Yermak-McFaul
International Working Group
on Russian Sanctions

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RUSSIAN OIL EXPORTS UNDER INTERNATIONAL SANCTIONS

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I. Executive Summary

We use high-frequency data on Russian oil exports to evaluate the impact of international sanctions on Russian energy exports in the first quarter of 2023.[2] Specifically, we focus on the effects of two focal measures: the European Union's (EU) embargoes on Russian seaborne crude oil, in force since December 5, 2022, and Russian oil products, in force since February 5, 2023—as well as the corresponding Group of Seven (G7) price cap mechanisms. Data for 2023Q1 allows us to analyze an extensive post-sanctions period—and, thus, draw conclusions with regard to some of the questions that remained unanswered in our previous research, including with regard to export prices, discounts on Russian oil, the effectiveness of the price cap regime, and potential sanctions violations.

Our key findings are as follows:

- **The sanctions coalition's strategy to keep Russian crude oil on the global market, while restricting the country's export receipts and fiscal revenues is showing results.** For 2023Q1, the Bank of Russia (CBR) reported total goods exports of $100.8 billion—down 28% compared to 2022Q4 ($140.6 billion). We find that crude oil and oil product exports alone fell by $15.6 billion—thus, making up 40% of the total decline—and estimate contributions of $6.1 billion from smaller volumes, $4.2 billion from lower global prices, as well as $5.2 billion from wider discounts on Russian exports. At the same time, Ministry of Finance data for 2023Q1 shows that oil and gas revenues came in 47% below 2022Q4 levels (-45% vs, 2022Q1) and were partially responsible for a sharply wider deficit.
- **Even so, export prices for Russian crude oil in 2023Q1 point to sanctions violations and underscore the urgent need for more rigorous enforcement.** We find that prices at the critical Pacific Ocean port Kozmino stood at around $73/barrel in the first three months of the year—consistent with ESPO numbers estimated by market intelligence providers. Moreover, the distribution of prices is rather homogeneous—more than 95% of the total export volume at Kozmino was sold at a price above the $60/barrel threshold. As the tracking of individual voyages shows continued and substantial involvement of G7/EU shipping service providers, sanctions violations likely occurred and require further investigation.
- **Russian crude oil largely remained on the global market after the taking-effect of the EU embargo on December 5, 2022—and global oil prices did not increase.** A surge in prices in the event of Russian oil's exiting from the market had been a key concern of sanctions coalition countries. To address this issue, the G7/EU established the oil price cap regime, while also rolling back some elements of the EU's sixth sanction package. Namely, shipping service providers from EU countries were permitted to remain involved in the Russian oil trade if transactions take place below a certain threshold—ultimately set at $60/barrel.

[2] We rely on data on crude oil and oil product exports from a broad range of sources (see Appendix).

- **The market for Russian crude oil exports has undergone a fundamental transformation since the start of the full-scale invasion of Ukraine on February 24, 2022.** European countries, previously the largest buyers, now play a negligible role and have been replaced almost entirely by China and India, with the latter appearing as the key "new" buyer over the past twelve months. In 2023Q1, the two countries together accounted for close to 75% of total Russian crude oil exports. As the country's oil infrastructure is geared towards exports to the West, this redirection has led to significantly longer shipping routes.
- **Most importantly, the EU embargo has triggered a fragmentation of the market—with different segments characterized by diverging demand conditions and, thus, price dynamics.** Where European demand had played a key role in the past and has now essentially disappeared—namely exports via Druzhba as well as from Baltic Sea and Black Sea ports—, prices for Russian crude oil fell by $20-25/barrel in the post-embargo period (vs. November), a $10-15/barrel wider discount vs. Brent. But where demand conditions did not change materially—namely exports from Pacific Ocean ports and via pipeline to China—prices dropped by only ~$10/barrel, reflecting a largely unchanged discount.

Our policy recommendations are as follows:

- **We believe that stepped-up enforcement of existing sanctions is essential.** Our finding of crude oil export prices significantly above the $60/barrel price cap threshold at Kozmino—together with evidence regarding the continued involvement of Western companies in a substantial share of the shipments—demonstrates that investigating compliance with *existing* sanctions should be front and center.
- **We propose a number of specific steps to address the issue of potential sanctions circumvention:** (1) risk-based audits of attestations regarding price cap compliance, i.e., a focus on areas that pose relatively high risks of sanctions evasion; (2) strengthening of price cap coalition countries' enforcement stance and alignment of such efforts across jurisdictions; (3) measures to increase the transparency of transactions that do not involve Western shipping service providers, e.g., a focus on the largely UAE and Hong Kong-based trading firms involved in exports to China and India; and (4) development of additional administrative capacities for sanctions enforcement, including in the EU.
- **Lower price caps for crude oil and oil products are of critical importance for a continued weakening of Russian export earnings and fiscal revenues—especially as prices are set to rise again.** Up to now, the sanctions coalition's efforts were helped by moderating global oil prices, which—together with widening discounts—led to sharply lower export prices for Russian crude oil. With OPEC's decision to cut production by 1.15 million barrels/day, oil prices have begun to rise again, which, even under the assumption of constant discounts, will benefit Russia. For each $1/barrel increase in the price of crude oil, the country could receive $2.7 billion in additional export earnings.

II. Dynamics of Russian Oil Exports

Sanctions on Russian Crude Oil and Oil Products

On June 3, 2022, the European Union adopted its sixth package of sanctions on Russia following the country's brutal and unprovoked attack on Ukraine.[3] Among other items, the package established a full embargo on imports from Russia of seaborne crude oil—taking effect on December 5, 2022—and all oil products—taking effect on February 5, 2023.[4] While these measures represented the most important energy-related sanctions to date, concerns arose regarding a provision that would prohibit EU operators from transporting Russian crude oil—as well as insuring and financing the transport—effective December 5, 2022. Due to the critical role of Western shipping companies and, in particular, maritime insurance providers, the U.S. government as well as other sanctions coalition countries feared a sharp drop in the supply of Russian crude oil—at a time when many countries were already struggling with the war's impact on global energy markets.

At the same time, Ukraine's allies were determined to limit Russian export earnings and fiscal revenues from oil and gas. The solution was the creation of the G7/EU price cap mechanism for Russian crude oil and oil products, which introduced exemptions to the aforementioned prohibitions regarding shipping services.[5] The price cap regime allows Western companies to remain involved in Russian exports—as long as the price lies below a certain level. The threshold was ultimately established at $60/barrel for crude oil and took effect coinciding with the embargo on December 5, 2022.[6] For oil products, the mechanism kicked in on February 5, 2023, with a cap of $45/barrel for oil products trading at a discount to crude oil, e.g., fuel oil, and of $100/barrel for products trading at a premium, e.g., diesel.[7] The measures contained transition periods for cargo sold above the respective cap levels and loaded before the respective start dates.[8]

Oil Export Earnings Down Markedly

Russia's export earnings from crude oil and oil products declined markedly to $38.8 billion in 2023Q1 from $54.5 billion in 2022Q4—a drop of 29% (see Figure 1). This is roughly 40% of the decline in total goods exports, which fell from $140.6 billion in 2022Q4 to $100.8 billion in 2023Q1 according to the CBR.[9] We estimate that close to 75% of the total change in oil exports can be attributed to sanctions in the form of lower volumes (-$6.1 billion) and wider discounts on Russian exports (-$5.2 billion), while lower global prices were responsible for a -$4.2 billion shift. In line with oil export dynamics, Russia's trade surplus fell from $58.2 billion in 2022Q4 to $29 billion in 2023Q1, and the overall current account surplus from $37.5 billion to $18.6 billion—both drops of 50%.

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[3] Official Journal of the European Union, L 153, 3 June 2022 here.

[4] Aside from the transition periods, the embargoes contain exemptions for Bulgarian imports of both crude oil and oil products until the end of 2024, and of Croatian imports of vacuum gas oil until the end of 2023.

[5] See Council Decision (CFSP) 2022/1909 of 6 October 2022 here.

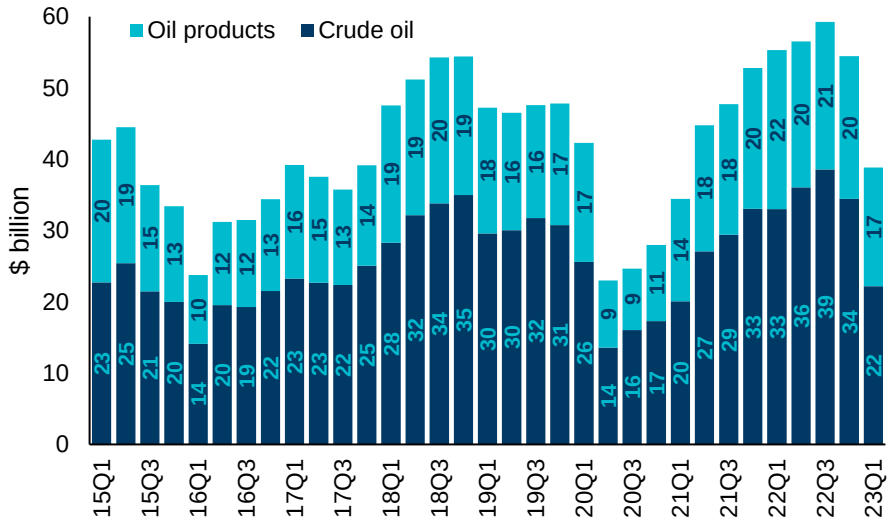
[6] Council Decision (CFSP) 2022/2369 of 3 December 2022 here.

[7] Council Decision (CFSP) 2023/252 of 4 February 2023 here.

[8] January 19, 2023, for crude oil and April 1, 2023, for oil products.

[9] For CBR data on Russia's external accounts see here.

Figure 1: Quarterly Oil Export Earnings

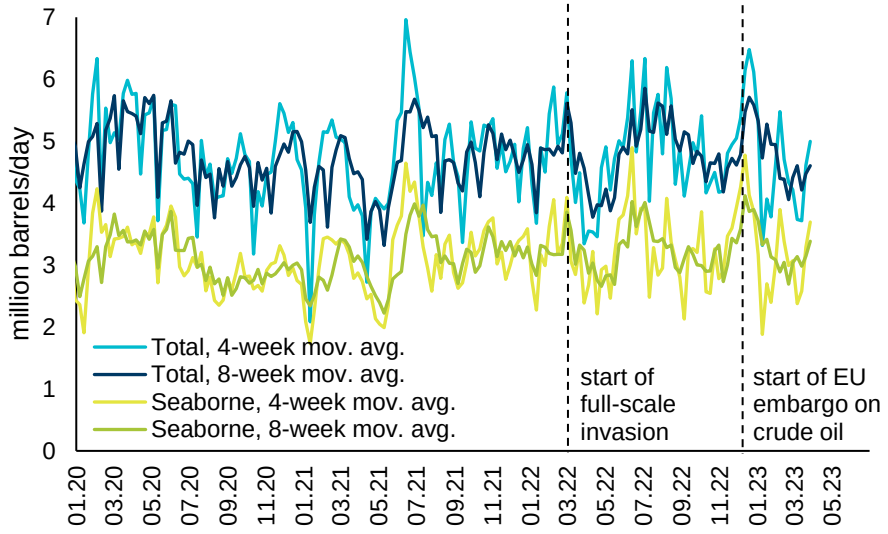


Source: KSE Institute

Russian Crude Oil Remained on the Market

We find that the softening of the EU embargo with regard to the provision of EU-based shipping services largely succeeded at keeping Russian oil on the global market. Seaborne crude oil export volumes averaged 2.9 million barrels/day in 2023Q1 according to official data—compared to 3.3 million, on average, in 2022 and 3.2 million in 2021-22 (see Figure 2). This reduction is also consistent with the production cut of 500k barrels/day that Russian authorities announced in recent weeks. The decline in total crude oil exports is somewhat larger than for seaborne ones on account of several European countries' decision to no longer import via the Druzhba pipeline despite the embargo only applying to seaborne oil. Total export volumes reached 4.3 million barrels/day in 2023Q1 vs. 4.9 million in 2022 and 4.8 million in 2021-22.

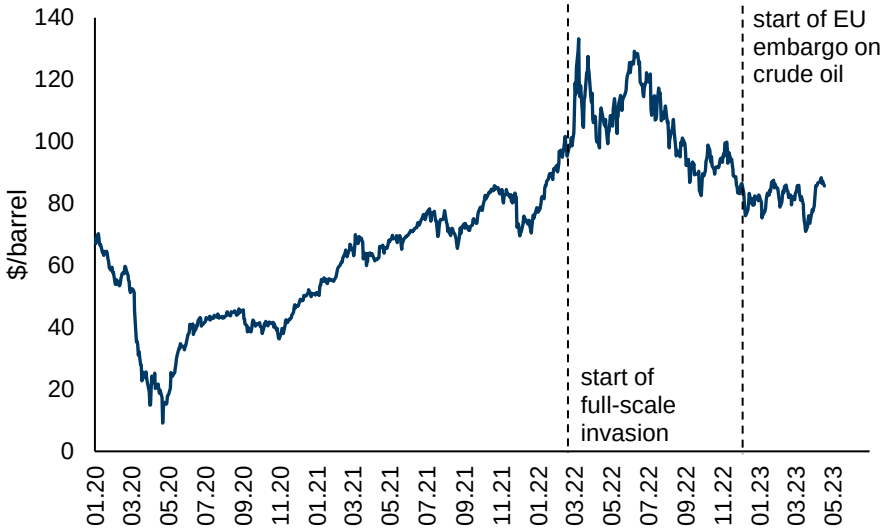
Figure 2: Weekly Volume of Russian Crude Oil Exports



Source: KSE Institute

Importantly, the EU embargo's taking effect in December was not followed by an increase in global oil prices—in fact, prices trended down (see Figure 3). North Sea Brent traded at $91.07/barrel in November, $80.90 in December, $83.09 in January, $82.71 and February, and $78.53 in Mach according to the International Energy Agency (IEA). Most recently, OPEC's announcement of a 1.15 million barrels/day production cut—in addition to the aforementioned one by Russia—led to a rise in oil prices to around $85/barrel. Generally speaking, the sanctions coalition's strategy to ensure market stability while reducing Russian export earnings and fiscal revenues is showing results.

Figure 3: Daily Brent Oil Price (FOB)



Source: U.S. Energy Information Administration

Redirection of Crude Oil Exports to Alternative Markets

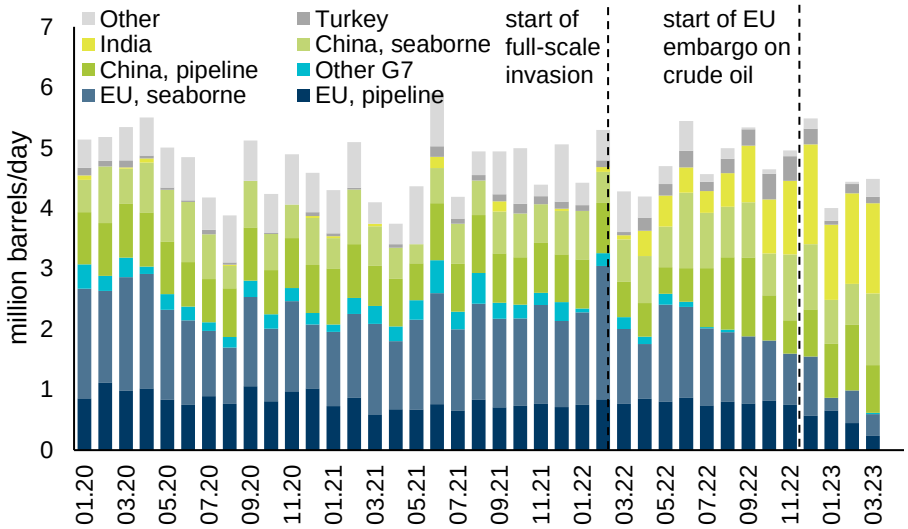
In our previous paper, we showed the redirection of Russian crude oil exports—away from the European (and G7) market and towards China, India, and Turkey. With the EU embargo fully in effect, this development continued in 2023Q1 (see Figure 4). Over January-March, EU countries imported 0.80 million barrels/day from Russia, 0.45 million via Druzhba and 0.36 million in seaborne oil, which translates into volume declines of 61%, 43%, and 72%, respectively, compared to 2022 (see Figure 5). Of the total seaborne deliveries to EU countries, 11.7 million barrels reflect shipments to Bulgaria, which are exempt from the embargo. The remaining shipments—to Italy, the Netherlands, Portugal, and Spain—could represent sanctions violations and warrant further investigation.[10]

Russian crude oil exports to China, on the other hand, increased from 0.75 million barrels/day in 2021H1 and 0.71 million barrels/day in 2022H1 to 0.92 million in 2022H2 and 0.89 million in 2023Q1. More importantly, however, an entirely new customer has appeared in the market: India. Its imports had stood at only 0.02 million barrels/day in 2021H2 but rose to 0.12 million in 2022H1, 0.47 million in 2022H2, and 0.71 million in

[10] It is possible that shipments were reported to authorities as going to destinations in the EU, but ultimately went elsewhere. 200k tons in gas condensate exports to the Netherlands from the LNG plant at Sabetta are excluded from sanctions. See Council Decision (CFSP) 2023/252 of 4 February 2023 here.

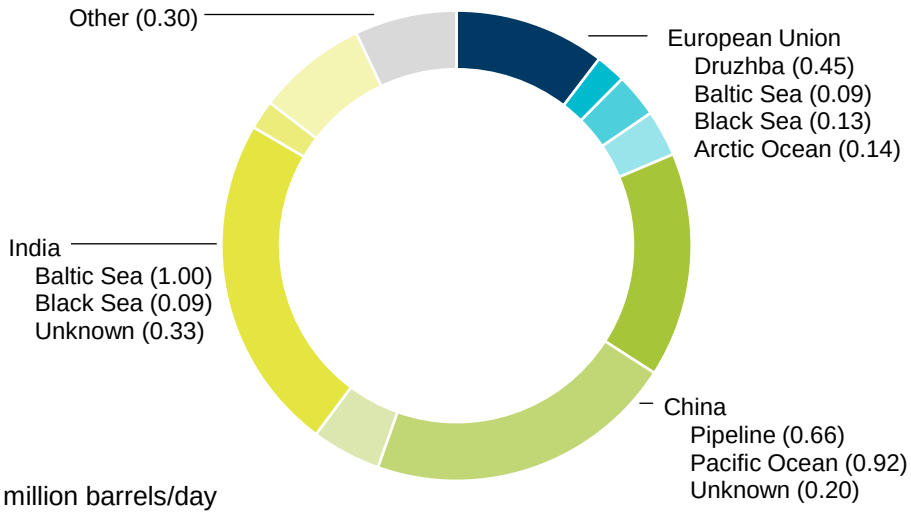
2023Q1. Thus, the European Union accounted for only 19% (-24 percentage points vs. 2022) of total Russian crude oil exports in 2023Q1, China for 42% (+8) and India for 33% (+21). The share of other countries, with includes the U.S. and UK fell from 12% to 7%.

Figure 4: Composition of Russian Crude Oil Export Volumes[11]



Source: KSE Institute

Figure 5: Composition of 2023Q1 Russian Crude Oil Export Volumes



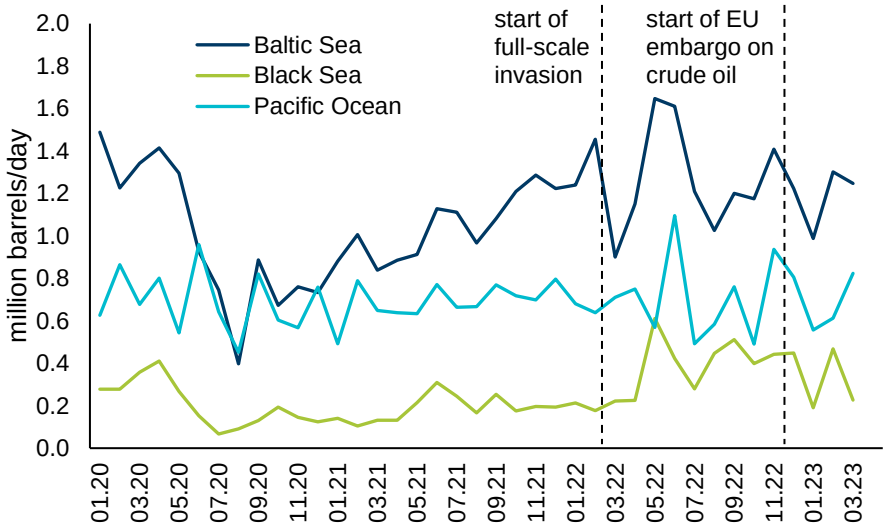
Source: KSE Institute

Aside from these overall shifts in the market, a closer look at export channels is instructive. As Russia's crude oil export infrastructure has largely been set up to service Western customers, additional capacity via the ESPO (Eastern Siberia-Pacific Ocean) pipeline—to China or the port of Kozmino—is severely limited. This means that shipments

[11] Crude oil volumes are converted from metric tons to barrels using a factor of 7.33 throughout the paper. For our analysis of export volumes, we use three-month moving averages for pipeline deliveries to China to account for the fact that these are periodically reported in larger batches that do not reflect physical flows.

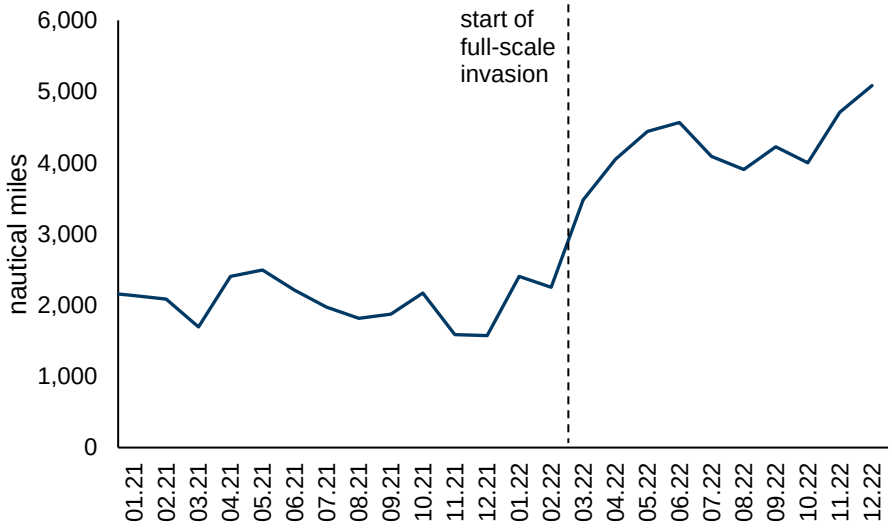
to “new” markets, e.g., India, need to be conducted from locations where capacity has been freed up by the EU embargo, e.g., the Baltic Sea ports of Primorsk and Ust-Luga. And, in fact, we do not find fundamental shifts in the composition of exports in the post-full scale-invasion period, i.e., higher exports from Pacific Ocean ports and lower exports from Baltic and Black Sea ports (see Figure 6). These developments, however, are visible in the average distance of Russian seaborne crude oil exports (see Figure 7).

Figure 6: Geographical Composition of Russian Seaborne Crude Oil Exports



Source: KSE Institute

Figure 7: Average Distance of Russian Seaborne Crude Oil Exports[12]

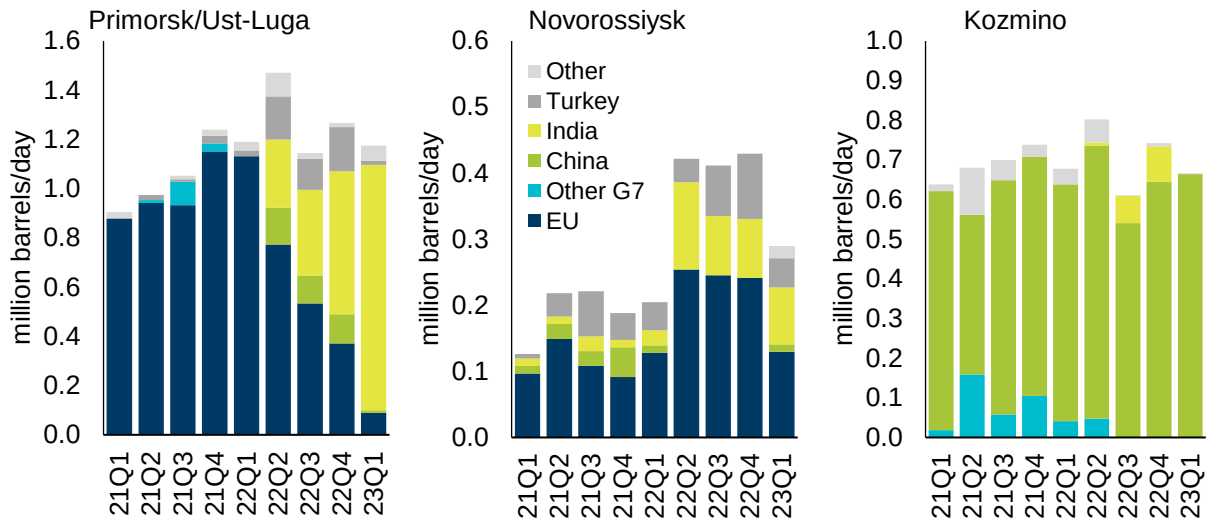


Source: KSE Institute

[12] Data on voyage distances is usually registered at the conclusion of the voyage, which means that longer-distance trips are often missing from the most-recent data as they are still underway. For this reason, we report these statistics until December, when data was still available for more than 95% of all voyages.

These developments create significantly diverging market dynamics depending on the geographical location—essentially, a fragmentation of the export market for Russian crude oil. Where India is stepping in for now-largely absent European customers—in the Baltic Sea—, it has substantial pricing power as Russia appears to be willing to accept much lower prices in order to support volumes (see Figure 8). Where the customer base is essentially unchanged—in the Pacific Ocean—, this is not the case. It is important to recognize that the prices discussed here are FOB prices, meaning that the buyer is responsible for the cost of transportation. Thus, discounts that India is receiving on shipments from Baltic Sea and Black Sea ports must be seen in the context of higher shipping costs it has to pay for the considerably longer journey.

Figure 8: Composition of Russian Crude Oil Exports by Location[13]



Source: KSE Institute

Sanctions Put Considerable Pressure on Crude Oil Prices

In our previous paper, the question of price developments in the post-embargo/price cap period had remained unanswered due to the dataset's capturing of only four weeks of such transactions—especially in light of our finding that physical exports appear to reflect market prices with a lag of around one month. Newly available data for 2023Q1 allows us to answer this question in a comprehensive way.

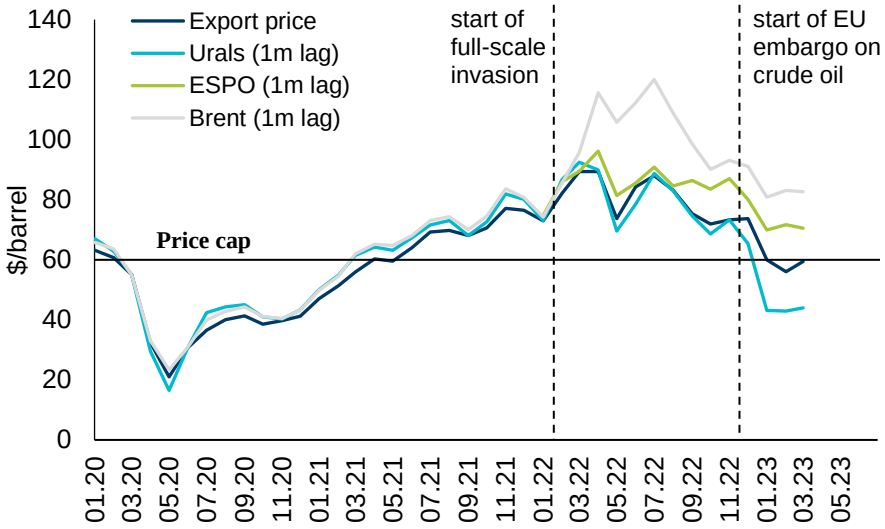
We recognize that different contractual terms could compromise the comparability of prices. However, we find that the seaborne crude oil exports documented here almost exclusively take place under FOB ("free on board") or FCA ("free carrier") terms, which assigns transportation costs to the buyer. Transportation costs should, thus, not be influencing our calculations to a significant extent.

For total exports of Russian crude oil, prices dropped from $73.32/barrel in November and $73.70 in December to $60.03 in January, $56.06 in February, and $59.49

[13] Exports from Novorossiysk to the EU in 2023Q1 consist entirely of shipments to Bulgaria, which are exempt from the EU embargo until end-2024.

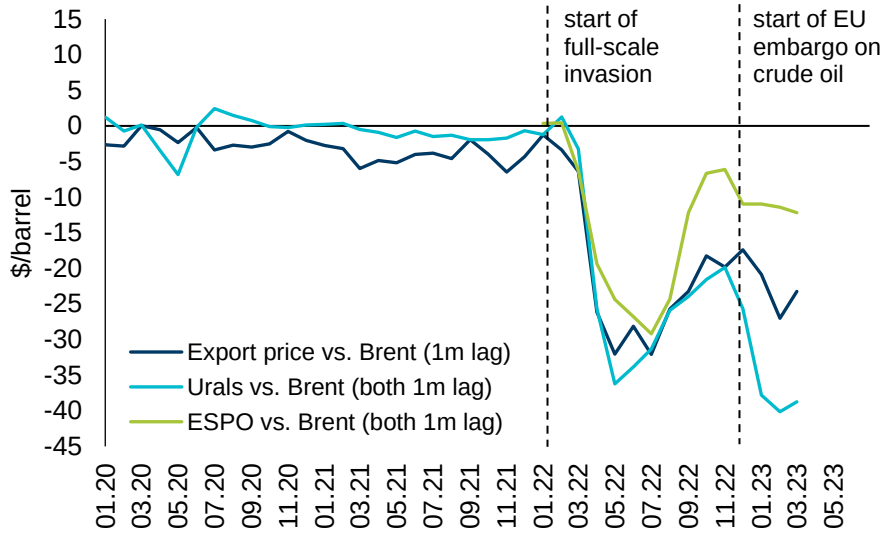
in March (see Figure 9). Thus, as we had expected, they followed market prices for different grades with a lag of one month. That export prices moved above the Urals series, which they had closely followed in the past, points to fundamental compositional shifts.

Figure 9: Export Price for Russian Crude Oil



Source: KSE Institute, International Energy Agency

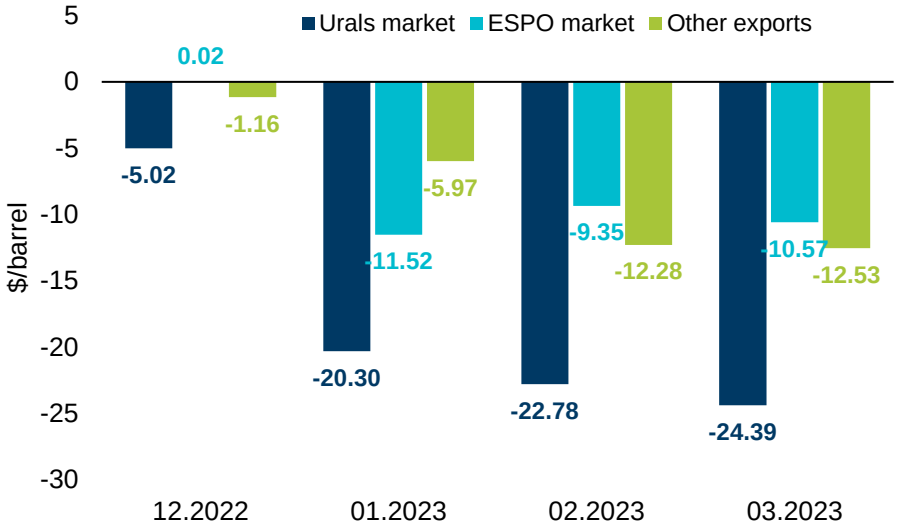
Figure 10: Export Price Discount for Russian Crude Oil



Source: KSE Institute, International Energy Agency

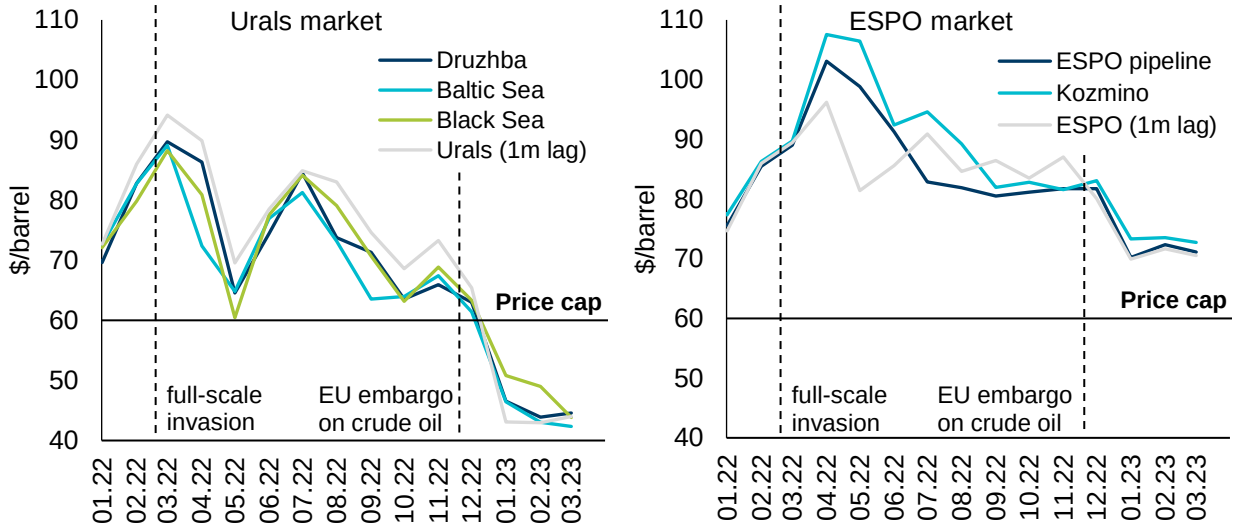
We find that the discount for overall Russian crude oil export prices relative to one-month lagged Brent widened considerably—from $19.81/barrel in November and $17.37 in December to $20.87 in January, $27.03 in February, and $23.22 in March (see Figure 10). Export price discounts—having historically closely followed those for Urals grade crude oil—now lie in between the two main types of Russian oil. In the post-embargo/price cap period, discounts on Urals widened significantly to around $40/barrel, while ESPO remained around $11-12/barrel below Brent.

Figure 11: Change in Export Price for Russian Crude Oil vs. November 2022



Source: KSE Institute

Figure 12: Export Price of Russian Crude Oil by Location



Source: KSE Institute, International Energy Agency

The change in the price of Russian crude oil exports compared to November is considerable but differs between segments of the market (see Figure 11). For shipments via the Druzhba pipeline as well as from Baltic Sea and Black Sea ports—a segment which we call the "Urals market"—the drop vs. November 2022 was $5.02/barrel in December, $20.30 in January, $22.78 in February, and $24.39 in March. For shipments from Pacific Ocean ports as well as via the ESPO pipeline to China—the "ESPO market"—the corresponding declines were much smaller at $11.52 in January, $9.35 in February, and $10.57 in March. Prices had been essentially unchanged there in December.[14]

[14] Seaborne exports take place almost exclusively under FCA or FOB terms, which assign transportation costs to the buyer. Pipeline exports generally split costs between buyer and seller at the border.

These results support our previous conclusion that the market for Russian crude oil has undergone a clear fragmentation in recent months. And we continue to believe that the EU embargo is the driving force behind these developments, rather than the price cap regime. Where European customers had played the dominant role—in the Urals market—demand conditions changed dramatically, resulting in sharply lower prices (see Figure 12). Where the embargo did not have any noticeable effect on the customer base—in the ESPO market—prices did not come under additional pressure vs. Brent. As mentioned above, Russian attempts to support export volumes at Baltic Sea ports through increasing sales to India has given buyers considerable market power.

To better understand price dynamics, we calculate average prices by export channel and buyer in 2023Q1 (see Table 1). We find that Indian customers paid $43-45/barrel for shipments from Baltic Sea and Black Sea ports—very close to the prices that European and Turkish buyers received and significantly below what Chinese ones are paying for crude oil from Kozmino. The dataset includes a number of 2023Q1 shipments to EU countries that warrant further investigation as these could constitute embargo violations. While 11.7 million barrels (0.13 million barrels/day) from Novorossiysk (Black Sea) went to Bulgaria in their entirety and are, thus, exempt from sanctions, Baltic Sea and Arctic Ocean shipments to the Netherlands (9.3 million), Spain (6.5 million), Italy (1.5 million), and Portugal (1.5 million) are not.[15]

Table 1: Crude Oil Export Prices and Volumes in 2023Q1[16] [17] [18]

	Total	**EU**	**China**	**India**	**Turkey**	**Total**	**EU**	**China**	**India**	**Turkey**
	Average price, $/barrel					***Volume, million barrels/day***				
Total	**58.62**	**50.05**	**71.76**	**48.03**	**56.14**	**4.01**	**0.81**	**1.68**	**1.41**	**0.11**
Baltic Sea ports	**43.59**	38.08	57.90	43.92	44.57	**1.11**	0.09	0.01	1.00	0.02
Druzhba pipeline	**45.36**	45.36	…	…	…	**0.45**	0.45	…	…	…
Black Sea ports	**47.89**	48.76	62.98	44.23	48.58	**0.27**	0.13	0.01	0.09	0.04
Arctic Ocean ports	**67.64**	74.77	54.49	59.35	…	**0.19**	0.12	0.03	0.04	…
ESPO pipeline/via KZ	**70.23**	…	70.23	…	…	**0.81**	…	0.81	…	…
Pacific Ocean ports	**73.14**	…	73.14	…	…	**0.66**	…	0.66	…	…
Other/unassigned	**67.90**	80.87	78,18	61.96	67.39	**0.50**	0.01	0.16	0.29	0.05

Source: KSE Institute, International Energy Agency

[15] It is possible that shipments were reported to authorities as going to destinations in the EU, but ultimately went elsewhere. We exclude gas condensate exports to the Netherlands from these numbers as they are not covered by sanctions if coming from LNG production plants such as Sabetta.

[16] The volume of pipeline flows to China shown in this table captures exports as they are reported in 2023Q1 and does not make any adjustments such as the ones (moving averages) discussed above.

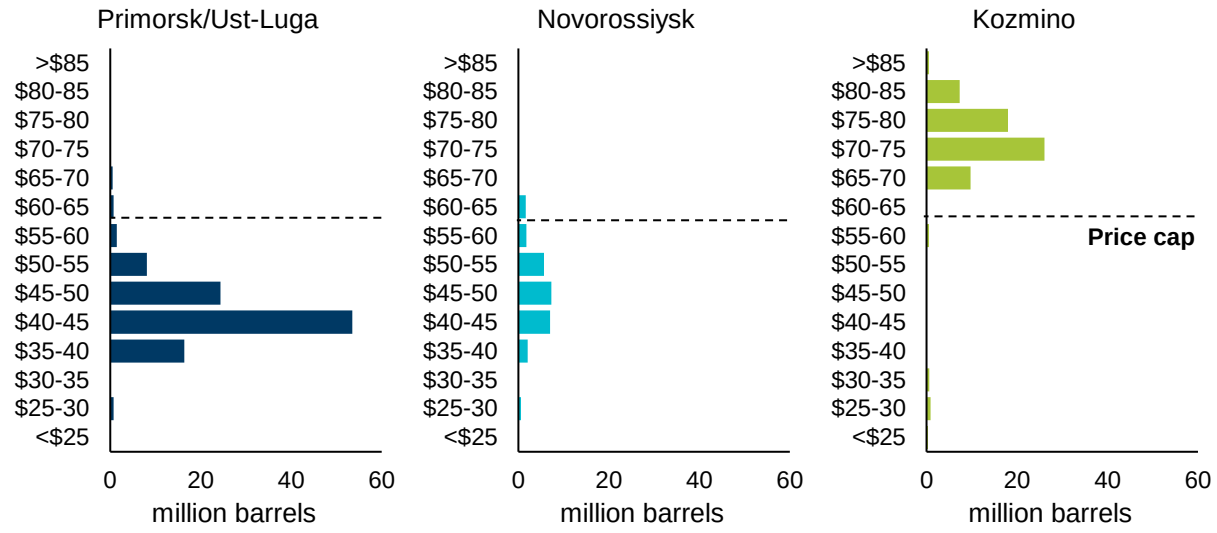
[17] Exports from Black Sea ports to EU countries entirely reflect shipments to Bulgaria, which are exempt from the embargo. Exports from Baltic Sea and Arctic Ocean ports could represent sanctions violations and warrant further investigation. Numbers exclude gas condensate exports from Sabetta.

[18] Seaborne exports take place almost exclusively under FCA or FOB terms, which assign transportation costs to the buyer. Pipeline exports generally split costs between buyer and seller at the border. Category "other/unassigned" includes some transactions under CIF terms, which assign costs to the seller.

Potential Evidence for Sanctions Circumvention

In our previous paper, we had documented that export prices at the Pacific Ocean port of Kozmino remained significantly above the price cap level of $60/barrel, indicating an ability to circumvent Western shipping services—or possibly pointing to sanctions violations. Data for 2023Q1 supports these conclusions, but the longer time period captured by this version of the dataset allows us to have more confidence in our results. We find that export prices at Kozmino stood at $81.74/barrel in December, $70.20 in January, $72.37 in February, and $72.75 in March. As average prices can be misleading—in particular as a portion of shipments does not include Western shipping service providers, we analyze the distribution of transactions by price (see Figure 13).

Figure 13: Distribution of Transactions by Price/Barrel in 2023Q1[19]



Source: KSE Institute

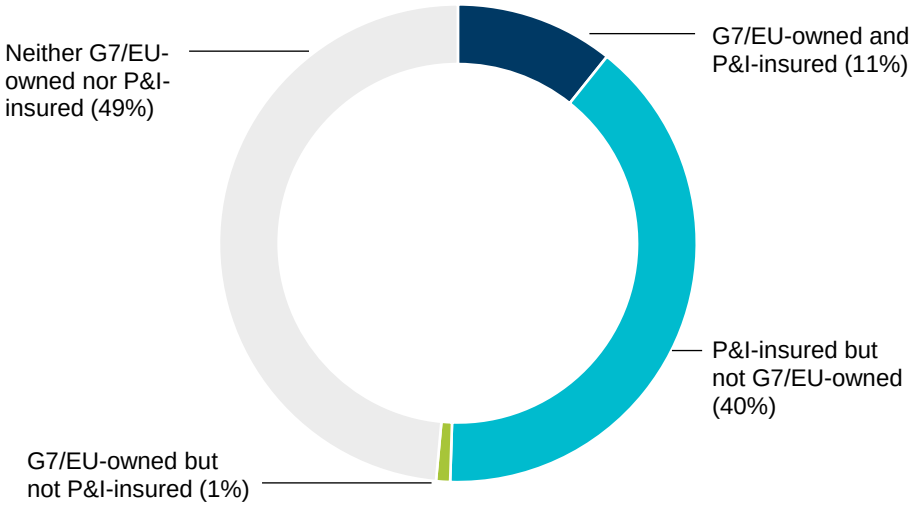
Here, we find that essentially all 2023Q1 transactions at the Baltic Sea ports of Primorsk and Ust-Luga as well the Black Sea port of Novorossiysk were conducted *below* the price cap—and that more than 95% of volumes exported from Kozmino were priced *above* $60/barrel. While the reconciliation of our data on individual transactions, ship tracking data, and information on vessel ownership as well as insurance providers is difficult, we believe that some conclusions can be drawn.

An analysis of crude oil tanker voyages from the port of Kozmino in 2023Q1 shows that around 51% of shipments were conducted with the involvement of G7/EU-owned ships and/or with protection and indemnity (P&I) insurance from G7/EU companies that fall under the price cap regime (see Figure 14).[20] In our view, the fact that a substantial share of voyages from Kozmino involves Western-owned and/or -insured vessels while essentially all transactions show prices above $60/barrel points to potentially considerable

[19] All transactions conducted under FCA or FOB terms, which assign transportation costs to the buyer.
[20] Some of the publicly-available information on insurance coverage may be outdated and not apply to the specific voyages captured in the analysis.

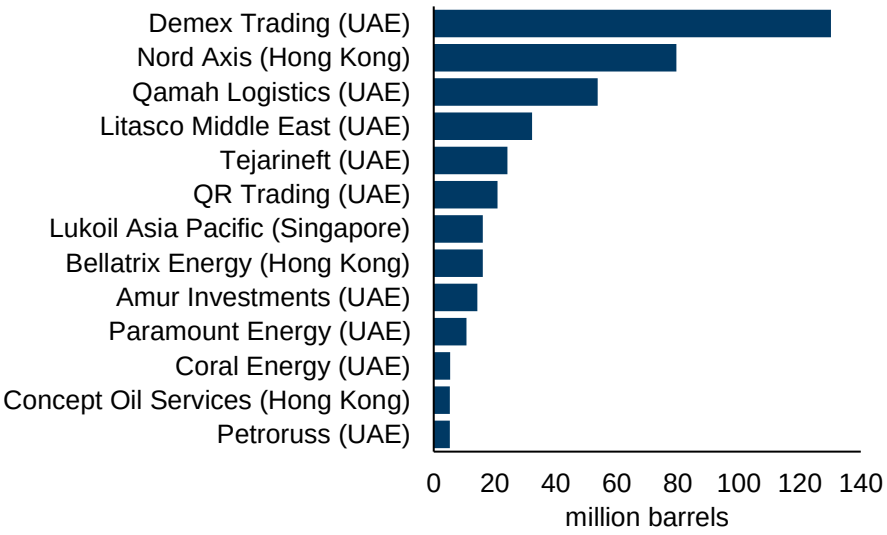
price cap violations. We recognize that differences in the coverage of exports and shipping datasets exist, but they can only explain part of the inconsistencies identified above.[21]

Figure 14: Distribution of Kozmino Crude Oil Exports in 2023Q1



Source: KSE Institute

Figure 15: Buyers of Crude Oil Above $60/Barrel at Kozmino in 2023Q1[22]



Source: KSE Institute

Therefore, we renew our plea to authorities in the G7/EU to conduct risk-based audits of the attestations that shipping service providers are required to sign, i.e., audits need to focus on areas that pose relatively high risks of sanctions evasions. Investigations should also take a close look at the largely UAE- and Hong Kong-based companies that

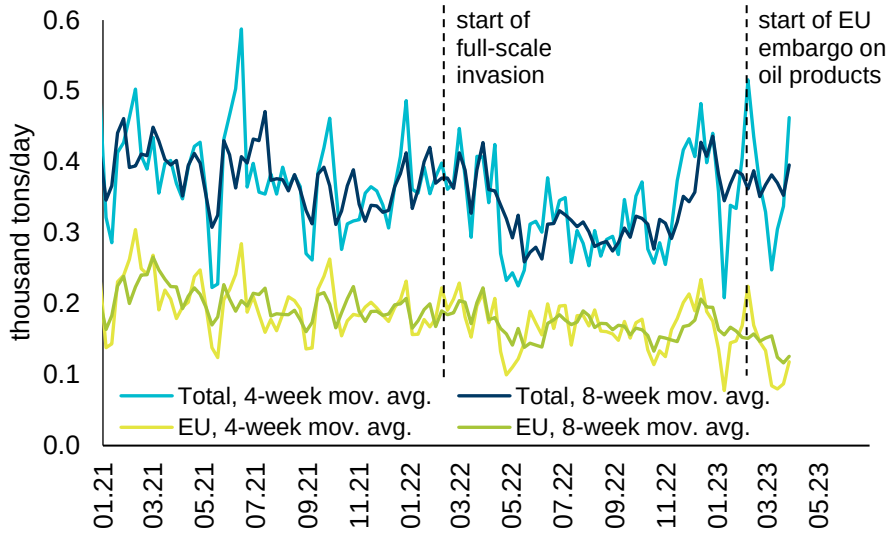
[21] Numbers presented in Figure 13 capture 61.7 million barrels of crude oil exports in 2023Q1 and may exclude some voyages from Kozmino which cannot be assigned to a specific port of origin based on the available data. Voyages shown in Figure 14 amount to 73.0 million barrels in the same period of time.
[22] All transactions conducted under FCA or FOB terms, which assign transportation costs to the buyer.

were buyers of Russian crude oil above the $60/barrel threshold in Kozmino in the first quarter of 2023 and would have had to provide attestations to Western-shipping service providers in compliance with the price cap regime (see Figure 15).

No Meaningful Drop in Oil Product Exports

Similar to the situation for crude oil, the introduction of an embargo on Russian oil products by the EU has not led to a significant reduction of exports (see Figure 16). In February-March, total exports reached 11.0 million tons per month—compared to 10.2 million in 2022 and 10.9 million in 2021-22 (see Figure 17). Shipments to the EU dropped, however, from a monthly average of 5.2 million tons in 2022 (5.7 million in 2021-22) to 3.6 million in February-March. With only very limited exemptions from the EU embargo, these should fall to close to zero in 2023Q2 and beyond. It will be interesting to observe if Russia will be able to redirect exports of oil products to the same extent that it was for crude oil.

Figure 16: Weekly Volume of Russian Oil Product Exports

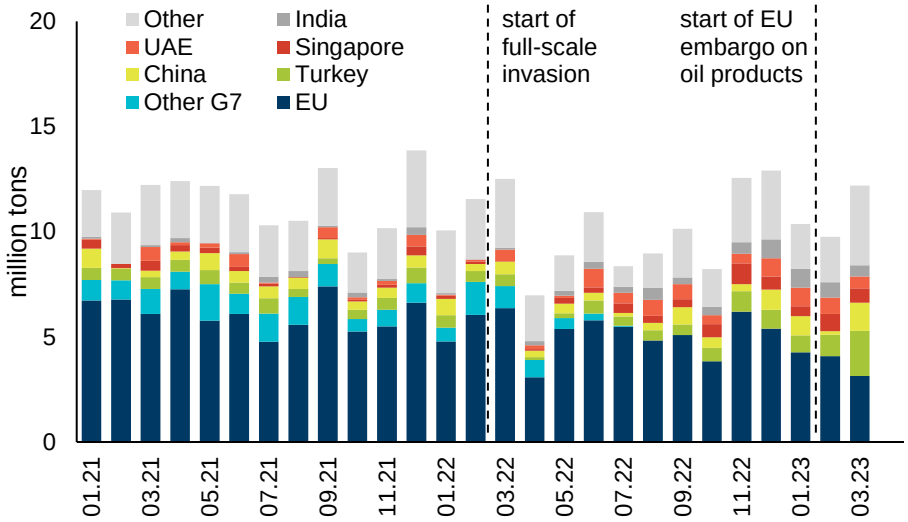


Source: KSE Institute

Generally speaking, those countries that absorbed additional crude oil exports in recent months—China, India, and Turkey—have very developed refining industries and should not be interested in stepping up oil product imports from Russia. However, we observe significantly higher exports to Turkey in the post-embargo period (see Figure 18). Compared to 2022 averages (0.5 million tons), they almost doubled in February (to 1.0 million) and rose further in March (to 2.1 million). A key question is whether any portion of these shipments is sold onward to EU countries, which would be an embargo violation.

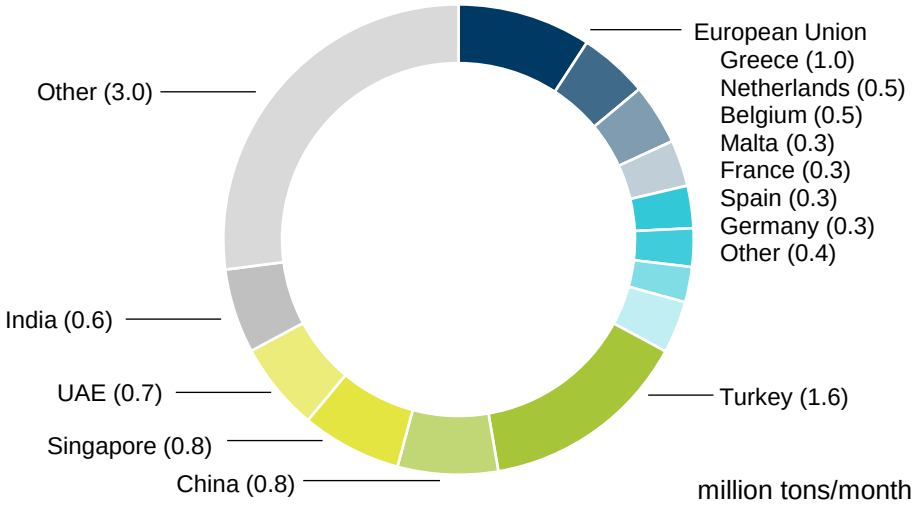
Our findings support the notion that the softening of the EU embargo in terms of continued provision of shipping services have not only kept Russian crude oil on the global market but also oil products, where concerns over supply problems in Europe were quite pronounced. No meaningful differences are visible in dynamics for different types of products, including the most important ones: diesel and fuel oils (see Figure 19).

Figure 17: Composition of Russian Oil Product Export Volumes



Source: KSE Institute

Figure 18: Composition of February-March 2023 Russian Oil Product Exports

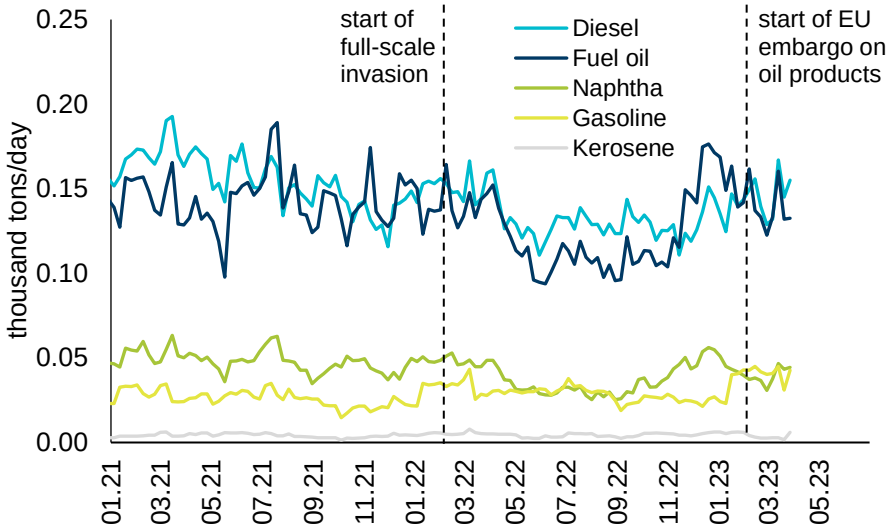


Source: KSE Institute

No Evidence for Similar Oil Products Market Fragmentation

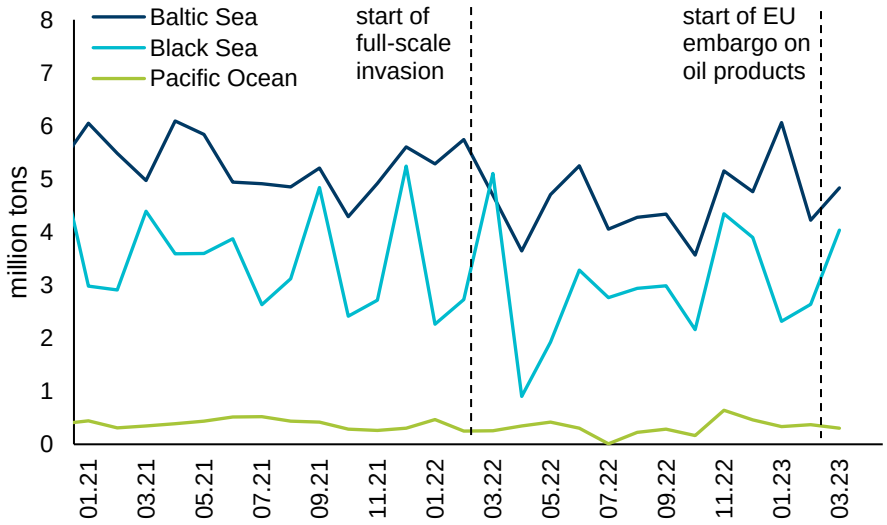
For Russian oil products, we do not find the same geographical fragmentation that we documented for crude oil. Export channels did not change dramatically since the full-scale invasion (see Figure 20) and shifts in the customer base, especially in the Baltic Sea, are much less pronounced (see Figure 21). We recognize that the embargo on oil products took effect later; as a result, more dramatic changes may materialize going forward. In theory, that new customers have not (yet) replaced traditional ones in some locations should mean that buyers' pricing power is limited—and lead to smaller discounts.

Figure 19: Weekly Volume of Russian Oil Product Exports by Type



Source: KSE Institute

Figure 20: Geographical Composition of Russian Oil Product Exports

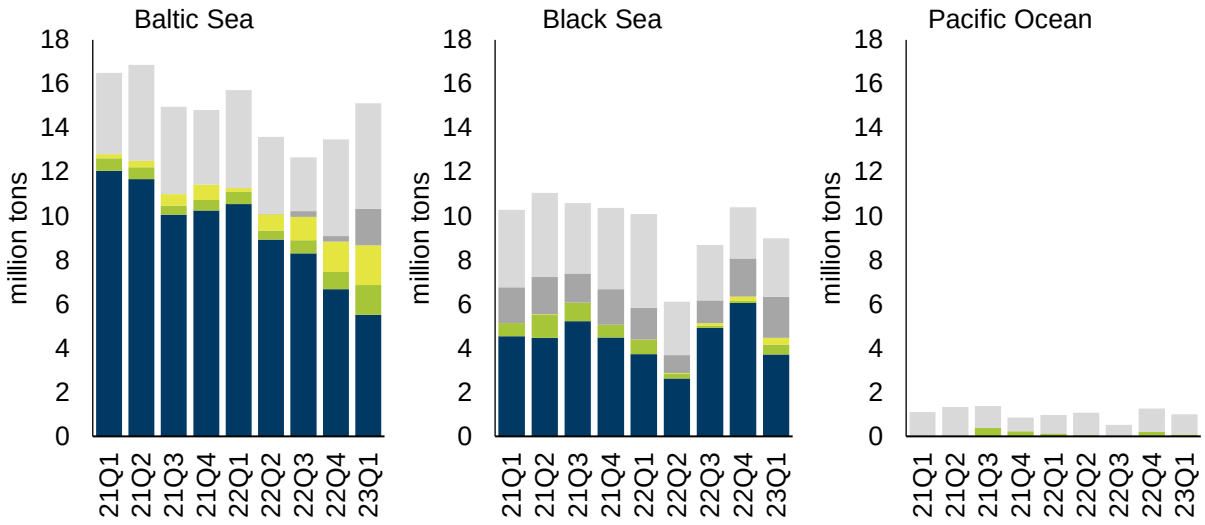


Source: KSE Institute

Oil Products Prices Show Different Type of Price Discrimination

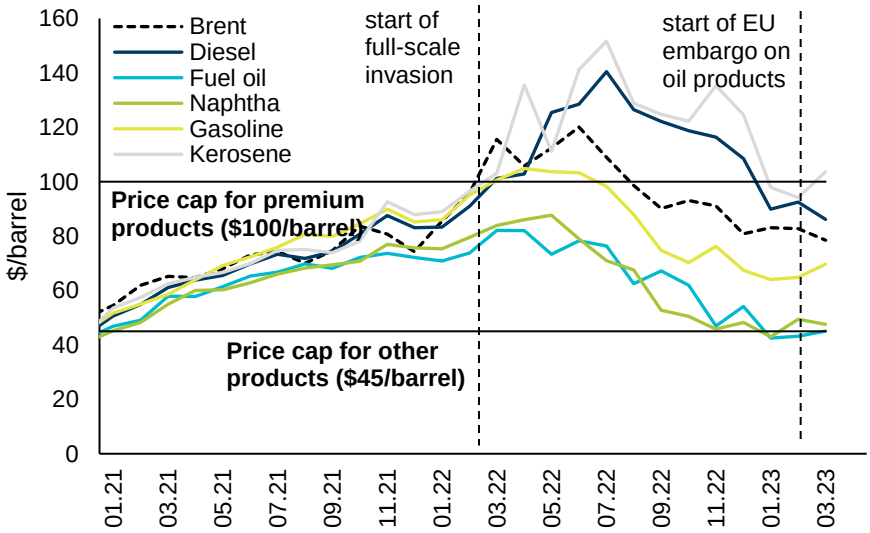
When looking at prices for oil products, it is important to distinguish separate markets for different types of products. We do this by, first, calculating overall export prices for five different categories: diesel (40% of total 2023Q1 oil product export volumes), fuel oil (36%), gasoline (12%), naphtha (11%), and kerosene (1%). Diesel and kerosene prices rose the most in the post-full scale-invasion period and remain significantly above their respective 2021 averages (see Figure 22). However, the former now stands $14/barrel below the $100/barrel G7/EU price cap for premium products. Fuel oil and naphtha prices lie meaningfully below pre-invasion levels and essentially at the $45/barrel price cap.

Figure 21: Composition of Russian Crude Oil Exports by Location



Source: KSE Institute

Figure 22: Export Prices for Russian Oil Products[23] [24]



Source: KSE Institute

Oil product markets are somewhat more complex than the one for crude oil. In the case of diesel, for instance, several developments played a role in the rise of diesel prices, including rebounding demand in the post-pandemic period at a time of refinery closures due to the previously muted macroeconomic outlook, as well as labor disputes in some countries (e.g., France). In addition, the production of diesel (and kerosene, for that matter) requires natural gas, the prices for which soared for extended periods in 2022.

[23] Conversion factors used in barrels per metric ton: 8.90 for naphtha, 8.35 for gasoline, 7.88 for kerosene, 7.46 for diesel, and 6.35 for fuel oil.

[24] Exports largely take place under FCA or FOB terms, which assign transportation costs to the buyer.

In our detailed analysis of oil products prices, we focus on the two largest items: diesel and fuel oil. Furthermore, we look only at differences in the month of March due to the later taking effect of embargo and price caps (see Table 2). What we find is a different kind of price discrimination—not based on the export location but, rather, the customer. Specifically, in the case of diesel, buyers from India, China, and Singapore paid significantly less than those from other countries. Importantly, the latter includes Turkey, which absorbed a large amount of Russian exports. A similar picture emerges for fuel oil.

Table 2: Oil Products Export Prices and Volumes in March 2023[25] [26] [27]

	Total	Baltic Sea	Black Sea	Pacific Ocean	Other	Total	Baltic Sea	Black Sea	Pacific Ocean	Other
	Average price, $/barrel					*Volume, thousand tons*				
Diesel										
Total	**86.16**	**87.12**	**82.71**	**69.03**	**93.77**	**4,830**	**2,464**	**1,495**	**155**	**717**
Turkey	**90.53**	87.11	91.86	…	101.20	**1,566**	662	790	…	114
European Union	**94.15**	99.18	74.37	…	91.29	**1,505**	1,045	232	…	227
South Korea	**76.50**	…	…	69.03	89.25	**245**	…	…	155	90
India	**36.84**	36.56	38.09	…	…	**244**	199	45	…	…
Djibouti	**87.88**	87.88	…	…	…	**132**	132	…	…	…
Morocco	**91.00**	91.00	…	…	…	**132**	132	…	…	…
China	**41.64**	35.19	…	…	…	**114**	100	…	…	14
Singapore	**31.78**	…	31.78	…	…	**84**	…	84	…	…
Senegal	**63.21**	…	70.63	…	…	**77**	16	61	…	…
Brazil	**111.19**	111.19	…	…	…	**68**	68	…	…	…
Fuel oil										
Total	**45.09**	**40.24**	**47.87**	**49.31**	**55.63**	**3,955**	**1,205**	**1,657**	**55**	**1,038**
China	**51.68**	…	37.56	…	64.71	**778**	20	361	13	384
European Union	**43.95**	…	37.78	…	59.78	**598**	30	424	…	144
Singapore	**33.79**	30.29	35.43	45.85	…	**457**	231	184	42	…
Turkey	**47.93**	37.88	50.30	…	…	**345**	97	228	…	20
Gibraltar	**32.78**	32.78	…	…	…	**305**	305	…	…	…
UAE	**51.27**	47.43	…	…	51.16	**229**	71	35	…	123
India	**37.48**	41.59	32.50	…	…	**213**	100	88	…	25
Malaysia	**62.55**	62.33	…	…	63.09	**187**	134	…	…	53
Uzbekistan	**25.62**	…	…	…	25.62	**182**	…	…	…	182
Hong Kong	**46.92**	…	46.92	…	…	**144**	…	144	…	…

Source: KSE Institute

[25] Using conversion factor of 7.46 barrels per metric ton for diesel and 6.35 for fuel oil.
[26] Prices not shown for fields with small volumes.
[27] Exports largely take place under FCA or FOB terms, which assign transportation costs to the buyer. Category “other” includes some transactions under CIF terms, which assign costs to the seller.

III. Conclusions and Policy Recommendations

Key Findings

- **The existing sanctions regime with respect to Russian crude oil and oil products exports has largely succeeded at maintaining market stability while contributing to lower export earnings and fiscal revenues.** For 2023Q1, the CBR reported goods exports of $100.8 billion (-28% vs. 2022Q4), a trade surplus of $29 billion (-50%), and an overall current account balance of $18.6 billion (-50%). We estimate that crude oil and oil product exports alone fell by $15.6 billion and, thus, accounted for roughly 40% of the total drop in exports—with contributions of $6.1 billion from smaller volumes, $4.2 billion from lower global prices, and $5.2 billion from wider discounts on Russian exports. At the same time, Ministry of Finance data shows that 2023Q1 oil and gas revenues, consisting of extraction taxes and export duties, came in 47% below 2022Q4 levels (-45% vs. 2022Q1) and were partially responsible for a sharply wider deficit. In fact, these challenges have prompted changes to the benchmark tax oil price.
- **Our findings point to potential widespread violations of the price cap regime, specifically as far as crude oil exports from the port of Kozmino are concerned.** According to our dataset, the export price averaged $73/barrel in 2023Q1, consistent with ESPO data and significantly above $60/barrel. Moreover, prices are rather homogenous, with more than 95% of export volumes sold at an FOB price above the threshold. At the same time, ship tracking data shows that a substantial share of exports was conducted with the involvement of Western shipping service providers during this period. While the linking of specific voyages to individual transactions in our dataset is difficult, these numbers indicate that widespread price cap violations are a distinct possibility.
- **Sanctions have led to a fragmentation of the market for Russian crude oil—and, in turn, differing price dynamics in the individual segments.** Where European demand played a key role in the past and has now essentially disappeared—namely exports of Urals via Druzhba as well as from Baltic Sea and Black Sea ports—, prices fell by more than $20/barrel in the post-embargo/price cap period, a 10-15/barrel wider discount vs. Brent. But where demand conditions did not change materially—namely exports from Pacific Ocean ports and via pipeline to China—, prices dropped by only around $10/barrel, which reflects a largely unchanged discount. We do not find similar developments in the market(s) for Russian oil products but recognize that these may materialize in the coming months due to the later start data of the EU embargo and G7/EU price caps.

Policy Recommendations

- **While we advocate for significantly lower price caps on Russian crude oil and oil products exports—especially in light of rising global oil prices in the aftermath of the OPEC production cut announce—, we also believe that stepped-up enforcement of existing sanctions is of critical importance.** The

specific design of sanctions matters little if restrictions are not adhered to. Our finding with regard to export prices for Russian crude oil in 2023Q1 demonstrates that investigating compliance with *existing* sanctions should be front and center.

- **First, we believe that risk-based audits of attestations regarding compliance with the price cap are critical—i.e., efforts should focus on areas with relatively high risks of sanction evasion.** These attestations currently only consist of generalized assurances that transactions are conducted under the price cap.[28] Companies are not required to submit any documentary evidence unless and until this is requested by authorities. In addition, shipping service providers may have been given falsified attestations by buyers and we note that "good faith" EU/G7 parties, under the current sanctions regime, are generally not liable for price cap violations.[29] Regular audits are not only critical to determine compliance, but also to understand market dynamics and Russian circumvention attempts to.[30]
- **Second, we recommend that price cap coalition countries consider strengthening their enforcement stance and coordinate measures to achieve uniform application of measures across jurisdictions, including via:**

  (1) Introduction of obligations for EU maritime insurance providers to notify their respective regulators of any suspected breach of price cap requirements, similar to the ones existing under U.S. and UK law.[31]

  (2) Introduction of a requirement that all contracts stipulate exact transaction prices to complement the currently-mandatory attestations from various entities that buyers complied with the price cap.

  (3) Extension of the period of prohibition from 90 days (to, at least, 180) for EU parties to insure, finance, and service third country-flagged vessels transporting Russian oil if these intentionally violated the price cap.

  (4) Introduction of a strict liability principle for sanctions violations by insurance service providers, similar to recently-adopted UK regulations.[32]

  (5) Adoption of a European Commission proposal to harmonize sanctions enforcement across member states and to impose fines on companies of at least 5% of worldwide turnover and imprisonment of individuals for violations of EU sanctions on Russia.[33] Fines could be raised to 10% of worldwide turnover, to align with those applied to antitrust violations under EU law.

[28] See the EU's guidance on the price cap mechanism, including documentation requirements, here.
[29] The UK Office of Financial Sanctions Implementation (OFSI) now imposes civil monetary penalties under strict liability principle for sanctions violations that fall under its purview. See here.
[30] Price cap violations may also occur because involved parties use deceptive practices such as manipulating vessels' automatic identification system (AIS) or obscuring prices via opaque shipping costs. See OFAC's communication on such issues here.
[31] See communications from P&I clubs here and here.
[32] See the announcement by OFSI here.
[33] See the proposal here.

- **Third, measures should also target non-EU/G7 shipping service providers which are not required to provide any assurances or evidence at this point.** Increased transparency is critical for the overall effectiveness of the sanctions regime. For instance, schemes to circumvent the price cap may include ship-to-ship transfers, temporary storage, or the re-export of Russian crude oil and/or oil products from third countries—all of which are difficult to identify and address in the absence of sufficient information. A key focus should lie on the largely UAE- and Hong Kong-based trading companies that have been involved in exports of Russian crude oil to China and India in recent months.[34]

- **Finally, countries imposing comprehensive sanctions on Russia must develop administrative capacities to implement and enforce them.** Bans on Russian oil exports and, especially, the price cap mechanism represent the farthest-reaching intervention in the global oil market in history. Not only is Russia a far bigger oil producer compared to, for instance, Iran, Iraq, or Venezuela, but current measures are also dramatically more complex than those in the past. The EU/G7 price cap requires the cooperation from many market participants.

  In the U.S., the *Treasury Department*'s *Office of Foreign Assets Control (OFAC)* has a track record of effectively enforcing sanctions—as does *OFSI* in the UK. In the EU, however, it is primarily the member states that are responsible for the implementation of sanctions, including those imposed by the Union as a whole. Thus, a unified enforcement structure is largely missing. With the Russia sanctions regime, in all likelihood, remaining in place for a considerable amount of time, we see the development of such a capacity as critical for its success.

[34] in November 2022, the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) designated 13 companies in multiple jurisdictions, including the UAE and Hong Kong, for facilitating the sale of Iranian petrochemicals and petroleum products to buyers in East Asia. Similarly, in December 2022, OFAC designated a prominent Turkish businessman and related persons and entities for establishing international sales contracts for Iranian oil with foreign purchasers, arranging shipments of oil, and obscuring the oil's country of origin.

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Appendix

KSE Institute has constructed a comprehensive database on Russian crude oil and oil product exports based on a broad range of sources, including data from Russian authorities, statistics from trading partners, information from commercial data providers, investigative reporting, and material kindly provided by the Free Russia Foundation. For reasons of confidentiality and source protection, the data is presented in a generalized and aggregated form in this publication. Please contact info@kse.org.ua should you have specific questions regarding the data.