Working Group Paper #10

Implementation of the Oil Price Cap

The International Working Group on Russian Sanctions

November 28, 2022

https://fsi.stanford.edu/working-group-sanctions

I. Executive Summary

The Group of Seven (G7), European Union (EU), and Australia have done excellent work in designing the price cap mechanism on Russian oil. This mechanism is designed to keep Russian oil flowing to market after a broad embargo has been imposed, thus avoiding a supply shock by allowing Western providers of oil-related services to continue providing these services to support shipment of Russian oil after the December 5th EU embargo comes into effect. However, the crucial condition for this exemption – or "safe harbour" [1] – from the sanction coalition's embargo on trade with Russian oil is that the Russian oil is sold at or under a price cap, which will curb Russian oil revenues and constrain Russia's ability to finance its invasion of Ukraine.

Without the exemption for oil sold under the price cap, Russia would lose access to the Western marine transport services that it relies on for its seaborne exports, which account for 80% of Russia's total oil exports. The resulting shortfall could leave as much as 3 – 4 million barrels a day of export oil stranded in Russia.[2] For instance, more than half of Russia's October marine exports were transported by vessels owned by companies based in sanction coalition countries. Over three-quarters of its seaborne barrels were loaded on tankers insured by the International Group of P&I Clubs (the "IG"). The IG insures nearly all the world's tankers, providing spill liability coverage that is difficult to source at scale elsewhere. We assume the IG will comply with the EU/G7 sanctions, and IG-insured tankers will stop transporting any Russian oil sold outside the price cap regime once sanctions come into effect. This implies that Russia will have to accept price cap sales to maintain oil export volumes.

The key decision which the coalition now faces is the level at which to set the price cap. Compared to the current global oil price around $85/barrel (bbl), our analysis suggests that:

1. Capping Russian oil at $75/bbl would allow Russian oil prices to rise from current levels – a $20-25/bbl discount – and support Russia's 2023 oil and gas export revenues at a robust ~$230 billion. This would be worse than introducing no price cap at all, and it risks establishing a high price floor for Russian oil.
2. Capping Russian oil at $55/bbl would reduce 2023 Russian oil and gas revenues to around $166 billion, which puts Russia under some financial pressure. This would be only a marginal tightening in the regime compared to the status quo.
3. Capping Russian oil at $35/bbl would reduce Russian oil and gas export earnings to $100 billion, and immediately put Russia under severe financial pressure. At the same time, the

[1] As OFAC report refers to it its recent document on the price cap from 23/11 https://home.treasury.gov/system/files/126/price_cap_policy_guidance_11222022.pdf

[2] Craig Kennedy, "Putin's Looming Tanker Crisis," https://open.substack.com/pub/navigatingrussia/p/putins-looming-tanker-crisis.

implied Russian oil price would continue to be higher than Russia's average production costs ($10-15/bbl), preserving Russia's incentive to supply.

We urge the G7 and EU to set the price mechanism at $35/bbl, $50/bbl below current market prices, to curb Russia's oil earnings and help bring the war rapidly to an end. This decision should be combined with robust enforcement to track Russian oil shipments and identify and sanction any companies involved in schemes to circumvent sanctions.

II. Introduction

The International Working Group on Russian Sanctions[3] aims to provide expertise and experience to governments and companies around the world by assisting with the formulation of sanctions proposals that will increase the cost to Russia of invading Ukraine and support democratic Ukraine in the defence of its territorial integrity. This is our tenth working paper, which provides new analysis on the impact of the oil price cap, which is scheduled to enter into force on December 5th. Further information on our proposals and additional analysis can be found on our website.[4]

In many ways, Russia's economy is dominated by oil and gas. Over time, approximately 60% of Russia's export earnings have come from oil and gas. Similarly, oil revenues dominate the budget, accounting for over 40% of federal budget revenues. Moreover, the track record shows that oil and gas are Russia's greatest vulnerability; Russia typically experiences a severe economic downturn whenever global oil prices fall. A key factor in the collapse of the Soviet Union was the 1986 fall in oil prices. More recently, Russia has seen a collapse in its currency and deep recessions, often accompanied by bank runs, when the oil price fell sharply and oil export earnings collapsed in 1998, 2008, 2014, and 2020. Moreover, while the floating ruble and banking sector clean-up may reduce the impact of a collapse in the oil price, sanctions, which cut Russia off from external financing, will amplify the impact.

Given that Russia's budget, balance of payments, and economy are dominated by oil and gas, the key to curbing Russia's capacity to finance its invasion of Ukraine is to tighten sanctions on Russia's exports of oil and gas and reduce the revenues which Russia receives from these exports. Significant progress has been made so far. Some countries, such as the United States (US) and United Kingdom (UK), have already banned Russian oil and gas. On gas, Russia acted first and has largely stopped supplying gas to Europe. Now, the key European embargo on Russian oil is about to come into force – on seaborne crude from December 5th and on oil

[3] All members of this working group participate in their private capacities, but we have consulted with numerous government officials, particularly with the Government of Ukraine.
[4] Our aim was not to produce a consensus document, but instead to provide a menu of possible additional measures to be considered by governments, multilateral institutions, and private actors. The implications of every sanction have not been thoroughly analyzed, and not everyone agrees with every specific sanction or action proposed.

products from February 5th. However, the key unresolved element in the sanctions regime on Russian oil and gas is the level at which to set the "price mechanism" – a variant of which was proposed by this group in our previous paper on energy sanctions. This price mechanism will allow buyers of Russian oil to continue using Western oil-related shipping, insurance, and brokerage services, in return for Russia selling the oil below a certain level. In principle, this should cap Russia's oil revenues, constraining Russia's ability to wage war on Ukraine, while ensuring Russian oil continues to flow to market and avoiding a global supply shock.

We see the decision on the level of the discount as critical. Set it too high, and Russia will be able to continue financing its war on Ukraine with little restriction. Set it too low, and Russia may withhold its oil from the market, triggering a supply shock. Set it at the right level, and Russian oil will continue to flow, avoiding a supply shock, but the reduction in revenues will mean that Russia will find itself under huge financial pressure to end its invasion of Ukraine.

Our analysis suggests that the sweet spot for the discount is about $50/bbl. The price Russia receives – which would be around $35/bbl with a $50/bbl discount and current global prices – will still be above Russia's cost of production, which is in the $10-15/bbl range, preserving the incentive to supply. But it will also cut Russia's oil revenues, compared to the $60/bbl it currently receives, putting pressure on Russia's budget and balance of payments. By contrast, if the G7 set the cap to leave prices changed at around the current level of the Urals-Brent differential ($20-30/bbl), then it will take time for Russia to feel financing pressure. If the discount is set below the current price differential, Russia will be able to finance its budget and balance of payments comfortably, and the price mechanism will likely fail in its objective.

For simplicity, we propose to fix the price cap at $35/bbl, which is a $50/bbl discount to the current Brent price. While a price cap which moves with the oil price has some attraction in theory, it would be complex to implement – with the price cap moving around day-to-day – and the priority for now is a simple system which can be enforced. We further support a review mechanism, which would allow the price cap to be tightened once the mechanism has been established. A review could be triggered by additional Russian escalation, including attacks on civilians or civilian infrastructure.

As with Russia's actions to cut off grain supply to global markets and gas supply to Europe, we see a risk that Russian President Vladimir Putin decides on retaliatory action and withholds Russian oil from the market, even though the price mechanism would provide Russia with the opportunity to sell their oil and to access Western oil-related services at a price well above their production cost. In the short run, such a supply strike could involve Russia gradually withdrawing up to 3 million barrels of oil a day or more from the market.[5] Such a substantial fall

[5] Craig Kennedy, "Putin's Looming Tanker Crisis," https://open.substack.com/pub/navigatingrussia/p/putins-looming-tanker-crisis.

in supply would put strong upward pressure on oil prices that is only partly offset by the recent weakening in the outlook for global demand and prospects of greater supply out of Venezuela.

However, as with European gas, over time, provided Ukraine's partners keep their nerve, markets will adjust, therefore making Russia the biggest loser. Any supply strike by Russia would damage many of its oilfields, put Russia immediately into a fragile position on its budget and balance of payments, and lose Russia additional oil market share. Moreover, the country's new core clients of emerging market oil importers who lack emergency oil reserves will be worst hit. By contrast, industrialized countries who have 90 days of emergency oil stocks with which to mitigate the shortage will be better positioned.

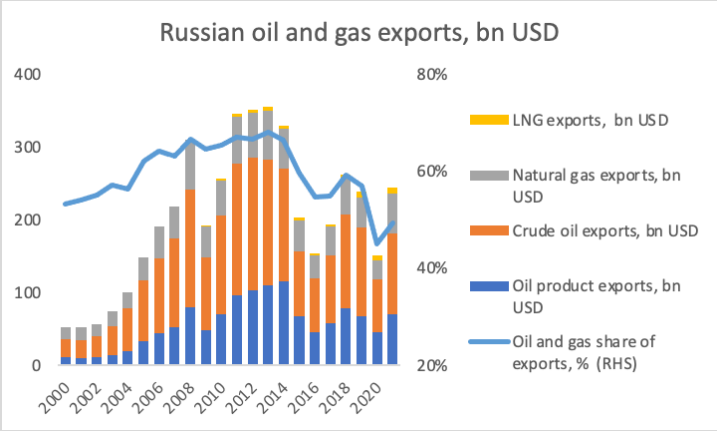
We expect Russia to deploy multiple schemes in an effort to undermine the price mechanism, since it threatens their ability to continue their invasion of Ukraine. To counter this, we call for a concerted effort, perhaps led by volunteers as with the UANI group which tracks Iranian oil exports, to track Russian oil, name companies involved in operations to circumvent the sanctions, and support robust enforcement of the price mechanism.

In conclusion, we urge the G7 and EU to set the price mechanism at an ambitious level of $50/bbl below current market prices, to curb Russia's earnings, to help bring the war rapidly to an end, and to support robust enforcement of the price mechanism.

III. Russian Oil and Gas: An Overview

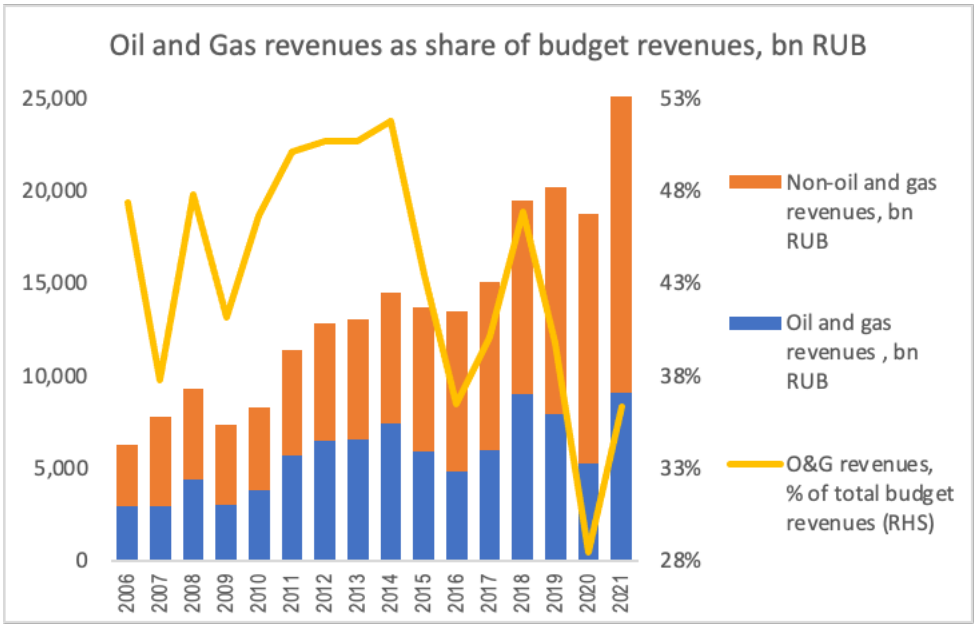
Given that both the budget and Russia's balance of payments are dominated by oil and gas revenues, sanctions on Russia's exports of oil and gas will be crucial to curb its capacity to finance its invasion of Ukraine.

Chart 1: 60% of Russia's Export Earnings Since 2000 Have Been from Oil and Gas



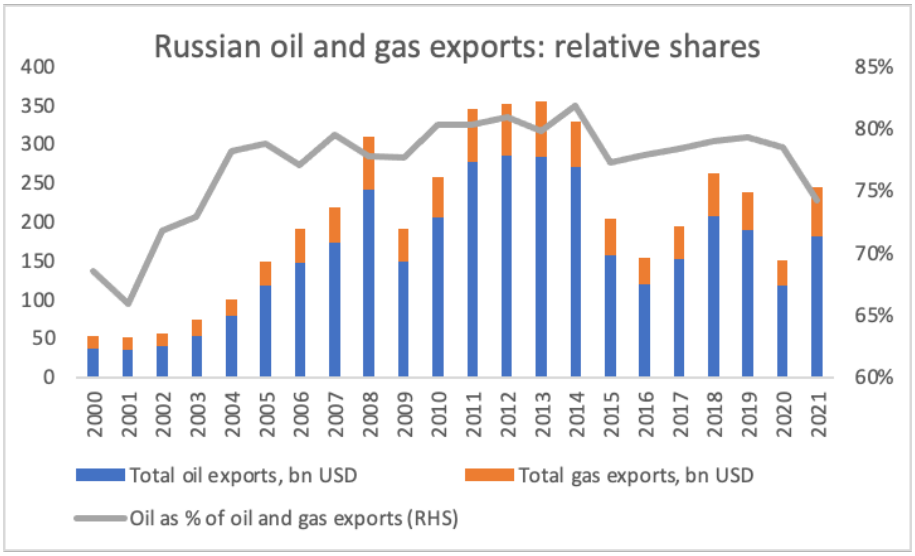
Source: CBR

Chart 2: Since 2006, Just Over 40% of Federal Budget Revenues Have Been from Oil and Gas



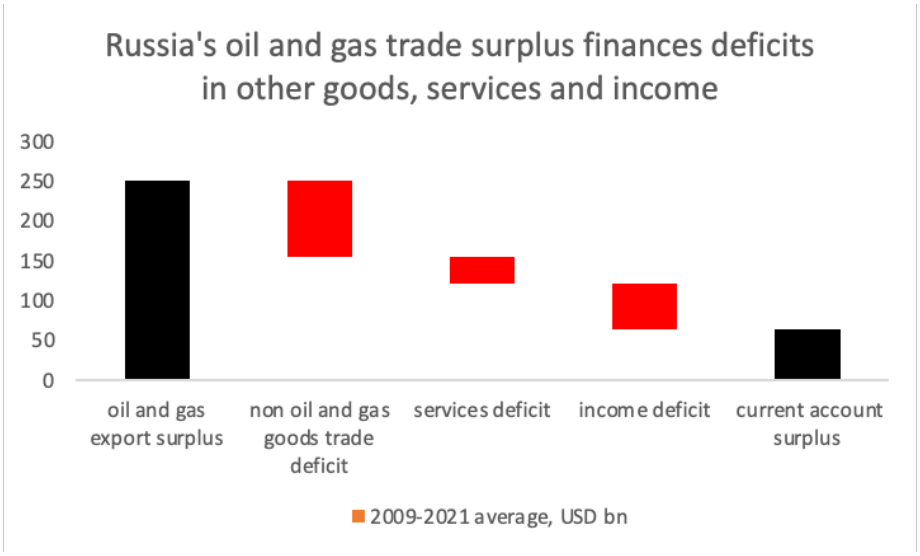
Source: Ministry of Finance

Chart 3: Oil – The Dominant Hydrocarbon in Russia's Exports



Source: CBR

Chart 4: Oil and Gas – Propping Up Russia's Balance of Payments



Source: CBR, KSE calculations

The Current State of Play on Oil and Gas Sanctions

Some of Ukraine's partners – typically those with a relatively small share of Russian imports and their own oil and gas production, including the US, the UK, and Canada – have already implemented a complete ban on imports of Russian oil and gas. In July, the EU reached agreement on an oil embargo in its sixth package of sanctions. However, this has been phased in over six or more months and will only come into force in early December. In particular, the EU embargo on seaborne crude takes effect from December 5th, and the EU embargo on oil products takes effect from February 5th, 2023. In addition, with the implementation of the EU embargo on seaborne crude sales, the G7 will introduce a price mechanism that will make Russian access to Western suppliers of oil-related services, such as shipping, finance, and insurance, conditional on selling the oil below a price cap.

The full effect of these sanctions is not yet clear, since the embargo and price cap have not yet been implemented. But we are confident that the price mechanism will prove an effective tool, if robustly enforced. Experience with oil sanctions in Iraq and Iran has shown that sanctions can be effective in reducing a country's oil revenues while allowing oil exports in some circumstances to continue. Moreover, the threat of an oil price cap has already been arguably the most effective single measure imposed against Russia this year, since it has widened the discount on Urals oils by approximately $25/bbl, reducing Russian oil revenues by around $50 billion, compared to a scenario where there was no perceived sanction risk in buying Russian oil. We

further note recent academic work[6] which has argued that compared to a quantity restriction, a price discount on Russian oil puts generally more burden on Russia and less on importers.

Chart 5: Urals-Brent Price Differential 2022, USD/bbl

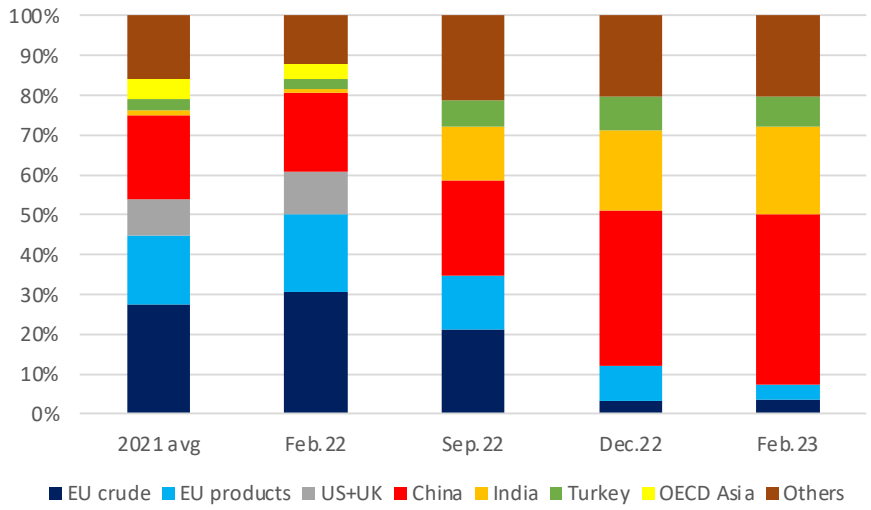
Source: NESTE, Thomson Reuters

The impact of sanctions can be clearly seen in the latest data on trade in Russian oil (as of September 2022). The share of the United States and United Kingdom fell to near zero from 11% before the invasion. The share of OECD Asia countries also decreased from 4% in February to almost zero in September. Although EU countries remained the most important destination for Russian crude oil and oil products, their share in Russian oil exports decreased sharply from 50% to 35%.

At the same time, Russia has increased its sales to India and Turkey dramatically, from less than 1% to 13% and from 2% to 7%, respectively. Its increase in sales to China has also been sizeable, though less dramatic. In addition, there has been a very sharp increase in sales to "other" purchasers. We expect a further rise in exports to China, India, and Turkey as the EU oil embargos come into force in December and February.

[6] Quantity restrictions and price discounts on Russian oil. Gars, Spiro, and Wachtmeister, November 2022 (forthcoming).

Chart 6: The Structure of Russian Oil Exports



Source: 2021 – September 22 IEA October Oil Market Report, Dec.22-Feb.23
KSE Institute estimates

In gas, the impact has been realized more rapidly. While EU countries signed up to cease purchasing Russian gas in principle, and at the latest by 2026, in practice, they were focused on buying additional gas to fill their storage. However, Russia acted first to squeeze its supply to Europe, first through low flows in 2021, and then by a series of unilateral decisions to stop supplying particular countries and to stop supplying through particular pipelines. Russia ceased flowing gas through Yamal in the spring and NordStream in the summer, and it is now proposing to stop supplying through the Ukrainian Gas Transit System at the end of November. As a result, Russian gas exports to Europe are already running at just 10% of last year's levels. Unlike oil, which can largely be shipped to alternative markets in Asia by sea, this gas will stay in the ground, since there is no infrastructure to export it to other markets. Russia lacks the pipelines needed to ship Yamal gas to Asian markets, and it has only limited capacity to produce liquified natural gas (LNG).

If Russia does build the infrastructure to increase gas deliveries to other markets, they are likely – as a result of their weak bargaining position – to get a much lower price for their gas, as they have in previous deals with China. The infrastructure buildout is likely to take many years and incur a high cost. Furthermore, the ban on access to LNG technology likely will prevent Russia from expanding more in LNG, and it may struggle to keep current plants operating.

IV. Sanctions Scenarios

First, as a point of reference, we model a simple "no war, no sanctions" counterfactual. For simplicity, we assume on volumes that oil exports stay flat at the second half of 2021 rate, and gas exports stay flat at the 2021 level. On prices, we assume that oil prices are effectively exogenous to the war and thus unchanged, but with the normal $1.50 Urals discount to Brent and no further sanctions discount on the oil price. In effect, we are assuming that the oil price spike around the invasion is offset by oil price weakness from weaker demand later in 2022-23 than would have been the case in a "no war, no sanctions" counterfactual. Gas prices we assume stay at the average level of the second half of 2021.

We then model three scenarios. In all cases, we assume current policy, i.e., implementation of the European embargo on seaborne exports and on product exports from December 5th, 2022, and February 5th, 2023, respectively. It also implies implementation of the oil price mechanism from December 5th, which requires all seaborne Russian oil which uses Western insurance, finance, and shipping to be sold at a specified discount to the market price, regardless of the customer. What varies across the scenarios is the discount targeted by the price mechanism, the vigour of enforcement, and whether sanctions are extended to LNG.

Our base case scenario is implementation of already agreed upon sanctions, i.e., including the European oil embargo plus the price mechanism for sales of Russian oil to other countries, assuming a price mechanism, which delivers a $30/bbl discount on Russian oil, but no further action on LNG. In effect, we assume that the sanctioning powers prefer to set the price mechanism slightly higher than the $35/bbl discount that prevailed for several months at the start of the war, in an effort to pitch it at a level which secures Russian and third country compliance with the mechanism.

Our bull case – a full sanctions scenario – also involves implementation of the current sanctions, i.e., the European oil embargo plus price mechanism, but it assumes a more aggressive price mechanism, which requires a $50/bbl discount on Russian oil. We also assume sanctions against LNG, which reduce volumes and prices compared to the base case.

Our bear case of weak sanctions involves implementation of the current sanctions, i.e., including the European oil embargo plus price mechanism, but it assumes weaker implementation, with a much more modest discount of just a $10/bbl discount on Russian oil. In the low sanctions case, we also assume a higher level of oil exports. This scenario may be worse than no price mechanism at all, since it involves a lower discount than seen since the invasion, and it could undermine the credibility of sanctions on Russia.

On the oil side, we see two main channels of impact:

a) Discount. So far, even with only partial sanctions and self-sanctioning, the hit has been large. In oil, the sanctions have driven a discount which widened to a $35/bbl discount on Urals for several months. Over the third quarter of 2022, this discount has narrowed, but we expect it to rewiden to the level set by the price mechanism, provided that it is seriously enforced. With crude and product exports expected at 2.7 billion barrels in 2022, every $1/bbl discount reduces Russian oil revenues by $2.7 billion over the year.

b) Volumes. We expect Russia to find it progressively harder to redirect the marginal barrel from Europe to Asia, leading to a decline in export volumes, particularly of product, which are more complicated to place into new markets and face more challenging logistics. Over time, estimates of the fall in export volumes from sanctions have changed, with many revising up their initial estimates given the resilience of Russian exports. However, we think that this upward revision has now gone too far, and that a sharp fall in volumes is to be expected as the embargo is implemented. In particular, we see a sharper fall in the fourth quarter of 2022 and first quarter of 2023 as the embargo is implemented, followed by a modest recovery as the market adjusts over the balance of 2023.

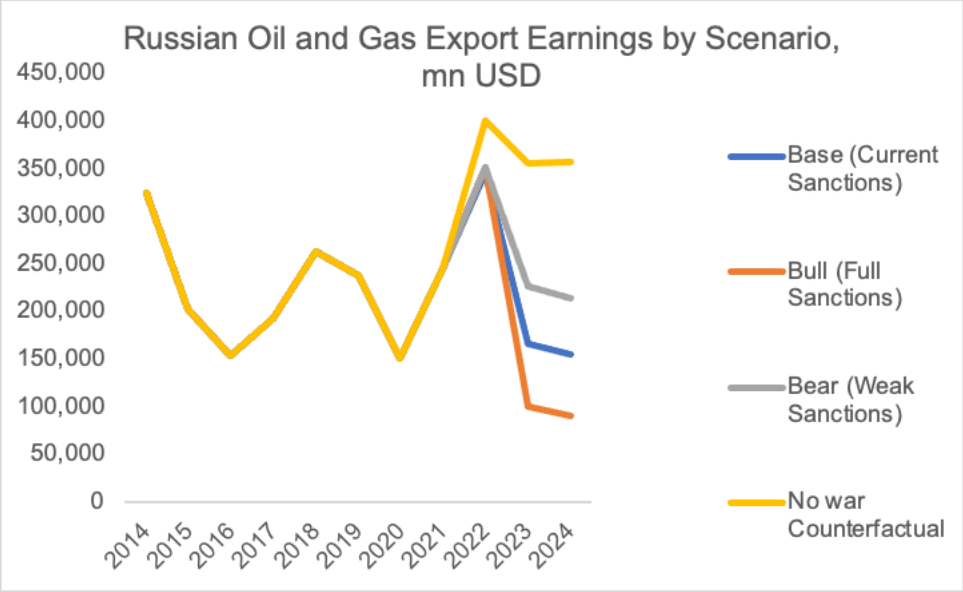
In gas, in our base case, we assume that Russian pipeline gas sales will remain at their current level of around 5% of European gas imports, which is about one-sixth of historical levels. On gas pricing, we assume that Russia-"friendly" countries, such as Turkey, Hungary, and Serbia, continue to receive oil-linked or similar preferential pricing. We assume that market or hub-based pricing this winter declines further on market realisation that Europe has already significantly adjusted gas supply and demand. Given Europe is entering the winter with full storage, which is enough to cover the worst winter draw recorded with an ample buffer, it is likely to exit winter with a much higher level of storage, as well as a reduced need to buy gas to rebuild storage. We assume that European pipeline gas pricing is driven by spot LNG prices, which should trade at a small premium to Asian LNG prices in order to attract the marginal flows to Europe.

Scenario Results

On these assumptions, Russian oil and gas revenues will rise from just under $250 billion in 2021, around the 10-year average, to $350 billion in 2022, and they will fall back on our base case to $165 billion in 2023 and be running at a quarterly pace of under $50 billion in the second half of 2023 – already a problematic level for the Russian economy.

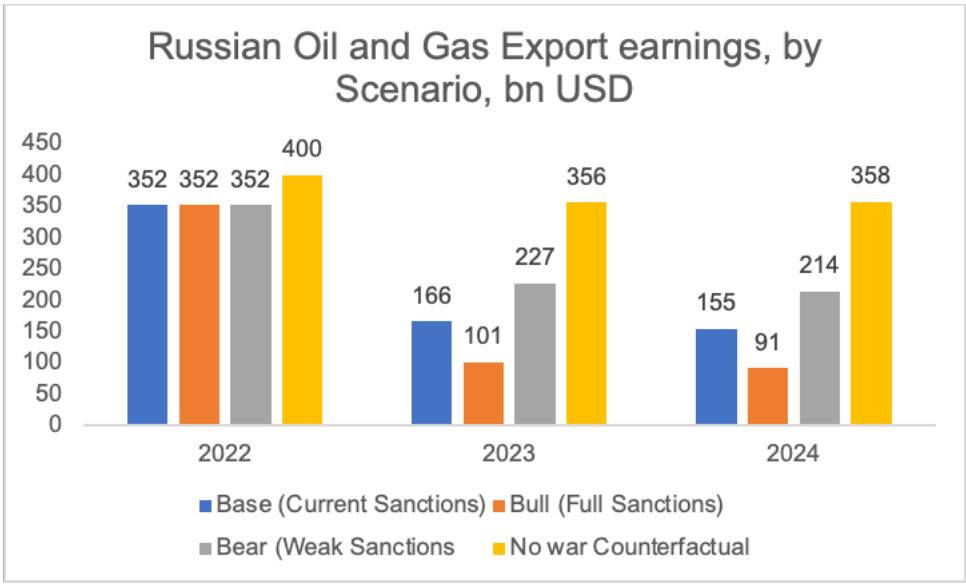
In the bull case, with a wider discount on oil and lower LNG prices, revenues fall to a record low of around $100 billion. In the bear case, with a more modest oil price discount and less decline in oil export volumes, revenues fall but to a still robust $225 billion in 2023.

Chart 7: Export Earnings in Different Russian Oil and Gas Scenarios



Source: 2014-21 CBR, 2022-2023
KSE Institute estimates

Chart 8: Oil and Gas Export Earnings by Scenario



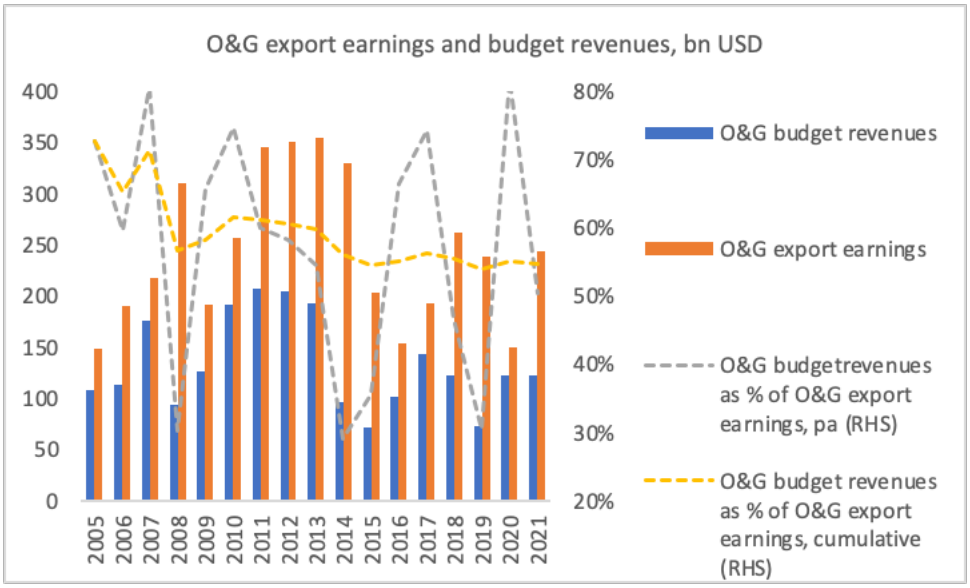
Source: KSE calculations

Balance of payments. Our base case foresees a $185 billion fall in Russian oil and gas export earnings in 2023, which is around 10% of Russian GDP, and heavily reduces Russia's current account surplus, which is likely to come in at a record $230 to 240 billion in 2022. Since Russia has chronic deficits on its trade in other goods, services, and on the income account, this deterioration will put downwards pressure on the ruble and upwards pressure on inflation. In our bull case of a $50/bbl discount on the Russian export oil price under the price mechanism, and additional sanctions on Russian LNG, Russia's 2023 oil and gas earnings would fall by $250 billion to around $100 billion.

Budget. Russia's fiscal regime for oil and gas is complex and constantly changing, with a large proportion of the funds being paid through dividends by state-owned companies such as Rosneft and Gazprom or by special taxes. In practice, we know that budget oil revenues have been much more volatile than export earnings. They have varied from 80% to 30% of export earnings, reflecting factors including the exchange rate, decisions on the petroleum fiscal regime, and state-owned enterprise dividend policy. But if we assume that the fiscal revenues from oil and gas are in line with the average – equivalent to 57% of export earnings from oil and gas since 2005 – then in our base case, Russian budget revenues would fall by $105 billion next year, or by 6% of GDP. In our bear case, they would fall by $145 billion or by over 8% of GDP.

At the same time, we recognise that the ruble is likely to depreciate when Russia's oil and gas export earnings fall, which will then partially cushion the ruble value of oil exports and the related budget revenues. For instance, a 1% depreciation in the ruble against the US dollar would increase the ruble value of oil revenues by roughly 1%.

Chart 9: Russian Oil and Gas Export Earnings and Budget Revenues, bn USD



Source: CBR, MinFin, KSE estimates

In the Annex, we present additional sensitivity analysis for estimating Russian fiscal revenues from oil and gas.

V. Russian Retaliation and Sanctions Evasion

We see two key risks to the price mechanism from Russia. The first frontal challenge is that Russia seeks to go around the embargo and only exports volumes that it can transport itself without resorting to any price cap sales that unlock access to Western shipping capacity. The second, more hidden challenge is that Russia seeks to set up a series of schemes that undermine the price mechanism and thwart the policy objective of curbing its export earnings.

Russian Supply Strike

Most estimates – see, for instance, Putin's Looming Tanker Crisis – suggest that Russia will not have access to sufficient shipping capacity for all its oil exports absent price cap sales, so lots of export barrels will end up stranded in Russia – several million a day, potentially. It will then simply leave these in the ground, in hopes that the resulting market supply shock will erode support for Ukraine. In other words, Moscow is likely to weaponize oil exports, just as it has tried to do with gas and with grain during the conflict.

We would argue that a supply strike is not a clearly rational response from Russia, since at the price cap, it can still sell its oil well above production costs. But we have seen similar retaliatory responses by Russia in the case of European gas and Ukrainian grain, and Russian decision-making depends heavily on one individual who is quite likely to act in a similar manner. We also note that such a supply strike has been flagged by Russia as part of its influence campaign to deter the EU from bolder action.

However, we believe that such a supply strike will backfire on Russia. Once markets adjust, Russia will end up in a far weaker place due to a steep drop in export volumes and revenues – similar to what has happened with grain and what is happening in the European gas market. Notably, in the European gas market, the gas price has fallen by two-thirds since Russia cut its supply to a marginal level in August, as the market has realized that it is adjusting with supply from other sources up strongly, demand down, and storage built to a record level. Moreover, oil demand has weakened since the summer, while U.S. supply is set to continue growing. In addition, key OPEC members – who have very low production costs – have a strong financial incentive to increase production at current prices, as well as a strategic temptation to take market share from Russia.

In the short run, such a supply strike – which could involve a loss of 3 - 4 million barrels of oil per day from the market – would drive oil prices higher. However, as with European gas, provided Ukraine's partners keep their nerve, markets would adjust, making Russia the biggest

loser. Any supply strike by Russia would damage many of its oilfields, put Russia immediately into a fragile position on its budget and balance of payments, and lose Russia oil market share. Moreover, Russia's new core clients of emerging market oil importers who lack emergency oil reserves would be worst hit, while Ukraine's core partners – the industrialized countries – will be better positioned with 90 days of emergency oil stocks. The only path back to market for those stranded barrels will be through price cap sales at an aggressively low price that will constrain Russia's export earnings.

Evasion Schemes

As discussed in our recent paper on sanctions evasion, we also expect Russia to deploy a wide array of schemes in an effort to get around and undermine the price mechanism, since it directly threatens Russia's ability to continue prosecuting its invasion of Ukraine.

We consequently call for a concerted effort, perhaps led by an independent monitoring group such as the UANI group which tracks Iranian oil exports, to track Russian oil and name any companies involved in operations to circumvent the sanctions. They can draw up lists, compile evidence, name and shame, and lobby for action. To support that monitoring effort, we should also urge governments to provide as much transparency as possible on the price cap waiver system – specifically, to make public a log of all cargoes (loading date, port, and vessel) being sold through the price cap mechanism.

VI. Conclusion

Russia's economy, budget, and trade are dominated by oil and gas, with severe GDP downturns whenever its oil earnings fell sharply. We therefore see tighter sanctions on Russia's exports of oil and gas as crucial to any effort to curb its capacity to finance the war in Ukraine.

The key missing piece in the sanctions regime on Russian oil and gas is the level at which to set the price mechanism which will allow sellers of Russian oil to continue using Western shipping, insurance, and brokerage services, in return for selling the oil below a certain level. In principle, this should cap Russia's oil revenues, constraining Russia's ability to wage war on Ukraine, while ensuring Russian oil continues to flow to market and avoiding a supply shock.

If the cap is set at the right level, Russian oil will continue to flow, avoiding a supply shock, but still putting Russia under huge financial pressure to end the war. In particular, we urge the G7 to set the price mechanism at a level which will immediately impair Russia's ability to wage war, undermining the budget and balance of payments. Specifically, we would recommend a discount of $50/bbl, which will squeeze Russia's finances while maintaining the incentive to supply given Russia's low cost of production. We would also recommend that the discount

should be increased automatically over time if Russia continues to occupy and seek to annex part of Ukraine, or in response to any escalatory action.

Russia was temporarily shielded from the full impact of the sanctions imposed in response to its invasion of Ukraine earlier this year by high oil and gas prices, and consequently high export earnings. But the turning point, when Russia is no longer protected by higher oil and gas earnings, is looming, with a sharp fall in oil and gas revenues in all scenarios. The likely consequences for Russia – including a sharp fall in the value of the ruble and a difficult choice between high inflation and tight policy, both of which will severely constrain the country's ability to wage war – are clear from the initial reaction to sanctions this spring, and from the pattern after past oil price collapses.

In 2023, as Ukraine and its partners implement the sanctions they have already agreed to, Russia will struggle to finance its balance of payments and budget. We believe that taking an ambitious stance on the price mechanism to widen the discount on Russian oil will result in Russia hitting a critically low level of oil and gas earnings in the first half of next year.

Note: The inclusion of affiliations is for identification purposes only and does not represent an endorsement of shared views with the co-signer.

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Annex 1: Estimating Russia's Fiscal Sensitivity to Oil Revenues

Modelling Russian's fiscal revenues from oil and gas is particularly challenging, since it depends on several factors, including complex and changing tax legislation and the current exchange rate. In this annex, we present for reference some sensitivity charts developed by Elena Ribakova at the Institute for International Finance, with further detail available at: https://mobile.twitter.com/elinaribakova/status/1541487688947302403

Change in fiscal revenues, in % 2021 GDP

75 RUB/$	Decline in oil export volume (2022 vs. 2021), in %									
Brent oil price, in $/bbl	0%	5%	10%	20%	30%	40%	50%	60%	70%	80%
50	-3.4	-3.5	-3.6	-3.8						
75	-1.4	-1.6	-1.8	-2.2	-2.6					
100	0.6	0.3	0.0	-0.6	-1.2	-1.8				
125	2.6	2.2	1.8	1.0	0.2	-0.6	-1.4			
150	4.1	3.6	2.6	1.6	0.6	-0.4	-1.4			
175	5.4	4.2	3.0	1.8	0.6	-0.6	-1.8			
200	5.8	4.4	3.0	1.6	0.2	-1.2	-2.6			
225	5.8	4.2	2.6	1.0	-0.6	-2.2				
250	5.4	3.6	1.8	0.0	-1.8					

Notes: Urals discount assumed to be $25/bbl.

Change in fiscal revenues, in % 2021 GDP

150 RUB/$	Decline in oil export volume (2022 vs. 2021), in %									
Brent oil price, in $/bbl	0%	5%	10%	20%	30%	40%	50%	60%	70%	80%
50	-1.4	-1.6	-1.8	-2.2						
75	2.6	2.2	1.8	1.0	0.2					
100	6.6	6.0	5.4	4.2	3.0	1.8				
125	10.6	9.8	9.0	7.4	5.8	4.2	2.6			
150	13.6	12.6	10.6	8.6	6.6	4.6	2.6			
175	16.2	13.8	11.4	9.0	6.6	4.2	1.8			
200	17.0	14.2	11.4	8.6	5.8	3.0	0.2			
225	17.0	13.8	10.6	7.4	4.2	1.0				
250	16.2	12.6	9.0	5.4	1.8					

Notes: Urals discount assumed to be $25/bbl.

Change in fiscal revenues, in % 2021 GDP

50 RUB/$	Decline in oil export volume (2022 vs. 2021), in %									
Brent oil price, in $/bbl	0%	5%	10%	20%	30%	40%	50%	60%	70%	80%
50	-4.3	-4.4	-4.4	-4.5						
75	-3.0	-3.1	-3.2	-3.5	-3.7					
100	-1.7	-1.8	-2.0	-2.4	-2.8	-3.1				
125	-0.3	-0.6	-0.8	-1.3	-1.8	-2.3	-2.9			
150	0.7	0.4	-0.3	-0.9	-1.5	-2.2	-2.8			
175	1.6	0.8	0.0	-0.7	-1.5	-2.3	-3.1			
200	1.9	1.0	0.1	-0.9	-1.8	-2.7	-3.6			
225	1.9	0.9	-0.2	-1.2	-2.3	-3.3				
250	1.7	0.5	-0.7	-1.9	-3.0					

Notes: Urals discount assumed to be $30/bbl.