



JETRO Global Trade and Investment Report 2023

-International Business Facing Fragmentation Risks-

Japan External Trade Organization (JETRO)
Research and Analysis Department
July 2023

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JETRO

Key Points of JETRO Global Trade and Investment Report 2023

I. The World's and Japan's Economy and Trade

- In 2022, global trade increased year-on-year in both value and volume. However, the momentum began slowing down toward 2023. In addition to the uncertainty in the global economic outlook, high resource prices, food insecurity, and financial market instability are downside risks.
- The prolonged conflict in Ukraine, increasing trade-restrictive measures by major countries, and geopolitical risks including U.S.-China relations, are distorting the free trade regime.
- Trade relations among major countries and regions, which have been formed based on economic efficiency and comparative advantage, are gradually shifting in favor of like-minded countries with shared political values.

II Global FDI and Japan's FDI

- The strong investment recovery trend, which lasted about two years, turned around and shifted to a downward phase in the second half of 2022, due to the cascade of crises, including high inflation, high interest rates, and rising debt.
- Meanwhile, competition to attract strategic industries with large fiscal outlays, especially in the U.S. and the EU, is accelerating. Large investment projects by multinationals taking advantage of subsidies and tax incentives have increased. Competition among self-centered, inward-looking industrial policies and wariness of the risk of supply chain disruptions are causing changes in corporate investment behavior.

III Trade Rulemaking

- Economic security and supply chain resilience have encouraged countries to adopt independent policies and regulations which have increased uncertainty in the trade environment and inhibited the expansion and diversification of transactions.
- In a growing urgency to deal with fragmented rules, companies confront a new challenge to prepare for various issues beyond legal compliance, including consideration of geopolitical supply-chain risks, and responses to reputational risks.

IV Policies and Business for a Sustainable Society

- Legislation and societal demands for companies on human rights and environmental due diligence are steadily progressing, and appropriate responses throughout supply chains are essential. On the other hand, global investment in ESG bonds has declined in 2022. There is a sign of change in ESG investment trends.
- With the implementation of the EU's Carbon Border Adjustment Mechanism (CBAM), carbon pricing, which is being introduced around the world has entered a new stage. The calculation of greenhouse gas emissions is becoming an unavoidable issue for companies.

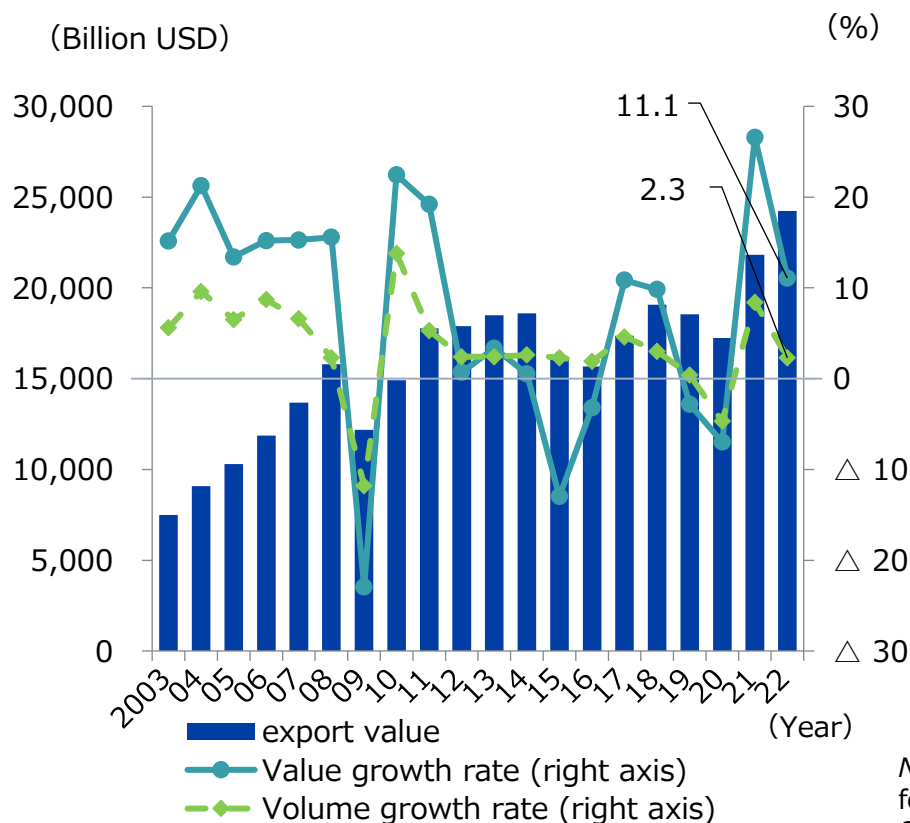
I. Global and Japanese Economy and Trade

~Rising risk of fragmentation in global trade flows~

1 | Global trade at record high in 2022, but growth slows

- Global trade (trade in goods, estimated by JETRO) in 2022 was **24.24 trillion USD, and increased by 11.1% from the previous year.** This was a record high, but the growth slowed from the previous year (+26.6%).
- The growth rate of the trade volume (2.3%) was lower than that of the trade value (11.1%).** This is likely related to the surge in prices of resources such as mineral fuels, metals, and food, which pushed up the overall trade value.

Global trade in goods (export-based)



Source: JETRO estimates, WTO

Quarterly changes in trade values of 33 major countries/regions by product (YoY)

(Unit: %)

	Exports				
	2022				2023
	Q1	Q2	Q3	Q4	Q1
Total	15.1	12.5	10.0	- 0.5	- 0.1
General machinery	6.9	0.7	1.4	- 5.5	- 1.2
Semiconductor manufacturing equipment	9.6	9.4	7.5	- 2.3	- 10.5
Electronical equipment	13.0	9.9	6.2	- 4.9	- 5.9
Integrated-circuit	23.8	15.4	4.4	- 7.7	- 18.4
Transport equipment	0.3	0.4	12.4	9.0	14.0
Chemicals	18.6	10.5	4.4	- 6.1	- 5.3
Food	10.4	9.2	8.1	4.5	5.3
Mineral fuels	74.9	91.7	70.0	28.7	8.5
Natural gas, etc.	80.2	130.1	105.1	29.9	8.5
Crude oil	59.1	56.7	55.2	27.4	5.2

Note: (1) Commodity classification is based on JETRO. (2) Calculated only for 33 countries/regions for which quarterly data for 2023 are available.
Source: Compiled by JETRO from the Global Trade Atlas.

2 | Increased trade between like-minded and neighboring countries

- In the first quarter of 2023, the trade value (export value) increased 16.5% over the same period in 2021.
- Trade within the USMCA region, between the U.S. and EU, and between China and ASEAN has had relatively high growth. On the other hand, trade between China and the EU, and the U.S. and Japan is growing at a lower rate. A trend toward **stronger trade relations with like-minded and neighboring countries** is about to emerge.

Global Trade Value Matrix (Q1 2023 trade value, growth rate over Q1 2021) (Millions USD, %)

Export \ Import	World									<Legend>
	World	USMCA		EU	Japan	Korea	Taiwan	China	ASEAN	
			U.S.							
World	5,810,903 16.5	999,965 16.0	732,576 14.0	1,834,502 20.6	184,704 15.3	151,018 16.4	78,964 1.3	514,490 0.3	448,873 18.4	
USMCA	793,495 25.7	399,316 26.3	226,400 29.2	107,395 49.3	23,259 12.1	18,612 2.2	10,238 10.3	47,480 10.9	28,350 18.1	
U.S.	508,764 25.9	167,295 22.9	-	95,315 53.8	19,073 9.6	15,848 1.2	9,726 13.1	38,892 10.8	26,028 17.0	
EU	1,802,674 13.1	143,098 7.6	118,268 5.4	1,153,314 17.8	16,324 -7.1	13,213 -11.5	8,809 12.6	56,321 -14.2	23,394 2.7	
Japan	173,906 -3.9	38,655 5.8	33,148 4.9	17,491 1.0	-	12,580 -1.1	11,434 -7.9	28,946 -24.0	27,040 0.1	
Korea	151,353 3.4	32,052 18.3	26,977 18.1	17,765 9.8	7,055 3.1	-	4,289 -17.1	29,560 -18.8	26,324 11.9	
Taiwan	90,906 -0.6	16,480 12.1	14,901 12.1	7,979 24.8	6,637 24.4	4,314 1.2	-	19,554 -25.1	15,867 3.1	
China	821,891 15.8	144,509 0.4	115,474 -3.3	126,120 14.3	40,775 5.3	38,834 22.4	15,879 -7.2	-	139,075 32.3	
ASEAN	459,900 16.5	77,701 19.8	70,141 18.3	42,594 15.1	32,347 15.6	19,090 20.5	12,108 5.2	72,127 19.9	103,264 16.0	

<Legend>
30% or more
Less than 20~30%
Less than 10~20%
Less than 0~10%
0~-10%
-10~-20%
20% or less

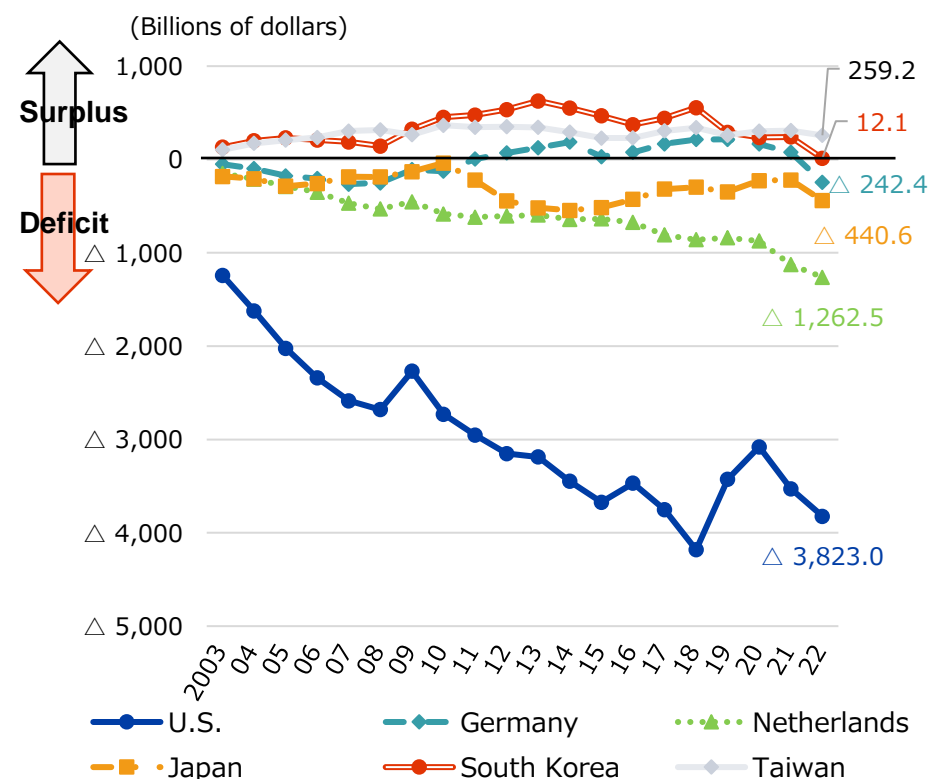
Notes: (1) Based on exports. (2) Taiwan's export data is not included in DOTS, so the Global Trade Atlas was used. The upper row shows the export value in Q1 2023, and the lower row shows the growth rate compared to Q1 2021.

Source: Compiled by JETRO from DOTS (June 2023 edition) and the Global Trade Atlas (Taiwan data only).

3 | Growing trade deficit, new risks with China are rising

- **The U.S. trade deficit with China peaked in 2018 and narrowed once**, but has begun to grow again. The trade deficits of the Netherlands, Japan, and Germany with China are also on the rise.
- **The ratio of U.S. imports to China peaked at 21.6% in 2017 and declined to 13.4% January-May 2023**. The ratio of imports to China from the Netherlands, Japan, and Taiwan is also declining.

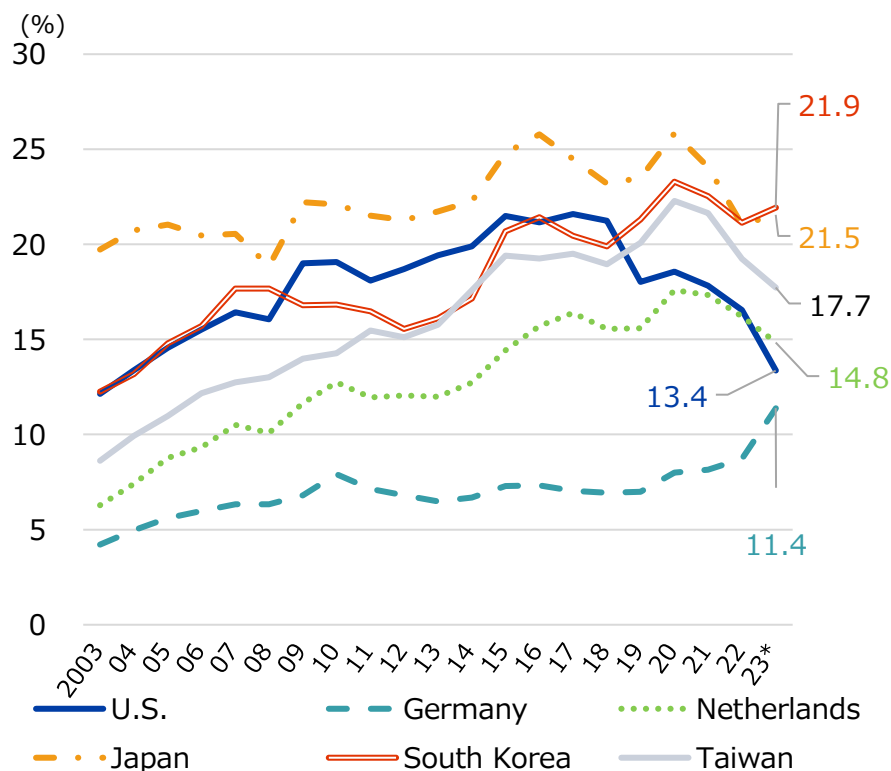
Trade balance with China in six countries/regions



Note: Six countries/regions are the top five countries in terms of imports from China (excluding Hong Kong) and Taiwan in 2022.

Source: Compiled by JETRO from Global Trade Atlas.

Ratio of imports to China by six major countries/regions



Note: For 2023: January to May for U.S., Japan, and South Korea; January to April for Germany, the Netherlands, and Taiwan.

Source: Compiled by JETRO from Global Trade Atlas.

4 | Semiconductor-related products enter recessionary phase of market cycle

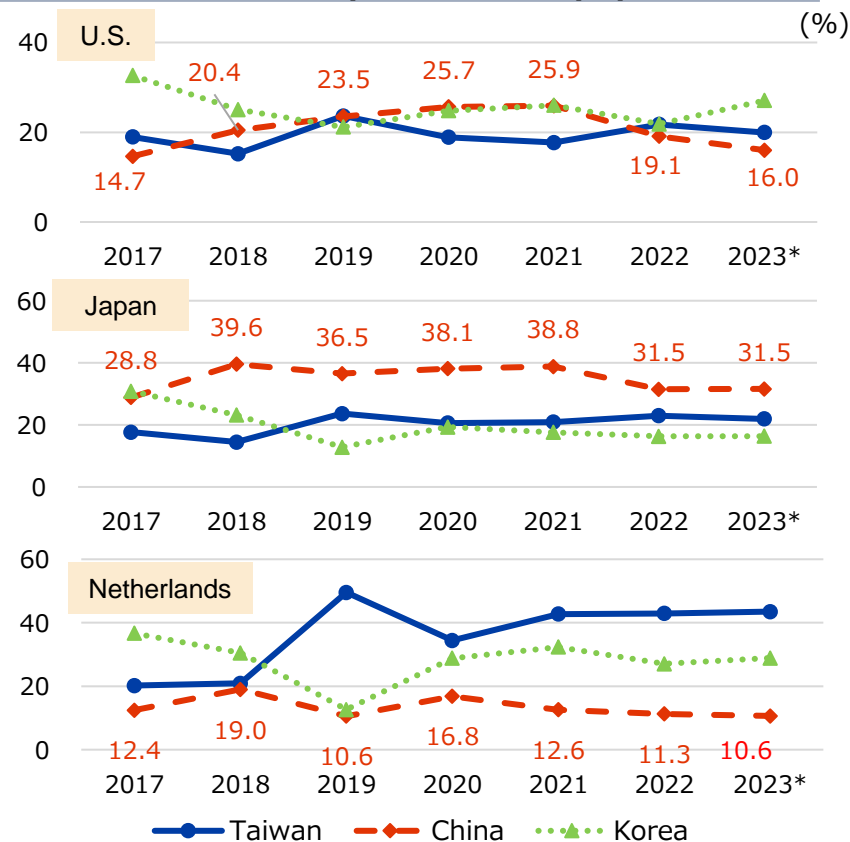
- In exports of semiconductor-related products, **PCs, telecommunication equipment including cell phones, and memory devices grew slower than the previous year**. This was mainly due to the market cycle.
- **The U.S. export share of semiconductor manufacturing equipment to China shrank due to stricter export controls to China from October 2022**. The contraction is also seen in Japan and the Netherlands, and is thought to be a spillover effect of the U.S. export controls.

Global trade by semiconductor-related products (in terms of export value, 2022)

	Value	Composition ratio	Growth rate
(Billions USD, %)			
Computers and components	6,877	2.8	- 2.2
Telecommunication equipment	6,144	2.5	- 7.6
Cell phones	2,825	1.2	- 2.8
Semiconductors and other electronic components (Note (3))	12,840	5.3	10.4
Integrated-circuits	11,042	4.6	9.1
Processors/controllers	4,076	1.7	16.3
Memory devices	2,408	1.0	- 8.8
Amplifiers	274	0.1	5.4
Other integrated circuits	4,052	1.7	15.4
Semiconductor manufacturing equipment	1,381	0.6	12.3
Microtomes	154	0.1	0.5
Semiconductor measurement and inspection equipment	73	0.0	8.2
Semiconductor, photomask and lectil inspection equipment	106	0.0	47.3
Silicon carbide	12	0.0	30.2
Silicon wafers	202	0.1	19.2

Notes: (1) Item classification is determined by JETRO. (2) The composition ratio is the percentage of the total global exports. (3) The growth rate is for reference only. HS codes that were split and integrated from HS2017 were done so in accordance with the revision of HS2022. Source: JETRO estimates

Changes in exports composition of semiconductor production equipment



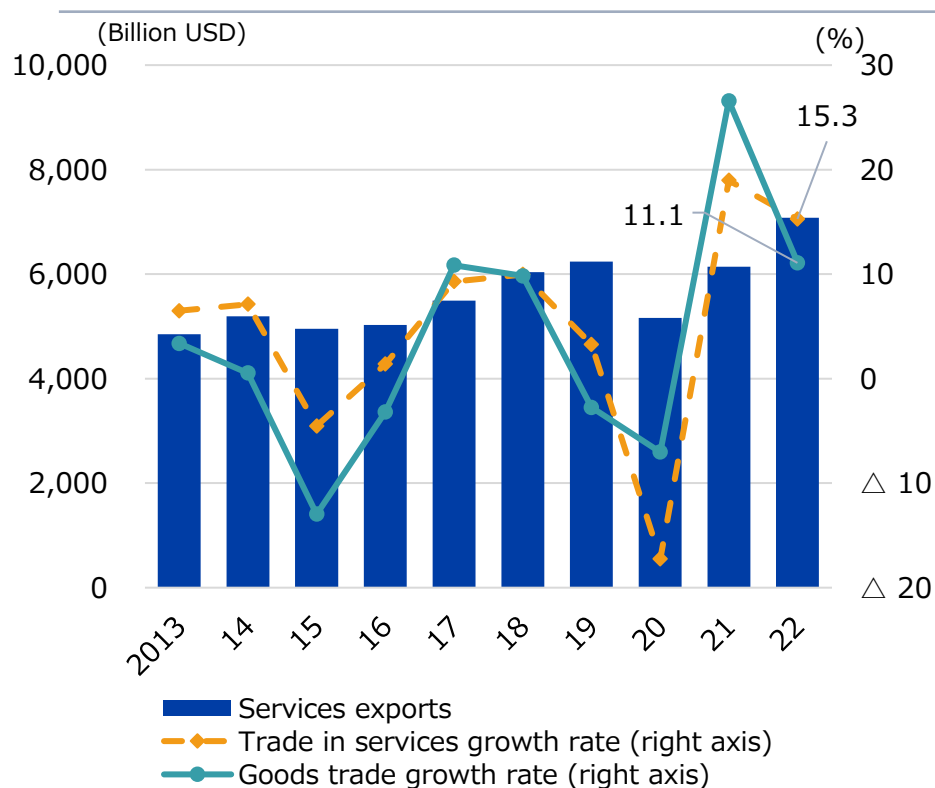
Note: 2023 is the cumulative total from January to April.

Source: Compiled by JETRO from Global Trade Atlas. © 2023 JETRO. All rights reserved.

5 | Trade in services rebounds on travel recovery

- In 2022, global trade in services (in terms of exports) exceeded 7 trillion USD for the first time, **growing 15.3% year over year**. This is above the level of 2019 before the COVID-19 pandemic.
- By sector, **"travel" recovered sharply (+91.5% y-o-y)** due to the resumption of traveler traffic in many countries and regions, contributing significantly to the recovery in trade in services.

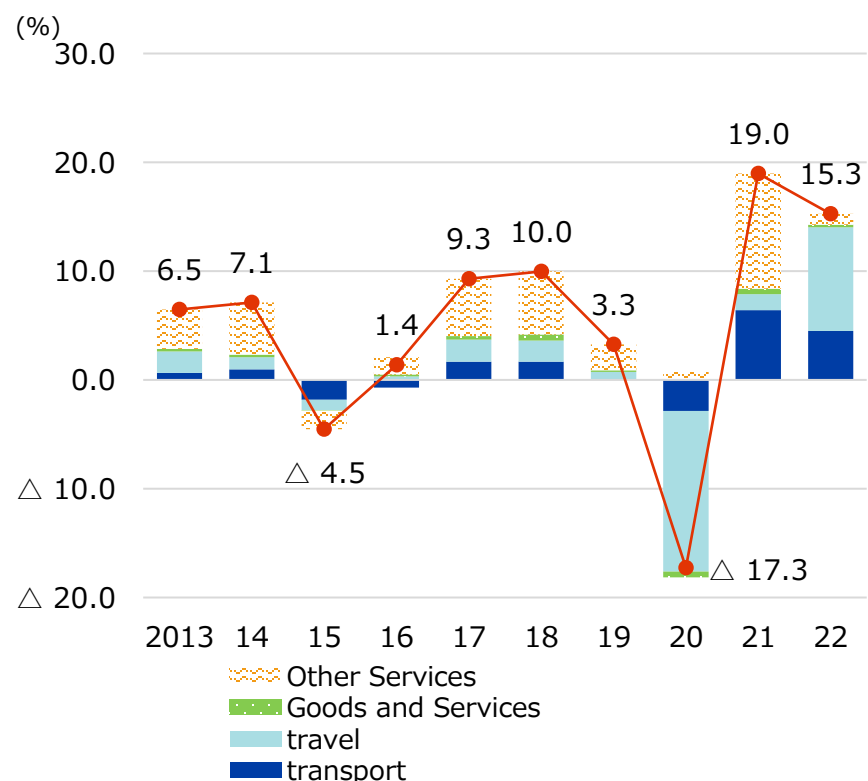
Global trade in services



Note: (1) Commercial services only. (2) Exports of services are estimates based on quarterly data. The growth rate of trade in goods is in value terms.

Source: JETRO estimates, WTO

Contribution of global trade in services by sector



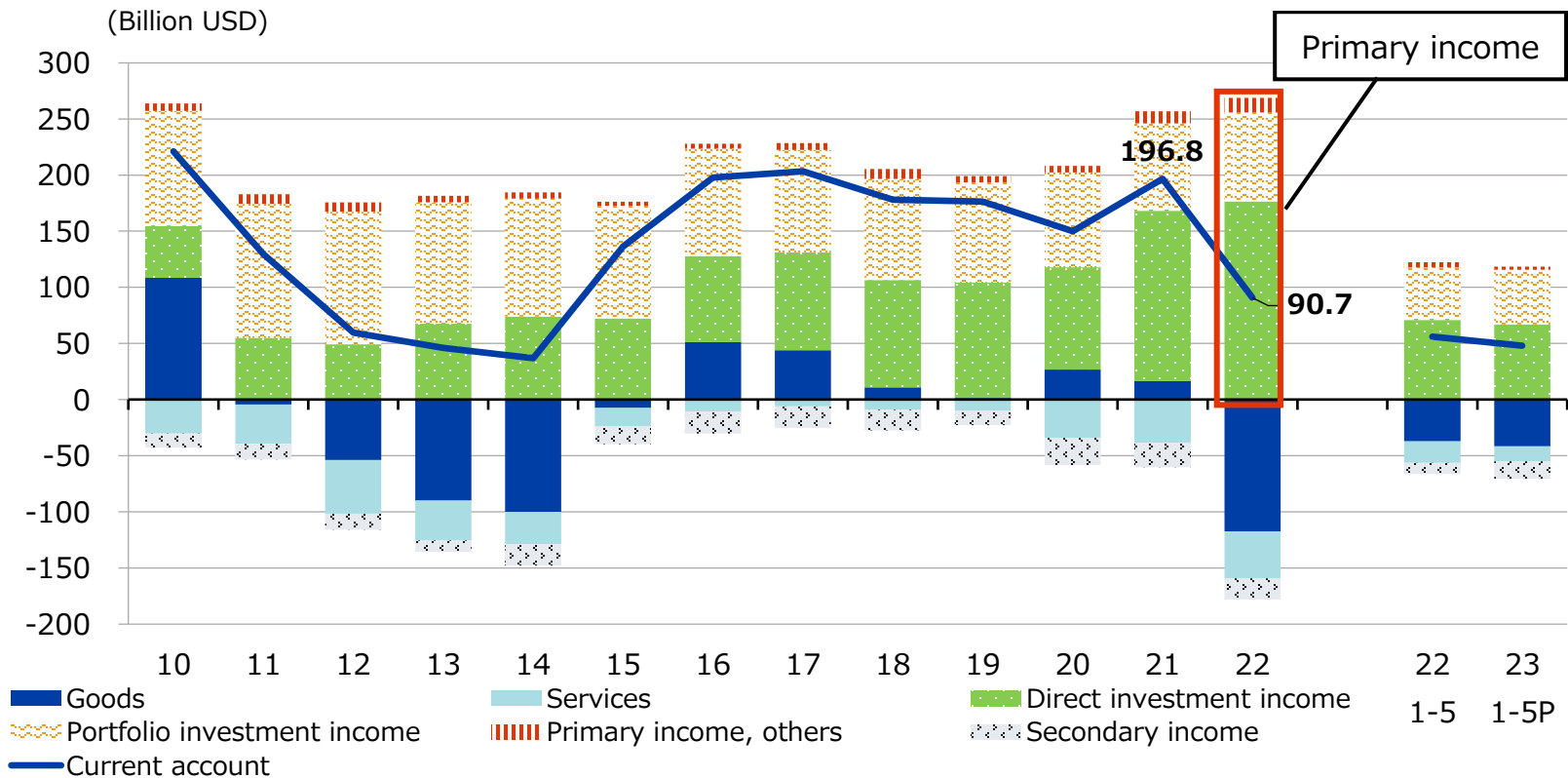
Note: (1) Commercial services only. (2) Calculated using estimates based on quarterly data.

Source: WTO

6 | Negative contribution of trade to Japan's current account has become serious

- Japan's account surplus in 2022 was \$90.7 billion, the **first time in eight years**, since 2014, that it has **fallen below \$100 billion**.
- While the primary income remained in a large surplus, the current account was pushed down by trade turning from a surplus of \$16.5 billion in the previous year **to a deficit of \$117.6 billion**.

Japan's current account



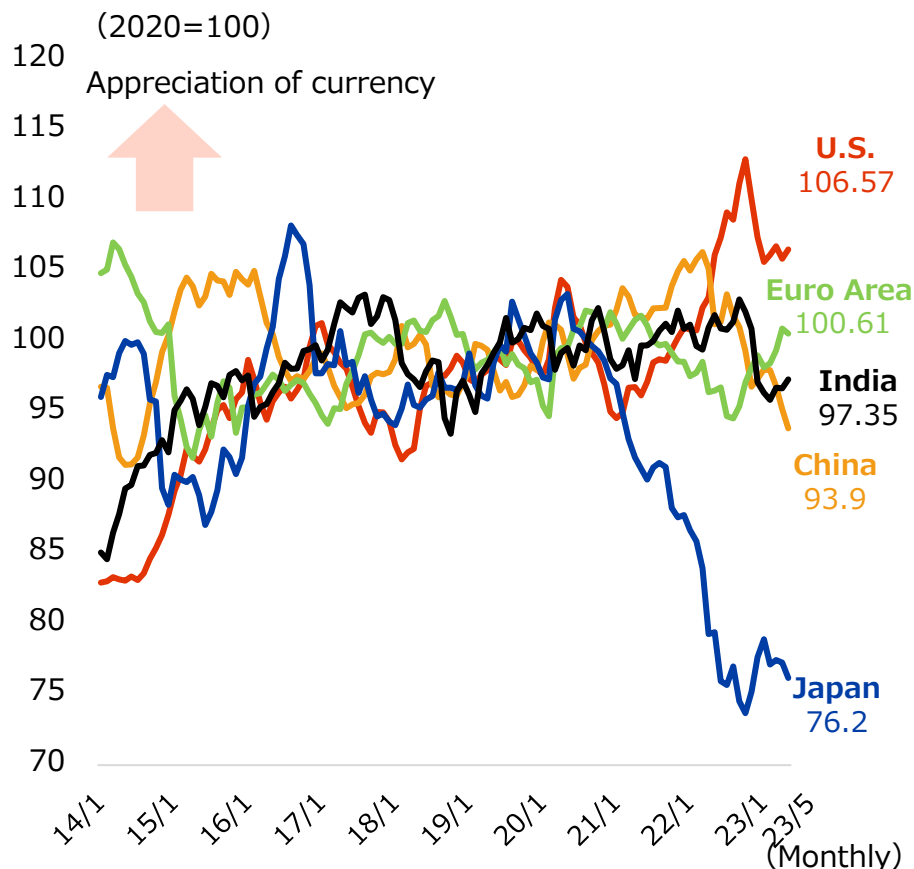
Note: JETRO converted the figures disclosed in JPY into USD; P stands for "preliminary."

Source: "Balance of Payments Statistics" (Ministry of Finance, Bank of Japan)

7 | Real effective exchange rates and policy rate trends in major countries and regions

- The yen has been depreciating rapidly from 2021 onward. The Japanese yen's real effective exchange rate index (2020=100) fell below 80 in April 2022, the **weakest** level **since 1971**.
- A series of policy rate hikes by major countries widened the interest rate gap with Japan, which maintains negative interest rates.

Real effective exchange rate indices for major countries and regions (monthly average)



Policy rates in G20 countries and regions

Country/region	End of December, 2020	Endo of June, 2023
Argentina	38	97
Australia	0.1	4.1
Brazil	2	13.75
Canada	0.25	4.75
China	3.85	3.65
Euro Area	0	4
India	4	6.5
Indonesia	3.75	5.75
Japan	- 0.1	- 0.1
Korea	0.5	3.5
Mexico	4.25	11.25
Russia	4.25	7.5
Saudi Arabia	1.0	5.75
Republic of South Africa	3.5	8.25
Turkey	17	15
United Kingdom	0.1	5
U.S.	0 to 0.25	5 to 5.25

Note: (1) Countries/regions in red are those whose policy rates increased compared to the end of 2008. (2) Figures in bold indicate countries/regions that revised their interest rates from March to May 2011.

Source: Compiled from "central bank policy rate statistics" (BIS) and websites of national and regional central banks.

8 | Significant increase in Japan's trade deficit in 2022

- In 2022, Japan's exports were \$751.6 billion, down 0.9% from the previous year, while imports were \$902.6 billion, up 16.6% (customs-cleared basis). Imports rose sharply due to higher energy prices. The trade deficit was the largest in history.
- **Export and import volumes for 2022 were negative for the first time in two years**, and remained **negative between January to May 2023**.

Japan's trade trends

	(Million USD, %)			
	2020	2021	2022	2023 January - May
Total exports	639,950	758,572	751,551	290,278
(Rate of change)	- 9.3	18.5	- 0.9	- 7.1
Total imports	635,707	774,421	902,600	343,039
(Rate of change)	- 11.8	21.8	16.6	- 6.6
Trade balance	4,243	- 15,849	- 151,049	- 52,761
(YoY difference)	19,325	- 20,091	- 135,201	2,157
Export volume index	91.0	101.9	100.0	90.7
(Rate of change)	- 11.7	12.0	- 1.9	- 7.8
Import volume index	97.9	102.8	102.5	98.1
(Rate of change)	- 6.4	5.0	- 0.3	- 3.6

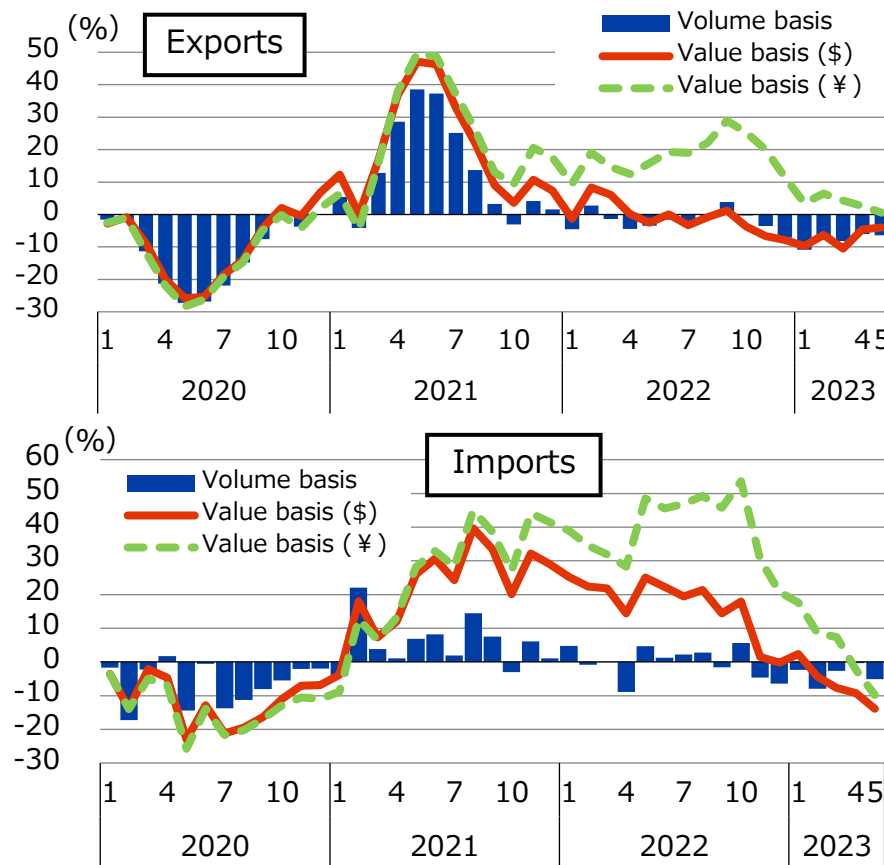
(In both of the charts)

Note: 1) JETRO converted the figures disclosed in JPY into USD.

2) The volume index is on a 2015 basis.

Source: "Trade Statistics" (Ministry of Finance), "Foreign Exchange Rate" (Bank of Japan)

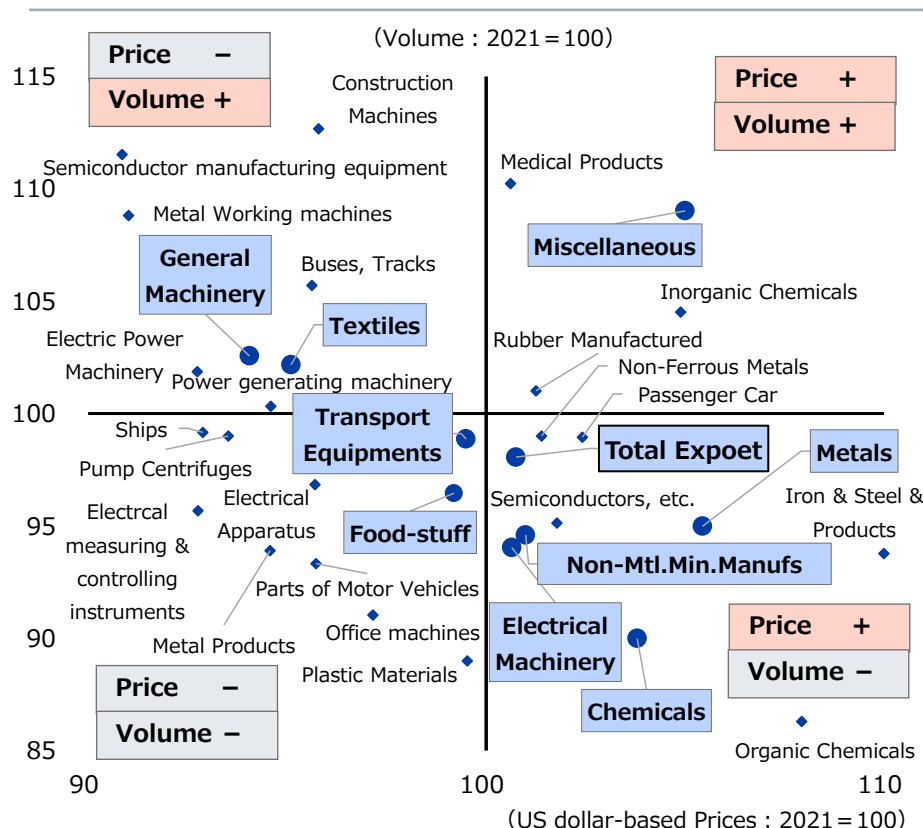
Japan's import & export growth (year-on-year change)



9 | General machinery exports remain steady, while movement slow in export volume

- In 2022, the export price index on a US dollar basis rose slightly from the previous year, but **the volume index failed to reach that of the previous year**. The export volume of passenger cars, which account for a large share of total exports, remained sluggish. On the other hand, exports of general machinery, such as semiconductor manufacturing equipment, continued to see steady growth.
- The yen has continued to weaken in 2023. While the export price in dollars declined, some items, such as food products, have increased in export value from the same period last year, due to volume growth.

Export volume and US dollar-based price index (2022)



Note: JETRO created the dollar-based price index based on the 2015-based export volume index by commodity. 2021=100 for both export volume and dollar price.
 Source: "Trade Statistics" (Ministry of Finance)

Items with increased export volumes (Jan-May 2023)

	Value (dollars)	(Jan-May 2022 Price) Volume	Price (dollars)
Foodstuff			
Whisky	101.0	100.5	100.5
Non-alcoholic beverages, etc.	100.1	113.3	88.4
Beef (fresh and chilled, boneless)	100.6	115.9	86.8
Textiles and textile products			
Synthetic filament woven fabrics (Polyester filament content ≥85% of total weight)	94.3	100.6	93.8
Nonwoven fabrics (70g ≤150g /1m ²)	112.1	117.9	95.1
Synthetic merino fabrics (dyed)	110.6	109.8	100.7
General machinery			
Turbojet, turbopropeller parts	115.9	126.3	91.8
Semiconductor ball/wafer manufacturing equip.	138.7	127.1	109.1
Air conditioner parts	111.9	110.3	101.5
Other			
Playing cards and other amusement cards	175.4	227.5	77.1
Wheeled toys, dolls, plastic models, puzzles	93.1	105.0	88.7
Ink cartridges	77.3	124.9	61.9

Notes: (1) Japan's exports during Jan-May 2023, 4,459 items (HS 6-digit level, about 92% of total export value) were analyzed. Top 3 items in export value in each category, those with an increase in export volume, YoY change. (2) Shading indicates year-on-year increase in export value (in U.S. dollars).
 Source: Global Trade Atlas, S&P Global, Inc.

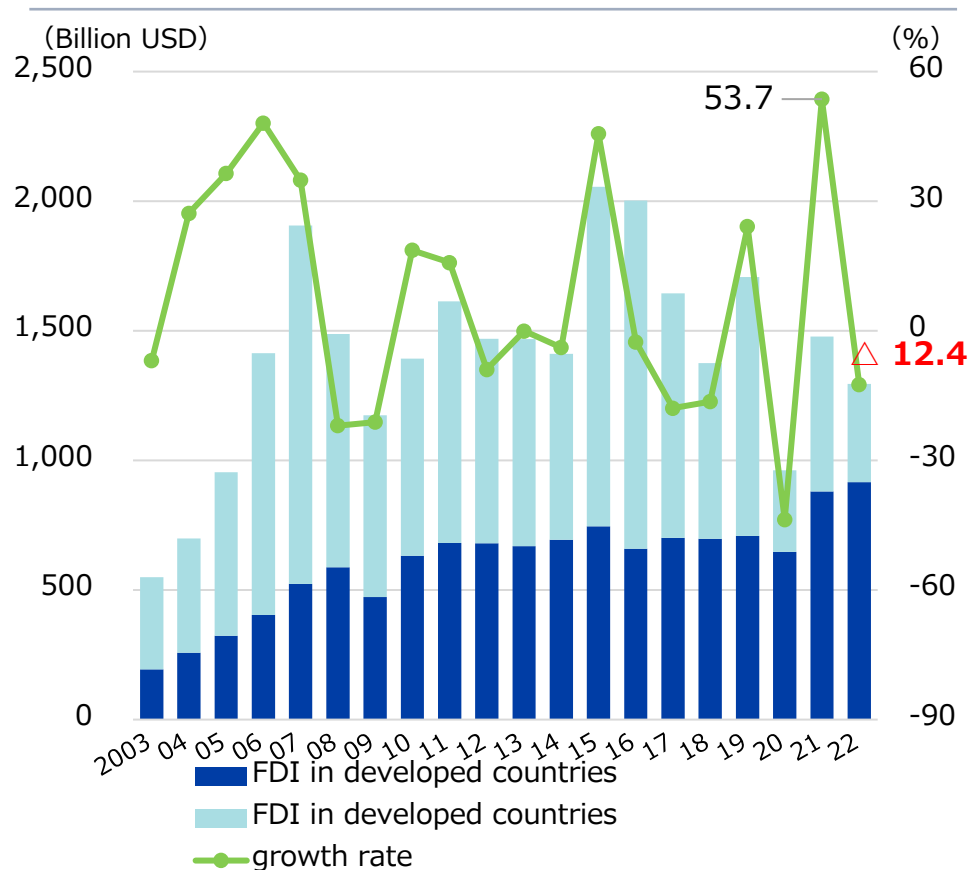
II. Global FDI and Japan's FDI

**~Overseas expansion of global and Japanese companies
and investment in growth industries~**

1 | Global FDI shifts back to the downside in 2022

- **Global foreign direct investment (FDI) in 2022 declined 12.4% from the previous year.** Investment to developed countries and regions pushed the total down by 36.7%. The U.S., the largest recipient of FDI, declined 26.5%. Cross-border M&A to the same country dropped by half.
- Meanwhile, **investment in emerging countries and regions increased 4.0%.** Brazil, ASEAN, China, and other countries saw boosted investment.

Trends in global inward FDI (net and flow)



Inward FDI (net and flow) of major countries and regions in 2022

	Value	Growth rate	Composition ratio	Contribution
World	1,294,738	-12.4	100.0	-12.4
Developed countries	378,320	-36.7	29.2	-14.8
US	285,057	-26.5	22.0	-6.9
EU	-124,948	-	-	-18.8
Australia	61,629	194.9	4.8	2.8
Japan	32,509	31.9	2.5	0.5
Russia	-18,681	-	-	-3.9
Emerging/developing countries	916,418	4.0	70.8	2.4
ASEAN	222,305	4.1	17.2	0.6
China	189,132	4.5	14.6	0.6
India	49,355	10.3	3.8	0.3
Latin America	208,454	51.2	16.1	4.8
Central Asia	10,041	39.3	0.8	0.2
Middle East	48,268	-13.7	3.7	-0.5
Africa	44,929	-43.5	3.5	-2.3

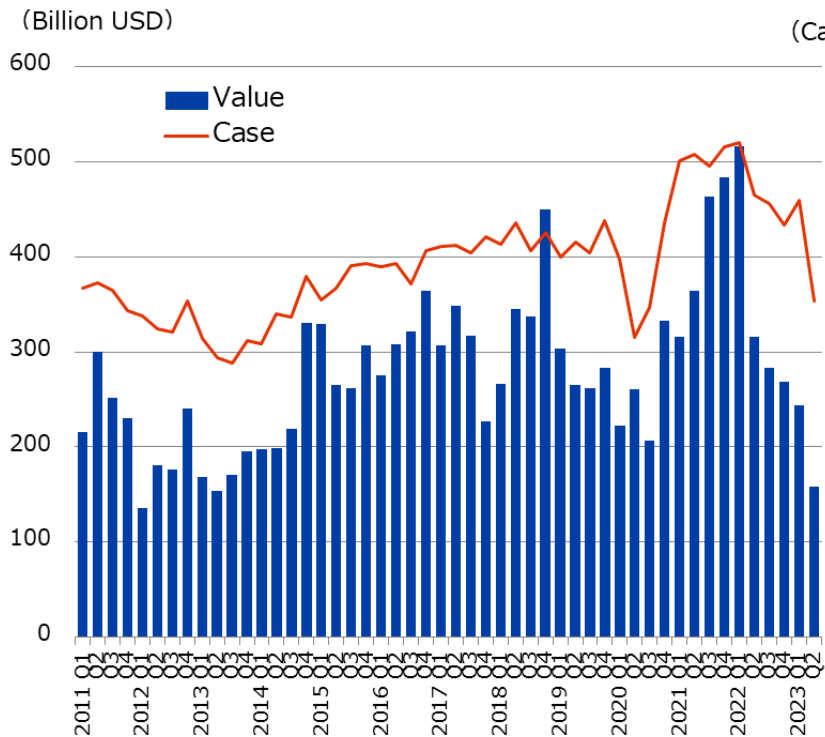
(Both figures) Note: Definitions of developed countries/regions and emerging/developing countries/regions are based on UNCTAD classifications.

Source: UNCTAD

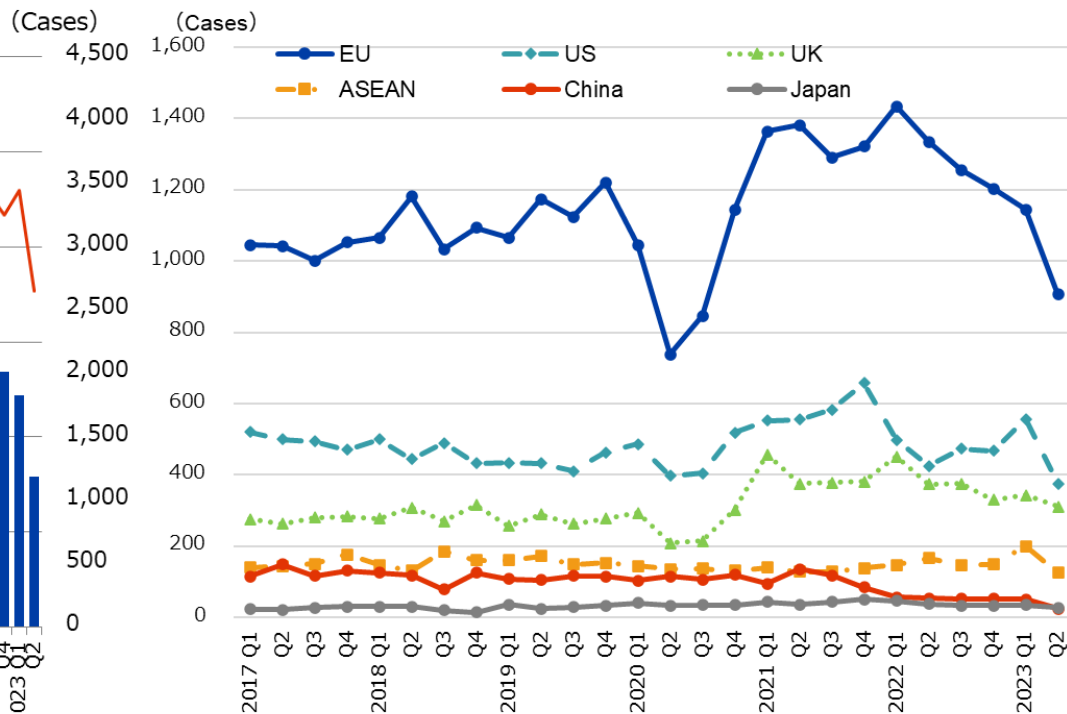
2 | Cross-border M&A peaked out in 1Q22

- Global cross-border M&A declined 14.8% to \$1,386.1 billion in 2022. **The decline began in the second quarter of 2022 due to monetary tightening and increased uncertainty from the Ukraine conflict.**
- In the EU and the U.S., the number of mergers and acquisitions in the second quarter of 2023 will fall to the level seen immediately after the COVID-19 outbreak in 2020. **In China**, where economic recovery is slowing, the number of mergers and acquisitions is **at its lowest level since 2010.**

Global cross-border M&A total value and number of deals



Number of cross-border M&A for major countries and regions (Quarterly)

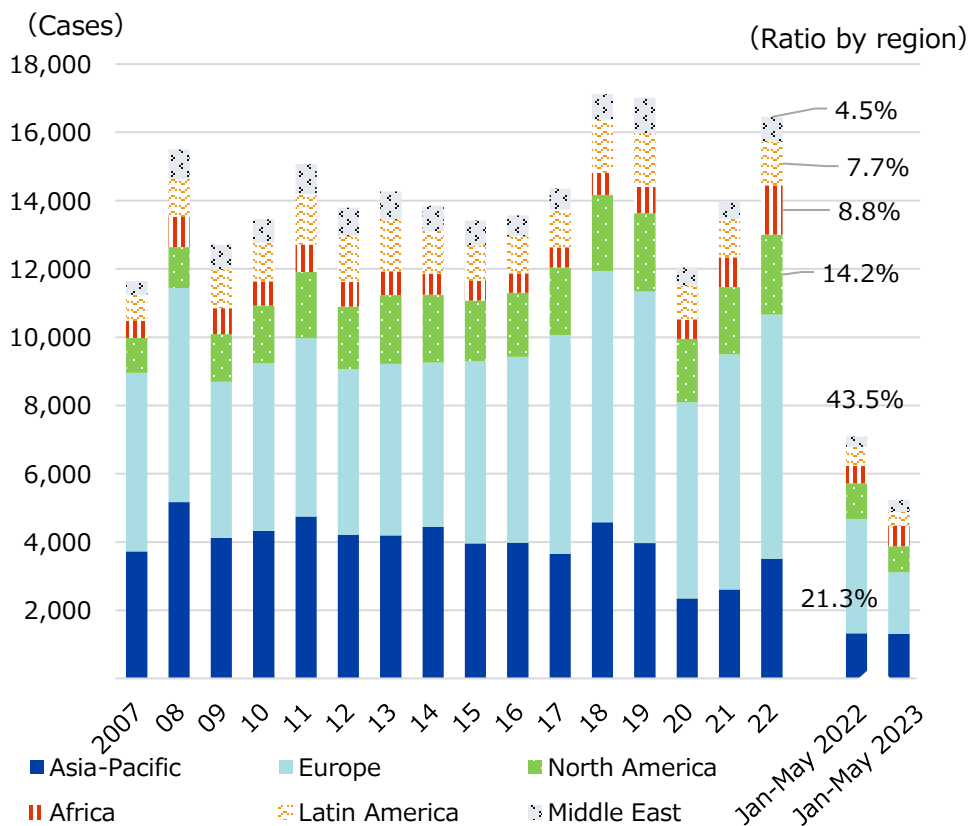


(Both figures) Note: Data up to the second quarter of 2023.
Source: Workspace (Refinitiv) (as of July 4, 2023)

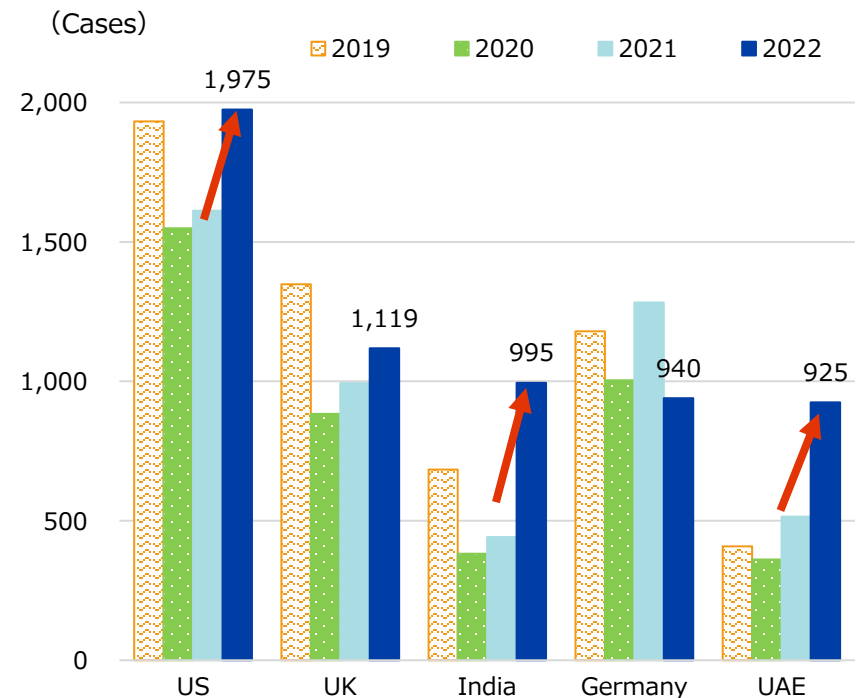
3 | Global greenfield investment is strong

- **The number of global greenfield investments in 2022 (announced basis) increased 17.6% to 16,456.** The level is close to the record high of 2018-19. Increases in the Asia Pacific, Africa, and the U.S. contributed to the increase.
- Investment in India surged 2.3 times that of the previous year, moving the country up to third place from seventh the previous year. Meanwhile, China, which ranked 7th in the same category in the previous year, did not do so well, falling 23.8% to 13th place (336).

Number of global greenfield investments by recipient region



Number of greenfield investments (top 5 receiving countries)

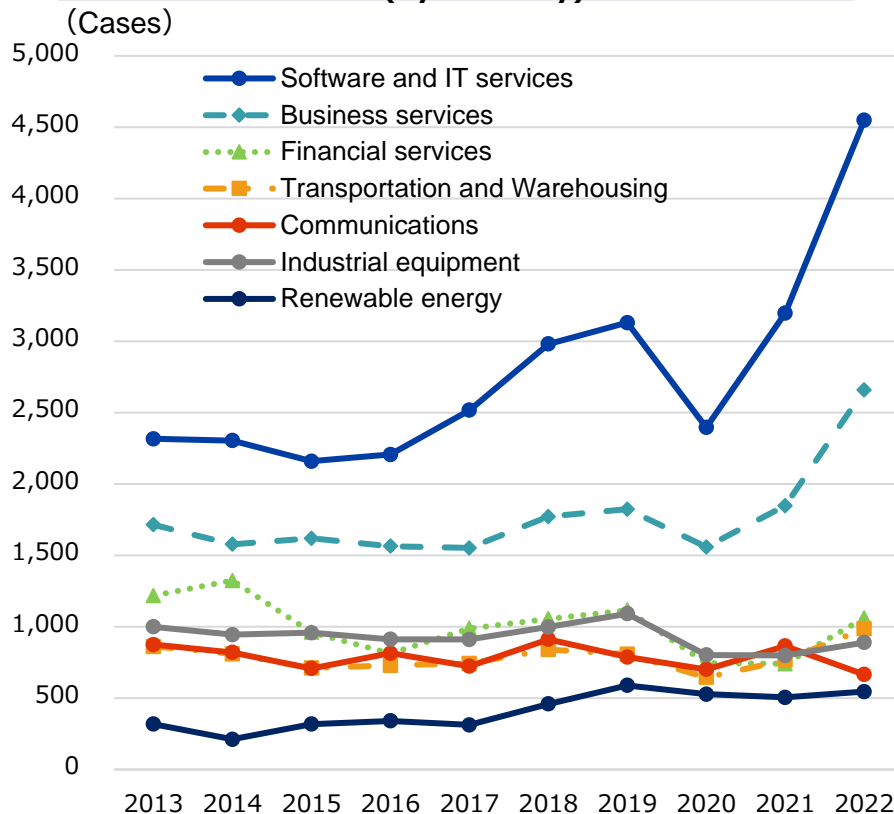


(Both figures) Source: FDI Markets (Financial Times)

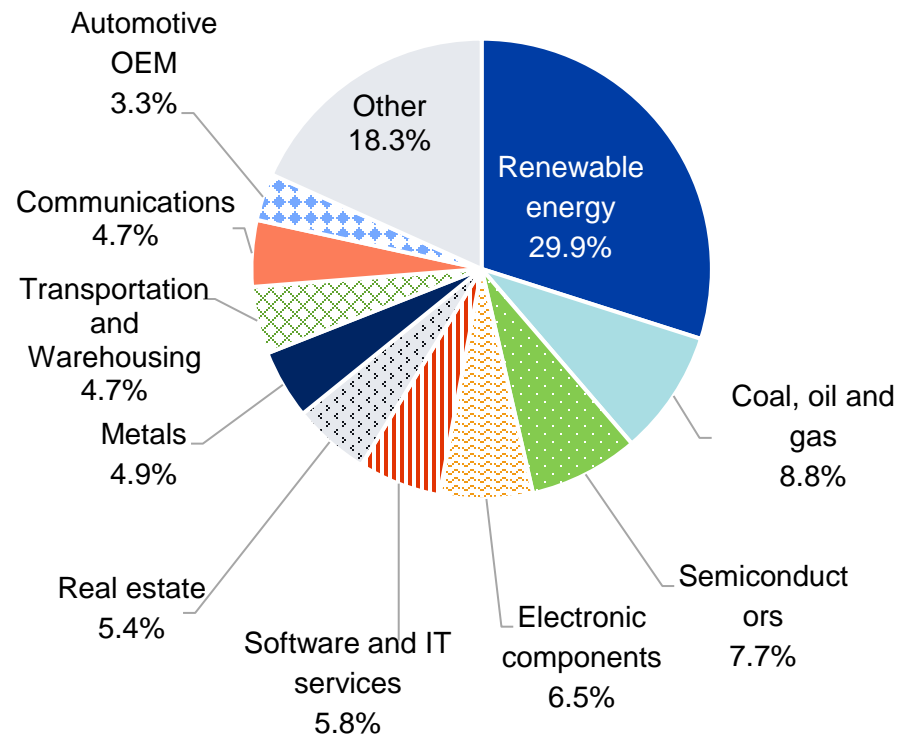
4 | Mega investment projects in renewable energy and semiconductors

- The increase in the number of global greenfield investments in 2022 is due to **strong growth in software and IT services (+42.3%) and business services (+43.9%)**, as in the previous year.
- In value terms, the market increased by 63.7%. Driven by mega projects in renewable energy, fossil fuels, and semiconductors.

Number of greenfield investments in 2022 (by industry)



Greenfield investment in 2022 (% of total by industry)



Note: Only the top seven industries are listed.

(Both figures) Source: FDI Markets (Financial Times)

5 | Competition to attract industry with huge subsidies and tax credits

- Major countries and regions, such as the U.S. and the EU, have been trying to attract Net Zero projects through massive subsidies and tax credits. **Competition to attract climate change-related projects is intensifying, involving large financial outlays.**
- The U.S. Inflation Reduction Act was the direct trigger for the EU Green Deal Industrial Plan in February 2023.

Inflation Reduction Act (enacted August 16, 2022)

- ✓ Largest expenditure in history (about 437 billion dollars over 10 years)
- ✓ **Approximately \$369 billion in subsidies and tax credits for renewable energy and EV technology deployment projects**
- ✓ Various requirements to strengthen Buy American policies in the application of tax credits, etc.
- ✓ Tax credits for EVs must meet **procurement requirements (see table below) for critical minerals and battery components.**



Green Deal Industrial Plan (announced February 2023)

- ✓ **The plan was presented as a countermeasure to the U.S. Inflation Reduction Act, seen as a threat to the EU's Net Zero industry (see table below for a summary).**
- ✓ Full-scale support for the location of global companies to prevent their net-zero industrial base from relocating outside the EU.
- ✓ Adopted the Interim Crisis and Transition Framework, which relaxes EU state aid regulations. Member states may provide up to a certain percentage of state aid for investments in related industries.

Important minerals in battery materials		Production and assembly of battery components	
% of material extracted/processed in countries with which the U.S. has FTAs or recycled in North America		% of the price of items produced or assembled in North America	
Sales period	Proportion	Sales period	Proportion
During 2023	40%	During 2023	50%
During 2024	50%	During 2024-25	60%
During 2025	60%	During 2026	70%
During 2026	70%	During 2027	80%
After January 1, 2027	80%	During 2028	90%
		After January 1, 2029	100%

*Only vehicles assembled in North America are eligible for the tax credit.

Note: Critical minerals and battery components involving foreign entities of concern will be excluded from the deduction beginning in 2025 and 2024, respectively.

Source: U.S. Internal Revenue Service

Main policies	Point
Net Zero Industry Bill	Improving the regulatory environment, including expediting and simplifying licensing procedures for clean technology projects
Important Raw Materials Bill	Identify strategic raw materials to strengthen the value chain and diversify sources of supply
Relaxation of state aid rules	Enabling the provision of state aid for production activities of enterprises in net-zero industries
Establishment of the European Hydrogen Bank	Compensate for the difference in production costs between green hydrogen and fossil fuel-derived hydrogen to encourage green hydrogen-related investments
Creation of the European Sovereignty Fund	Details of new budgets providing subsidies at EU level to be announced by summer 2023
Launch of new trade-related initiatives	Creation of an important raw materials club by volunteer countries, international partnership in cleantech

Source: European Commission

6 | Semiconductor industry support measures to be introduced in major countries and regions

- While the semiconductor market is in decline, governments of major countries and regions are **intensifying competition to attract semiconductor manufacturers in** order to secure a stable supply of semiconductors for mid- to long-term market expansion, expanding support for global companies by investing huge budgets.
- In May 2023, Japan's Ministry of Economy, Trade, and Industry (METI) released a revised draft of its "Semiconductor and Digital Industry Strategy," setting a new goal of **achieving "total sales of over 15 trillion yen for companies producing semiconductors in Japan" by 2030 (approximately triple the 2020 level).**

Semiconductor industry support measures in major countries and regions (2022 and beyond)

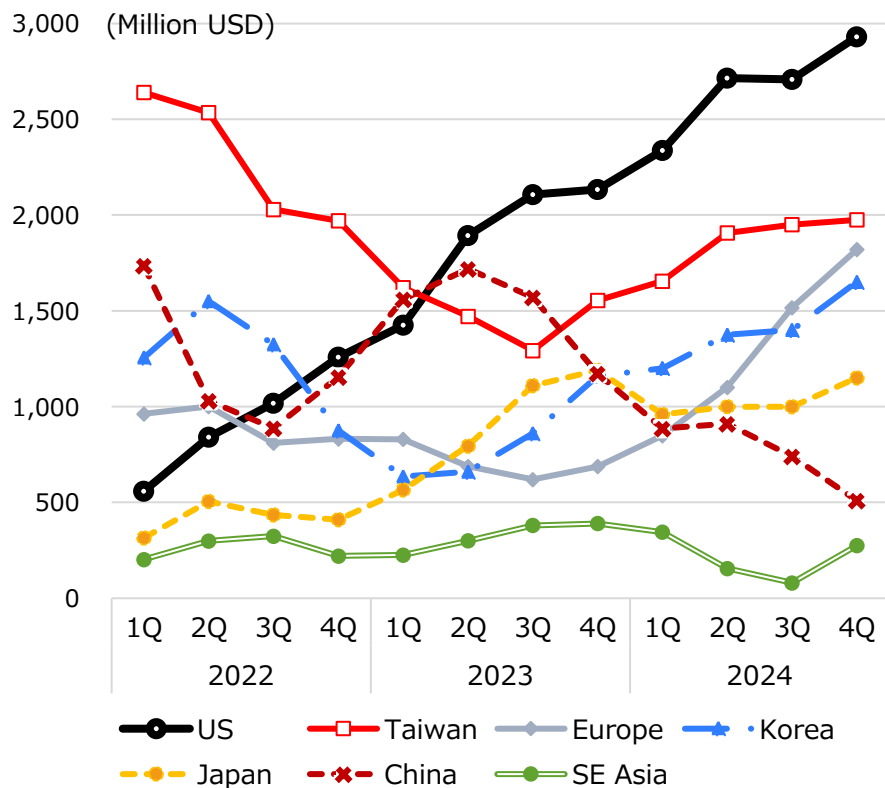
	Policy and rationale	Support
US	The CHIPS and Science Act (CHIPS Plus Act) (effective August 2022)	Subsidies for the construction, expansion, or modernization of domestic facilities and equipment for the design, manufacture, and research and development of semiconductors (\$39 billion worth) Promotion of semiconductor-related R&D programs under the jurisdiction of the Department of Commerce (\$11 billion). A 25% tax credit for investments in semiconductor manufacturing.
EU	European Semiconductor Bill	The European Semiconductor Initiative consists of: 1) financial support for semiconductor R&D and production; 2) incentives for semiconductor production facilities; and 3) semiconductor supply chain monitoring and crisis response. The total amount of financial support and private investment by the EU and its member states is expected to be 43 billion euros. Of this amount, the EU budget allocated through 2027 is limited to 3.3 billion euros as proposed by the European Commission.
Taiwan	Proposed Amendments to the Industrial Innovation Ordinance (Articles 10-2 and 72) (effective January 2023)	The tax deduction is 25% of research expenditures for advanced technology and 5% of expenditures for new equipment and facilities used for advanced processes. The deduction is based on the size of the research and development project and the ratio of research and development to net sales. The total amount of the credit must not exceed 50% of the corporate tax amount.
Korea	Revised Special Taxation Restriction Bill (passed at the end of March)	The tax credit rate for capital investment in national strategic technologies, including semiconductors, was increased from 8% to 15% (with an additional 10% credit).
Japan	Partial Amendment to the Law Concerning the Promotion of Development, Supply and Introduction of Specified Advanced Information, etc.	The second supplementary budget for FY2022 will be used to strengthen the semiconductor industry, including securing domestic production bases for advanced semiconductors and strengthening the infrastructure for next-generation information and telecommunications systems. The second supplementary budget for FY2022 allocates a total of 1.3 trillion yen to strengthen the semiconductor industry.

Source: Government documents in each country and region.

7 | Investment in semiconductor plant construction

- Despite the deteriorating semiconductor market conditions, **investment in semiconductor front-end factory construction** is expected to reach a **record high in 2023**. According to international industry associations, a total of 97 construction projects will be underway this year, including 29 new construction projects worldwide.
- **The largest investment related to front-end factory construction in 2023-2024 will be for the U.S.**, followed by Taiwan. In the U.S., TSMC, Intel, and others are making progress with plans for large construction plants, assuming the application of subsidies under the CHIPS Plus Act.

Semiconductor front-end plant construction investment by country/region



Source: SEMI (March 2023), World Fab Forecast 1Q 23 Edition

Major FDI projects in semiconductors (Jan 2022 - May 2023)

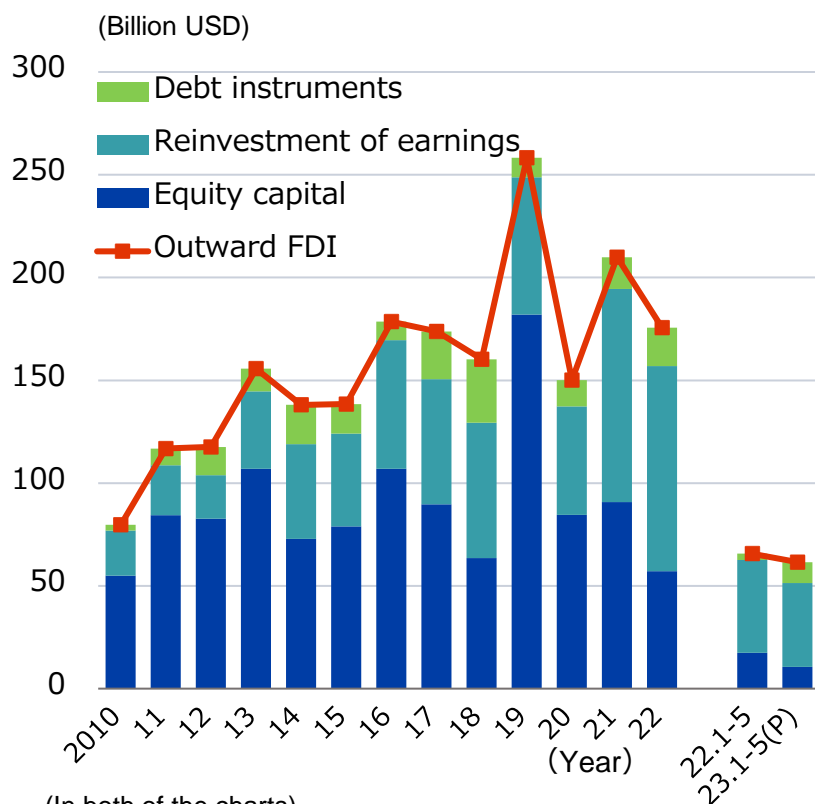
(Billions USD)			
Company (headquarters location)	Date of publication	Investment destination	Amount invested
TSMC (Taiwan)	November 2022	US	280.0
Vedanta Resources (UK)	September 2022	India	195.0
Intel (US)	March 2022	Ireland	133.7
UMC (Taiwan)	February 2022	Singapore	50.0
Global Wafers (Taiwan)	February 2022	US	50.0
Micron Technology (US)	May 2023	Japan	37.0
IGSS Ventures (Singapore)	June 2022	India	32.2
ISMC (International Federation of Companies) (Israel)	May 2022	India	30.0
Infineon Technologies (Germany)	February 2022	Malaysia	22.0
STMicroelectronics (Switzerland)	July 2022	France	13.7
Merck (Germany)	April 2023	US	12.8
On Semi (US)	July 2022	Korea	10.0

(Source: fDi Markets (based on announcement))

8 | Japan's outward FDI declined year-on-year, with M&As down 70%.

- **Japan's outward FDI in 2022 declined by 16.4% year-on-year** to \$175.6 billion, with few large-scale projects. Due to the sharp depreciation of the yen, FDI on a yen basis increased by 0.8% to 23 trillion yen. FDI in the first five months of 2023 also remained weak.
- Due to the weak yen and monetary tightening, **outward M&A (execution value) in 2022 was \$24.1 billion, down about 70% from the previous year.** This is the lowest level since 2009 (\$21 billion), when M&A fell due to the global financial crisis.

Trends Japan's outward FDI by type



(In both of the charts)

Note: JETRO converted the figures disclosed in JPY into USD

Source: "Balance of Payments Statistics" (Ministry of Finance, Bank of Japan)

Japan's outward FDI by country/region

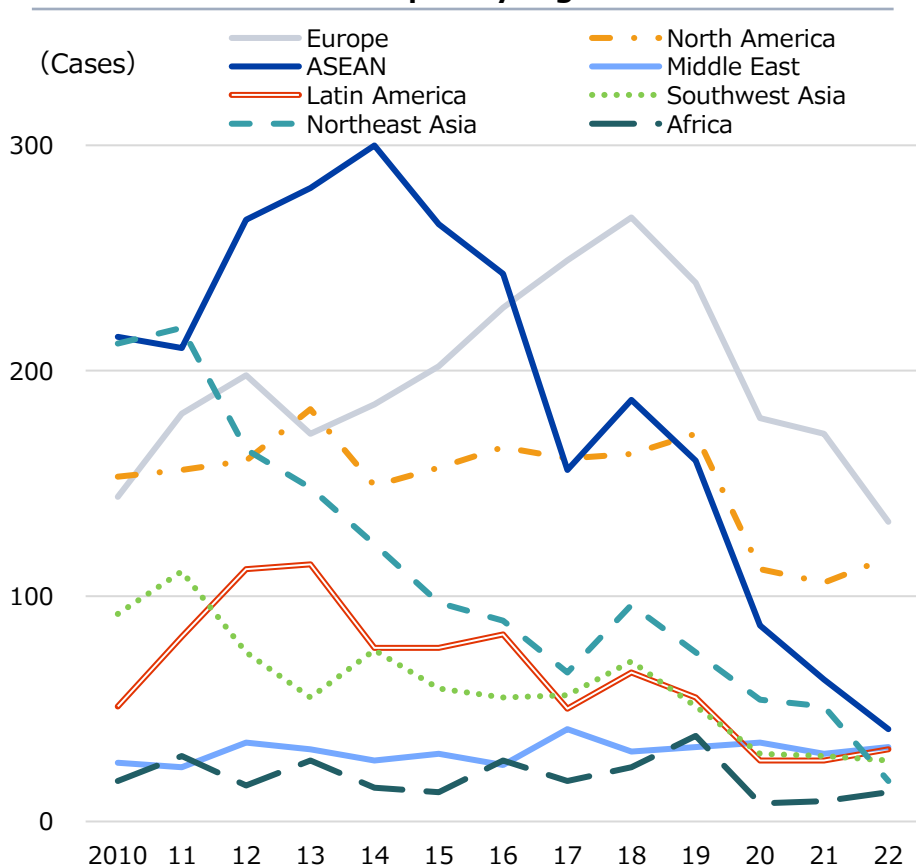
(Million USD, %)

	2022	Growth rate	Jan-May 2023 (P)	Growth rate
Asia	41,976	- 34.4	15,927	- 3.1
China	9,185	- 25.2	3,423	- 5.4
ASEAN	21,407	- 40.3	8,296	16.7
Singapore	5,775	- 71.8	3,389	164.1
Thailand	6,242	43.7	1,683	0.3
North America	63,659	- 24.6	14,441	- 40.3
US	61,025	- 26.4	13,635	- 40.7
Latin America	14,201	31.3	5,332	- 2.6
Oceania	11,358	47.3	4,415	- 14.9
Europe	42,052	2.4	19,896	53.3
Germany	5,050	- 32.4	2,271	4.8
United Kingdom	7,263	- 58.4	4,146	123.8
Switzerland	5,021	49.5	1,767	13.5
World	175,557	- 16.4	61,601	- 6.2

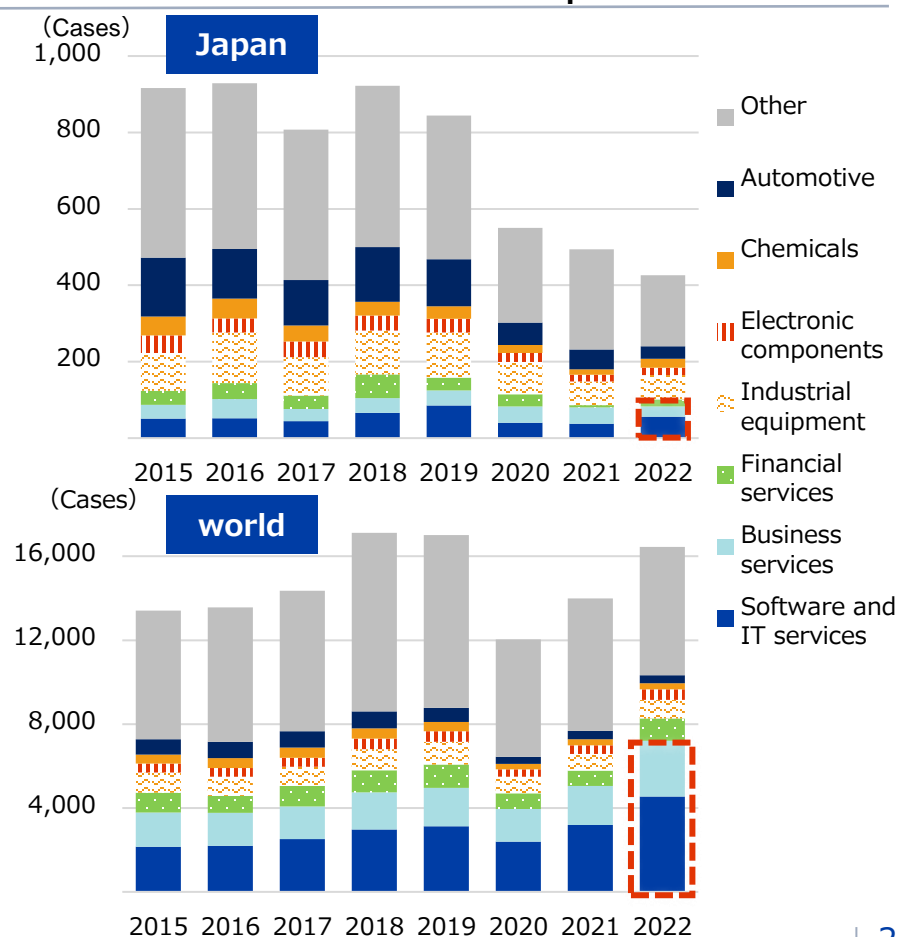
9 | Japan's outward greenfield investment shrinking

- In 2022, **Japan had 423 outward greenfield investments, a record low for the third consecutive year.**
- Worldwide, software/IT services and business services, which account for 40% of all industries, led growth. Japan saw sluggish growth in the number of investments in this sector, while the **mainstay industrial equipment and transportation equipment saw downward pressure.**

Number of outward greenfield investments in Japan by region



Number of outward greenfield investments worldwide and in Japan

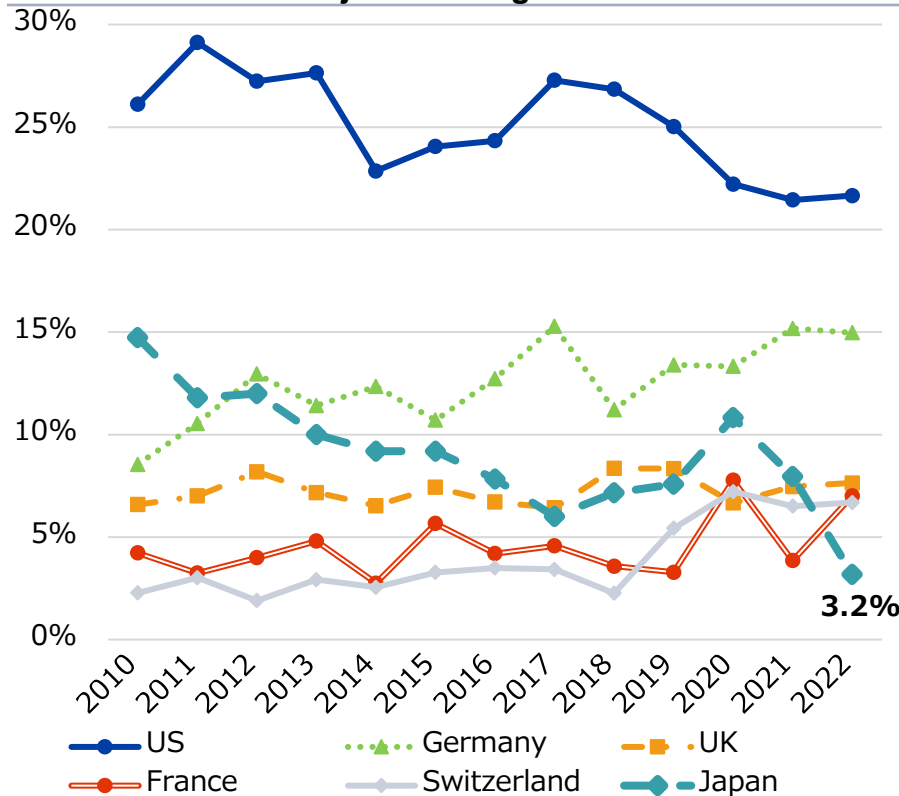


(In both of the charts)
Source: FDI Markets (Financial Times)

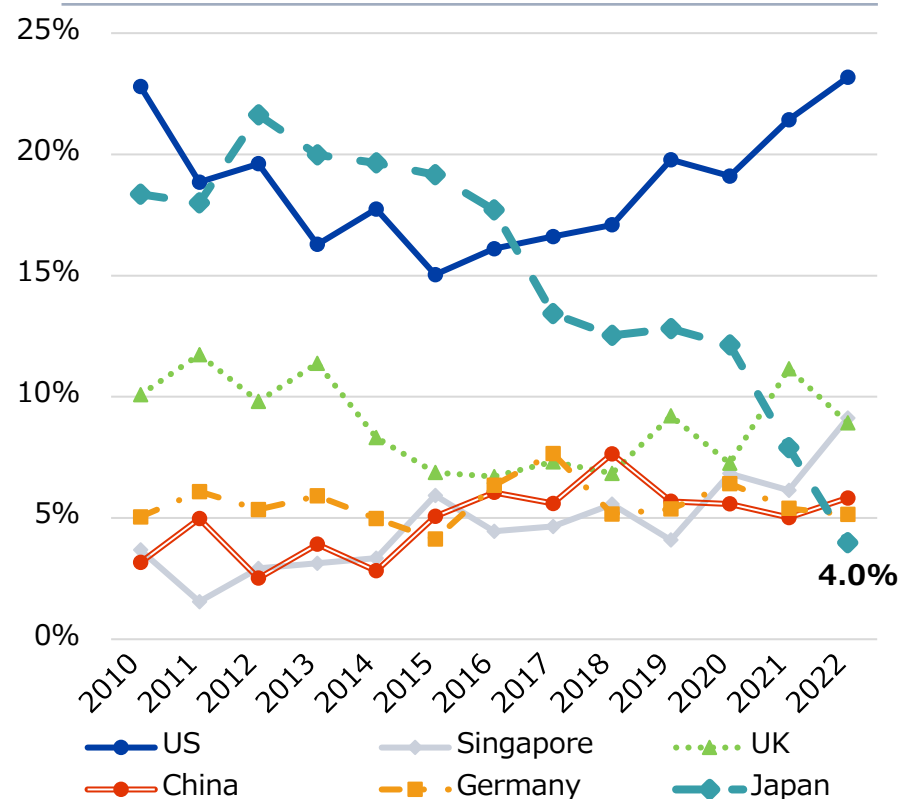
10 | Japan's presence declines noticeably in investments for major Asian countries

- **Japan's presence** as a major investor in greenfield investments in China and Southeast Asia (numbers, announced basis) **has declined markedly**, with its share of total investment in China falling to 3.2% in 2022.
- While global greenfield investments in ASEAN in 2022 totaled 1,031, exceeding 1,000 for the first time in three years, investments from Japan, the second largest investor on a cumulative basis, totaled 41, down more than 20 from 63 the previous year.

Greenfield investment in China, composition of major investing countries



Greenfield investment in ASEAN, composition of major investing countries



(In both of the charts)

Note: Percentages are based on the number of cases. Major investment countries are the top five countries in terms of the number of investments in 2022 (announced basis) and Japan, respectively. Source: FDI Markets (Financial Times)

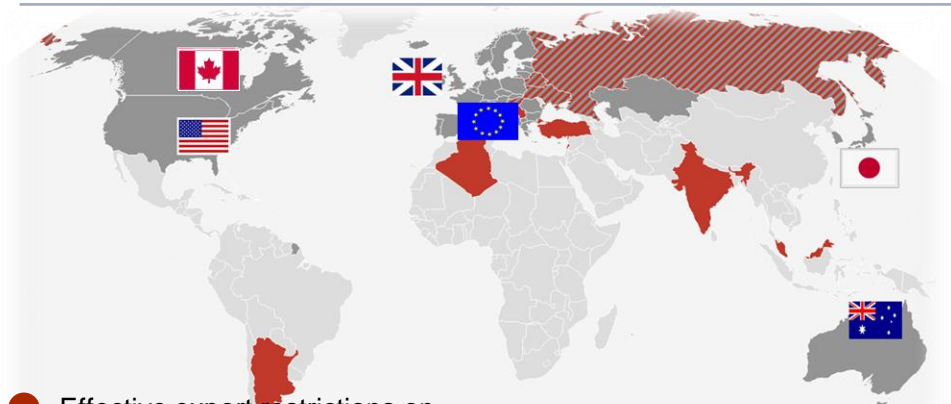
III. Trade Rulemaking

**~ Trade and investment restrictions based on economic security
increasingly impose higher costs on businesses~**

1 | EU+18 impose Russian sanctions

- As of June 2023, 45 members, including EU-27, have imposed trade sanctions against Russia. The **G7, EU, and Australia launched a price cap for Russian oil in December 2022.**
- In response to food insecurity, over 35 countries introduced 96 export restrictions on agricultural products in the year since the invasion of Ukraine. Of these, only 13 were reported to the WTO.

Export restrictions on Ukraine war (in force, June 2023)



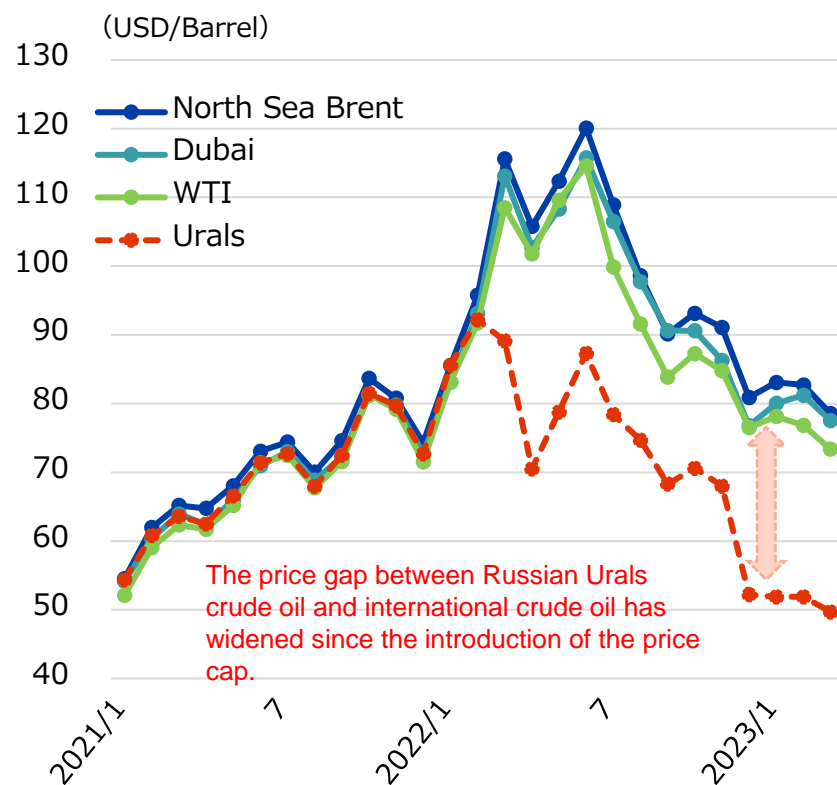
● Effective export restrictions on agricultural products
 ● Effective export restrictions on non-agricultural products
 ● Effective export restrictions on both agricultural products
 (Source: ITC (as of June 30, 2023))

Price cap for Russian oil (G7, EU, Australia)

Coverage	Price cap	Start date	Contents
Crude oil	\$60	Dec 5, 2022	Sea shipment and insurance banned if the price exceeds the cap. Otherwise, it is required to submit price certification.
Oil products at a premium to crude oil (diesel, kerosene, gasoline, etc.)	\$100	Feb 5, 2023	
Oil products discounted against crude oil (fuel oil)	\$45	Feb 5, 2023	

Source: Statement by the Price Cap Coalition, Feb 4, 2023, etc.

International crude oil price (monthly average)



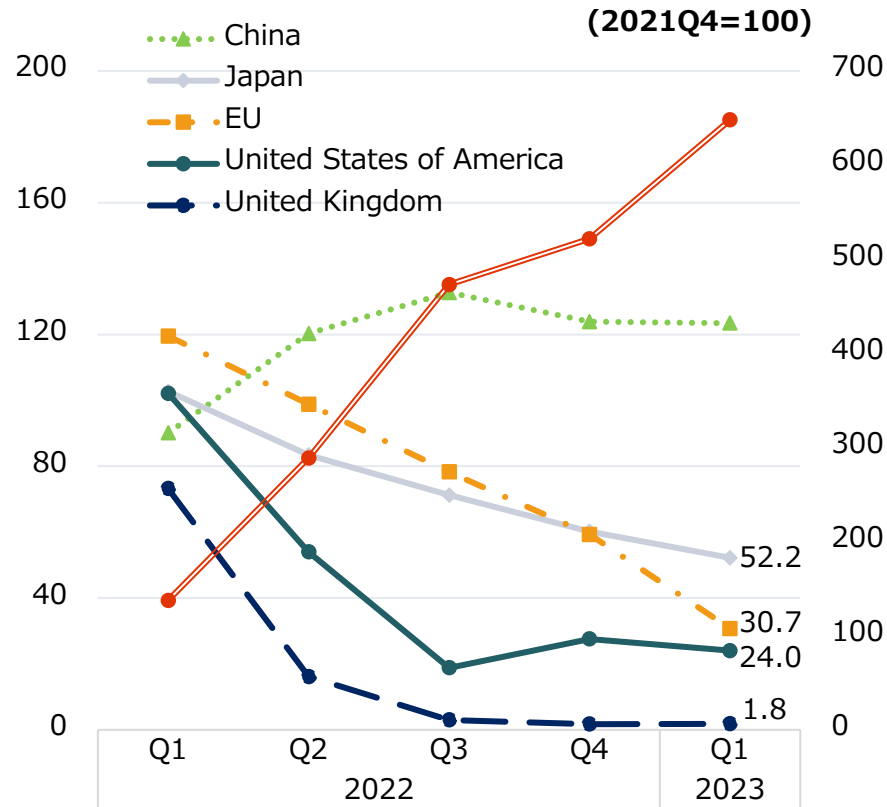
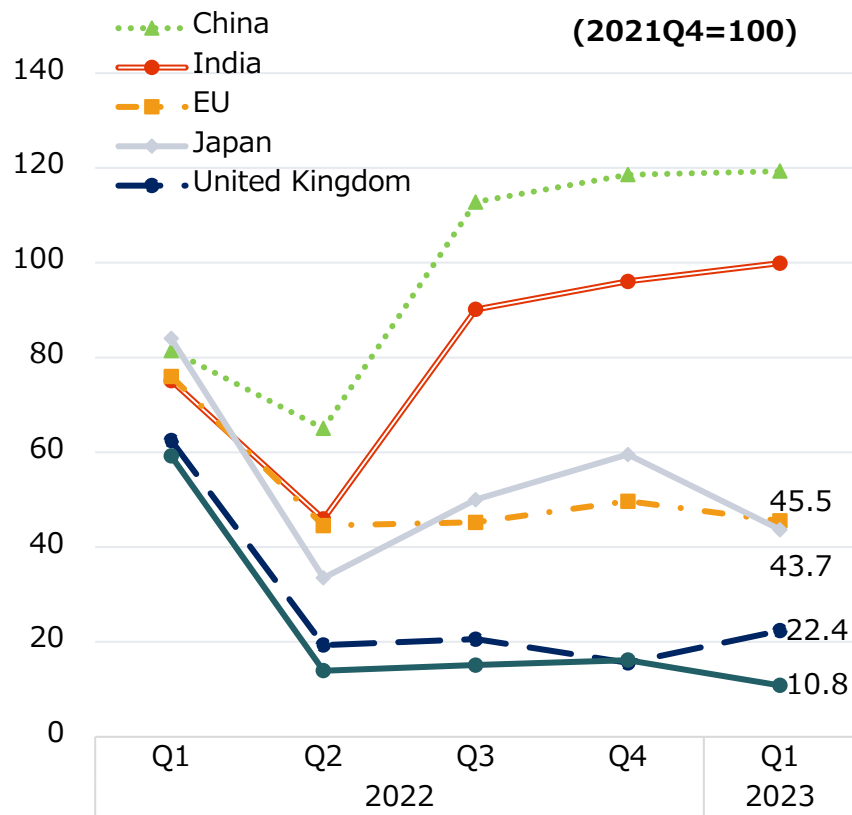
The price gap between Russian Urals crude oil and international crude oil has widened since the introduction of the price cap.

Source: World Bank. Prepared based on Commodity Prices, etc.)

2 | Fragmentation seen in trade with Russia

- The G7 and EU have decreased their trade with Russia since the 1Q of 2022 on pre-invasion basis after they imposed Russian sanctions late February 2022.
- India and China increased imports of Russian oil below international prices. **India's imports in the first quarter of 2023 are about 6.5 times higher than in the fourth quarter of 2021.**

Exports to Russia by countries/regions (index basis) Imports from Russia by countries/regions (index basis)



Source: Global Trade Atlas

3 | A New Perspective on Trade

- The US and Europe suggest a shift in the conventional view of free trade and globalization, as **supply-chain resilience and geopolitical risks have risen as more urgent policy agendas.**
- International cooperation frameworks have evolved based on this new perspective. Concrete outcomes have been developed to deal with economic security.

US

President Joe Biden



- **[T]he fundamental changes taking place in terms of international trade.**
 - [W]e found the cheapest labor in the world...sent the work to those...I'm not doing that anymore.
 - [W]e are **attracting capacity to build here in the United States.**
- Joint press conference after the US-UK summit on June 8, 2023

EU

Ursula von der Leyen, President of the European Commission



- [W]e also have to be clear-eyed about a world that has become **more contested and geopolitical.**
 - [T]he topic of **economic security has become a priority for us** and for many of our partners.
- at release of the Economic Security Strategy on June 20, 2023

Jake Sullivan, National Security Advisor



- **[E]conomic dependencies that had built up over the decades of liberalization had become really perilous.**
 - [I]n the name of oversimplified market efficiency, entire supply chains of strategic goods... moved overseas.
- Brookings Institution on April 27, 2023

Charles Michel, European Council president



- **We must restore the proper balance in our economic relations with China.**
 - We need to **address critical supply chain vulnerabilities** and protect European interests."
- Post-EU summit press conference, June 30, 2023

G7

De-risking = NOT "decoupling"

Supply chain resilience
Critical minerals / semiconductors / batteries

Economic coercion
Adjustment platform

Multilateral export controls

TTC

Emerging technology
Generative AI / EV charging and 3D printer standardization

Sustainability
Coordination on incentive / HRDD collaboration

Economic security
Simplification of re-export control / Legacy semiconductor overproduction

Digital
6G / International assistance

4 | Countering economic coercion as a key

- The US, EU and Japan have **clearly stated that countering "economic coercion" will be a major trade policy challenge**. Unilateral countermeasures are being developed.
- Multilateral coordination on the countermeasures regarding China have also progressed.

Countemeasures on economic coercion by major countries / Multilateral coordination

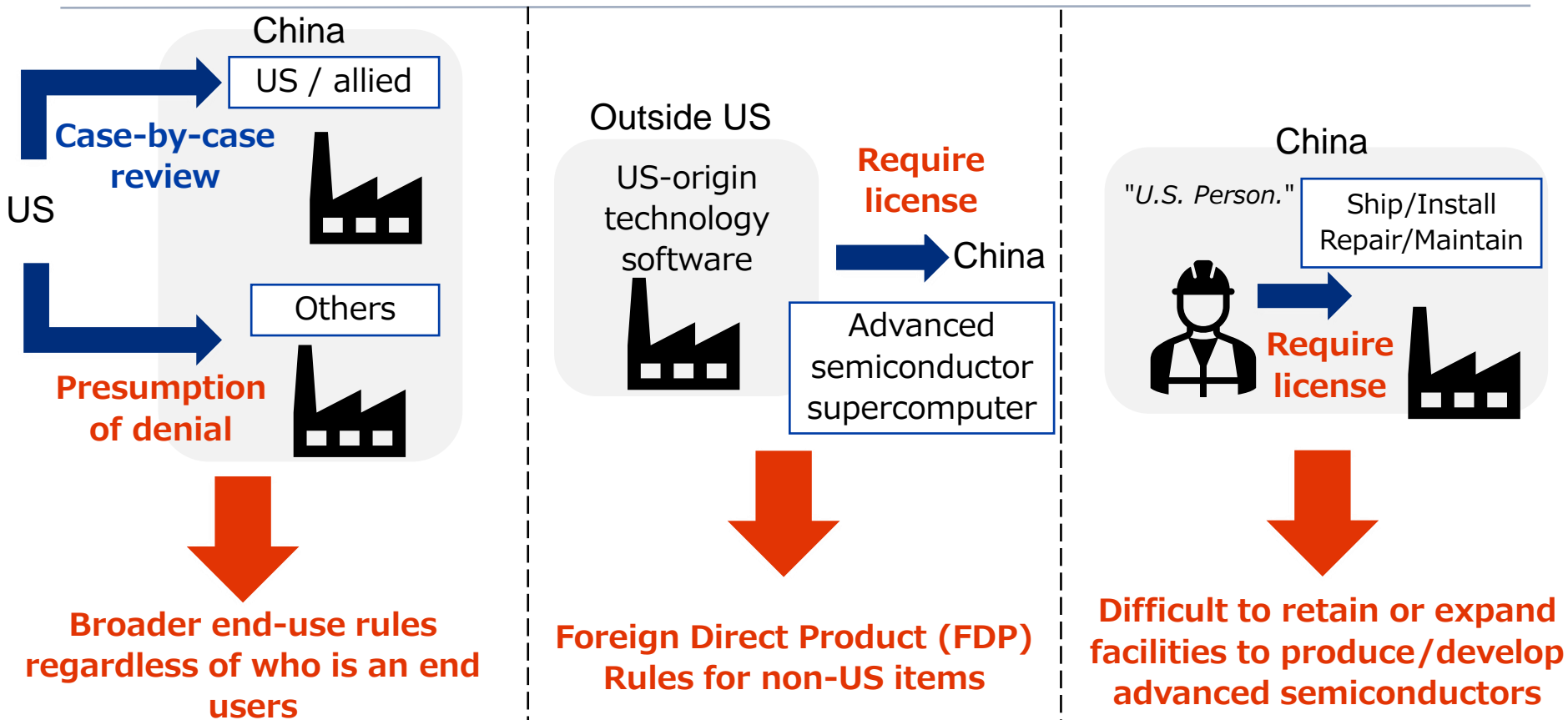
Country & region/framework	Countermeasures against economic coercion
EU	In March 2023, the Commission had reached a political agreement on the Draft Regulation on Anti-Coercion (published in December 2021), which would allow the implementation of countermeasures on economic coercion by non-EU countries. If they imposes economic coercion on the EU or a member state, such as trade or investment restrictions, the Commission will consider countermeasures and, with the approval of the member states, implement them.
US	"The Countering Economic Coercion Act" reintroduced to the Senate in February 2023 includes a provision that gives the President the authority to reduce tariffs and take trade promotion measures on products from countries and regions affected by economic coercion, in addition to countermeasures.
Japan/US	Both parties agreed to counter economic coercion and unfair and unclear lending practices in July 2022. Both committed to cooperate with like-minded partners to address and respond to economic coercion, effectively counter non-market policies and practices, and deliver a coordinated message to the international community, including multilateral fora such as the WTO, OECD, G7, and G20.
US, EU	The parties affirm the willingness to cooperate and explore joint initiatives with other like-minded countries to identify and assess economic pressures, enhance resilience, and deter and counter them, and to use the means at their disposal to counter economic pressures to the fullest extent.
G7	It expresses serious concern about economic coercion and urges all countries to refrain from its use. It launched a "Coordination Platform against Economic Coercion" and proposed early warning, rapid information sharing, regular consultations, situation assessment, pursuit of a coordinated response, and countermeasures against coercion. A commitment to assist countries and entities subject to intimidation.
Australia, Canada, Japan, New Zealand, UK, US	In June 2023, these parties issued a Joint Declaration against Trade-Related Economic Coercion and Non-Market Policies and Practices. They committed to strengthen international cooperation to effectively deter and address economic coercion and non-market policies and practices.

Source: Compiled from government documents in each country and region

5 | New era of export control, semiconductors at stake

- New US export control rules for China over advanced semiconductors on October 7, 2022, have a wider impact on the supply chains of global companies.
- This is a departure from the traditional approach of targeting individual entities of concern.

U.S. export controls related to advanced semiconductors (equipment) to China (October 7, 2022)

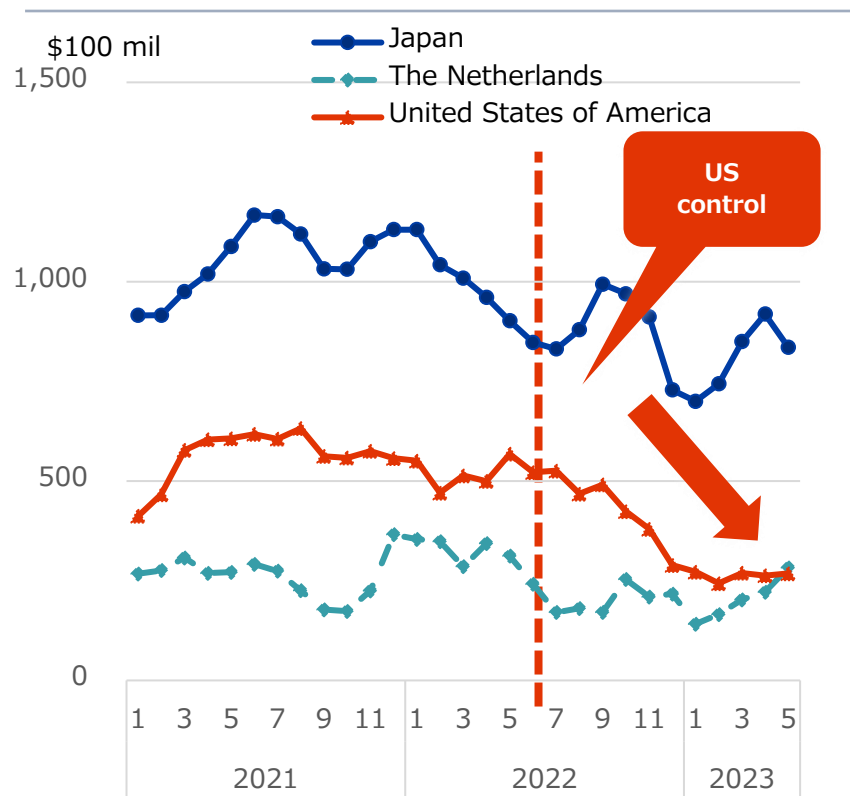


Source: U.S. government data, etc.

6 | Spreading export controls hit Japan

- The US export controls have had an indirect impact on companies even if they are not under its control. Some have **lost sales to US companies and refrained from exporting to China**.
- **China regulates minerals for semiconductors**, followed by trilateral controls.

China's imports of semiconductor production equipment (Jan 2021 - May 2023)



Note: HS8486, imports are 3-month backward moving averages.
Source: Global Trade Atlas

Company comments

- **All shipments of advanced equipment from U.S. manufacturers to China have stopped.** The **impact (decrease in orders) was significant.**
- **Japanese and US equipment are complementary, not competing.** Without U.S.-made equipment, there is no point in installing Japanese equipment.
- The company can hardly export to China's advanced semiconductor production facilities, due to **hesitant for export** to to avoid being investigated.

Source: Interviews by JETRO

Export control related to semiconductors

Country/Enforcement	Rules / Subject items
Japan July 23 2023	23 equipment items (deposition, exposure, cleaning, edging, etc.). Blanket license is applicable to 42 countries and regions.
Netherlands Sep 1 2023	Eight items, including deep ultraviolet (DUV) lithography Extreme ultraviolet (EUV) lithography systems are covered starting in 2019.
China Aug 1 2023	Gallium and germanium related items used in next generation semiconductor materials, etc., Exporters are required to submit proof of end-user and end-use applications on application.

Source: Press release by Governments Copyright © 2023 JETRO. All rights reserved.

7 | Information to manage risk

- Beyond trade compliance, management of business risks related to economic security requires **analysis of a wide range of information regarding products, business partners, end-use.**
- Among many responses to risks, reviewing the supply chain requires complex considerations.

Illustration of risk management response

Scene	Examples of correspondence
Before transaction	In transactions, note the following (see the figure on the right). ◇Is it subject to the regulation? ◇Any security concerns with partners? ◇Any risk of military diversion?
Contracts	Anticipate that they will be exempted if sanctions make transaction unfillable. Adopt a “force majeure,” which exempts the supplier from liability in the event of unforeseeable events (e.g., regulations, natural disasters, wars, etc.). Exclude executives who may be subject to export control from the decision making process. Aware of a risk of discrimination if nationality is a hiring requirement.
Reviewing supply chains	Diversify suppliers and/or transactions. Avoid large volume orders at a single time. Consider the following in supply-chains Relationship with the country/region Critical items or NOT Introduction of security-related regulations Investment incentives FTAs that lead to cost reduction Reputation risk, etc.

What
Product

Who
Counterparty

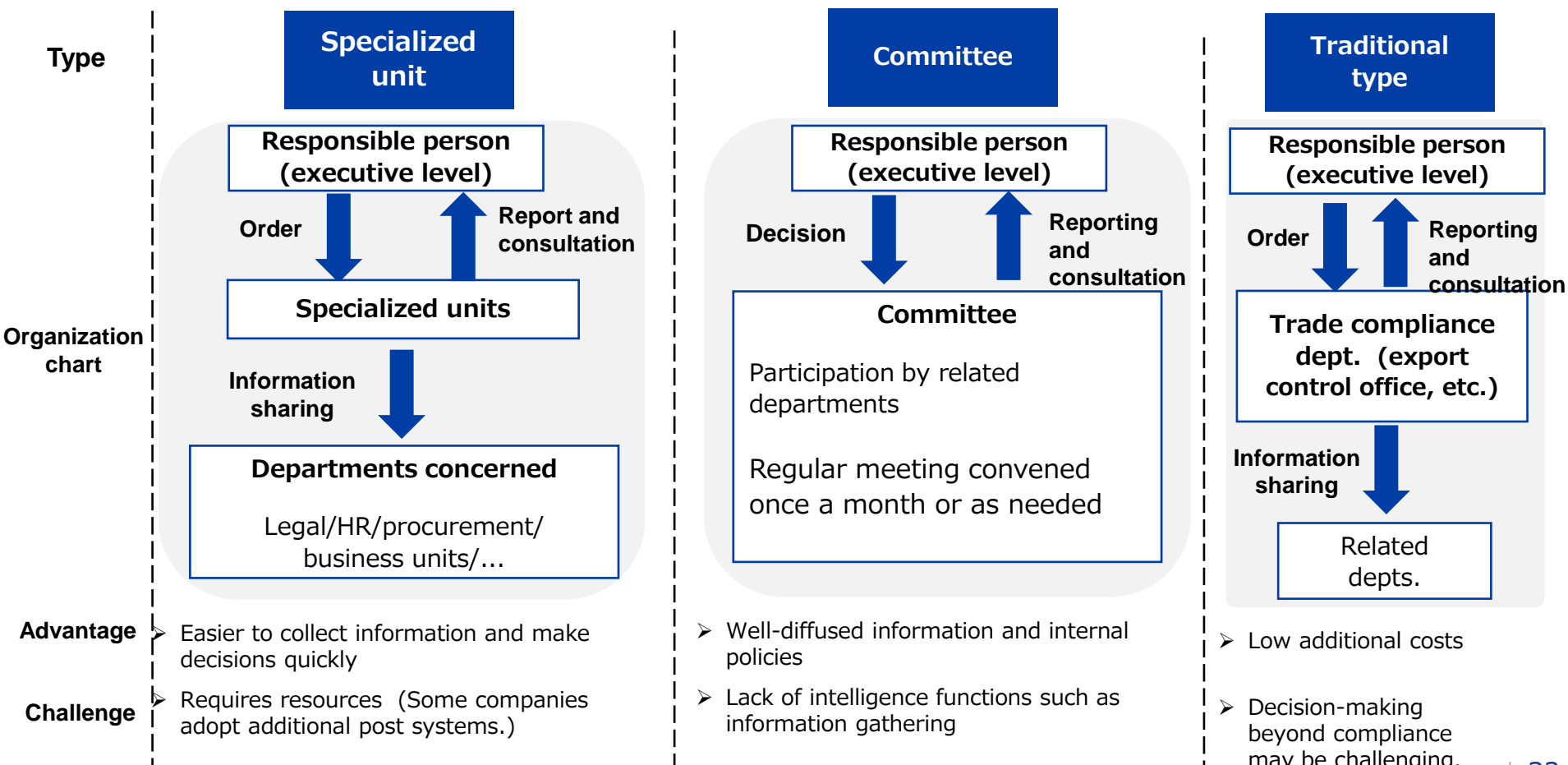
How
Use

Matters that require attention

- ✓ Subject to export controls?
- ✓ Any risks to human rights?
- ✓ Critical/emerging technologies?
- ✓ Any entities of concern?
- ✓ Any restrictions on the destination?
- ✓ Any suspicions in the transaction? (Refusal to witness or installation/non-disclosure of information, etc.)
- ✓ Aware of the uses?
- ✓ Any risks of military use?
- ✓ Performance match the business purpose?

8 | Japanese firms building structure for economic security

- While there are various patterns in systems to deal with economic security, awareness of its need is increasing. The **rise in geopolitical risks have led to a movement to establish specialized units.**
- Some do not set up specialized units, but rather use a meeting body consisting of the person in charge and relevant departments, or as an extension of the existing system.



Source: Interviews by JETRO

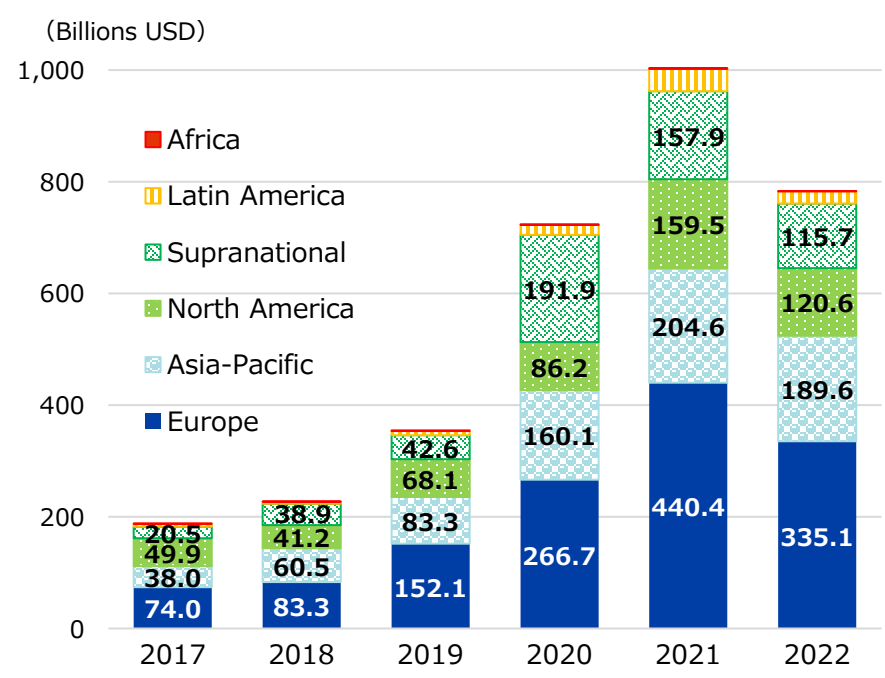
IV. Policies and Business for a Sustainable Society

~Evolving legalization and policy formation in human rights and environment: What companies are required to respond~

1 | Global ESG bond issuance fell in 2022

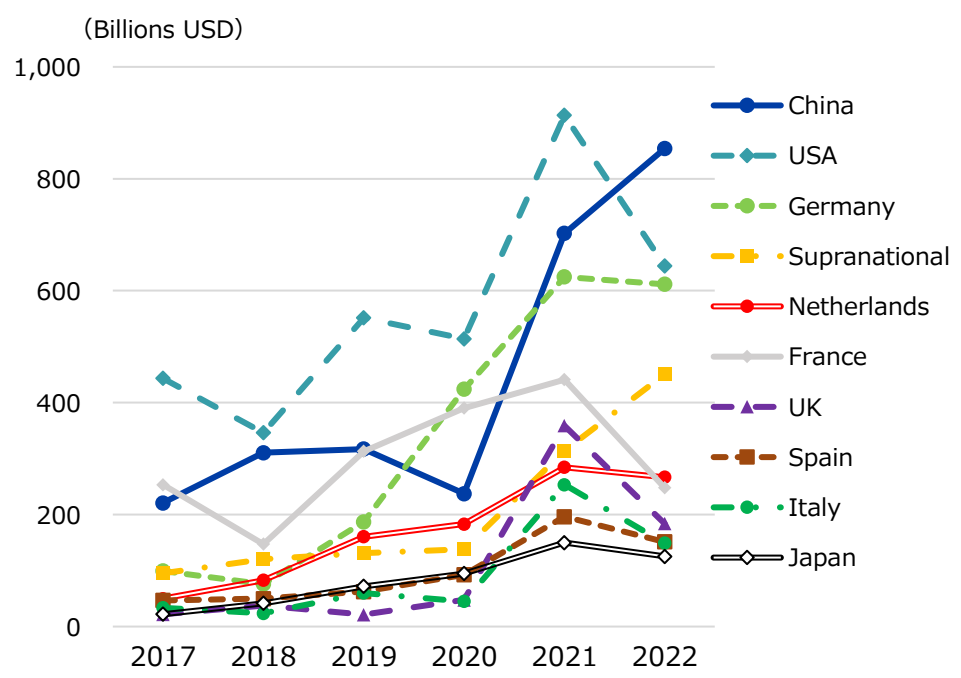
- ESG bond issuance has been expanding year by year, but declined slightly in 2022 due to rising interest rates caused by monetary tightening by central banks in various countries. Despite this, green bond issuance in China and the EU has risen. China overtook the U.S. to become the top in the world.
- Financial authorities in the EU and the U.S. are **stepping up their scrutiny of “greenwashing”**, in which products and services claiming to be green are not so in reality. In countries such as the US, thorough information disclosure and the introduction of related regulations may have led to a decline in green bond issuance.

ESG bond issuance in the world



Note: As of the end of 2022.
 ESG bond issuance is the sum of green, social, and sustainable bond issuance. Supranational includes the EU and the European Investment Bank, etc.
 Source: Created by publicly available data from the Climate Bonds Initiative.

World's top 10 countries, etc. in green bond issuance

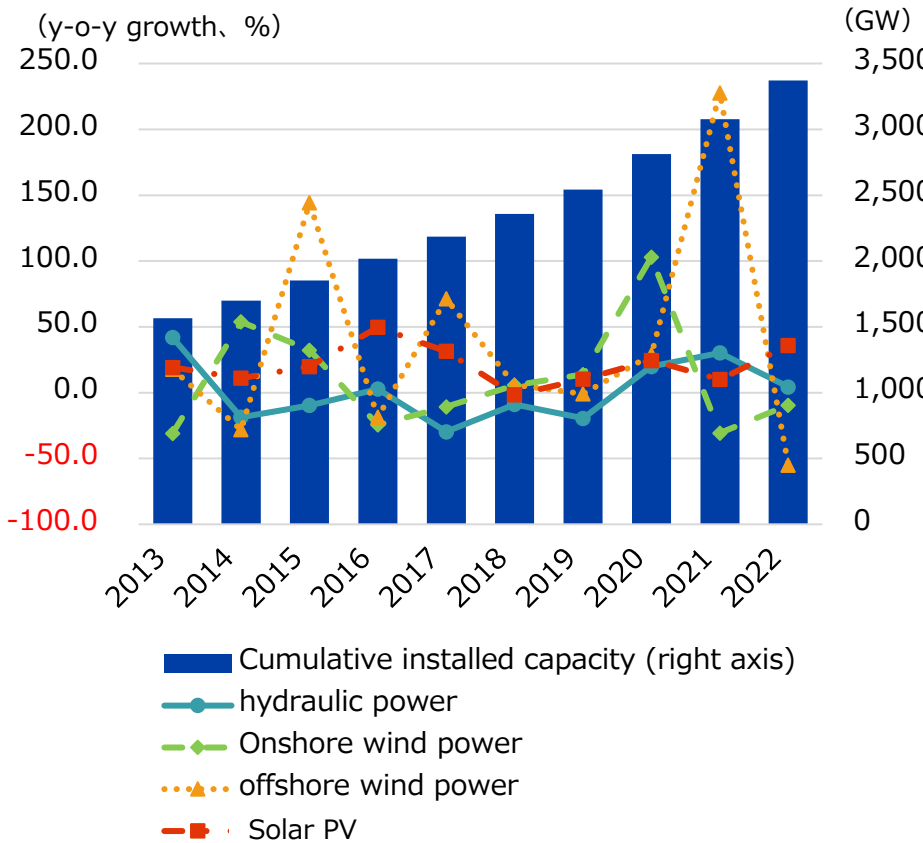


Note: As of the end of 2022.
 Supranational includes the EU and the European Investment Bank, etc.
 Source: Created by publicly available data from the Climate Bond Initiative.

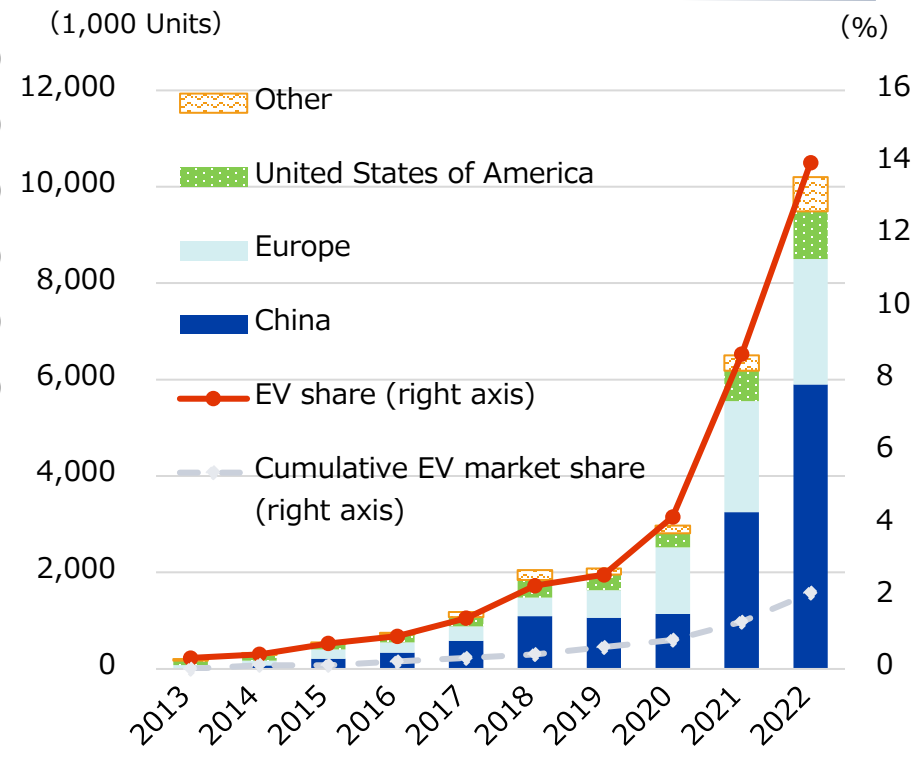
2 | Installed renewable energy capacity and EV sales steadily increasing

- **The share of renewable energy in the world's installed electric power capacity is 40.2%**, exceeding 40% for the first time, while the growth of wind power generation has slowed.
- **Global EV sales exceeded 10 million units for the first time in 2022.** The sales share is 14.0% and the cumulative share is 2.1%.

Global cumulative installed renewable energy capacity and year-over-year growth in installed capacity of major energy sources



Global sales of new EVs (passenger cars)

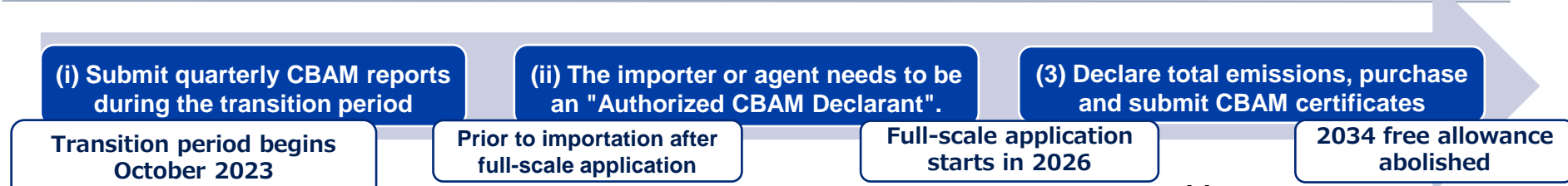


Source: Compiled from International Energy Agency (IEA) data.

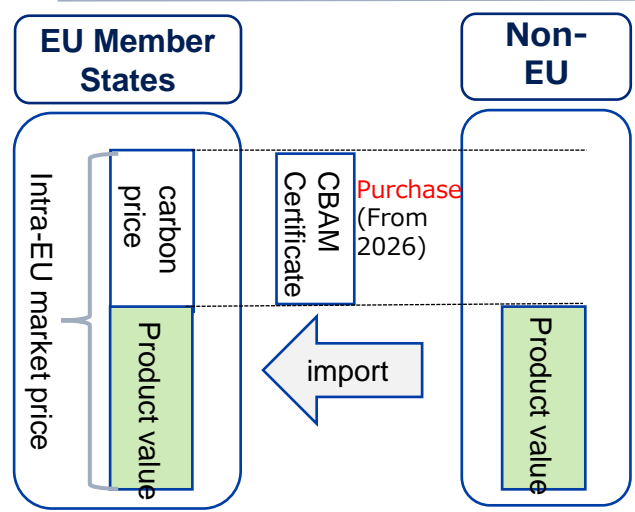
3 | EU implements Carbon Border Adjustment Mechanism (CBAM)

- In May 2023, a new system of border adjustment measures for greenhouse gas emissions came into effect, which will gradually replace the EU Emissions Trading Scheme’s free emission quotas with a new measure against “carbon leakage” for specific import products from countries outside the EU region.
- The provisional application (transitional period) will begin in October 2023. Importers of the subject products will be obliged to report information such as total embedded emissions and the carbon price paid in the country of origin by one month after each quarter.

EU CBAM Timeline



Concept of the EU CBAM



Items covered by EU CBAM

Classification	Target products
Cement	Kaolin clay, cement clinker, white cement, alumina cement, other hydraulic cements
Electricity	Electric power
Fertilizer	Nitric acid and nitrous sulfuric acid, anhydrous ammonia and ammonia water, nitrates, nitrogen fertilizers and other fertilizers
Iron and steel	Iron and steel (except ferrosilicon, ferrosilicomanganese and other silicon compounds and steel scrap), condensed iron ore, steel sheet piles and welded steel shapes, rails (railroad construction materials), cast iron pipes, steel pipes and fittings, structures and parts thereof, steel storage tanks, drums, cans and other containers, screws, Bolts, nuts, rivets and other steel products
Aluminum (Al)	Aluminum ingots (except scrap), powder, flakes, rods and profiles, wires, plates, sheets and strips, aluminum foil, aluminum pipes and fittings, containers such as tanks, drums and cans, aluminum containers for compressed or liquefied gases, stranded wires, cables, braids, etc. (except electrically insulated) (excluding electrically insulated ones), and other aluminum products
Chemicals	Hydrogen

Note: (1) Excluding countries/regions that are fully linked and integrated into the EU-ETS. (2) During the transition period, adjustments are made according to the free allowance of EU-ETS. In addition, a deduction could be made for the carbon price paid in the country of origin

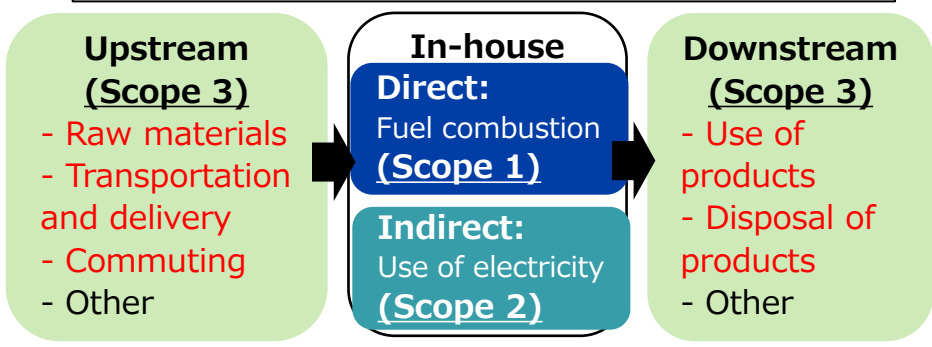
Note: (1) For details on eligible items, it is necessary to check the CN code. (2) The Commission will evaluate whether to add additional products to be covered by the end of 2025
 Source: European Commission, Council of the EU 36
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4 | Decarbonization throughout supply chains

- An increasing number of companies are encouraging their suppliers to calculate and reduce greenhouse gas (GHG) emissions in order to reduce emissions throughout supply chains. Some companies are setting their own targets for their suppliers to set science-based emission reduction targets (SBT).
- For SMEs, to calculate and to get the picture of their emissions will not only maintain and strengthen relationships with existing clients, but will further lead to the development of new clients. Grasping emissions per product will help differentiate the company from competing products.

Classification of emissions in supply chains (schematic diagram)

Supply chain emissions = Scope 1 (in-house) + Scope 2 (in-house) + Scope 3 (upstream) + Scope 3 (downstream)



Scope 1: Direct greenhouse gas emissions by company-owned or controlled resources (fuel combustion, industrial processes)
Scope 2: Indirect discharge of GHG derived from the use of electricity, heat and steam supplied by other companies
Scope 3: Indirect emissions other than Scope 1 and Scope 2 (Emissions of other companies related to the activities of the operator)

Source: Ministry of the Environment, Ministry of Economy, Trade and Industry, etc.

Decarbonization policy in procurement

Company name	Target year	Summary
Takeda Pharmaceutical	2024	Have suppliers responsible for 67% of emissions from purchased products and services, capital goods, and transportation and delivery (upstream) set SBT targets
comany	2024	Completion of SBT target setting by suppliers representing 80% of emissions for goods and services purchased
Genex	2024	Share GHG reduction targets with 90% of suppliers of products and services and have them develop SBT targets
Daiwa House Industry Co.	2025	Have 90% of suppliers set SBT targets
Sony Group	2025	10% equivalent of GHG in the supply chain raw material and component suppliers and contract manufacturers to set SBT-equivalent targets
Navtesco	2025	Have all major suppliers set reduction targets, aiming for SBT by 2030
Hamamatsu Photonics	2026	Have major suppliers, which account for 76% of emissions from purchased products and services, set SBT targets
Renesas Electronics	2026	Have suppliers (including outsourced production) set SBT targets equivalent to 70% of emissions from purchased products and services
Bridgestone	2026	Have suppliers set SBT targets for 92% of emissions related to purchased products and services
Sekisui House	2026	Increase materiality indicator "supplier SBT target setting rate" to 80%.

Source: Ministry of the Environment data, company websites, and various media reports. 37

5 | Responsible behavior required of companies

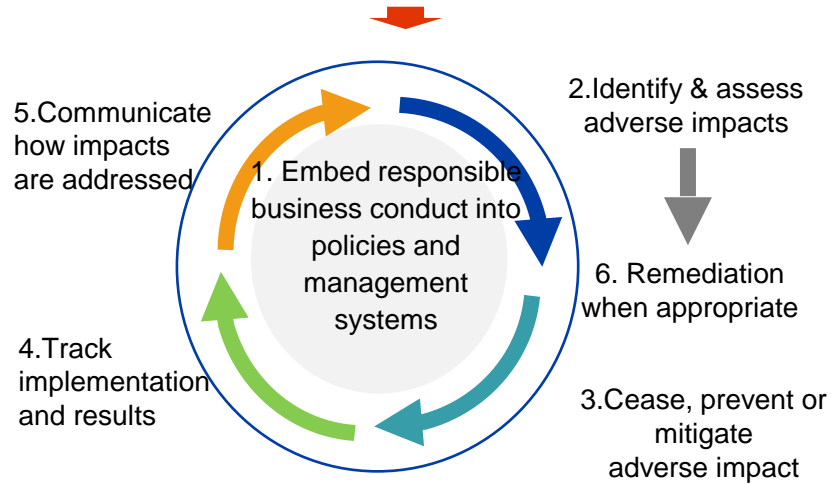
- On June 8, 2023, the OECD **revised the OECD Guidelines for Multinational Enterprises for the first time in 12 years**. The guidelines include a requirement for companies to align with internationally agreed targets on climate change and other issues, as well as the importance of conducting due diligence downstream in the supply chain. In September 2022, the Japanese government released "Guidelines on Respecting Human Rights in Responsible Supply Chains".

International Principles Calling for Voluntary Initiatives

Major International Principles, Declarations, etc.	
UN	The Ten Principles of the Global Compact Guiding Principles on Business and Human Rights
ILO	Declaration on Fundamental Principles and Rights at Work Multinational Enterprises (MNE) Declaration
OECD	Guidelines for MNE (June 2023, first revision in 12 years) Due Diligence Guidance for Responsible Business Conduct

Structure of Japan's Guidelines on Respecting Human Rights (September 2022)

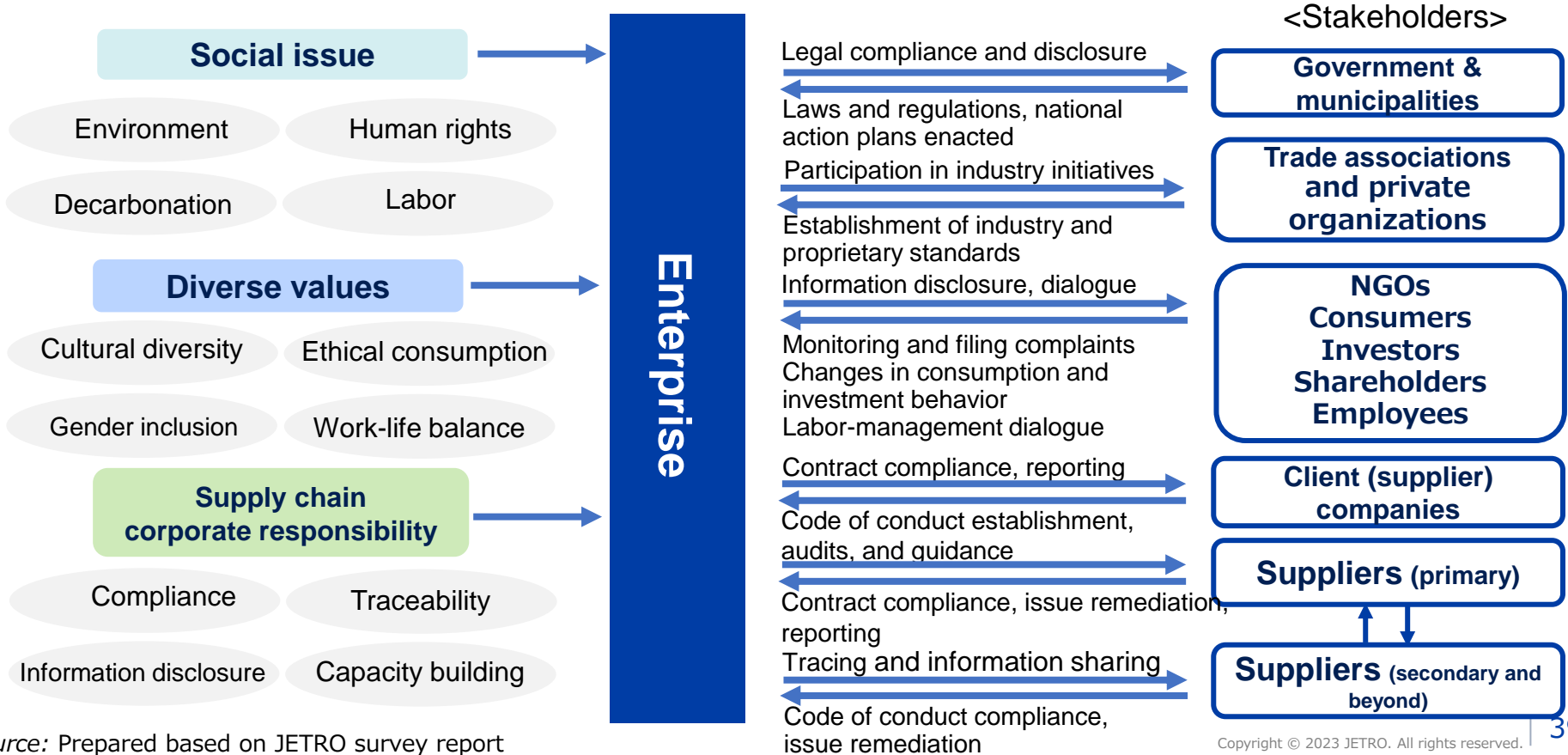
General remarks	<ul style="list-style-type: none"> ➤ Outline of business efforts ➤ Approach to efforts to respect human rights
Human rights policy	<ul style="list-style-type: none"> ➤ Points for consideration when establishing a human rights policy ➤ Points for consideration after establishing a human rights policy
Human rights due diligence	<ol style="list-style-type: none"> (1) Identification and assessment of adverse impacts (2) Prevention or mitigation of adverse impacts (3) Tracking effectiveness of the efforts (4) Communication and information disclosure
Remedy	<ul style="list-style-type: none"> ➤ Grievance mechanism ➤ State-based remedy mechanism



6 | Sustainable and responsible procurement policy

- Companies are required to develop, manage, and operate responsible procurement policies to comply with their obligations in response to various social issues and to address requests from various stakeholders, including consumers and NGOs, both on their own and through their suppliers.
- Characteristics common to leading companies in sustainable procurement include **participation in industry initiatives, risk management throughout the supply chain, and consideration of diverse values.**

Corporate stakeholder engagement (conceptual diagram)

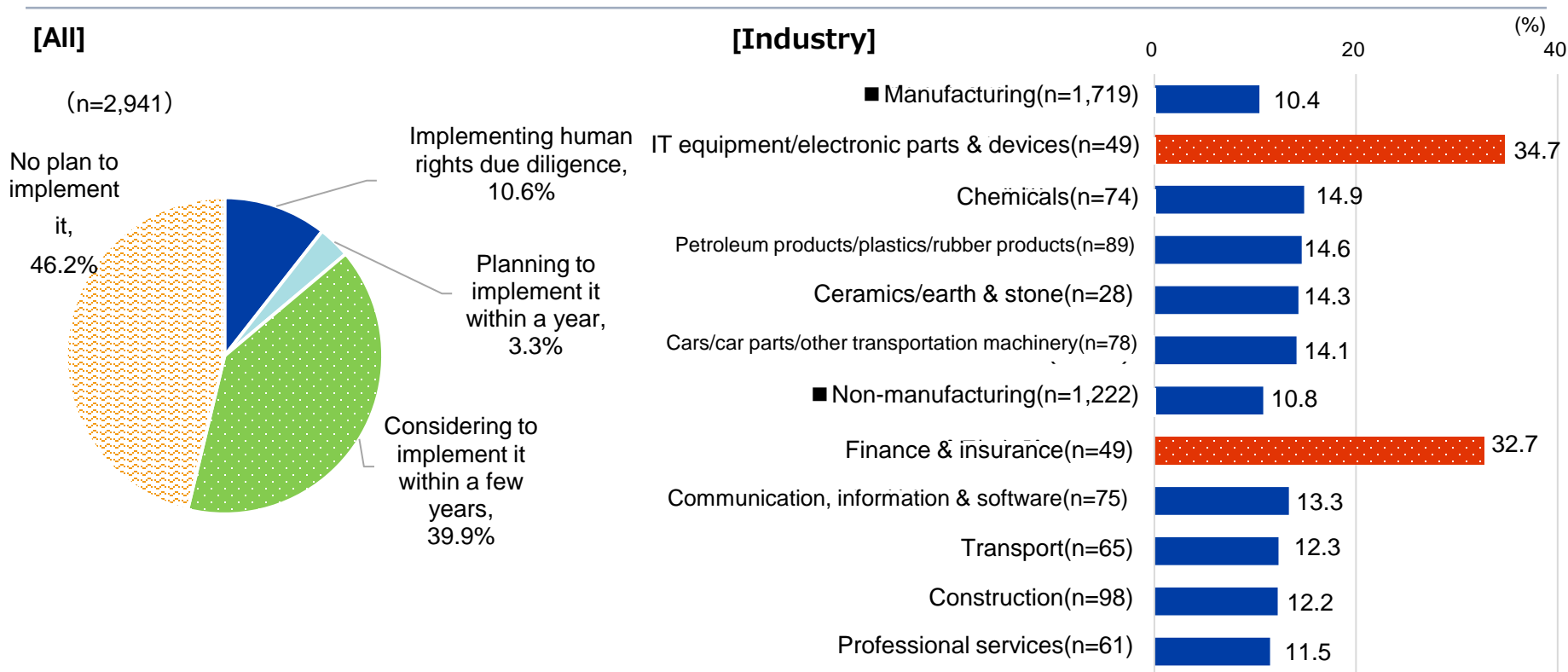


Source: Prepared based on JETRO survey report

7 | Human rights due diligence of Japanese companies on the move

- Japanese companies that have implemented human rights due diligence account for 10.6% of the total. Including those companies that “plan to implement it within a year” or “are considering implementing it within a few years,” **50% of the companies are implementing HRDD or indicate a willingness to do so.**
- In the information and communication machinery/electronic components and devices and finance and insurance sectors, 30% of companies reported that they “conduct” HRDD.

Status of implementation of human rights due diligence



Notes: (1) In both figures, "n" is the number of companies excluding "no response" from the number of responding companies. (2) "Plans to implement or considering implementation" is the sum of "Have not yet implemented but plan to implement within a year" and "Have not yet implemented but considering implementation within a few years".

Source: "FY 2022 Survey on the International Operations of Japanese Firms" February 2023 (JETRO)

JETRO Global Trade and Investment Report 2023

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- **Note:** The original report is available only in Japanese. Figures may not sum up to the total due to fractional units.
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