
Mizuho Economic Outlook & Analysis

April 19, 2024

Varying impact of high crude oil prices on Japan, the US, and Europe

Disruptors of inflation, the economy, and monetary policy

< Summary >

- ◆ Crude oil prices are rising again. There are mounting pressures on prices from both supply and demand perspectives due to increasing geopolitical risks, continued production cuts by OPEC Plus, and expectations of a demand recovery against the backdrop of the Chinese economy picking up.
 - ◆ Rising oil prices will push up inflation, especially in resource-importing countries/regions such as Japan and Europe, causing concerns that worsening terms of trade will lead to an outflow of income overseas and a subsequent downturn in the economy.
 - ◆ High crude oil prices will be a disruptive factor for monetary policies in Japan, the US, and Europe, which are in different phases, through their impact on inflation and the economy. Trends in crude oil prices will be an important variable affecting the global economy from the summer onward.
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1. Crude oil prices rising again and concerns over deteriorating terms of trade

Oil prices are rising again. The US WTI (West Texas Intermediate) futures price, a major crude oil trading index, began to climb around January of this year and is currently hovering around the mid-\$80s per barrel (**Chart 1**).

There are several factors behind the current rise in oil prices. The first factor is the ongoing tension in the Middle East. Six months have passed since the armed conflict began between Israel and the Islamic organization Hamas, which effectively controls the Gaza Strip in Palestine, and cease-fire negotiations have stalled with the prospects of a settlement bleak. As the fighting dragged on, the Iranian embassy complex in Syria was hit by an April 1 airstrike presumably by Israeli defense forces, killing an Iranian Revolutionary Guard Corps commander. Tensions rose quickly, with Iran threatening retaliation against Israel, and fears of the negative impact on crude oil supplies spurred prices higher. Iran attacked Israeli military and other facilities on April 14, and with the possibility of Israel's reprisal, uncertainty prevails over the situation in the Middle East. Russian and Ukrainian fighting is also impacting the crude oil market. Ukraine's repeated attacks on Russian oil-related facilities have eroded Russia's oil refining capacity and driven up prices.¹ Other factors include the continued reduction of crude oil production by OPEC Plus, which consists of the Organization of Petroleum Exporting Countries (OPEC) and non-member oil-producing countries, as well as the partial suspension of crude oil exports by Mexico. While geopolitical risks and oil production cuts have weakened the supply capacity, signs of a recovery in demand are also seen as contributing to higher oil prices. The March manufacturing purchasing managers' index (PMI) of 50.8 released by China's National Bureau of Statistics (NBS) surpassed the 50 benchmark between favorable and unfavorable conditions and exceeded market expectations.

Amid rising supply and demand pressures on crude oil prices, the worsening terms of trade in oil-importing countries and the resulting outflow of income to other countries (generating trading losses) are concerned. Sugai et al. (2023) points out that income outflows associated with worsening terms of trade may exert downward pressure on the economy through lower real wages for households and reduced personal consumption. In this report, we analyze the impact of higher oil prices on terms of trade from the beginning of 2024, focusing on Japan, the United States, and Europe, and consider how this impact will affect their economies and monetary policies.

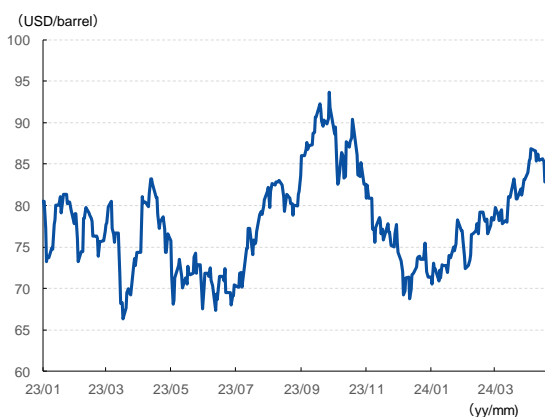
¹ According to media reports, Russia's oil refining capacity is down by about 10%.

2. Terms of trade for Japan and Europe worsened by -1 to -4%pt due to higher oil prices since the beginning of 2024

Chart 2 shows the trends of trade gains and losses in Japan, the US, and Europe. During the surge in resource prices following the outbreak of war in Ukraine, the United States, a net exporter of resources, realized trading gains, while Japan and Europe suffered substantial trading losses as net importers of resources. Thereafter, the terms of trade in Japan and Europe improved as resource prices settled down (realizing trade gains on a year-on-year basis), but the trade gains of Japan and Europe began to contract as oil prices rose around October last year, following the outbreak of armed clashes between Israel and Hamas. Given the recent rise in oil prices, there are concerns that the terms of trade in Japan and Europe (export prices divided by import prices) will deteriorate once again and that trading gains will shrink further, or that trading losses will occur.

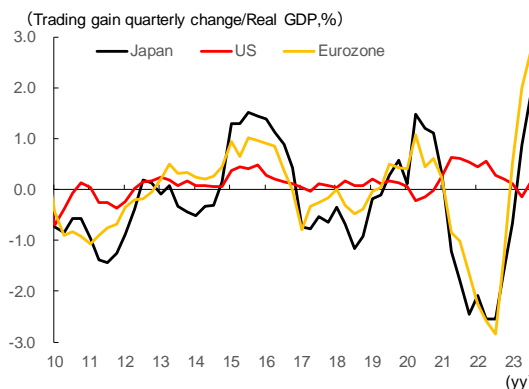
To what degree will the increase in oil prices from the beginning of 2024 impact the terms of trade in each country? In the following section we estimate the effect of higher oil prices on the terms of trade for Japan, Europe, and the US (post-shale revolution) using a simple three-variable VAR model consisting of terms of trade, oil price (WTI), and unemployment rate.

Chart 1: Crude oil prices (WTI)



Source: Made by MHRT based on LSEG.

Chart 2: Trading gains in Japan, the US, and Europe



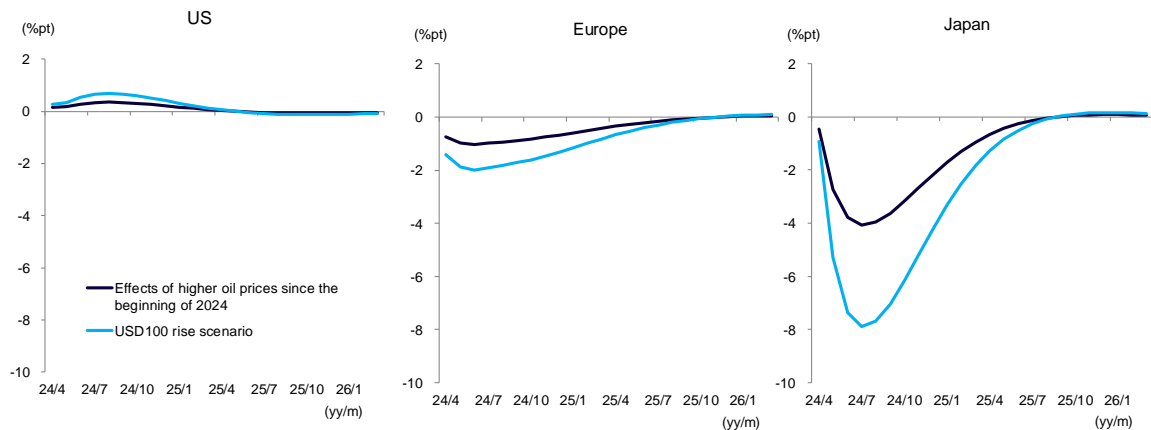
Source: Made by MHRT based on the Cabinet Office, CEID, and Eurostat.

In addition to the recent rise in crude oil prices (\$86 per barrel, +20% compared to the beginning of 2024), our analysis also examines the impact if crude oil prices were to reach the benchmark of \$100 per barrel (+40% compared to the beginning of 2024).

Chart 3 shows the results of estimating the impact on terms of trade as an impulse response. For Japan, Europe, and the US, the time to maximum spillover is about 3 to 4

months, and the time to convergence is about 1 to 1.5 years, but there are differences in the direction and width of spillover. It is estimated that the latest rise in crude oil prices would have the effect of boosting the terms of trade by up to +0.4%pt for the US, while it would worsen by up to -4.1%pt for Japan and by about -1.1%pt for Europe. Furthermore, if crude oil prices reach \$100 per barrel, the terms of trade in the US will improve by up to +0.7%pt while deteriorating in Japan and Europe by up to -7.9%pt and -2.1%pt, respectively, indicating that a further rise in crude oil prices will significantly aggravate the terms of trade for Japan and Europe, and the business confidence gap with the US will likely widen further. This estimate is based on the impact of a one-time shock, but if oil prices remain high, it is assumed that these downward pressure effects will also be sustained.

Chart 3: Estimated impact of the most recent crude oil price increase on terms of trade



Note: We assume shocks to oil prices of \$86 (vs. beginning of 2024: +20%) and \$100 (vs. beginning of 2024: +40%). All variables are logarithmic values, and terms of trade (export prices divided by import prices) and crude oil prices are series with the trend component removed by HP filtering. The periods are Japan: April 1960-February 2024; Europe: April 2005-January 2024; and the United States: January 2015-February 2024. All are two-period lags.

Source: Made by MHRT based on the US Department of Commerce, US Department of Labor, Eurostat, Bank of Japan, Ministry of Internal Affairs and Communications, and EIA.

Thus, the impact of crude oil price hikes on terms of trade is shown to have a modest improvement effect in the US, but a worsening effect in Japan and Europe, with the worsening effect being particularly pronounced in Japan.

One possible explanation for this is the difference in energy self-sufficiency rates (domestic production divided by total supply) among countries. For resource-rich countries able to independently meet their domestic energy needs and export energy as well (energy self-sufficiency rate over 100%), the terms of trade improve when oil prices rise. On the other hand, non-resource countries that depend on energy imports (energy self-sufficiency ratio less than 100%) are vulnerable to the negative impact of higher oil prices.

Chart 4 shows the energy self-sufficiency rate of each country. Since 2010, after the

shale revolution, the US energy self-sufficiency rate has continued to rise, reaching 107% by 2022. In addition, major European countries such as Germany and France maintain a certain level of self-sufficiency by using nuclear power and renewable energy, but continue to be dependent on imports of crude oil, natural gas, etc., and their energy self-sufficiency rates remain in the 30-40% range. On the other hand, Japan is almost entirely dependent on imports for its energy resources, maintaining a self-sufficiency rate at around 20% for many years. Declining since the 2010s due in part to the stagnating use of nuclear power generation, the ratio fell to 13% by 2022, a rate lower than in other industrialized countries. As indicated in this analysis, if crude oil prices remain high at current levels or rise further, there are concerns that the terms of trade in Japan, with its high dependence on energy imports, will deteriorate more than any other advanced country.

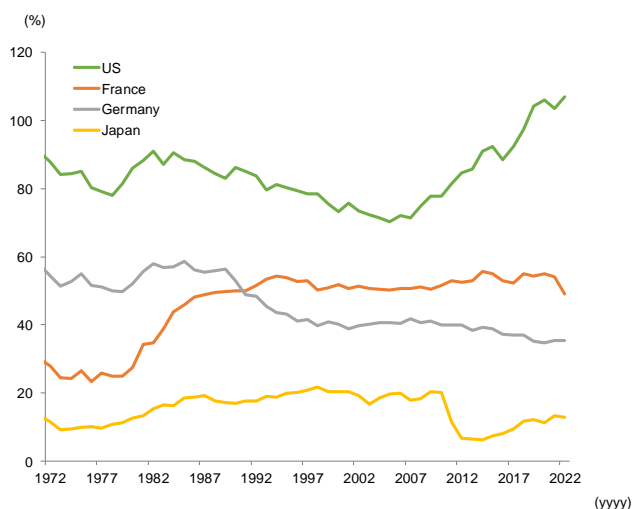
We next estimate the impact of higher oil prices and the resulting worsening of terms of trade on inflation and the economy.

Chart 5 shows the results of estimates for Japan, the US, and Europe regarding (1) the impact of the recent rise in oil prices on inflation and (2) the impact on consumption when the worsening terms of trade shown in **Chart 3** are taken into account.

With regard to (1), the difference between the US and Japan/Europe was conspicuous, with the US showing a +0.14%pt increase in inflation (consumer prices) with the recent rise in crude oil prices, while the impact on Japan and Europe was +0.25 to +0.30%pt, about twice as large on a year-on-year contribution basis. This difference appears to stem from the disparity in energy self-sufficiency rates, among other factors. The same is true for (2), with the impact on consumption of the change in terms of trade associated with the current oil price increase being slightly positive for the US, while a downward pressure of -0.13% to -0.14%pt for Japan and Europe.

Furthermore, as shown in **Chart 3**, despite the fact that Japan's terms of trade deteriorated significantly more than Europe's as a result of higher crude oil prices (Japan: -4.1%pt, Europe: -1.1%pt), the impact on inflation was greater in Europe (Japan: +0.25%pt, Europe: +0.30%pt). There are several possible reasons for this, but it can be inferred, for example, that differences in the energy mix

Chart 4: Energy self-sufficiency rates



Source: Made by MHRT based on the IEA.

between Japan and Europe and the degree to which higher crude oil prices affect non-energy core commodities may be causing the difference.

3. High oil prices raise uncertainty in monetary policy through their impact on inflation and the economy

The above analysis suggests that the current rise in oil prices and the resulting deterioration in terms of trade will have a significant impact on the economy and prices, especially in Japan and Europe. The impact on the economy and prices can also be a disrupting factor for monetary policy.

As mentioned earlier, as a nation’s terms of trade worsen, household and corporate incomes flow out of the country, exerting downward pressure on the economy, particularly on consumer spending and capital investment. In Japan, the continuing decline in real wages has seen personal consumption pull back for three consecutive quarters from April-June to October-December 2023, and a renewed rise in oil prices could increase households’ propensity to economize and tamp down consumer spending. The European economy has also weakened due to inflation since the invasion of Ukraine and interest rate hikes by the ECB (European Central Bank), and the current rise in oil prices could prolong the economic downturn, especially in terms of consumption and investment.

The impact on Japanese, US and European monetary policies is likely to be complicated because of their different phases.

In Japan, the Bank of Japan took the first step toward normalizing its monetary policy by lifting negative interest rates and eliminating yield curve control (YCC) at its monetary policy meeting in March, following the 5% wage increase, the highest hike in 33 years, in the spring wage negotiations for FY2024. Financial markets are watching to see when the policy rate will be raised. A continued rise in oil prices will be a factor driving up prices in the

Chart 5: Estimated impact of the recent oil price increase and change in terms of trade on inflation and consumption

(Y-o-y contribution, %pt)	Japan	US	Europe
(1) Impact of recent oil price hikes on inflation	0.25	0.14	0.30
(2) Impact of changes in terms of trade on consumption	-0.13	0.02	-0.14

Note: In all cases we used the average of the effects from April 2024 to March 2026. (1) is estimated using a three-variable VAR model with monthly data on oil prices (y-o-y), unemployment rate (y-o-y difference), and inflation rate (y-o-y), assuming an oil price shock of \$86 (compared to the beginning of 2024: +20%). (2) is estimated using the estimation results in Chart 3 after calculating the average effect on real personal consumption of a 1% change in the terms of trade using a three-variable VAR model with quarterly data on the terms of trade (y-o-y change), unemployment rate (y-o-y difference), and real personal consumption (y-o-y change). The estimation period and lag in (1) and (2) are the same as in Chart 3. Both results of this analysis are purely mechanical estimates and should be viewed with a certain degree of latitude.

Source: Made by MHRT based on the US Department of Commerce, US Department of Labor, Eurostat, Bank of Japan, Ministry of Internal Affairs and Communications, and EIA.

immediate future, and may provide a boost to interest rate hikes later this summer. In the long run, however, the outflow of income overseas due to the worsening terms of trade could erode the resources available to companies to raise wages. If the rate of wage increase in the spring wage negotiations of FY2025 is significantly reduced as a result, it will be difficult to continue raising interest rates in the next fiscal year and beyond. In addition, the yen has been weakening recently, with the yen hovering at the 150-per-dollar level since late March. The yen's depreciation is in itself a factor exacerbating Japan's terms of trade, but there are concerns that the yen's further depreciation will lead to the terms of trade deteriorating as people realize that the trade deficit will widen with higher crude oil prices.² If the risk of economic recession increases as corporate earnings and households' real incomes come under pressure, the policy rate hike will naturally falter.

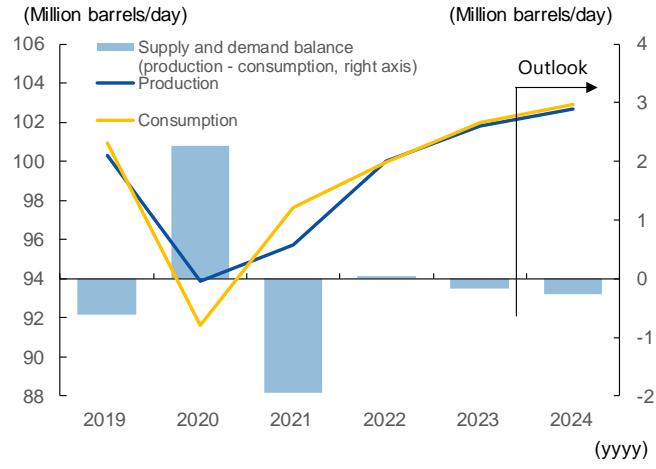
For the ECB (European Central Bank), rising oil prices will also increase uncertainty about its future monetary policy. Eurozone inflation has recently fallen to the 2% range, increasing the likelihood that the ECB will begin cutting interest rates at its next monetary policy meeting in June. However, if prices and wages re-accelerate due to higher oil prices, it will be difficult for the ECB to continue cutting interest rates. The ECB may be forced to make an extremely difficult policy decision, as inflation and economic deterioration could occur simultaneously and give rise to stagflation.

Even in the US, where the impact is smaller than in Japan and Europe, the impact of higher oil prices on the inflation rate is inevitable, as indicated by the results of the above analysis and Sugai (2023). Inflation showing signs of reversing and rising in the near term will present a difficult challenge for the Federal Reserve (Fed) as it seeks to cut interest rates.

According to EIA (US Energy Information Administration), crude oil demand is expected to exceed supply (consumption exceeding production) in 2024 due to production cuts in oil-producing countries and a recovery in demand (**Chart 6**). Under such circumstances, and in light of increasing geopolitical risks, including the increasingly tense situation in the Middle East and the protracted war between Russia and Ukraine, we cannot ignore the possibility that crude oil supply and demand will tighten further, resulting in crude oil prices continuing to climb. We will need to keep a close watch on this factor as it may disrupt inflation and monetary policy in various countries after the summer of 2024.

² In general, when the trade deficit expands, the amount of foreign currency paid out to trading partners increases, which in turn raises the pressure to sell the yen and buy foreign currency, resulting in the yen's depreciation.

Chart 6: Global crude oil supply and demand



Source: Made by MHRT based on EIA.

Reference

Refer to the original Japanese report by clicking the URL below for the reference material.

<https://www.mizuho-rt.co.jp/publication/report/research/insight/2024/insight-gl240419.html>