



Financial exposure of Japan to Asia's O&G sector -Financial landscape analysis for Japan's engagement in O&G sector -

Executive Summary

Deloitte Tohmatsu Consulting LLC

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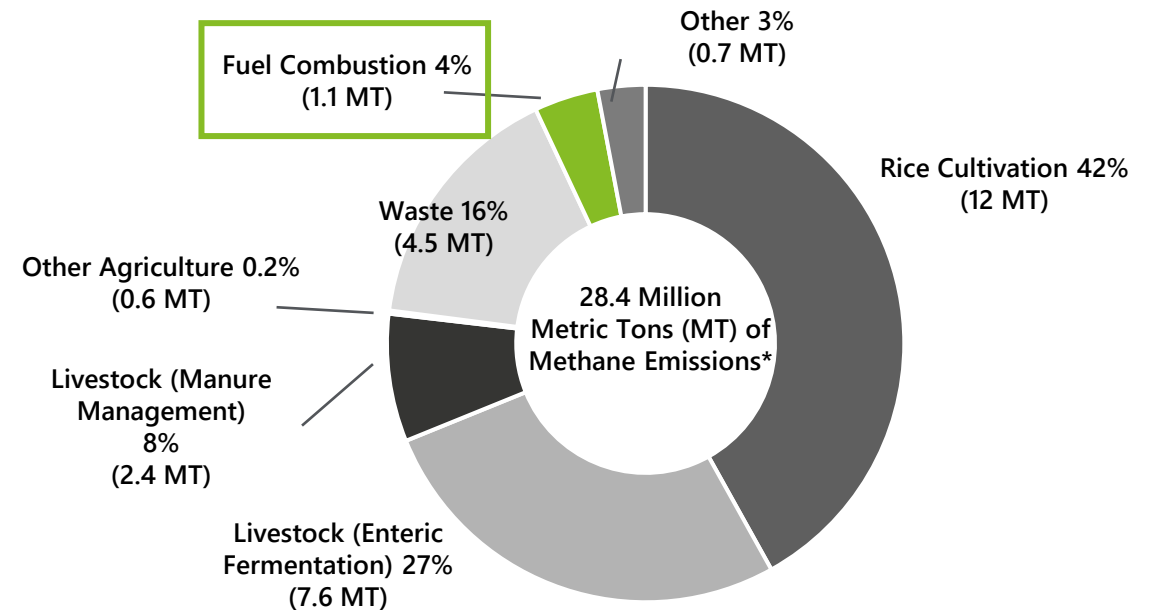
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1. Introduction

Background and Objectives of the Study

- The primary objective of this study is to support the development of effective approaches to encourage methane actions by the Japanese financing sector, by identifying decarbonization challenges and opportunities with a focus on the current status and future outlook of investments and engagements by major Japanese companies and policymakers in the O&G sector.
- Japanese financial and non-financial firms, as key players in a major fossil fuel-consuming and purchasing nation, can exert influence through credit and investment to support decarbonization in the O&G sector.
- Although estimates show domestic energy and fuel combustion only account for 4% of Japan's methane inventory, Japan's role as a leading O&G importer – and increasingly, re-exporter of LNG – positions it to play a key role in mitigating methane emissions across global O&G supply chain.
- Japan has shown methane leadership in the launch and expansion of the CLEAN (Coalition for LNG Emission Abatement toward Net-zero) initiative.

Direct methane emissions by sector in Japan



*CO2 equivalent *GWP of CO2:CH4= 1:28 *Final figures for FY2020

2. Key Findings from Data Analysis

Investment and Financing Trends in the O&G Sector by Japanese Companies

O&G sector is not Japan's primary foreign direct investment destination.

- Japan's foreign direct investment in the O&G sector – comprising equities acquired, loans made, and long-term fixed investment such as factory and land by Japanese residents only – stood at about \$100 bn at the end of 2023, representing about 5% of the total foreign direct investment.

Japan's leading energy and trade firms do not appear dominant equity holders in the global O&G sector.

- Net acquisition of interests in the O&G sector by ten major Japanese energy and trading firms is estimated to be less than \$20 bn since 2003.

Meanwhile, credit exposure of Japanese banks including overseas subsidiaries against the global O&G sector looks substantial.

- Credit exposure of the Japanese banking industry (including overseas subsidiaries) against the global O&G sector is estimated to exceed \$100 bn, potentially reaching as high as \$200 bn, as of the end of 2023*. Estimating the proportionate share of Japanese banks' credit exposure is difficult mainly due to limited availability of financial data for National Oil Companies (NOCs).

Importantly, Japanese banks play a significant role in financing global O&G investment projects.

- In 2021, Japanese banks provided approx. \$70 bn in financing for fossil fuel projects (excluding coal). This represents about 8-9% of global financing in the sector – a notably significant share.

*Based on the estimates and analysis from this research

The Position of Japanese Banks in Decarbonization and Pathways to Guide Banks Toward Methane Emissions Reductions

Japanese banks can be argued to be well-positioned to influence decarbonization in the global O&G sector, although methane emission reduction targets have not yet been set.

- Given the significance of Japanese banks in global O&G financing, it can be argued that Japanese banks are well-positioned to drive decarbonization efforts within the sector.
- Although Japan's three megabanks have pledged to achieving net-zero emissions in their investment and portfolios by 2050, none has set specific targets for methane emission reductions in the O&G sector.
- The share of credit allocated to the O&G sector by each megabank is relatively small - 3-5% of their total credit portfolios. This small credit allocation to the sector may limit the focus on decarbonization initiatives within the sector.

Investor networks can help guide banks toward effective methane emissions reductions by facilitating collaboration between regulatory bodies and industry alliances.

- To enhance engagement of the banking sector, it is crucial for investor networks to advocate for Japanese banks to take a more proactive role in designing and implementing methane emission reduction strategies.
- By facilitating collaboration between regulatory bodies and industry alliances, these intermediaries can guide banks toward effective emissions reductions.

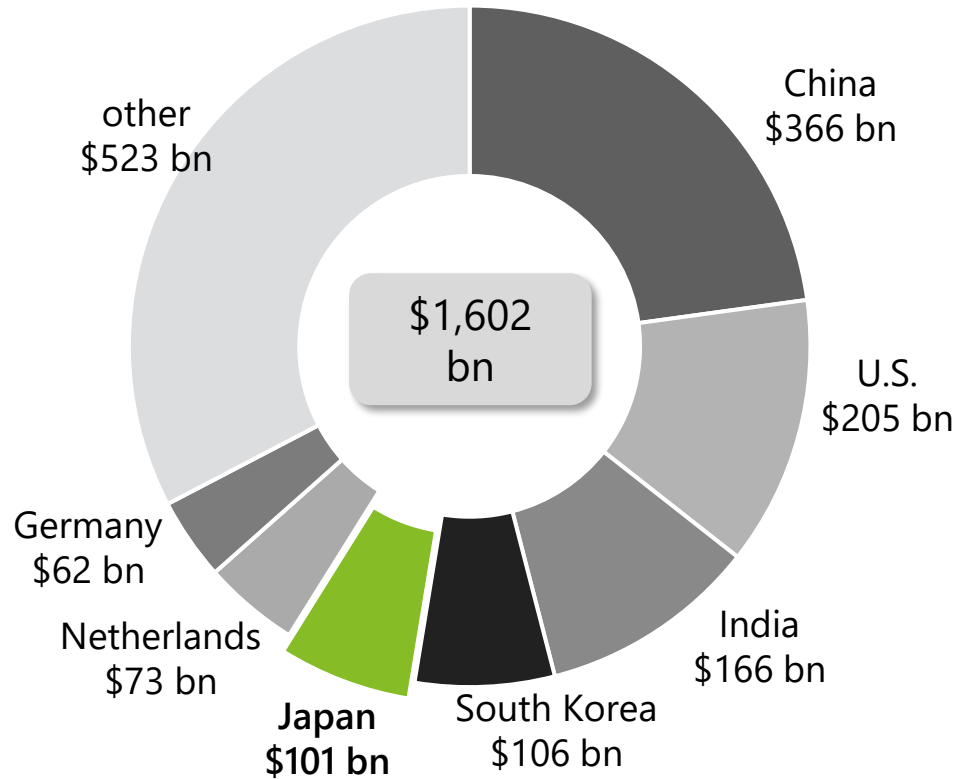
3. Investment and Financing Trends in the O&G Sector by Japanese Companies

- ✓ Energy Supply and Demand Trends
- ✓ Background Information for Data Analysis: O&G Sector Exposure of Japanese Companies

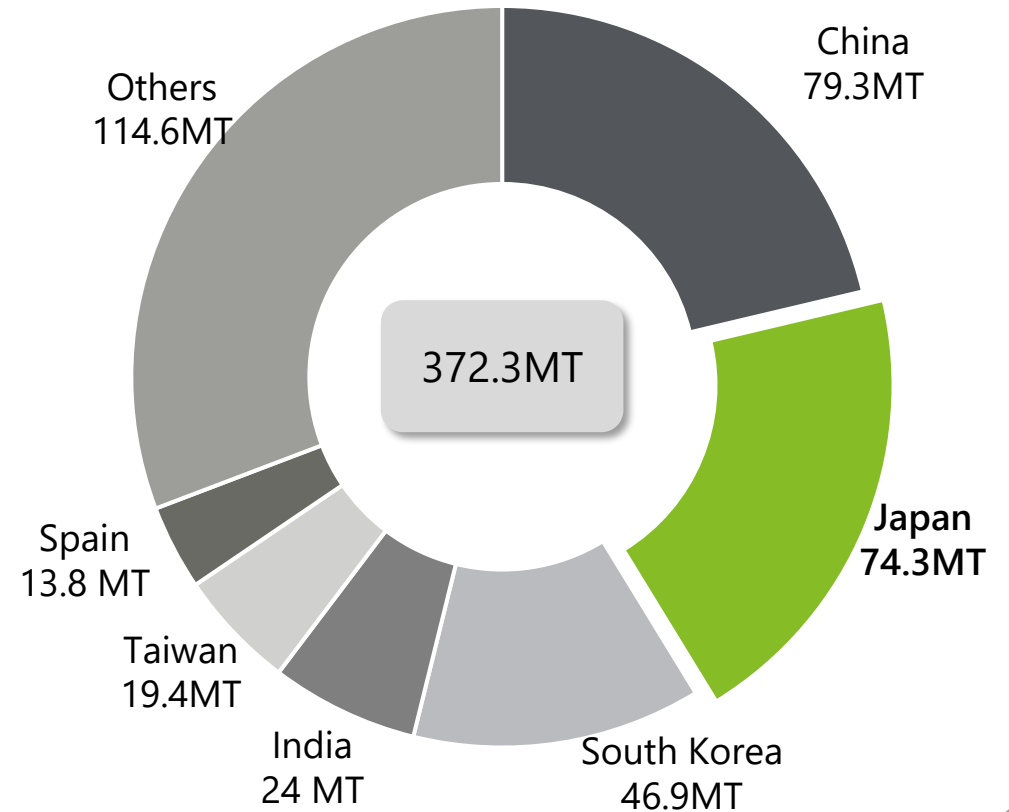
Global Oil and Natural Gas Imports

- Japan's oil and natural gas imports rank among the top five in the world, with its LNG imports ranked No.2 in 2022.

World Oil Import Value (2022)



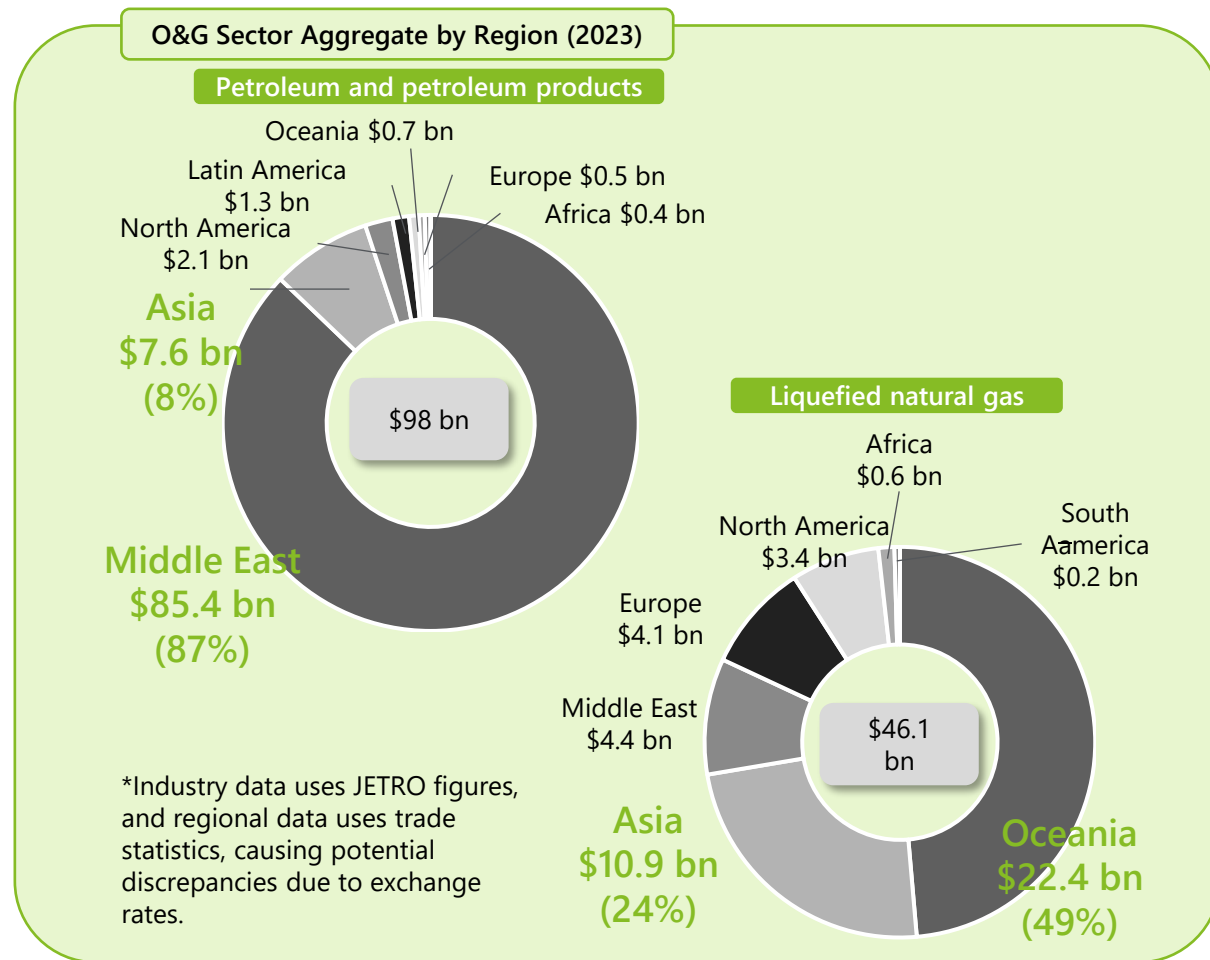
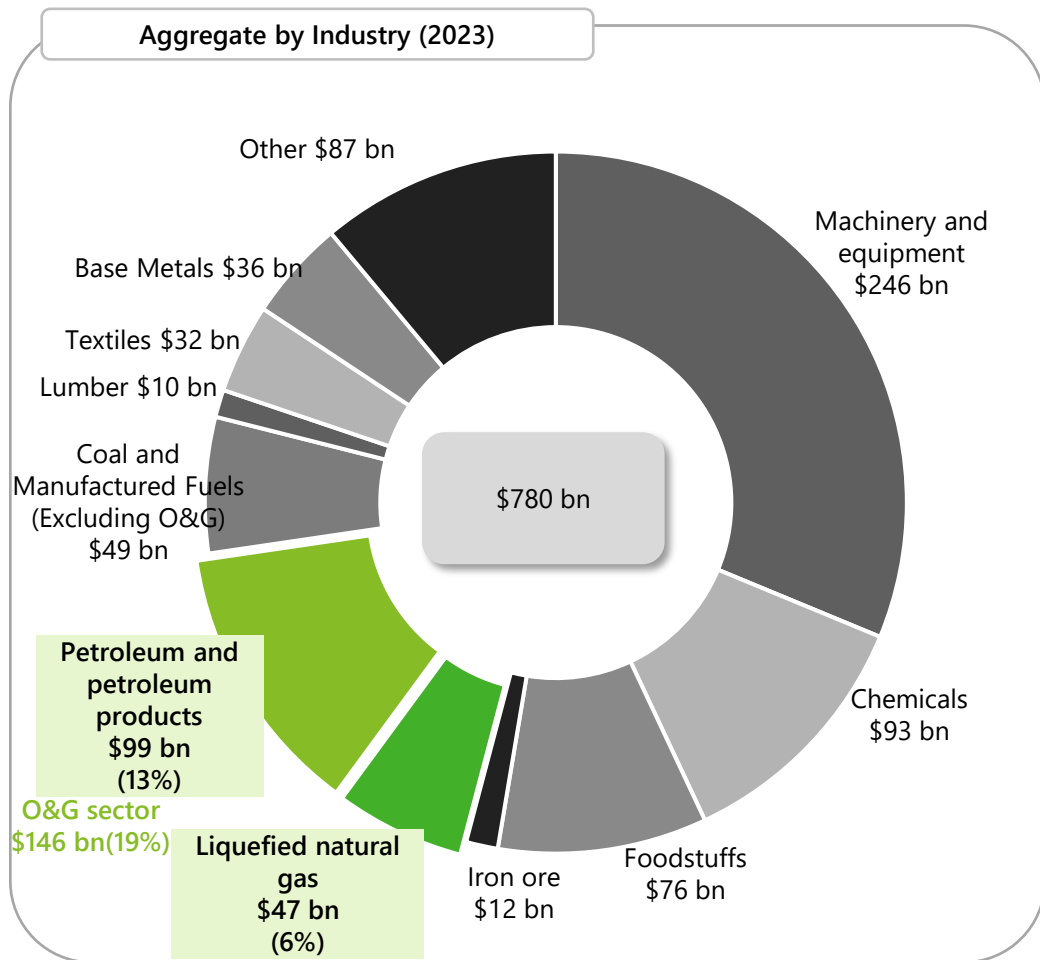
Global LNG Imports (2022)



Reference: Global Note "Country Rankings and Trends of World Crude Oil Import Values, Country Rankings and Trends of World Natural Gas Import Values", IGU "World LNG report 2022"

Japan's Oil and Natural Gas Imports

- The O&G sector accounted for about 20% of Japan's total imports in FY2023.
- The value of oil imports was \$98 bn, with the largest import origin being the Middle East and Asia (95% in total). That of natural gas imports was \$46.1 bn, and the largest exporters to Japan were Oceania and Asian countries (73% in total).

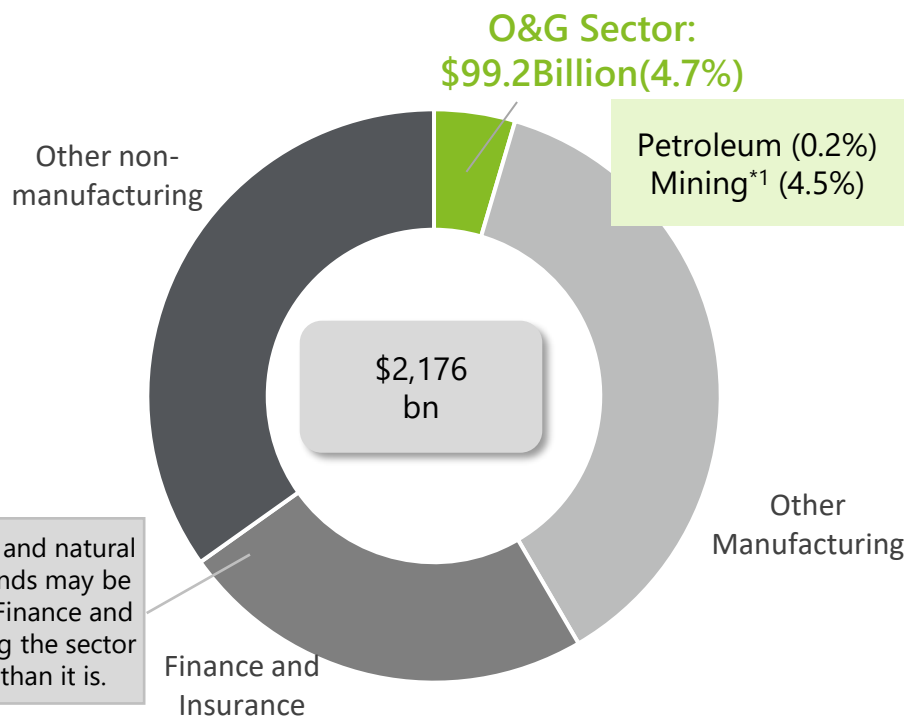


*Dollar-yen conversion is based on the average of the month-end price (1 dollar = 141.332 yen) as of 17:00 at the Bank of Japan Tokyo Market Dollar/Yen Spot 2023/1~2023/12

Overview of Foreign Direct Investment of Japan

- At the end of FY 2023, external investment balance for oil was \$5.3 bn, and it was \$93.9 bn for mining including natural gas, smaller than annual imports. Investment in Asia and the Middle East was also small.
- In Australia, which is the largest LNG exporter to Japan, Japan appears the main operator in a large-scale LNG project (Ichthys Project).

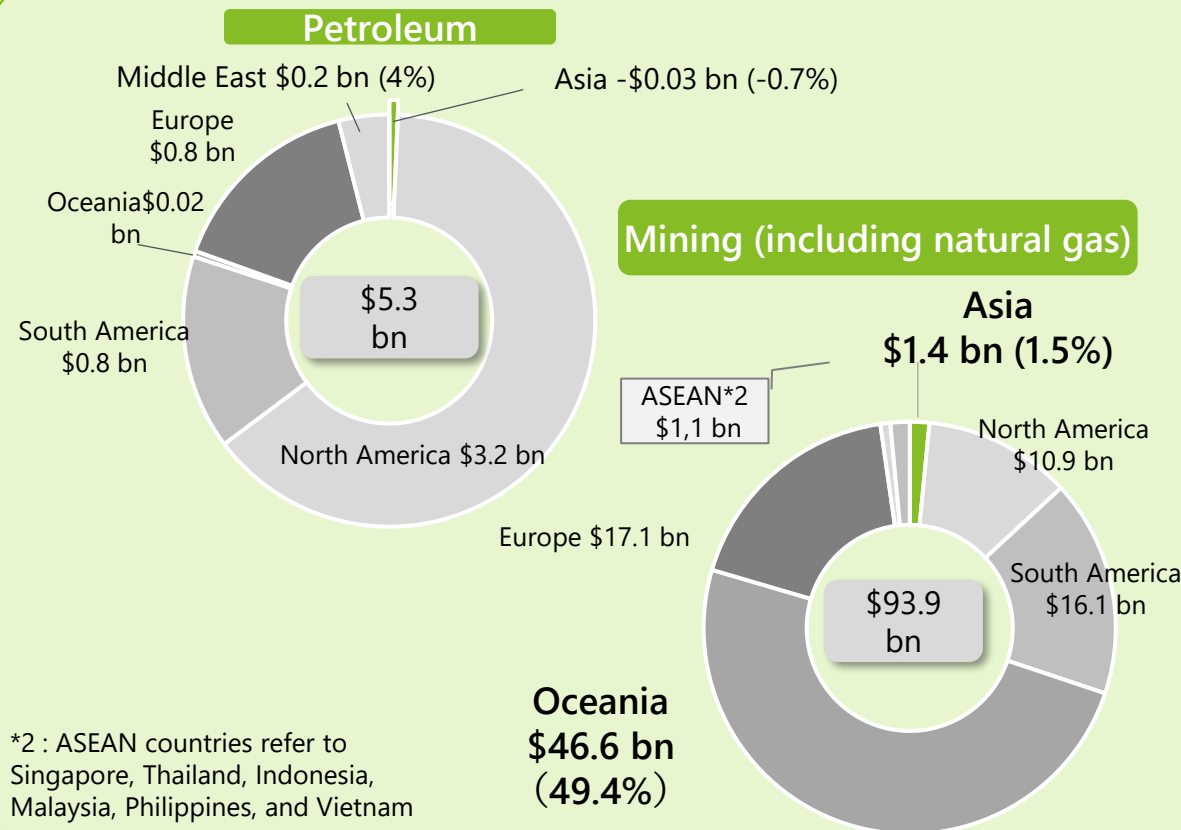
Aggregated FDI by Industry (2023)



Investments in oil and natural gas via mutual funds may be classified under "Finance and Insurance," making the sector appear smaller than it is.

*1 :Includes metal mining, coal mining, oil and gas extraction, and quarrying.

FDI on O&G Sector by Region (2023)



*2 : ASEAN countries refer to Singapore, Thailand, Indonesia, Malaysia, Philippines, and Vietnam

*Dollar-yen conversion is based on Bank of Japan Tokyo Market Dollar/Yen Spot as of 5 p.m. 2023/12/31 (1 dollar = 141.40 yen)

Summary of Estimated O&G Exposure of Japanese Financial Institutions

- The estimated overseas exposure of Japanese financial institutions, based on three different logic models, ranged from \$82.7 bn to \$144.7 bn.

*Since we are essentially making calculations for the three mega banks, the figure could be even larger if we include other Japanese financial institutions.

Considerations for Estimating Exposure

The estimated overseas exposure values of Japanese financial institutions are based on several assumptions and should be viewed as reference values with a considerable margin of error. There are also limitations in regional breakdowns.

Estimation Methodology Assumptions:

- Data Acquisition Timing:** Differences in timing; exchange rate fluctuations cannot be ignored.
- Target Companies:** Only major companies are targeted; some disclosed information may be insufficient.
- Foreign Direct Investment Data:** Includes sectors like metal mining, coal mining, quarrying, etc., and may not match precisely. May or may not include investments from overseas local subsidiaries.

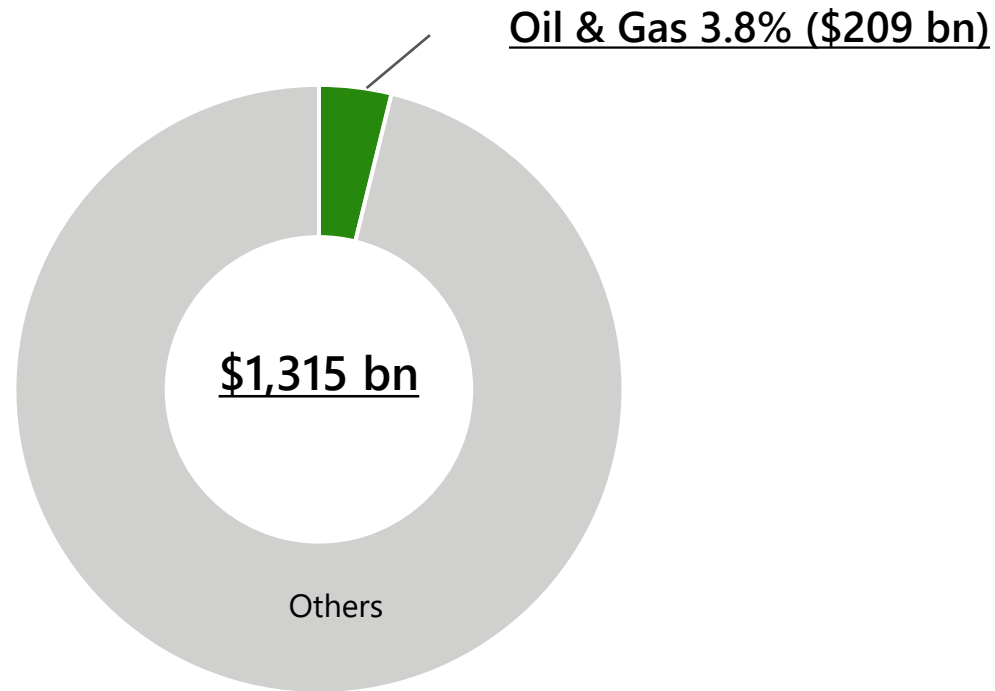
Estimation methodology		Calculation results				
A	Foreign Direct Investment Balance - Non-financial Companies' Exposure balances - CAPEX by non-Financial Companies	1	Foreign Direct Investment Balance	\$ 99.2 bn	Oil \$0.5 bn, Mining \$93.9 bn	
		2	Non-Financial Companies' Exposure Balances Against the O&G	\$ 17.6 bn	Total Interest Acquisition: \$27.7 bn Total sale of interests: \$10.2 bn * Of the total 352 cases, 201 (57%) did not disclose the amount.	
		3	Cumulative CAPEX in the O&G by Non-financial Companies	Difficult to estimate		
		1-2-3= NA		-	-	
B	Total O&G Credit Balance of the Three Megabanks - Total Domestic O&G Credit Balance (≒ Total Domestic borrowing from Three Megabanks of Energy Companies)	1	Total Balance of Credit Against the O&G of the Three Megabanks	\$ 209 bn	MUFG \$64 bn, SMBC \$78 bn, MHFG \$67 bn	
		2	Total Domestic Bank Borrowings of Energy Companies	\$ 64.3 bn	INPEX \$7.3B, JERA \$16.6B, Tokyo Gas \$4.5B, Osaka Gas \$2.8B, Kansai Electric Power \$18.7B, Kyushu Electric Power \$14.4B	
		1-2=		\$ 144.7 bn		
C	Total Balance of Credit against the O&G of the Three Megabanks × Overseas Loan Ratios of Each Bank		O&G Credit Balances	Overseas Loan Ratio*	O&G Credit Balances of 3 Megabanks Overseas	
		MUFG	\$ 64 bn	40.5%	\$ 25.9 bn	
		SMBC Group	\$ 78 bn	41.5%	\$ 32.3 bn	
		MHFG	\$ 67 bn	36.5%	\$ 24.4 bn	
		Total				\$ 82.7 bn

*Derived from each company's securities report for FY ending March 2024

Credit Balance of Japan's Three Mega Banks

- The O&G sector accounted for 3-5% (3.8% on average) of the total credit balance for each bank; balance of credit include that of overseas subsidiaries against O&G (MUFG at \$64B, SMBC at \$78B, MHFG at \$67B as of March 2022)

Breakdown of aggregated credit balance of three mega banks by sector: O&G and others



Year of referenced information:

- MUFG: March 2022 Credit Balance**
Includes loans, foreign exchange, payment guarantees, and unused commitment lines, excluding interbank transactions and credit to government agencies and central banks
- SMBC Group: March 2022 Credit Balance**
SMBC's total exposure (including consolidated subsidiaries), total assets on consolidated financial statements plus off-balance assets, etc.
- MHFG: March 2022 Credit Exposure**
Total of loans, foreign exchange, payment guarantees, and commitment lines (Mizuho Bank and Mizuho Trust & Banking combined)

*Dollar-yen conversion is based on Japan Bank Tokyo Market Dollar/Yen Spot as of 5 p.m. 2022/3/31 (1 dollar = 121.64 yen)

4. Policy and Initiatives for Decarbonization and Methane Emission Reduction

- ✓ Decarbonization Initiatives in the O&G Sector of Japan's Financial Institutions
- ✓ Global Policy Approaches to Bank Climate Risk
- ✓ Global Methane Emission Reduction Trends and Japan's Engagements

Participation in Climate Initiatives by Major Japanese Banks

- MUFG, SMBC and MHFG agreed to or joined all the climate-change related initiatives, and have declared that they set goals in accordance with SBT standards (none of them has't been certified from SBTi yet).
- JBIC doesn't disclose much, while it agreed to TCFD 2 years later than the other three banks in Japan did.

		MUFG	SMBC Group	MHFG	JBIC
Membership in climate-related initiatives	NZBA	✓ JUN/2021	✓ OCT/2021	✓ OCT/2021	N/A
	PCAF	✓ AUG/2021	✓ NOV/2021	✓ NOV/2021	N/A
	PACTA tool	✓	✓	✓	N/A
Disclosure of climate-related information	TCFD	✓ DEC/2017	✓ DEC/2017	✓ DEC/2017	✓ OCT/2019
	GRI	✓	✓	✓	N/A
	ISSB	✓	✓	✓	N/A
Reduction Targets	SBTi	✓	✓	✓	N/A
	Direct Emissions (Scope 1, 2)	Net zero by 2030			
	Financed Emissions (Scope 3 category 15)	Net zero GHG emissions from the investment and financing portfolio by 2050			

Abbreviations: NZBA: Net-Zero Banking Alliance, PCAF: Partnership for Carbon Accounting Financials, PACTA: Paris Agreement Capital Transition Assessment, TCFD: Task Force on Climate-related Financial Disclosures, GRI: Global Reporting Initiative, ISSB: International Sustainability Standards Board, SBTi: Science Based Targets initiative

Climate Actions and Strategies on the O&G Sector by Major Japanese Banks

- While JBIC hasn't made any disclosures regarding the O&G sector, three mega banks have disclosed their targets.

	MUFG	SMBC Group	MHFG	JBIC
Presence of 2050 Target	Net Zero Target in Investment and Financing portfolio			N/A
Presence of 2030 Intermediate Target	✓	✓	✓	N/A
Scopes	1,2,3	1,2,3	3	N/A
Measurement Indicators	Absolute Emissions (MtCO ₂ e)			N/A
Intermediate Target (Absolute Emissions)	▲15-28% compared to 2019	▲12-29% Compared to 2020	▲12-29% Compared to 2019	N/A
Target Level	2°C Target	✓	✓	N/A
	1.5°C Target	✓	✓	N/A

Reference: MUFG official website "Net Zero Investment and Loan Portfolio", SMBC Group "TCFD Report" (2023), "Risk Management" (2024), "SMBC Group Sustainability Declaration", MHFG official website "Strengthening Efforts to Achieve Net Zero by 2050", JBIC Annual Report 2023 Supplement "Strategy", MUFG "TCFD Report" (2023)

Actions against Climate Risk by Major Financial Regulatory Authorities

- Major regulatory authorities are actively addressing bank climate risk by providing guidelines, conducting a scenario analysis, and promoting information disclosure while they don't specifically mention initiatives by NZBA (Net Zero Banking Alliance).

	FRB(USA)	OSFI(Canada)	FCA(UK)	EBA(Europe)
Main Actions	<ul style="list-style-type: none"> Conducts scenario analysis associated with climate risks Supervises financial institutions on assessing the risks 	<ul style="list-style-type: none"> Issues guidelines and requirements on climate risk management and disclosure 	<ul style="list-style-type: none"> Develops a framework for achieving net-zero Addresses climate risks through regulatory policies 	<ul style="list-style-type: none"> Issues a report on the management and supervision of ESG risks Provides guidelines for managing and mitigating ESG risks
Main Actions	FSA (Japan)	Bank of Japan		
	<ul style="list-style-type: none"> Establishes a framework for disclosures Conducts a pilot for scenario analysis 	<ul style="list-style-type: none"> Assesses climate risks through disclosures and scenario analyses Introduces a new back-finance scheme for climate finance 		

Reference: FRB, "Pilot Climate Scenario Analysis Exercise," May 2024, OIG, "The Board's Approach to Climate Risk Supervision at Financial Institutions," July 2023, McCarthy, "Final Guideline on Climate," McCarthy, "Final Guideline on Climate." Risk Management and Disclosure for Financial Institutions issued by OSFI (March 2023), OSFI "Guideline-Climate Risk Management" (May 2023), FCA "Climate change and sustainable finance" (June 2024), FCA & PSR "Policy Statement FCA and PSR Net Zero Transition Plan" (July 2023), EBA "EBA publishes its Report on management and supervision of ESG risks for credit institutions and Investment firms" (June 2021)

Reference: Minutes of the 4th meeting of the Financial Services Agency's "Study Group on Financial Institutions' Initiatives for Decarbonization, etc." (July 2024), the Financial Services Agency's Sustainable Finance Advisory Committee's "Fourth Report of the Financial Services Agency Sustainable Finance Advisory Committee (July 2024)," Japan Bank's "Initiatives of Japan Banks on Climate Change: Speech at the Japan Press Club" (July 2021)

Initiatives for Methane Emission Reduction

- In recent years, initiatives aiming to reduce methane emissions have been established domestically and internationally, having emphasized the necessity of methane emission reduction as a crucial aspect of government policy.

#	Initiatives for Methane Emission Reduction	Year Established	Overview
1	Aiming for Zero	2022	Aiming to eliminate the methane footprint of the oil and gas industry
2	Climate & Clean Air Coalition	2012	Funding projects in developing countries through the CCAC Fund
3	Global Flaring and Methane Reduction Partnership	2023	A multi-donor trust fund committed to ending routine gas flaring and reducing methane emissions by 2030.
4	Global Methane Initiative	2004	Partnerships focused on methane recovery, reuse, etc.
5	Global Methane Pledge	2021	Aim to strengthen support for existing international methane emission reduction initiatives
6	International Methane Emissions Observatory (IMEO)	2021	Provide the data needed to deploy methane solutions and deliver on the goal of reducing methane emissions
7	Methane Guiding Principles	2017	Reduced methane emissions from the natural gas supply chain
8	Oil & Gas Decarbonization Charter	2023	Promote environmental activities in the oil and gas sector
9	Oil and Gas Climate Initiative	2014	Focuses on leading the industry's response to climate change
10	Oil and Gas Methane Partnership	2014	Reporting and mitigation programs for the oil and gas sector

Methane-Related Guidelines by MDBs and Global Financial Leaders in the O&G Sector

- Among the 14 financial leaders in the world, JPMC, HSBC, and Barclays have disclosed guidelines on methane management and reduction in the O&G sector. UK financial institutions are promoting specific strategies for methane reduction, while US financial institutions are in the process of encouraging funding and data disclosure.
- Among MDBs, the World Bank launched the initiative “Zero Routine Flaring by 2030” aiming to eliminate methane routine flaring in existing oil and gas fields (this is not relating to the Bank’s lending activities).

■ Methane management and reduction guidelines in the O&G sector and reduction targets among development banks and global financial leaders

	Guideline	Target year	Reduction Target
MDBs	World Bank	✓	2030 (Eliminate routine flaring)
	ADB	✓	N/A
	EBRD	N/A	N/A
	AfDB	N/A	N/A
	IDB	N/A	N/A
Global Financial Leaders	JPMC(US)	N/A	2030 ▲ 45% (Scope 1 &2)
	HSBC(UK)	✓	2025 (EU) 2030 (other) N/A
	Barclays (UK)	N/A	2026 N/A (scope 1&2)

■ Strategies for methane management and reduction in the O&G sector

World Bank

- Launched an initiative “Zero Routine Flaring by 2030” for governments, oil companies, and development institutions who agreed to cooperate to eliminate routine flaring no later than 2030

JPMC

- Provision of methane monitoring and reduction technologies
- Funding to support customers' efforts towards decarbonization
- Encouraging customers to improve the quality and transparency of data reporting

HSBC, Barclays

- Eliminate flaring (burning of gas) and venting (release of gas) by 2030, except when absolutely necessary for safety reasons

Methane Management Policies of Japan's Major Financial Institutions

- Meanwhile, none of major banks in Japan has yet introduced methane-related guidelines.
- Looking ahead, global financial industry's initiatives such as NZBA's guidelines on the O&G sector, actions by global peer banks, mounting financial market pressures, increasing transparency of reliable O&G methane emissions data, and heightened awareness of methane climate impact by regulatory authorities and the public would likely spur Japanese banks to take methane actions.

	MUFG	SMBC Group	MHFG	JBIC
Methane emission reduction guideline	N/A	N/A	N/A	N/A
Reduction target	N/A	N/A	N/A	N/A

5. Glossary

Glossary

Abbreviation	Full Name
ADB	Asian Development Bank
AfDB	African Development Bank
Barclays	Barclays PLC
CAPEX	Capital Expenditure
EBA	European Banking Authority
EBRD	European Bank of Reconstruction and Development
ESG investments	Environmental, Social, and Governance Investment
FCA	Financial Conduct Authority
FRB	Federal Reserve Board
FSA	Financial Services Agency
G.X.	Green Transformation
GRI	Global Reporting Initiative
HSBC	HSBC Holdings
IDB	Inter-American Development Bank
ING	ING Group

Abbreviation	Full Name
INPEX	INPEX Corporation
ISSB	International Sustainability Standards Board
JBIC	Japan Bank for International Cooperation
JERA	JERA Co., Inc.
JPMC	JPMorgan Chase & Co.
Kansai Electric Power Company	The Kansai Electric Power Co., Inc.
Kyushu Electric Power	Kyushu Electric Power Co., Inc.
LNG	Liquefied Natural Gas
MDBs	Multilateral Development Banks
MHFG	Mizuho Financial Group
MUFG	Mitsubishi UFJ Financial Group
NZBA	Net Zero Banking Alliance
O&G	Oil & Gas
Osaka Gas	Osaka Gas Co., Ltd.
OSFI	Office of the Superintendent of Financial Institutions

Abbreviation	Full Name
PACTA	Paris Agreement Capital Transition Assessment
PCAF	Partnership for Carbon Accounting Financials
SBTi	Science Based Targets Initiative
SMBC Group	Sumitomo Mitsui Financial Group
TCFD	Task Force on Climate-related Financial Disclosures
Tokyo Gas	Tokyo Gas Co., Ltd.

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