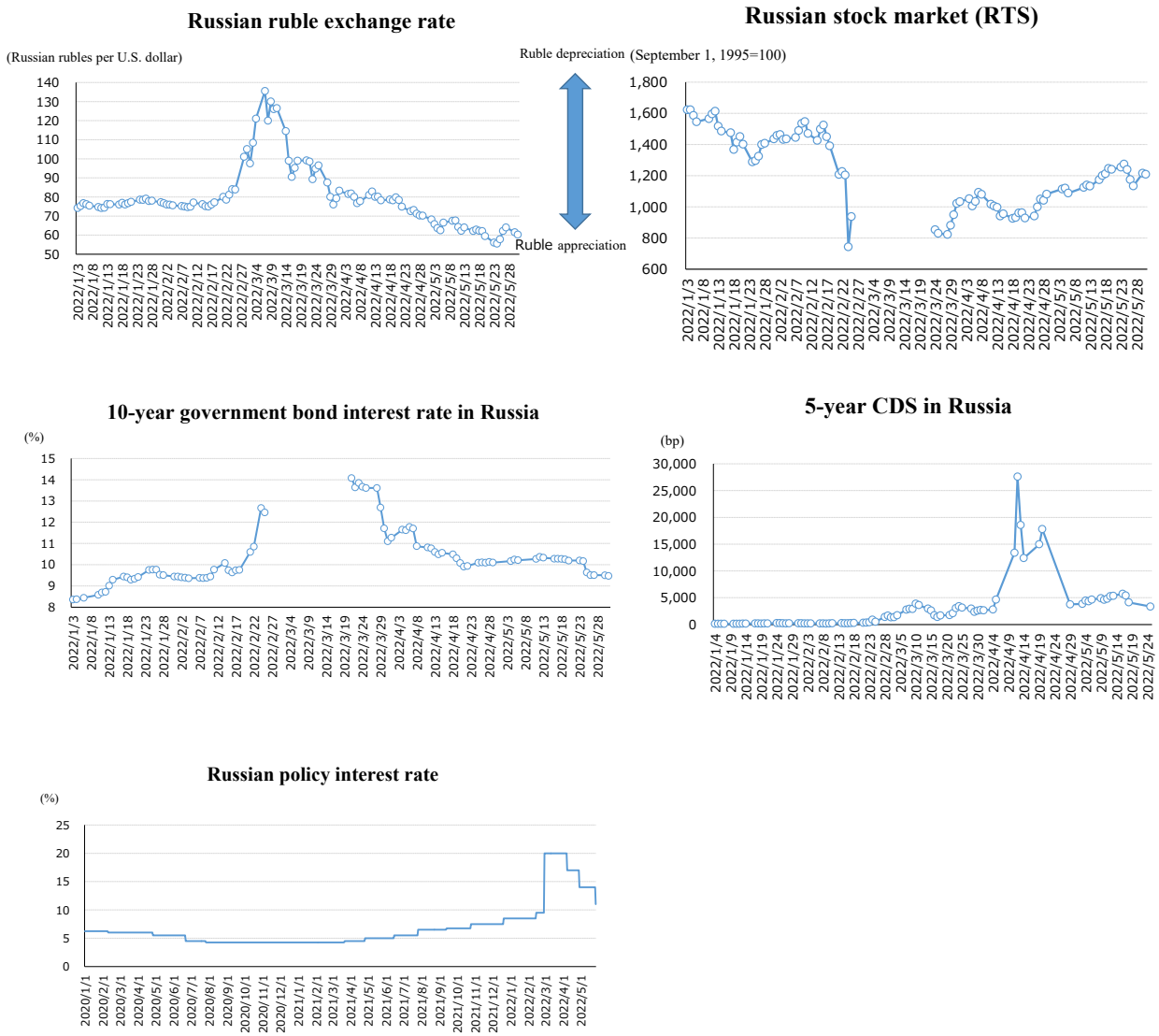
As was feared would happen when the global financial crisis emerged in September 2008, there is a risk that the significant decline in share prices will damage financial institutions' balance sheets, leading to a credit crunch and destabilizing the financial system. The declining value of financial assets could also have an adverse effect on private consumption via negative wealth effects. The prices of commodities such as crude oil and grains are directly linked to those of related products, and soaring prices will have a significant impact on companies' activities and citizen's lives. Furthermore, large fluctuations in energy and food prices will have a particularly significant impact on the lives of those in need in emerging and developing countries. For example, according to an IMF analysis report on Sub-Saharan Africa, the region's dependence on wheat imports is as high as 85%, while food accounts for as much as 40% of consumption expenditure in the region. If global food prices rise, 30%

or more of the increases are likely to be reflected in domestic prices . Moreover, soaring crude oil prices are expected to increase the cost of importing crude oil in the region by $19 billion and worsen the fiscal balance by 0.8 pp. All of the above suggest that it is significantly vulnerable to the effects of Russia's aggression against Ukraine.[2] In addition, with their low incomes, emerging and developing countries face a particularly high risk that social instability will result from soaring inflation that mainly affects daily necessities such as food and energy. Political instability is already appearing in Sri Lanka, Pakistan, and elsewhere. Besides the direct economic links to Russia which initiated the aggression and Ukraine which is suffering tremendously as a result, close attention also needs to be paid to the indirect effects caused through these kinds of major fluctuations in financial and commodity markets.

Russia's financial markets have also been significantly disrupted by growing concerns that its aggression against Ukraine will disrupt the Russian economy itself (Figure I-1-1-10). Russia's currency, the ruble, has suffered a sharp depreciation—briefly dropping to its lowest exchange rate ever against the U.S. dollar on March 7 2022—and the nation's stock markets are sluggish. However, the ruble has recovered to its value before the aggression against Ukraine, due in no small part to the Central Bank of Russia's having significantly raised its policy interest rate. Other factors that have likely helped include various measures to strengthen regulations on capital transactions. One of the notable examples is a measure announced on February 28, making it mandatory to convert 80% of foreign currency revenue from exports to rubles within three business days, and one announced on March 9 suspending private banks' changing of rubles into foreign currencies for Russian citizens. Moreover, increasing uncertainty over Russia's fulfillment of its obligations has led to a sharp rise in yields and credit default swap (CDS) for its government bonds. To counter the ruble's significant market depreciation, the Central Bank of Russia significantly raised its policy interest rate from 9.50% to 20% on February 28 in order to protect the currency's value. (It subsequently began to lower the interest rate again, mainly because the ruble's exchange rate had stabilized.) In response to these mounting concerns toward Russia, major credit rating companies have been significantly downgrading its foreign currency debt, dropping it from the investment grade down to the speculative grade. They have also suspended rating it altogether, in response to the economic sanctions by the EU (Table I-1-1-11).

[2] *Regional Economic Outlook Report, Sub-Saharan Africa, "A New Shock and Little Room to Maneuver"* (IMF)

Figure I-1-1-10. Russia's financial markets and policy interest rates



Note: Blank part in Russia's 10-year government bond interest rates indicates the period when market trading was suspended.
Source: Refinitiv.

Table I-1-1-11. Russia's foreign currency debt ratings

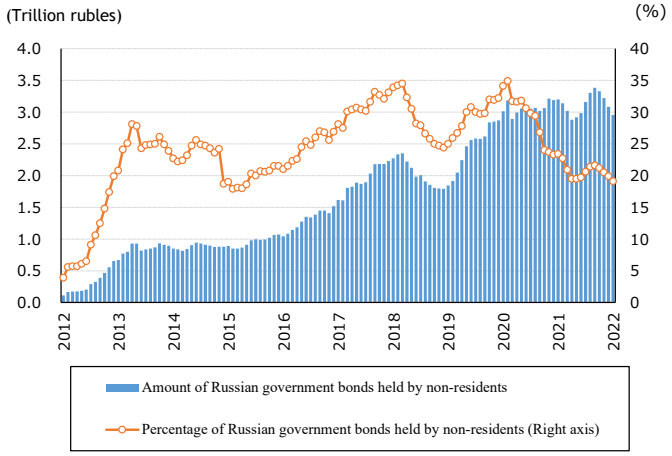
Moody's	Standard and Poor's	Fitch	
Aaa	AAA	AAA	
Aa1	AA+	AA+	
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	Investment grade
Ba1	BB+	BB+	Speculative

		grade
Ba2	BB	BB
Ba3	BB-	BB-
B1	B+	B+
B2	B	B
B3	B-	B-
Caa1	CCC+	CCC+
Caa2	CCC	CCC
Caa3	CCC-	CCC-
Ca	CC	CC
	C	C
C	D (SD)	D

Note: ■ indicates the ratings before the aggression against Ukraine, and ■ indicates those before the services were suspended.
Source: Ratings companies and Refinitiv.

According to statistics from the Central Bank of Russia, about 20% of the nation's outstanding government bonds are held by non-residents (Figure I-1-1-12). If mounting concern over the payment of the interest and principals for Russian government bonds reduces their value, then the balance sheets of financial institutions and other investors will be damaged, similarly to the impact from falling share prices.

Figure I-1-1-12. Trends in the holding of Russian government bonds by non-residents

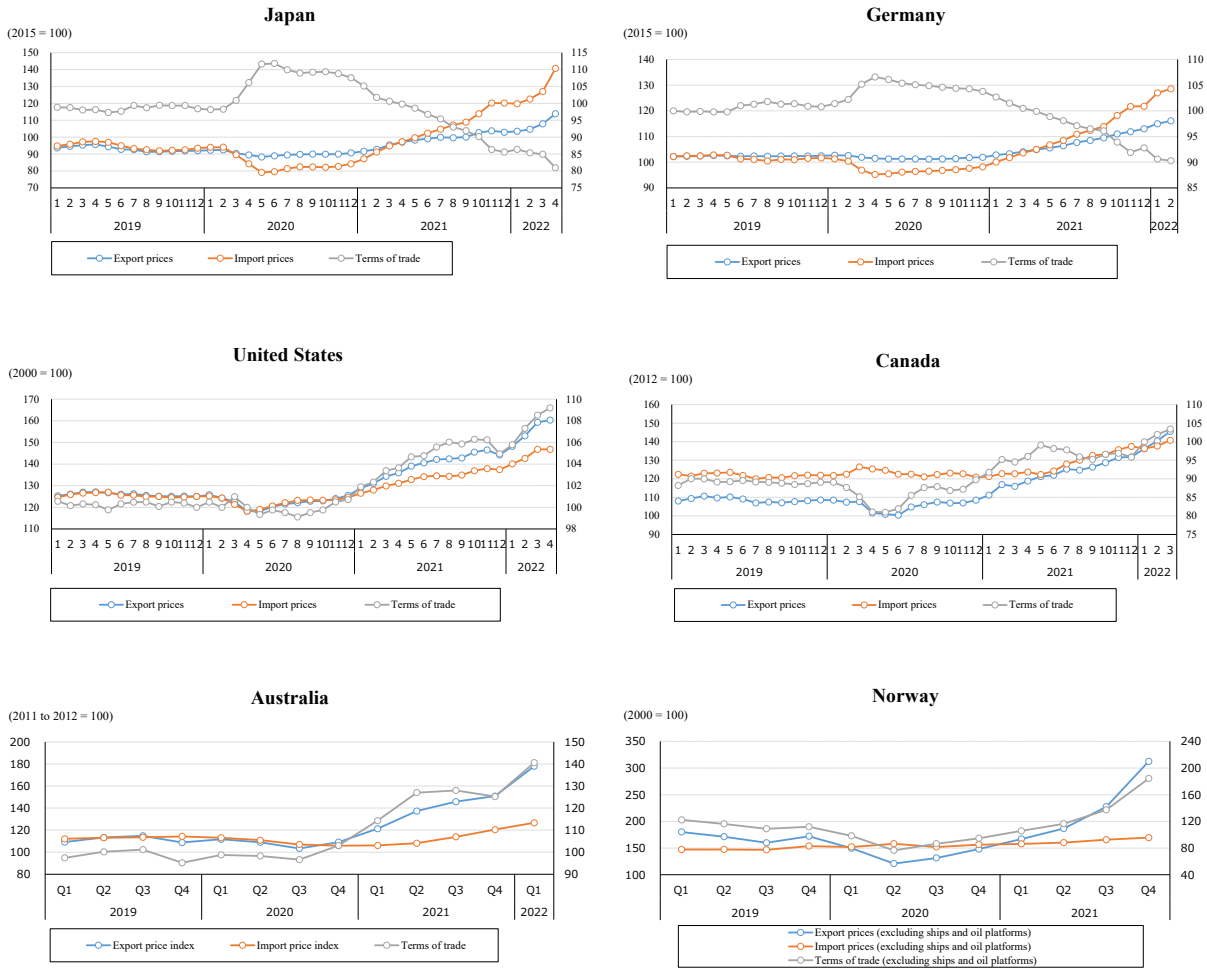


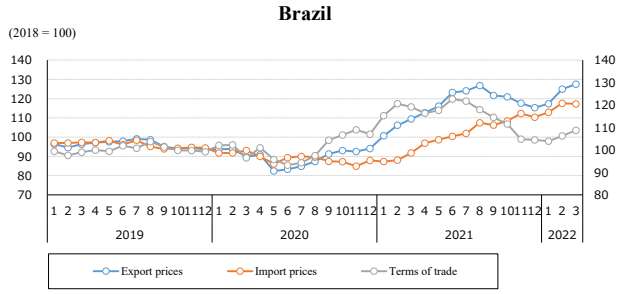
Source: Central Bank of Russia.

From a macroeconomic standpoint, the sharp rise in commodity markets caused by Russia's aggression against Ukraine means that the terms of trade (the ratio of the export prices to the import prices) will improve for resource countries and worsen for non-resource ones, with the aggression creating an unnatural environment in which income can easily flow from the latter to the former. In other words, the soaring commodity markets will cause income to be transferred to resource countries. This will in turn reduce the purchasing power of importing countries' households and put pressure on their companies' revenues. Consequently, the downward pressure on private consumption and on the global economic growth rate will indirectly become an economic risk. From this perspective, comparing the most representative non-resource countries (Japan and Germany) with the most

representative resource ones (the United States, Canada, Australia, Norway, and Brazil), as the global economy returns to normal after the COVID-19 pandemic, logistics has been biased toward regions whose economies showed significant recovery, and the prices of the related resources have risen due, for example, to demand for green investments. Therefore, the terms of trade had already started to worsen for non-resource countries and improve for resource ones even before Russia's aggression against Ukraine began with the exception of Brazil (Figure I-1-1-13). Trade in resources such as petroleum and natural gas is generally based on long-term contracts, and the soaring commodity markets caused by the crisis will not affect the terms of trade immediately. But that could conceivably deteriorate the terms of trade for non-resource countries later on. It will be necessary to carefully monitor what impacts the current soaring commodity markets have on non-resource countries' terms of trade in association with a time lag.

Figure I-1-1-13. Terms of trade for non-resource countries (Japan and Germany) and resource ones (United States, Canada, Australia, Norway, and Brazil)





Note 1: Terms of trade = Export price index / Import price index
Note 2: Terms of trade have been calculated using price indicators indexed based on the reference year. Consequently, even if the terms of trade are 100 in the figure, that does not mean that the export and import prices are equal.
Note 3: Norwegian price index excludes ships and oil platforms.
Source: Statistics for each country obtained from CEIC.

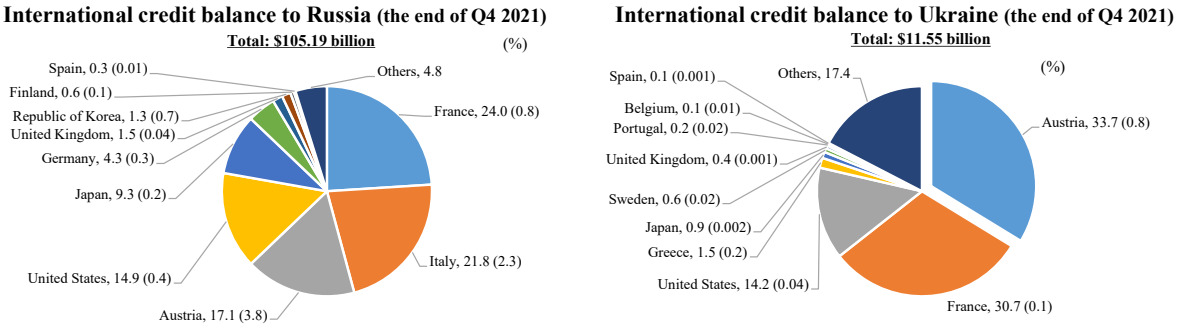
2. Japan and other countries' responses to Russia's aggression against Ukraine

Japan, the other G7 members, and the wider international community are all strengthening their sanctions against Russia. Measures are increasingly taken to isolate Russia from the international financial system and world economy. Specific examples of this include the following: preventing financing from being provided to it from the IMF, the World Bank, the European Bank for Reconstruction and Development, and other major multinational financial institutions; countering its attempts to evade sanctions via means such as digital assets; restricting transactions with the Central Bank of Russia; freezing the assets of and imposing other sanctions on President Putin, other Russian government officials, the oligarchs, and other relevant parties; freezing the assets of specific Russian financial institutions and their subsidiaries; excluding specific Russian banks from SWIFT (the Society for Worldwide Interbank Financial Telecommunication); banning the Russian government from domestically issuing, distributing, and otherwise trading new sovereign bonds; taking financial measures such as banning new investment in Russia; withdrawing its most-favored-nation status based on WTO agreement; banning exports to Russia of luxury goods, of goods bound for organizations related to its military, of items listed for restriction based on international agreement, and of commodities and advanced goods such as semiconductors; imposing sanctions on exports to Russia of goods including oil refining equipment; and putting in place trade measures to, for example, reduce dependence on Russia in the energy sector, including phasing out and banning imports of Russian coal and oil. In addition to these, many governments have taken measures such as suspending the issuing of entry visas, and private companies are taking action as well, including suspending their operations in Russia and even withdrawing altogether.

3. How Russia and Ukraine are connected to the world economy

Most countries do not have major direct financial connections to Russia and Ukraine. Specifically, according to international credit statistics compiled by the Bank for International Settlements (BIS), in terms of financial institutions' international credit balances toward Russia and Ukraine, while Europe, the U.S., and Japan account for relatively larger percentages, the two nations do not account for a large share of the total international credit balance in each country (Figure I-1-1-14).

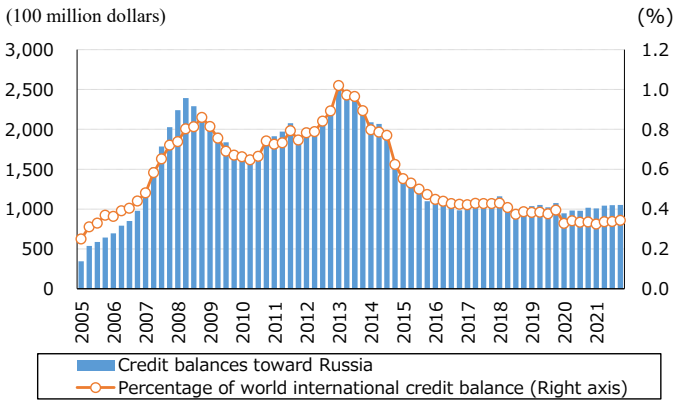
Figure I-1-1-14. International credit balances of various countries' financial institutions toward Russia and Ukraine



Note 1: Based on ultimate risk.
Note 2: Values in parentheses are the percentage of each country's international credit balance accounted for by Russia or Ukraine.
Source: BIS.

Looking at the trends in the international credit balances toward Russia, they have been significantly decreasing particularly since 2014, and the current total ($105.2 billion as of the end of December 2021) is down 53.2% compared with the end of the fourth quarter of 2013 ($225.0 billion). This trend suggests that countries have been reducing their exposure to Russia since its annexation of Crimea in 2014, and are keeping their financial risks at manageable levels (Figure I-1-1-15).

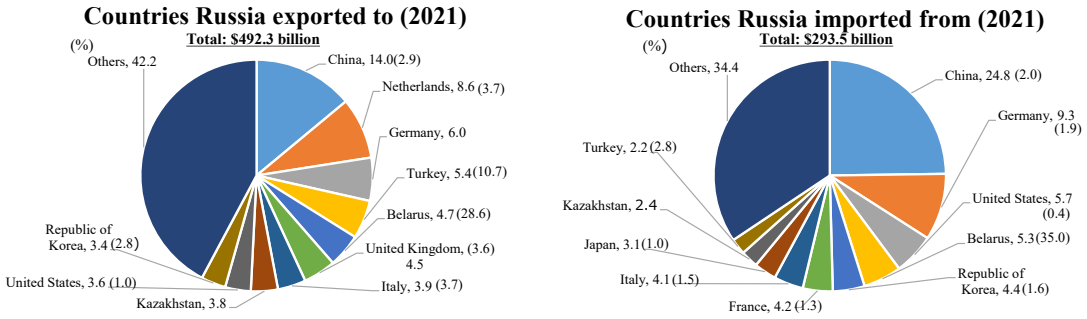
Figure I-1-1-15. Trends in international credit balances toward Russia



Note: Based on ultimate risk.
Source: BIS.

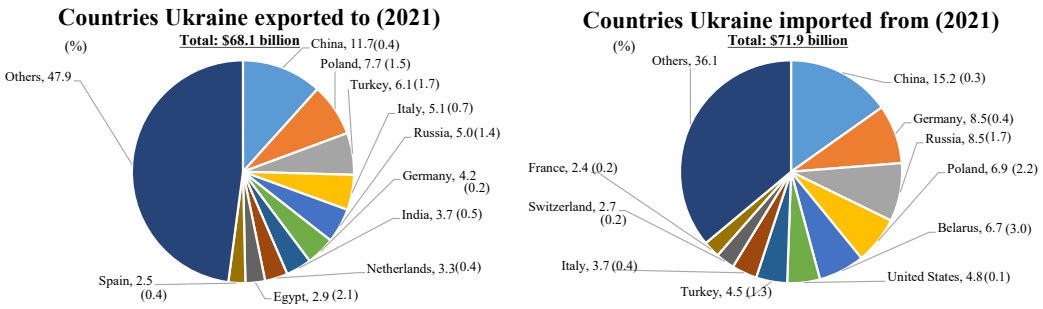
On the other hand, as discussed in the OECD's report, it is through trade that Russia and Ukraine are evidently having a large impact on the world economy. The trade trends regarding Russia and Ukraine presented by WTO data reveal that they do not account for a large share of the global trade in goods. In terms of goods exports in 2021, Russia ranked 13th in the world with $494.0 billion (2.2% of the total), while Ukraine ranked 48th with $68.1 billion (0.3%). For the goods import values in 2021, Russia ranked 22nd in the world with $303.9 billion (1.3% of the total), and Ukraine ranked 49th with $72.5 billion (0.3%). The main countries Russia exported in 2021 were China (14.0% of the total), the Netherlands (8.6%), Germany (6.0%), Turkey (5.4%), and Belarus (4.7%), with Turkey and Belarus having a relatively high percentage of imports from Russia. The main import sources for Russia were China (24.8%), Germany (9.3%), the U.S. (5.7%), Belarus (5.3%), and the Republic of Korea (4.4%), accounting for a relatively high percentage of Belarus' exports (Figure I-1-1-16). The main countries Ukraine exported in 2021 were China (11.7% of the total), Poland (7.7%), Turkey (6.1%), Italy (5.1%), and Russia (4.2%). The main import sources for Ukraine were China (15.2%), Germany (8.5%), Russia (8.5%), Poland (6.9%), and Belarus (6.7%). Ukraine is neither a major source of imports for the main countries it exports, nor a major export market for the main ones it imports (Figure I-1-1-17).

Figure I-1-1-16. Trade trends in 2021 for Russia



Note 1: Values in parentheses in the figure for Russian exports are the percentage of each country's imports accounted for by Russia.
Note 2: Values in parentheses in the figure for Russian imports are the percentage of each country's exports accounted for by Russia.
Source: Global Trade Atlas.

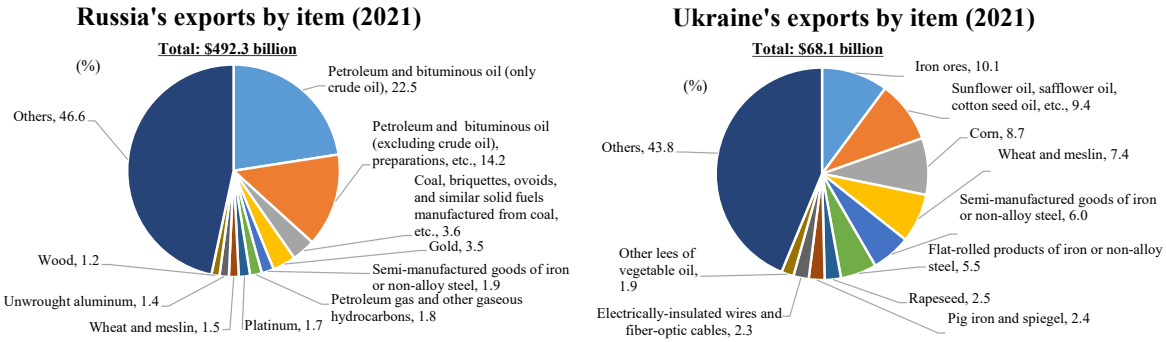
Figure I-1-1-17. Trade trends in 2021 for Ukraine



Note 1: Values in parentheses in the figure for Ukrainian exports are the percentage of each country's imports accounted for by Ukraine.
Note 2: Values in parentheses in the figure for Ukrainian imports are the percentage of each country's exports accounted for by Ukraine.
Source: Global Trade Atlas.

Looking in detail at what Russia and Ukraine export (Figure I-1-1-18), many of Russia's top exports are energy-related, such as petroleum and petroleum products, coal, and petroleum gas. On the other hand, many of Ukraine's top exports are food-related, such as vegetable oils and fats, corn, and wheat. The main exports of both are important items that affect the lives of the people in the countries dependent on imports.

Figure I-1-1-18. Russia's and Ukraine's main exports

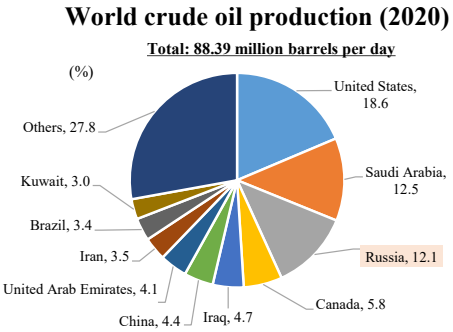


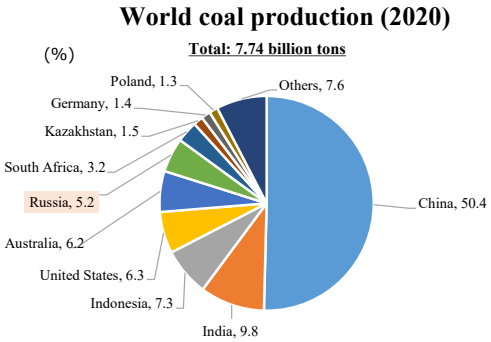
Note: “Unclassified items” are excluded if they enter in the top-ranking items.
Source: Created by METI based on data from the Global Trade Atlas.

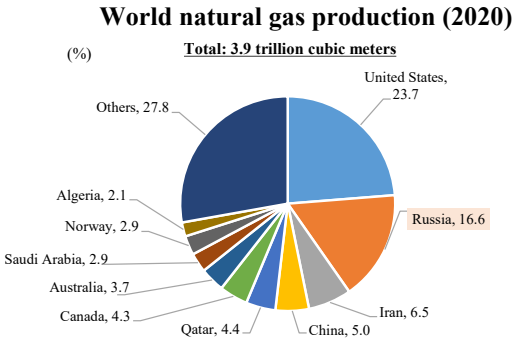
Looking at the overall production trends in 2020 for energy-related items which are Russia's main exports, Russia is the world's third largest producer of crude oil, with a global share of 12.1% and a production rate of 10.67 million barrels per day. It produces 400 million tons of coal, making it the sixth largest producer in the world, with a global share of 5.2%. With a total volume of 638.5 billion cubic meters and a global share of 16.6%, it is the world's second largest producer of natural gas. In terms of food meanwhile, Russia is the world's largest exporter of wheat and Ukraine is the fifth largest, and the fourth largest exporter of corn. For sunflower oil (2019), Ukraine is the world's largest

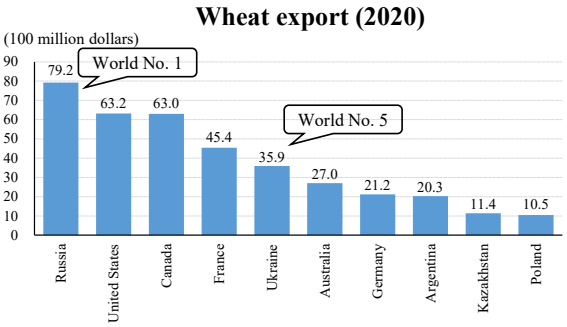
exporter, followed by Russia. Also, Russia is the world's largest exporter of fertilizer. As stated above, while not large in terms of trade, Russia and Ukraine are the world's major suppliers for certain items (Figure I-1-1-19).

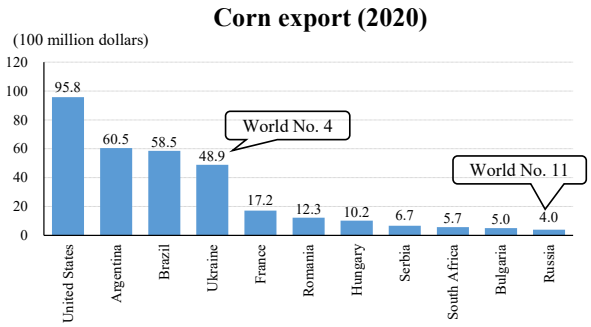
Figure I-1-1-19. Russia's and Ukraine's energy production and food-related exports

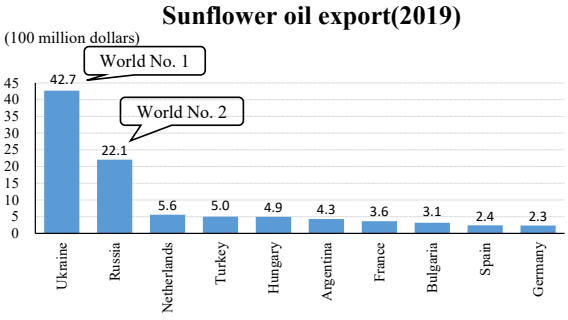


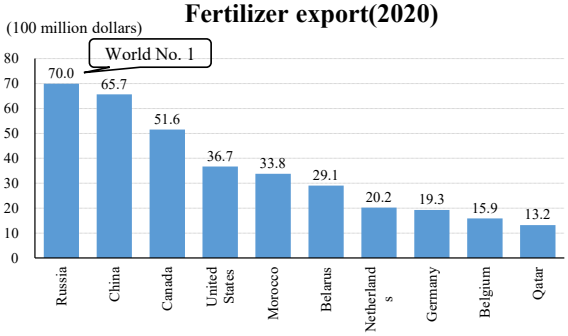








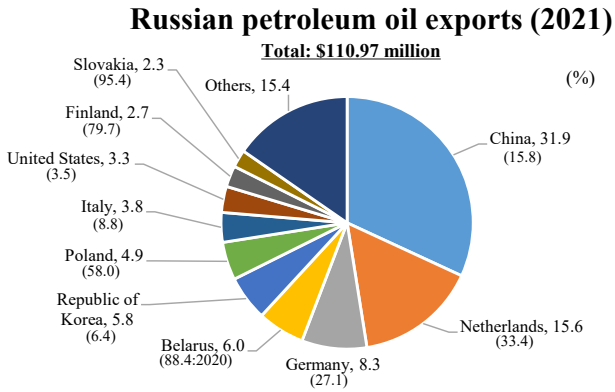




Source: BP Stat, UN Comtrade.

In light of Russia's and Ukraine's main exports, the import procurement trends of the top five export destinations of energy-related from Russia (Tables I-1-1-20, I-1-1-21, and I-1-1-22) reveals that in Germany—one of Europe's largest economies—there are items for which a large proportion of the imports come from Russia. If Russia's aggression against Ukraine increasingly destabilizes the supply of energy, economic activity could be significantly affected. Furthermore, a characteristic trend is that European countries seem to be exchanging the energy-related items. For example, Germany is importing petroleum and bituminous oil (only crude oil) (HS2709) from the Netherlands, but Russia accounts for a high proportion of the imports in the Netherlands.

Table I-1-1-20. Exports of petroleum oils and oils obtained from bituminous minerals (limited to crude) from Russia (HS2709) and import procurement trends of the 5 countries with the highest export value from Russia



Trends in China's import of HS2709 (2021)

Country	Amount of China's imports (100 million dollars)	Percentage of China's imports (%)
Total	2,534.9	
Saudi Arabia	436.6	17.2
Russia	394.6	15.6
Iraq	263.9	10.4
Oman	222.3	8.8
Angola	193.1	7.6
The United Arab Emirates	160.1	6.3
Kuwait	152.9	6.0
Brazil	148.1	5.8
Malaysia	86.3	3.4
Norway	61.8	2.4

Trends in the Netherlands' import of HS2709 (2021)

Country	Amount of the Netherlands' imports (100 million dollars)	Percentage of the Netherlands' imports (%)
Total	498.7	
Russia	167.6	33.6
Norway	75.7	15.2
The United States	61.5	12.3
The United Kingdom	59.3	11.9
Nigeria	29.5	5.9
Saudi Arabia	21.7	4.4
Libya	17.3	3.5
Algeria	13.1	2.6
Brazil	10.2	2.0

Iraq	9.7	1.9

Trends in Germany's import of HS2709 (2021)

Country	Amount of Germany's imports (100 million dollars)	Percentage of Germany's imports (%)
Total	399.5	
Russia	108.7	27.2
The Netherlands	76.2	19.1
Kazakhstan	39.8	10.0
The United States	39.7	9.9
Libya	35.2	8.8
The United Kingdom	22.5	5.6
Norway	22.3	5.6
Iraq	10.9	2.7
Chad	10.5	2.6
Nigeria	9.1	2.3

Trends in Belarus' import of HS2709 (2020)

Country	Amount of Belarus' imports (100 million dollars)	Percentage of Belarus' imports (%)
Total	38.9	
Russia	34.4	88.4
Azerbaijan	2.4	6.3
Lithuania	0.7	1.9
Norway	0.5	1.4
The United States	0.5	1.3
Ukraine	0.2	0.4
Saudi Arabia	0.1	0.3
Kazakhstan	0.004	0.01

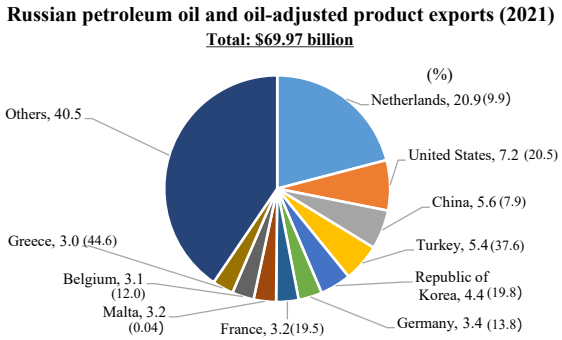
Trends in the Republic of Korea's import of HS2709 (2021)

Country	Amount of the Republic of Korea's imports (100 million dollars)	Percentage of the Republic of Korea's imports (%)
Total	670.2	
Saudi Arabia	213.2	31.8
The United States	84.0	12.5
Kuwait	72.4	10.8
Russia	42.7	6.4
Iraq	40.1	6.0
The United Arab Emirates	37.7	5.6
Qatar	35.0	5.2
Mexico	33.1	4.9
Kazakhstan	18.1	2.7
Brazil	16.2	2.4

Note: Values in parentheses in the figure for Russian petroleum oil exports are the percentage of each country's imports accounted for by Russia

Source: *Global Trade Atlas*.

Table I-1-1-21. Exports of petroleum oils and oils obtained from bituminous minerals (excluding crude), and preparations (HS2710) from Russia and import procurement trends of the 5 countries with the highest export value from Russia



Trends in the Netherlands' import of HS2710 (2021)

Country	Amount of the Netherlands' imports (100 million dollars)	Percentage of the Netherlands' imports (%)
Total	278.3	
Belgium	68.2	24.5
Germany	31.3	11.2
Russia	27.2	9.8
The United Kingdom	13.2	4.7
The United States	12.8	4.6
Sweden	11.1	4.0
Italy	9.6	3.4
France	9.5	3.4
Spain	8.4	3.0
Singapore	7.6	2.7

Trends in the United States' import of HS2710 (2021)

Country	Amount of U.S. Imports (100 million dollars)	Percentage of U.S. imports (%)
Total	622.5	
Russia	127.8	20.5
Canada	104.1	16.7
The Netherlands	42.2	6.8
The Republic of Korea	38.5	6.2
India	31.1	5.0
Mexico	28.4	4.6
Saudi Arabia	23.1	3.7
The United Kingdom	19.6	3.2
Singapore	16.0	2.6
Italy	15.5	2.5

Trends in China's import of HS2710 (2021)

Country	Amount of China's imports (100 million dollars)	Percentage of China's imports (%)
Total	166.4	
Malaysia	39.9	24.0
The Republic of Korea	33.0	19.8
Singapore	17.7	10.7
The United Arab Emirates	15.0	9.0
Russia	13.1	7.9

Trends in Turkey's import of HS2710 (2021)

Country	Amount of Turkey's imports (100 million dollars)	Percentage of Turkey's imports (%)
Total	98.9	
Russia	37.2	37.6
India	17.6	17.8
Israel	11.1	11.3
Greece	9.1	9.2
Italy	7.0	7.1
The United Arab Emirates	1.5	1.5

Qatar	7.9	4.7
Algeria	7.8	4.7
Japan	3.9	2.4
Taiwan	3.2	1.9
India	2.8	1.7

Turkmenistan	1.4	1.4
The Netherlands	1.4	1.4
Belgium	1.2	1.3
Iraq	1.0	1.1

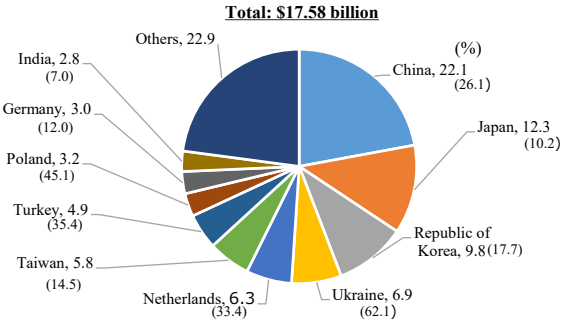
Trends in the Republic of Korea's import of HS2710 (2021)

Country	Amount of the Republic of Korea's imports (100 million dollars)	Percentage of the Republic of Korea's imports (%)
Total	235.3	
Russia	46.6	19.8
The United Arab Emirates	27.0	11.5
India	18.8	8.0
Saudi Arabia	17.1	7.3
The United States	15.4	6.6
Qatar	13.2	5.6
Iraq	13.1	5.6
Algeria	12.7	5.4
Greece	10.8	4.6
Kuwait	9.8	4.1

Note: Values in parentheses in the figure for Russian petroleum oil and oil-adjusted product exports are the percentage of each country's imports accounted for by Russia
Source: *Global Trade Atlas*.

Table I-1-1-22. Exports of coal, briquettes, ovoids, and similar solid fuels manufactured from coal (HS2701) from Russia and import procurement trends of the 5 countries with the highest export value from Russia

Russian coal exports (2021)



Trends in China's import of HS2701 (2021)

Country	Amount of China's	Percentage of China's imports

Trends in Japan's import of HS2701 (2021)

Country	Amount of Japan's	Percentage of Japan's imports

	imports (100 million dollars)	(%)
Total	268.4	
Indonesia	97.2	36.2
Russia	70.0	26.1
Canada	28.3	10.5
The United States	27.0	10.1
Mongolia	20.0	7.5
Australia	10.1	3.8
South Africa	7.6	2.8
Colombia	4.6	1.7
Mozambique	2.3	0.8
Kazakhstan	0.6	0.2

	imports (100 million dollars)	(%)
Total	246.9	
Australia	165.4	67.0
Indonesia	28.5	11.6
Russia	25.1	10.2
The United States	11.8	4.8
Canada	10.6	4.3
China	1.7	0.7
Vietnam	1.0	0.4
Colombia	1.0	0.4
Mozambique	0.7	0.3
New Zealand	0.6	0.2

Trends in the Republic of Korea's import of HS2701 (2021)

Country	Amount of the Republic of Korea's imports (100 million dollars)	Percentage of the Republic of Korea's imports (%)
Total	145.2	
Australia	77.6	53.4
Russia	25.6	17.7
Indonesia	16.7	11.5
Canada	11.7	8.0
South Africa	3.6	2.5
The United States	3.0	2.1
Colombia	2.9	2.0
Mozambique	2.2	1.5
China	0.6	0.4
New Zealand	0.5	0.3

Trends in Ukraine's import of HS2701 (2021)

Country	Amount of Ukraine's imports (100 million dollars)	Percentage of Ukraine's imports (%)
Total	24.9	
Russia	15.4	62.1
The United States	4.9	19.9
Kazakhstan	2.5	10.2
Australia	0.9	3.7
Poland	0.7	3.0
Colombia	0.2	0.9
The Czech Republic	0.1	0.2
Kyrgyzstan	0.001	0.002
Lithuania	0.00003	0.0001
Germany	0.00002	0.0001

Trends in the Netherlands' import of HS2701 (2021)

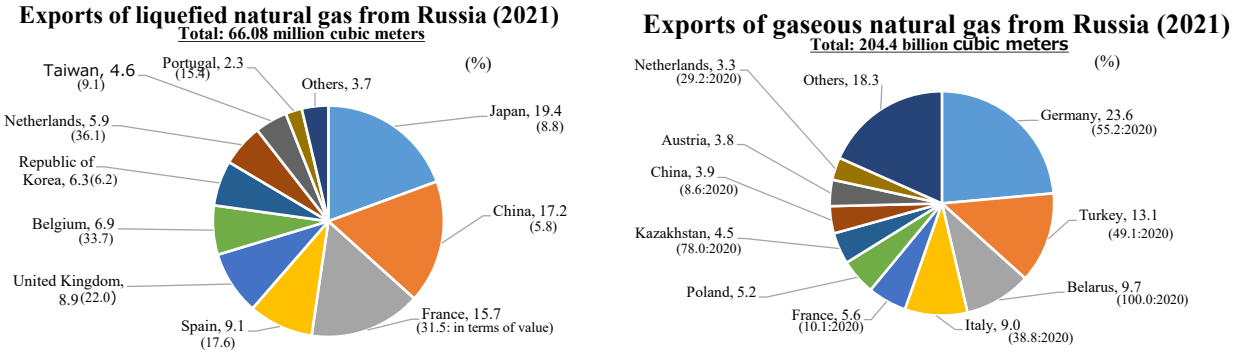
Country	Amount of the Netherlands' imports (100 million dollars)	Percentage of the Netherlands' imports (%)
Total	48.0	
Russia	15.8	32.9
Australia	10.5	21.9
The United States	10.4	21.7

Colombia	5.3	11.1
Germany	2.1	4.4
South Africa	1.4	2.9
China	0.8	1.7
Mozambique	0.6	1.3
Canada	0.5	1.1
Switzerland	0.2	0.3

Note: Values in parentheses in the figure for Russian coal exports are the percentage of each country's imports accounted for by Russia
Source: *Global Trade Atlas*.

Given that Russia is one of the major producers and reserves holders of natural gas, trends in Russia's natural gas trade will be worthy of looking in detail (Figure I-1-1-23). Natural gas is transported in a liquefied state so its volume can be compressed, especially when transported by sea. When it is in a gaseous state, it is transported between countries by pipeline. Russia's exports of liquefied (HS271111) and gaseous natural gas (HS271121) show that exports of liquefied natural gas in 2021 amounted to 66.08 million cubic meters, while exports of gaseous natural gas amounted to 20.44 billion cubic meters accounting for almost 100%. From the perspective of Russia's exports, the top destination countries of Russia's natural gas exports in its gaseous state were major European countries such as Germany, Italy, and France.

Figure I-1-1-23. Exports of liquefied (HS271111) and gaseous natural gas (HS271121) from Russia



Note: Values in parentheses are the percentage of each country's imports accounted for by Russia.
Source: *Global Trade Atlas*.

Given that most of Russia's natural gas exports are in its gaseous state, trends in how countries import natural gas from Russia through pipelines will be looked in detail. While HS codes are usually referred in looking at the detailed classification of goods, the European Statistical Office (Eurostat) has not published Germany's import volumes of natural gas in terms of the HS code since 2007. Therefore, statistics published by British Petroleum (BP) is commonly used for energy-related items. According to the BP data, Germany imported 102.0 billion cubic meters of natural gas by pipeline in

2020, of which it depended on Russia for 56.3 billion cubic meters, or 55.2% (Table I-1-1-24). The table also includes countries that export natural gas via pipeline, such as the Netherlands and Kazakhstan. However, as shown in the statistics on Russia's exports, in addition to Germany, countries such as Turkey and Italy are also highly dependent on Russia's natural gas imports.

Table I-1-1-24. Various countries' natural gas imports from Russia via pipeline (2020)

Country	Volume imported from Russia (100 million cubic meters)	Total volume imported (100 million cubic meters)	Percentage of imports from Russia (%)
Germany	563	1,020	55.2
Italy	197	508	38.8
Belarus	176	176	100.0
Turkey	156	318	49.1
The Netherlands	112	384	29.2
The United Kingdom	47	297	15.8
China	39	451	8.6
Kazakhstan	32	41	78.0
France	26	258	10.1

Source: Ministry of Economy, Trade and Industry based on material by BP.

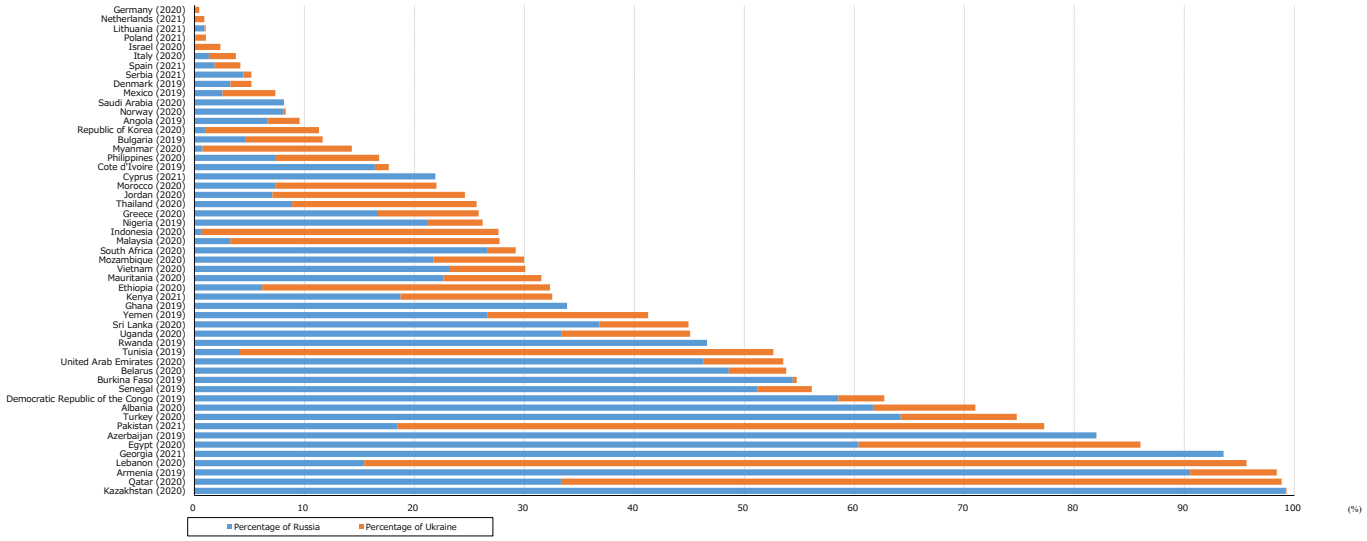
In response to Russia's aggression against Ukraine, the European Union announced an embargo on coal from Russia starting in August 2022, and an embargo on crude oil from Russia (except via pipeline) to be effective by the end of the year. In addition, Lithuania has suspended imports of natural gas from Russia on April 2, suggesting that there are countries strengthening sanctions individually outside the EU organization. This implies an underlying viewpoint that the EU should ban the import of natural gas from Russia. Russia also signed a presidential decree stipulating that it would suspend its provision of natural gas to unfriendly nations unless they were paid in rubles, raising risk on the supply side. In fact, Poland and Bulgaria have refused to pay for natural gas in rubles, and Russia has cut off their supplies. There will be supply risks depending on the future situation, especially in countries that are heavily dependent on Russia for energy.

In addition to the energy-related items, one similarity between exports from Russia and Ukraine is that their major items include food. As discussed below, developing countries, particularly those in the Middle East and Africa, are becoming increasingly dependent on imports from both countries, specifically wheat, corn, sunflower oil, and fertilizers.

Wheat is a major export item for Russia and Ukraine, and both are major global exporters (According to UN Statistics, Russia ranked first, and Ukraine fifth in 2020). The figure below (Figure I-1-1-25) shows the percentage of various countries' total wheat import values from Russia and Ukraine. Because the periods of the statistics available vary from country to country, it is impossible to make a simple comparison. However, the figure shows that developing countries have a high percentage of wheat imports from both countries. Russia's aggression against Ukraine has prevented

wheat from being harvested or planted, and the closure of ports on the southern coast of Ukraine has disrupted logistics including wheat shipments.

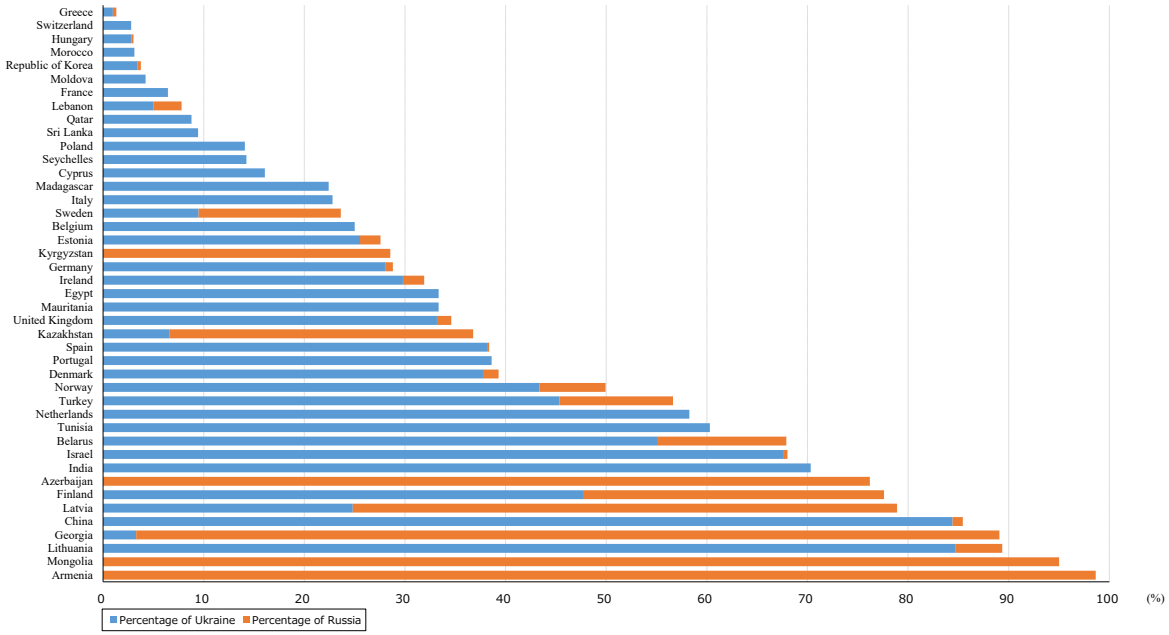
Figure I-1-1-25. Percentage of wheat imports from Russia and Ukraine



Note: Wheat is HS1001.
Source: UN Comtrade.

Corn (HS1005) is a major export item for Ukraine, which is a major global exporter of the item (Fourth in 2020 according to UN Statistics). Russia is also a major global exporter, although not as much as Ukraine (11th in 2020 according to UN Statistics). The following figure (Figure I-1-1-26) shows the percentage of various countries' corn imports from Ukraine and Russia. The figure shows that developing and European countries have a high percentage of corn imports from Russia and Ukraine.

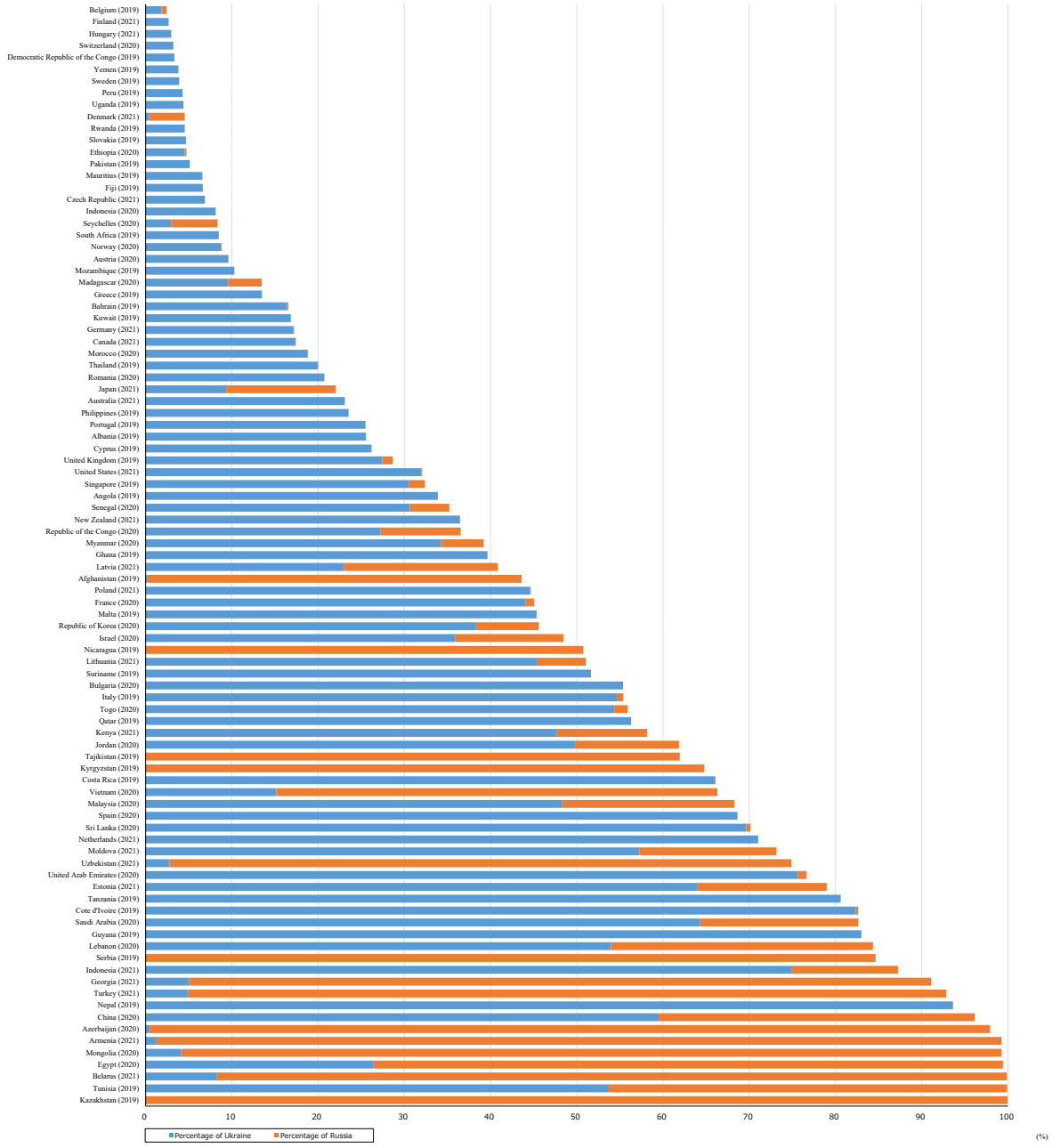
Figure I-1-1-26. Percentage of corn import from Ukraine and Russia (2019)



Note: Corn is HS1005.
Source: UN Comtrade.

Both countries are also major global exporters of sunflower oil (HS1512) with Ukraine ranked first in 2020 according to UN Statistics and Russia ranked second. The figure below (Figure I-1-1-27) shows the percentage of various countries' sunflower oil imports from Ukraine and Russia. It shows that developing countries have a high percentage for both countries, as in the case of wheat. In addition, the surge in food prices caused by Russia's aggression against Ukraine has also affected the supply of other cooking oils. Indonesia imposed an export ban on palm oil and its raw materials on April 28 2022, in response to a shortage and surge in prices, and it announced the elimination of the ban on May 23. Indonesia is a major exporter of palm oil (Ranked first in the world in 2021), and there are concerns that the supply restrictions will cause further price surges.

Figure I-1-1-27. Percentage of sunflower oil import from Ukraine and Russia

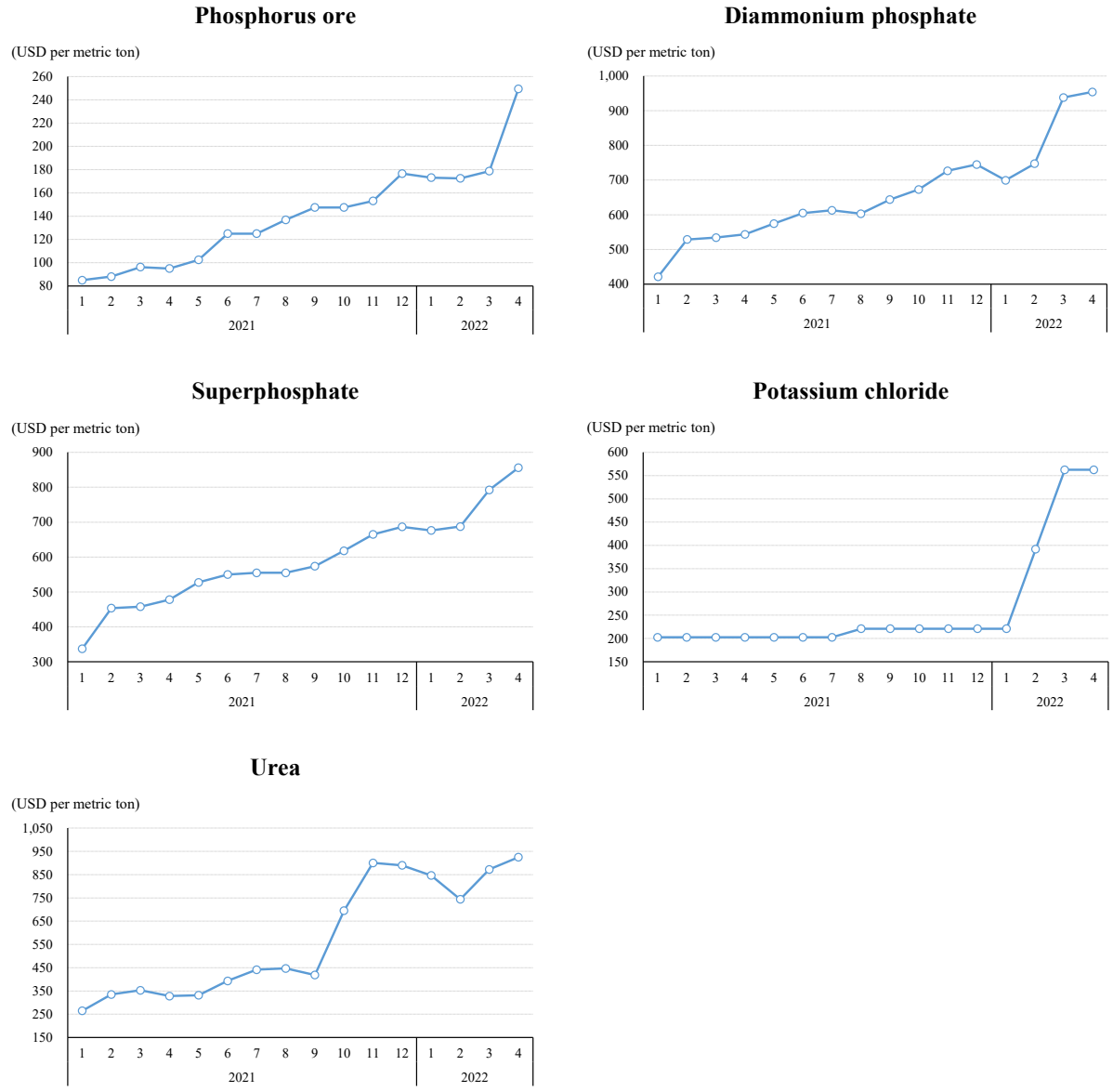


Note: Sunflower oil is HS1512.
Source: UN Comtrade.

Looking at the HS codes with four digits, fertilizers are not a major export item for Russia. However, it is a major global exporter of fertilizers on two digits basis (HS31) (Ranked first in 2020 according to UN Statistics, with China in second, Canada in third, the United States in fourth, and Morocco in fifth), and there are concerns that the recent turmoil will affect food production in countries that import fertilizers from Russia. In fact, looking at the price trends for phosphorus, potassium, and urea—the main materials of fertilizer— (Figure I-1-1-28), regarding phosphorus, related fertilizer is not a major export item for Russia, and there is no specific variation in the prices of the ore. However, the prices of processed products (diammonium phosphate, superphosphate) rose

rapidly in March, right after the start of Russia's aggression against Ukraine. In addition, the prices of potassium chloride and urea, which are Russia's major fertilizers export items, rose rapidly from February to March. In particular, the prices of potassium chloride were likely affected by not only Russia's aggression against Ukraine, but also by supply restrictions due to the European Commission's decision to impose an embargo on exports of potash fertilizer from Belarus (the world's second largest exporter of potash fertilizer in 2019) on March 2. In emerging and developing countries, these increases in fertilizers prices can significantly increase the costs of food production and have a particularly significant impact on people's lives.

Figure I-1-1-28. Price trends for fertilizer-related items

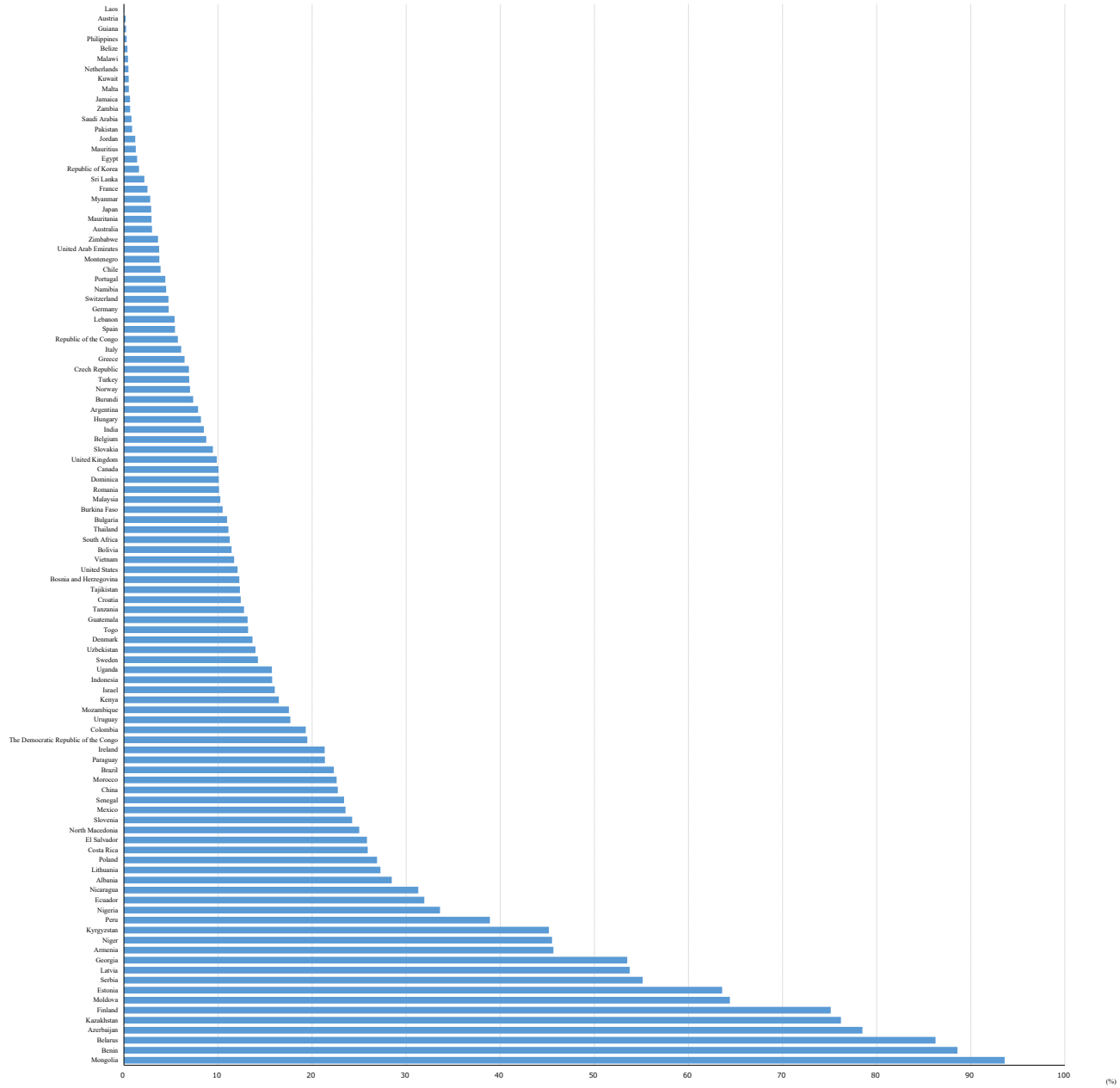


Source: World Bank.

The figure below (Figure I-1-1-29) shows the percentages of various countries' fertilizers imports from Russia in 2020. It shows that developing countries have a particularly high percentage. Russia's aggression against Ukraine can lead to food crises in developing countries, not only through direct imports of food such as wheat, corn, and sunflower oil, but also through risks in fertilizers supplies.

The aforementioned energy-related items (oil, oil-adjusted products, coal, and natural gas) and food are major export items from Russia and Ukraine. Both countries also have items that are not major export items, but can impact the global economy because of their scarcity. Specifically, these items include nickel, a material for items such as batteries, including lithium-ion batteries; titanium, which is used for aircraft parts and other items due to its high hardness; neon gas, a rare gas required for the manufacturing process of integrated circuits and other items; and palladium, which is used to remove harmful substances from automobiles' exhaust gases.

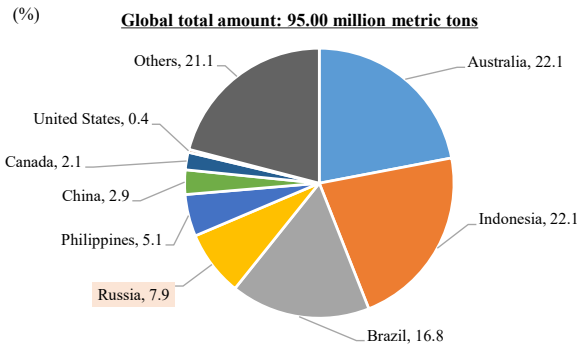
Figure I-1-1-29. Percentage of fertilizers import from Russia (2020)



Note: Fertilizer is HS31.
Source: UN Comtrade.

Nickel is a rare metal used as a material for items such as batteries, including lithium-ion batteries. Looking at the global distribution of nickel reserves (Figure I-1-1-30), Russia has 7.5 million metric tons of nickel reserves, accounting for 7.9% of the world's total nickel reserves (95 million metric tons) and making it the fourth-richest country in the metal.

Figure I-1-1-30. Global distribution of nickel reserves



Source: *Mineral Commodity Summaries 2022* (USGS).

Looking at the trends of countries with high import values of nickel-related items from Russia (Table I-1-1-31), it is suggested that major European countries such as Germany and France have a strong indirect relationship with Russia through supply chain connections. Specifically, the table shows that Germany imports nickel scrap directly from Australia, which has large nickel reserves. On the other hand, the Netherlands, the second largest import source for Germany as to nickel scrap, imports a large amount of nickel chunks from Russia. As to France, Germany and the Netherlands are the first and second largest import sources of nickel scrap, respectively. Those links suggest that France is indirectly dependent on Russia for nickel resources through the Netherlands. Russia accounts for a low percentage of France and Germany's nickel scrap imports, at 1.0% (12th) and 2.6% (10th), respectively. However, they have supply chain connections through the Netherlands' import of nickel chunks from Russia. The dependence on Russia may be greater than trade statistics suggest.

Table I-1-1-31. Procurement trends of top importers of nickel from Russia (2021)

Item	Country	Top three countries of nickel import sources and Russia (percentage of imports in parentheses)			
		1st	2nd	3rd	
Nickel mats and similar items	Finland	Russia (99.9%)			
Nickel chunks	The Netherlands	Russia (37.3%)	Norway (20.6%)	Australia (19.6%)	
Nickel scrap	Estonia	Russia (100%)			
	France	Germany (63.6%)	The Netherlands (6.9%)	The United Kingdom (5.6%)	Russia (12th: 1.0%)
	The United Kingdom	France (16.7%)	Germany (13.1%)	The United States (9.5%)	Russia (25th: 0.5%)
	Germany	Australia (22.8%)	The Netherlands (22.5%)	The United Kingdom (7.8%)	Russia (10th: 2.6%)
Nickel powder and flakes	China	Australia (75.8%)	The United Kingdom (7.7%)	Russia (4.1%)	
	The United	Canada (77.6%)	The United	Germany	Russia (4th:

	States		Kingdom (7.1%)	(4.2%)	3.1%)
Nickel bars and similar items	Germany	Australia (44.9%)	France (26.3%)	The United States (10.6%)	Russia (7th: 0.8%)
	Latvia	Russia (88.1%)	France (6.4%)	Germany (5.1%)	
	India (2020)*	China (19.7%)	Sweden (15.7%)	The United Kingdom (13.2%)	Russia (13th: 1.2%)
Nickel plates and similar items	The United States	Germany (52.9%)	Japan (21.9%)	France (10.1%)	Russia (4th: 6.8%)
	Japan	The United States (36.8%)	Germany (34.0%)	China (11.2%)	Russia (6th: 1.5%)
	Poland (2020)*	Germany (23.4%)	The United States (21.8%)	France (17.1%)	Russia (4th: 8.9%)
	Belarus (2020)	Russia (31.4%)	China (31.0%)	Germany (30.1%)	
	India	The United States (44.7%)	Japan (17.6%)	Germany (17.2%)	Russia (14th: 0.6%)
Nickel pipes and similar items	Australia	The United States (36.4%)	China (17.8%)	The United Kingdom (13.6%)	Russia (4th: 13.1%)
	The Netherlands (2020)*	The United Kingdom (17.5%)	Germany (15.8%)	Italy (15.6%)	Russia (25th: 0.02%)
	Belarus (2020)	Japan (33.5%)	Poland (14.7%)	Germany (11.7%)	Russia (6th: 9.3%)
Other nickel products	Poland (2020)	The United States (74.7%)	Germany (9.6%)	Japan (4.7%)	Russia (11th: 0.4%)
	Ukraine	Russia (93.3%)	Hungary (2.9%)	Poland (1.7%)	
	Moldova*	Hungary (73.4%)	The Republic of Korea (16.9%)	Russia (8.7%)	
	India	Singapore (32.6%)	China (17.0%)	The United States (11.6%)	Russia (15th: 0.4%)
	The Czech Republic	The United Kingdom (37.8%)	Germany (24.7%)	The United States (16.8%)	Russia (18th: 0.03%)

Note 1: HS codes for each item are: Nickel mats and similar items (HS7501), nickel chunks (HS7502), nickel scrap (HS7503), nickel powder and flakes (HS7504), nickel bars and similar items (HS7505), nickel plates and similar items (HS7506), nickel pipes and similar items (HS7507), and other nickel products (HS7508).

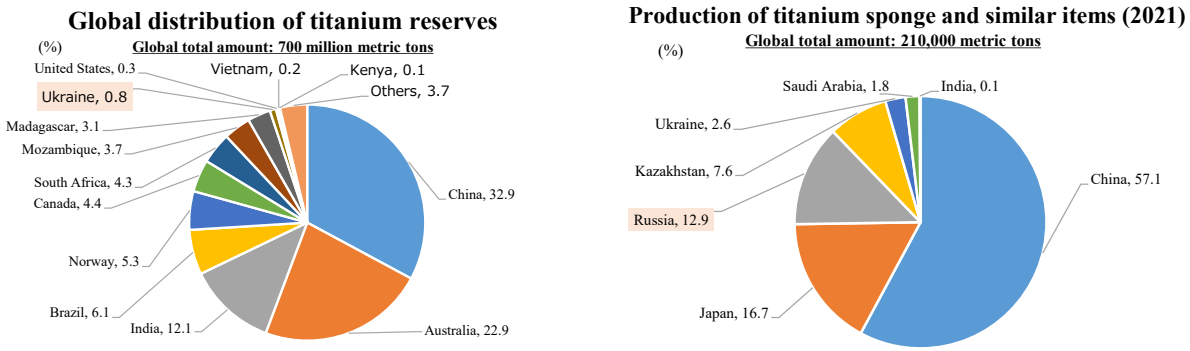
Note 2: Any details that were not available in the import statistics are excluded from the table. Specifically, Finland for nickel scrap (the top destination country according to Russian export statistics), Italy for nickel powder and flakes (the 2nd place destination country according to Russian export statistics), Poland and Italy for nickel bars (the 1st and 4th place destination countries according to Russian export statistics, respectively), and Moldova and Germany for nickel pipes and similar items (the 2nd and 4th place destination countries according to Russian statistics, respectively) are not listed in the table because the country that is exporting the items cannot be confirmed in the importing country's statistics.

Note 3: If the country is marked with a *, the source of the data is UN Comtrade.

Source: *Global Trade Atlas* (UN Comtrade).

Titanium is a rare metal with a high hardness, generally used as a material for aircraft parts. Looking at the global distribution of titanium reserves, Ukraine does not have a large amount, with only 0.8% of total reserves. On the other hand, Russia is the third largest producer of titanium sponges and other processed products, accounting for 12.9% of total global production (Figure I-1-1-32).

Figure I-1-1-32. World distribution of titanium reserves and production of titanium sponge and similar items in 2021



Source: *Mineral Commodity Summaries 2022* (USGS).

Looking at the trends of countries with the large import values of titanium and titanium products from Russia (Table I-1-1-33), Russia is among the top three import source for each of the top five countries, which have a noticeably high degree of dependence on Russia. The United States is the top import source to China, the United Kingdom, and France, and Russia is the main import source of titanium to the United States. These links suggest that China, the United Kingdom, and France have a supply chain connection with Russia through U.S. imports from Russia, similar to the situation mentioned above regarding nickel. It is also suggested that those countries may be more dependent on imports of titanium resources for Russia than can be seen directly from trade statistics.

Table I-1-1-33. Procurement trends of top importers of titanium and titanium products from Russia (2021)

Item	Country	Top three import sources of titanium (percentage of imports in parentheses)		
		1st	2nd	3rd
Titanium and titanium products	The United States	Japan (28.9%)	Russia (20.9%)	China (9.0%)
	Germany	Russia (20.7%)	The United States (17.8%)	France (10.3%)
	China	The United States (28.9%)	Japan (26.1%)	Russia (6.6%)
	The	The	France (17.6%)	Russia (9.0%)

	United Kingdom	United States (40.8%)		
	France	The United States (26.5%)	Germany (16.6%)	Russia (12.3%)

Source: *Global Trade Atlas*.
Note: Titanium and titanium products are HS8108.

Ukraine is also known to be a major producer of neon gas, a rare gas used in the manufacturing process of integrated circuits. Looking at HS280429 (rare gases other than argon), which includes neon gas, Ukraine's major export destinations include the Republic of Korea, and Taiwan, which have technologies to manufacture the world's smallest semiconductors (Table I-1-1-34). Although Ukraine does not necessarily account for a high percentage of imports in these countries, there could be the backdrop that the HS code includes rare gases other neon gas. Semiconductor manufacturing that has an important impact on the world economy is dependent on Ukraine, which is in turmoil because of Russia's aggression.

Table I-1-1-34. Procurement trends of top importers of rare gases other than argon from Ukraine (2021)

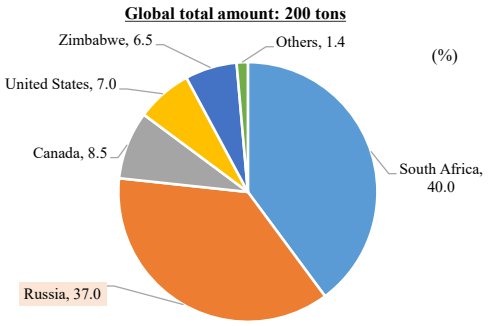
Item	Country	Top three import sources of rare gases other than argon and Ukraine (percentage of imports in parentheses)			
		1st	2nd	3rd	
Rare gases other than argon	The Republic of Korea	Qatar (34.3%)	The United States (29.8%)	Russia (11.2%)	Ukraine (4th: 9.4%)
	The United States	Qatar (33.1%)	Canada (21.8%)	Germany (10.5%)	Ukraine (5th: 7.7%)
	China	Belgium (26.3%)	Qatar (20.7%)	The United States (20.2%)	Ukraine (11th: 0.9%)
	Taiwan	Qatar (43.2%)	The United States (33.4%)	Australia (11.6%)	Ukraine (5th: 2.3%)

Source: *Global Trade Atlas*.
Note: Rare gases other than argon are HS280429.

Palladium is used as a catalyst to remove harmful substances from automobile exhaust gases. It is a metal that plays an important role in a time of growing environmental awareness. The following figure (Figure I-1-1-1-35) shows the world production trends of palladium in 2021. Russia is the world's second largest producer of palladium, accounting for 37.0% of the total, with skewed regional reserves and production quantities. One factor on the supply side is that including South Africa, which is ranked 1st, Russia and South Africa account for a majority of global palladium production amounting

to 77.0%, and there are concerns over limited alternative sources and how the turmoil caused by Russia's aggression against Ukraine will impact industries.

Figure I-1-1-35. Palladium production (2021)



Source: *Mineral Commodity Summaries 2022* (USGS).

4. Trade between Japan, Russia, and Ukraine

While the previous section looked at trade trends between Russia and Ukraine and the rest of the world, this section looks at trade trends between Japan and the two countries. Looking at the amount of trade between Japan and the other two countries, Russia and Ukraine are not major trading partners to Japan. Specifically, Japan's total exports in 2021 amounted to 83.1 trillion yen, of which exports to Russia accounted for 862.4 billion yen, or 1.0%, and exports to Ukraine accounted for 64 billion yen, or 0.1%. In addition, Japan's total imports amounted to 84.8 trillion yen in 2021, of which imports from Russia accounted for 1.5489 trillion, or 1.8%, and imports from Ukraine accounted for 79.8 billion yen, or 0.1%.

Furthermore, looking at Japan's major exports to the rest of the world (Table I-1-1-36), Russia and Ukraine are not large export markets. Specifically, the table shows the top 10 export items of Japan and their export values to the two countries in 2021 (based on 4-digit HS codes). Although Russia ranks high as a destination country for some goods, such as passenger cars (HS8703) and freight vehicles (HS8704), Russia and Ukraine generally do not account for a large percentage of Japan's major export items.

Table I-1-1-36. Trends in Russia and Ukraine regarding Japan's major export items

Trends regarding Japan's exports to Russia and Ukraine (2021)

Item	HS code	Amount of global exports from Japan (Trillion	Percentage of global exports (%)	Amount of exports to Russia (100 million	Percentage of global exports accounted for by exports to	Amount of exports to Ukraine (100 million yen)	Percentage of global exports accounted for by exports to

		yen)		yen)	Russia (%)		Ukraine (%)
Total		83.1		8,624	1.0	640	0.1
Motor cars and other motor vehicles designed for the transport of persons	8703	9.4	11.3	3,144	3.3	503	0.5
Electronic integrated circuits	8542	3.6	4.4	1	0.004		
Parts and accessories for motor vehicles	8708	3.6	4.3	998	2.8	4	0.01
Machines and apparatus of a kind used solely or principally for the manufacture of semiconductor boules or wafers, semiconductor devices, electronic integrated circuits or flat panel displays	8486	3.4	4.0	5	0.02	0.02	0.0001
Self-propelled bulldozers, angledozers, levelers, scrapers, mechanical shovels, excavators, shovel loaders, tamping machines and road rollers	8429	1.3	1.5	568	4.5	3	0.02
Flat-rolled products of iron or non-alloy steel	7208	1.2	1.4				
Semiconductor devices, photovoltaic semiconductor devices, light emitting diodes, and piezoelectric crystals	8541	1.1	1.4	4	0.04	0.1	0.001
Motor vehicles for the transport of goods	8704	1.1	1.3	415	3.8	0.2	0.002
Machines and mechanical appliances	8479	1.1	1.3	23	0.2	2	0.02
Cruise ships, excursion boats, ferry-boats, cargo ships, barges, and similar vessels	8901	1.0	1.3	0.2	0.002		

Note 1: “Unclassified items” are excluded if they enter in the top-ranking items.
Note 2: Blank fields indicate that there were no export values.
Source: *Global Trade Atlas*.

Looking at what items Russia and Ukraine supply to Japan through imports (Table I-1-1-37), Russia accounts for a relatively high percentage of energy-related imports. Although they are not as strong as in European countries, the effects of rising crude oil prices and unstable supply in some commodities should be borne in mind in Japan as well.

Table I-1-1-37. Trends in Russia and Ukraine regarding major imports to Japan

Trends regarding Japan's imports from Russia and Ukraine (2021)

Item	HS Code	Global imports (Trillion yen)	Percentage of global imports (%)	Amount of imports from Russia (100 million yen)	Percentage of global imports accounted for by Russia (%)	Amount of imports from Ukraine (100 million yen)	Percentage of global imports accounted for by Ukraine (%)
Total		84.8		15,489	1.8	798	0.1

Petroleum oils and oils obtained from bituminous minerals (limited to crude)	2709	6.9	8.2	2,578	3.7		
Petroleum gas and other gaseous hydrocarbons	2711	5.0	5.9	3,724	7.4		
Telephone sets and other apparatus	8517	3.1	3.7	0.04	0.0001	2	0.01
Electronic integrated circuits	8542	2.8	3.3	0.02	0.0001	0.04	0.0001
Coal, briquettes, ovoids, and similar solid fuels manufactured from coal	2701	2.8	3.3	2,828	10.2		
Automatic data-processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form, and machines for processing such data	8471	2.1	2.4	0.5	0.002	0.01	0.00005
Petroleum oils and oils obtained from bituminous minerals (excluding crude), preparations	2710	2.0	2.4	387	1.9	0.01	0.00004
Medicaments in retail sale form or packed	3004	2.0	2.3	0.00	0.00000		
Iron ores	2601	2.0	2.3	54	0.3	259	1.3
Human blood; animal blood prepared for therapeutic, prophylactic or diagnostic uses; antisera and other blood fractions and immunological products; vaccines, toxins, cultures of micro-organisms	3002	2.0	2.3	0.01	0.0001	0.1	0.0005

Note: Blank fields indicate that there were no import values.
Source: *Global Trade Atlas*.

As mentioned above, Russia and Ukraine are not necessarily large markets for Japan's major exports, and, excluding the import of energy-related items from Russia, the two countries are not major sources of imports for Japan. However, there are items that are not necessarily major items traded between Japan and the rest of the world, but for which Russia and Ukraine are important export markets or sources of imports for Japan.

The following tables (Table I-1-1-38) and (Table I-1-39) show the percentages accounted for by trade between Japan and Russia and Ukraine as to locally major traded items. According to the tables, among exports from Japan to Russia, passenger vehicles (HS8703) and their parts (8708) account for a small percentage of total global exports, at only about 3%. However, tires (HS4011) have a relatively high share of total global exports, at 7.3%.

Not only does Russia export energy-related items to Japan, but it is also a major source of platinum (HS7110) and marine products (HS0303, HS0306), while Ukraine is a major source of tobacco cigars and similar items (HS2402). Looking at the items in more detail, Russia accounts for a high percentage of Japan’s imports such as sea urchin (40.3% of import values in 2021). As mentioned in

the previous section, Japan depended on Russia for 35.3% of palladium imports in 2021. Meanwhile, regarding imports from Ukraine, Japan depended on Ukraine for 19.2% of its tobacco import values in 2021.

Table I-1-1-38. Trends in major Japanese export items to Russia and Ukraine

Trends regarding major export items from Japan to Russia (2021)

Item	HS code	Amount of exports from Japan to Russia (100 million yen)	Percentage of global exports accounted for by exports to Russia (%)	Amount of global exports from Japan (Trillion yen)	Percentage of global exports (%)
Total		8,624	1.0	83.1	
Motor cars and other motor vehicles designed for the transport of persons	8703	3,144	3.3	9.4	11.3
Parts and accessories for motor vehicles	8708	998	2.8	3.6	4.3
Self-propelled bulldozers, angledozers, levelers, scrapers, mechanical shovels, excavators, shovel loaders, tamping machines and road rollers	8429	568	4.5	1.3	1.5
Motor vehicles for the transport of goods	8704	415	3.8	1.1	1.3
New pneumatic tires, of rubber	4011	402	7.3	0.6	0.7
Spark-ignition reciprocating or rotary internal combustion piston engine	8407	301	5.3	0.6	0.7
Parts suitable for use solely or principally with machinery	8431	98	3.6	0.3	0.3
Electrical lighting or signaling equipment, windscreen wipers, defrosters, and demisters, of a kind used for cycles or motor vehicles	8512	90	5.4	0.2	0.2
Instruments and appliances used in medical, surgical, dental or veterinary sciences	9018	85	1.3	0.6	0.8
Sanitary towels (pads) and tampons, napkins and napkin liners for babies, and similar articles	9619	83	8.8	0.1	0.1

Trends regarding major export items from Japan to Ukraine (2021)

Item	HS code	Amount of exports from Japan to Ukraine (100 million yen)	Percentage of global exports accounted for by exports to Ukraine (%)	Amount of global exports (Trillion yen)	Amount of global exports (Trillion yen)
Total		640	0.1	83.1	
Motor cars and other motor vehicles designed for the transport of persons	8703	503	0.5	9.4	11.3
New pneumatic tires, of rubber	4011	22	0.4	0.6	0.7
Motorcycles, cycles fitted with an auxiliary motor, sidecars	8711	14	0.5	0.3	0.4
Apparatus based on the use of X-rays or of alpha, beta, gamma, or other ionizing radiations	9022	8	0.4	0.2	0.3
Chassis fitted with engines	8706	6	2.6	0.02	0.03
Parts and accessories for motor vehicles	8708	4	0.0	3.6	4.3

Wadding of textile materials and articles thereof; textile fibers not exceeding 5 mm in length (flock), textile dust and mill neps	5601	4	2.2	0.02	0.02
Organo-sulphur compounds	2930	3	0.3	0.1	0.1
Instruments and appliances used in medical, surgical, dental or veterinary sciences	9018	3	0.1	0.6	0.8
Tractors	8701	3	1.2	0.03	0.03

Note: "Unclassified itmes" are excluded if they enter in the top-ranking items.
Source: *Global Trade Atlas*.

Table I-1-1-39. Trends in Japan's major import items from Russia and Ukraine

Trends in Japan's major import items from Russia (2021)

Item	HS code	Amount of Japan's imports from Russia (100 million yen)	Percentage of global imports accounted for by imports from Russia (%)	Amount of global imports to Japan (Trillion yen)	Percentage of global imports (%)
Total		15,489	1.8	84.8	
Petroleum gas and other gaseous hydrocarbons	2711	3,724	7.4	5.0	5.9
Coal, briquettes, ovoids, and similar solid fuels manufactured from coal	2701	2,828	10.2	2.8	3.3
Petroleum oils and oils obtained from bituminous minerals (limited to crude)	2709	2,578	3.7	6.9	8.2
Platinum, unwrought or in semi-manufactured forms, or in powder form	7110	1,534	12.3	1.2	1.5
Unwrought aluminium	7601	1,357	19.9	0.7	0.8
Fish (frozen, excluding fillets and other fish meat)	0303	691	20.2	0.3	0.4
Wood	4407	435	15.4	0.3	0.3
Crustaceans	0306	433	17.4	0.2	0.3
Ferro-alloys	7202	396	12.5	0.3	0.4
Petroleum oils and oils obtained from bituminous minerals (excluding crude), preparations	2710	387	1.9	2.0	2.4

Trends in Japan's major import items from Ukraine (2021)

Item	HS code	Amount of Japan's imports from Ukraine (100 million yen)	Percentage of global imports accounted for by Ukraine (%)	Amount of global imports to Japan (Trillion yen)	Percentage of global imports (%)
Total		798	0.1	84.6	
Cigars, cheroots, cigarillos and cigarettes of tobacco	2402	410	19.2	0.2	0.3
Iron ores	2601	259	1.3	2.0	2.3
Unwrought aluminium	7601	36	0.5	0.7	0.8

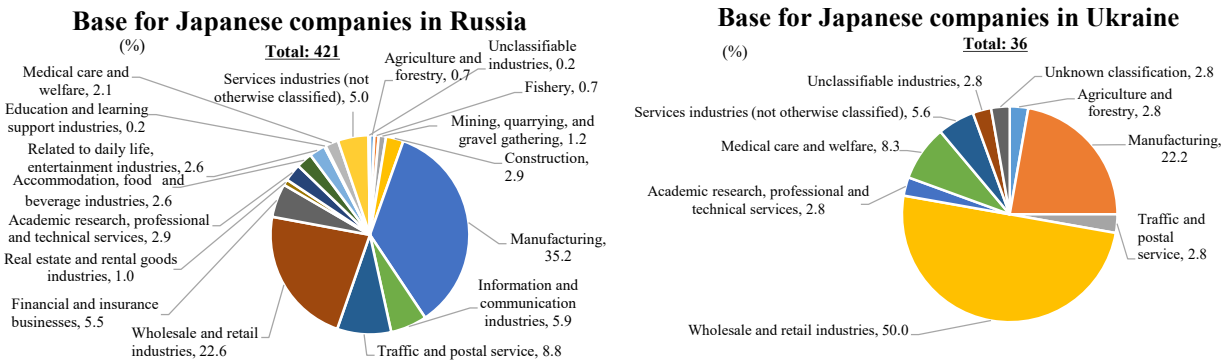
Wood	4407	22	0.8	0.3	0.3
Titanium ores	2614	9	4.1	0.02	0.03
Ferro-alloys	7202	5	0.2	0.3	0.4
Hydrogen, rare gases and other non-metals	2804	5	0.3	0.2	0.2
Electric instantaneous or storage water heaters and immersion heaters; electric space heating apparatus and soil heating apparatus; electro-thermic hairdressing apparatus, and hand dryers; electric smoothing irons; other electro-thermic appliances of a kind used for domestic purposes; electric heating resistors	8516	5	0.2	0.3	0.3
Sunflower-seed, safflower or cotton-seed oil, and fractions thereof	1512	5	9.4	0.005	0.01
Skins and other parts of birds with their feathers, feathers and parts of feathers, and down, powder and waste of feathers or parts of feathers	0505	3	2.1	0.01	0.02

Source: *Global Trade Atlas*.

5. Trends of Japanese companies operating in Russia and Ukraine

According to the Survey on the Number of Japanese Companies Operating Overseas conducted by the Ministry of Foreign Affairs, Japan had 421 company bases in Russia and 36 company bases in Ukraine as of October 2020 (Figure I-1-1-40) (see note in the chart for the definition of company bases). A high percentage of Japanese business bases in Russia and Ukraine are in the manufacturing, wholesale, and retail industries.

Figure I-1-1-40. Number of bases owned by Japanese businesses in Russia and Ukraine

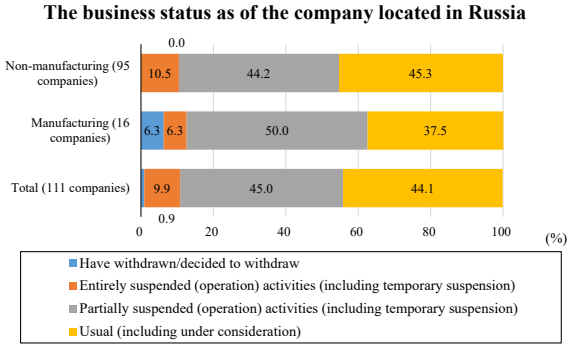


Note 1: A business base is defined as an overseas branch of a Japanese company, an overseas affiliate or branch wholly owned by a Japanese company, a joint venture company (an overseas affiliate in

which a Japanese company has a direct or indirect investment ratio of 10% or more) or branch of a joint venture company, or a company started by a Japanese person who moved abroad (the Japanese person has an investment ratio of 10%).
Note 2: As of October 1, 2020.
Source: *Survey on the Number of Japanese Companies Operating Overseas* (Ministry of Foreign Affairs).

Russia's aggression against Ukraine has had a serious impact on the activities of Japanese companies operating in the affected regions. Specifically, according to the Survey on Companies Operating in Russia conducted by JETRO, among the 111 companies that responded to the survey, more than 50% withdrew (have withdrawn or decided to withdraw) or suspended activities (entirely or partially) in both the manufacturing and non-manufacturing industries (Figure I-1-1-1-41).

Figure I-1-1-41. Business status of Japanese companies in Russia



Note 1: The survey period was April 15 to 19, 2022.
Note 2: 211 companies that are members of the Japanese Business Club or the Japanese Business Club in St. Petersburg are included.
Source: *Results of the Survey on Nikkei Companies Operating in Russia During the Situation between Russia and Ukraine (April 2022)* (JETRO).

6. Measures to address risks in the supply chain of strategic materials and energy and secure a stable supply of them in light of the situation in Ukraine

Generally, regarding Russia's aggression against Ukraine, the impact of disturbances in the financial and commodity markets, and of the turmoil in the supply of energy- and food-related items—major export items from Russia and Ukraine—and the possibility of an interruption in the supply of rare metals and other resources that both countries possess, although not in large trade amounts, should be borne in mind. The Task Force on Strategic Goods and Energy Supply Chains, headed by the METI, was organized in order to analyze and respond to risks related to the safe supply of important items not only judging by the situation in Ukraine, but also from a medium- to long-term perspective, as well as from the perspectives of people's lives and security. At its first meeting, materials that needed prompt measures were identified, and the direction of the measures were stated (Table I-1-1-42).

Table I-1-1-42. Summary of emergency measures by the Task Force on Strategic Goods and Energy Supply Chains

(1) Direct encouragement of resource countries and cooperation with major consumer countries	■ Encourage oil, gas, and coal producing countries to increase production ■ Cooperation with major oil consuming countries (also relevant international organizations such as the IEA, and frameworks such as the G7 and G20)
(2) Achievement of new cooperation with volunteer countries	■ Establishment of a framework for cooperation in semiconductors and digital supply chains among allies and volunteer countries centered around Japan and the United States ■ Strengthening of emergency measures for fuel supply (consideration of a framework to share fuel between businesses, the direction of strengthening national involvement in procuring LNG, and other measures) ■ Establishment of a system for grasping the supply and demand situation of LNG and monitoring the coal supply chains
(3) Dialog with companies and policy support to increase domestic production and achieve alternative procurement	■ Concerns over ensuring supply of raw materials for semiconductors from Russia and Ukraine ■ Measures to reduce the amount of coal used (Establishing energy saving facilities that will lead to reduced use of coal in manufacturing facilities, such as those for iron, and promoting the establishment of facilities that will lead to the fuel transition of coal-fired power of home power generators) ■ Securing a supply of palladium and ferroalloys, and supporting the development of technologies that conserve palladium
(4) Strengthening of efforts to acquire upstream interests	■ Support for acquiring upstream oil and gas interests (including for expansion), such as through JOGMEC ■ Support from JOGMEC for diversifying supply sources of palladium and ferroalloys
(5) Strengthening of efforts to acquire upstream interests	■ Energy-saving measures for private businesses and general consumers: Adoption of equipment, energy conservation diagnoses, and more ■ Strengthening of the communication of messages calling to conserve energy to industries and general households during summer and winter ■ Transition to structures that conserve energy or use hydrogen energy: - Solar power batteries - Promotion of the adoption of batteries - Promotion of the adoption of clean energy vehicles (e.g., charging infrastructure) - Fuel transition from oil, coal, and similar resources in the manufacturing industry

Source: Excerpt from materials by the Task Force on Strategic Goods and Energy Supply Chains, METI.