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## Monitoring the Impact of Sanctions on the Russian Economy

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## **Quarterly Project Report for the Federal Ministry for Economics and Climate Action (BMWK)**

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# Monitoring the Impact of Sanctions on the Russian Economy

*Vasily Astrov (wiiw), Lisa Scheckenhofer (ifo), Camille Semelet (ifo),  
Feodora Teti (ifo)*

## Abstract

In 2023, Russia experienced a 3.5% economic growth, but forecasts for 2024 indicate a slowdown to 1.5% due to tightened monetary policies and the expected global economic slowdown. Despite large military spending and Western energy sanctions eroding budget revenues, fiscal deficits have been generally kept under control. Intensified scrutiny of third-country firms violating energy sanctions widened discounts on Russian oil prices in late 2023. Generally, Russian import patterns remained relatively stable. In particular, EU exports of economically critical and common high priority goods to Russia in November 2023 represent just 2% of its pre-war levels, underscoring the effectiveness of sanctions in halting direct exports. Besides China and Hong Kong, Türkiye and CIS countries became vital suppliers, meeting Russia's demand for economically critical goods and high-priority items.

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## Executive Summary

- Last year, the Russian economy grew by an estimated 3.5% but in 2024 growth is projected to slow to around 1.5% on the back of recent monetary policy tightening, acute labour shortages and the expected slowdown in the global economy.
- Despite large military spending and Western energy sanctions eroding budget revenues, fiscal deficits have been generally kept under control; last year, the federal government deficit was primarily covered from the National Welfare Fund.
- Increased scrutiny of companies from third countries violating energy sanctions led to a widening of the price discount on Russian oil during the last months of 2023.
- There has been little change in aggregate Russian import patterns over the past three months.
- In November 2023, EU exports of economically critical goods and common high priority items to Russia stood at a mere 2% of pre-war values, indicating that sanctions are effectively preventing direct exports.
- Besides China and Hong Kong, Türkiye and the CIS countries are the most important suppliers of missing economically critical goods and common high priority items to Russia.

# 1 General Economic Situation

The Russian economy grew by 3.5% last year, according to the latest wiiw estimates.<sup>1</sup> This is more than most analysts had been predicting earlier. The main reason for growth being higher than expected was the remarkable short-term resilience to drastic monetary tightening, with the policy interest rate hiked by a combined 8.5 pp during the second half of 2023. In Q4 2023, economic growth hardly subsided, with most high frequency indicators showing solid rates of expansion and consumer and business confidence hovering at high levels. The high growth of domestic demand last year is demonstrated by the following figures: gross fixed capital investments picked up by 10% (in January-September, year on year), retail trade turnover by 5.9% (in January-November), average real wages by 7.7% (in January-October) and real disposable incomes by 4.8% (in January-September).

Manufacturing grew by 7.5% in the first eleven months of 2023 (year-on-year), with industries with a high share of military output recording above-average growth rates. For instance, the production of computers, electronic and optical products soared by 34.7%, other transport vehicles and equipment by 29.5%, finished metal products except machinery and equipment by 27.4%, and electric equipment by 22.6%. However, mining output declined by 1.1%, mostly on account of the falling natural gas production (-5.5% for 2023 as a whole),<sup>2</sup> while oil production withstood well the shock of sanctions, as the bulk of shipments to Europe were re-oriented towards Asia, particularly China and India. Oil production fell only by 1.2% last year, to 10.96 million barrels per day (bpd), of which 7.5 million bpd was exported.<sup>3</sup> Given the relatively high weight of mining in the Russian industrial structure, the growth of overall industrial production was confined to a relatively modest 3.6% in the first eleven months (year on year).

Rapid growth of nominal and real wages has been facilitated by the very tight labour market. In November 2023, the number of unemployed was 19% lower than the year before, and the unemployment rate plunged to the all-time low of 2.9%. Labour shortages are particularly acute in industry, with 47% of industrial companies reporting in January shortages of skilled labour (up from the last peak of 45% in July), which marks the highest level recorded since 1996.<sup>4</sup> On top of the overall decline in the labour force on account of long-term demographic trends, as well as the recent partial military mobilisation and emigration (we wrote about this extensively in our October report), the labour shortages in industry have been aggravated by the abrupt structural production shift towards manufacturing, driven by (i) sharply increased

<sup>1</sup> WIIW (2024).

<sup>2</sup> In particular, natural gas production by state-owned Gazprom declined by around 9%, and pipeline gas exports by around a quarter last year. This is a direct consequence of sharply curtailed exports to the EU, <https://www.kommersant.ru/doc/6467610?from=main>

<sup>3</sup> <https://www.kommersant.ru/doc/6456100>

<sup>4</sup> According to a survey by the Gaidar Institute for Economic Policy, [https://www.rbc.ru/economics/25/01/2024/65b122ac9a79473a6cc106e0?utm\\_source=yxnews&utm\\_medium=desktop](https://www.rbc.ru/economics/25/01/2024/65b122ac9a79473a6cc106e0?utm_source=yxnews&utm_medium=desktop)

military procurements and (ii) the withdrawal of some Western companies, which opened up new niches for domestic producers. This has been accompanied by the flow of workers from small and medium-sized businesses in the services sector (e.g. in trade, hospitality and catering) to large manufacturing enterprises, which generally offer higher wages.<sup>5</sup>

After a very solid last year, economic recovery is expected to lose steam in 2024 and beyond. In 2024, GDP growth is projected to decelerate sharply to a mere 1.4% according to the latest consensus forecast of Focus Economics released in January;<sup>6</sup> the current wiiw forecast is 1.5%. The main reasons for the expected slowdown are the effects of last year's monetary policy tightening on private consumption and investments, labour shortages, and the projected slowdown in global economy. In 2025-2026, growth is likely to stay below 2%, reflecting the capacity constraints faced by the economy.<sup>7</sup>

## 2 Fiscal Deficit: National Welfare Fund to the Rescue

After 2.1% of GDP in 2022, last year the deficit of the federal government reportedly reached 1.9%,<sup>8</sup> which was well in line with the 2% target. The deficit turned out to be lower than predicted by many at the beginning of the year thanks to the over-performance of non-energy revenues of the budget, which soared by 25% year-on-year (in nominal terms) due to the fast economic recovery. By contrast, energy revenues of the budget predictably plunged by 23.9% due to much lower oil prices than in 2022 (partly because of Western energy sanctions – for more on that, see below) and reduced exports of natural gas. Still, total budget revenues picked up by 4.7%, matching the 4% rise in expenditures.<sup>9</sup> Overall, these trends suggest a high degree of fiscal resilience: despite sharply risen military spending and the erosion of government revenues by Western energy sanctions, the budget deficits have been generally kept under control – even if their very existence is a novelty for Russia which used to have a general track record of budget surpluses prior to the war.

<sup>5</sup> Institute for Economic Forecasting (2023).

<sup>6</sup> Focus Economics (2024).

<sup>7</sup> WIIW (2024).

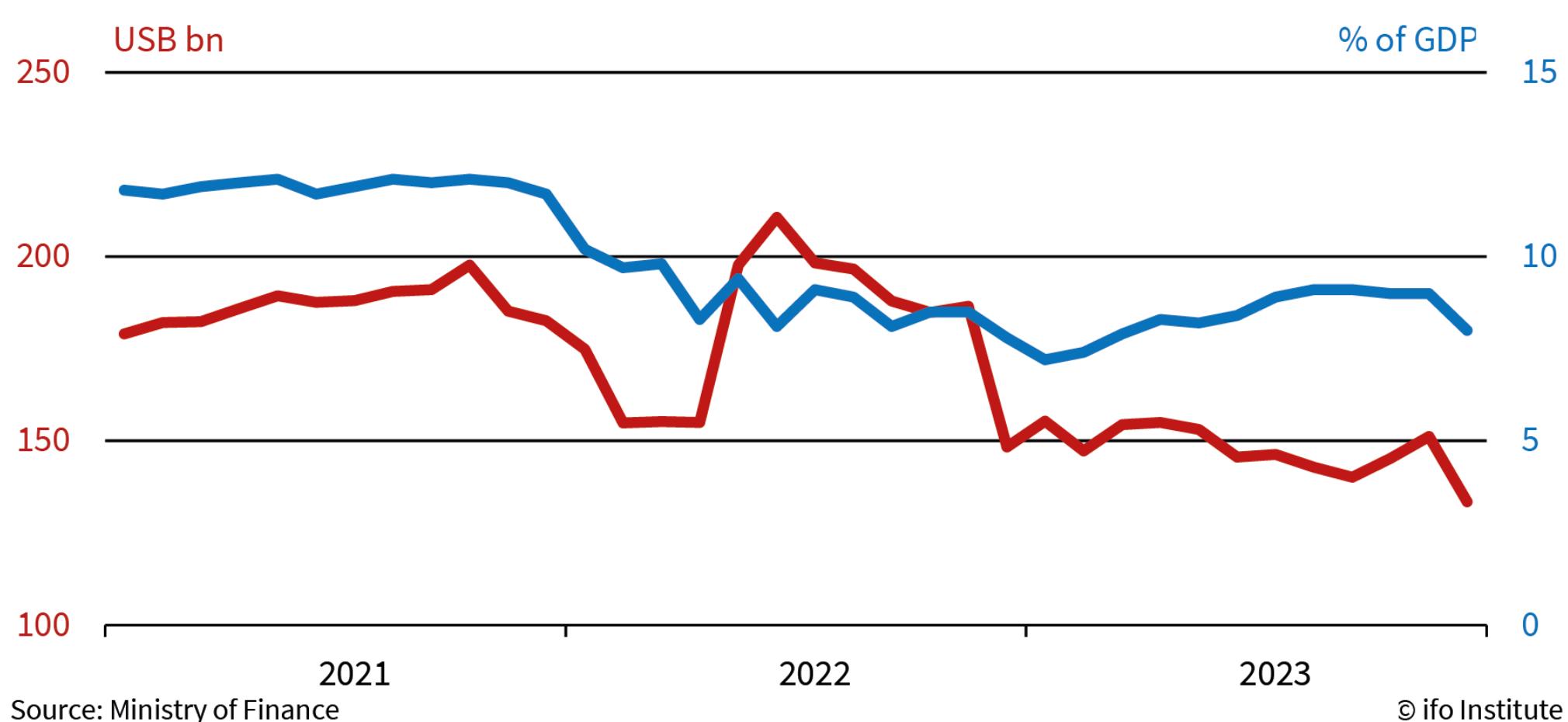
<sup>8</sup> [https://minfin.gov.ru/ru/press-center/?id\\_4=38819-predvaritelnaya\\_otsenka\\_ispolneniya\\_federalnogo\\_byudzhetza\\_za\\_2023\\_god](https://minfin.gov.ru/ru/press-center/?id_4=38819-predvaritelnaya_otsenka_ispolneniya_federalnogo_byudzhetza_za_2023_god)

<sup>9</sup> Given the 5.9% inflation last year, this means that in *real* terms federal budget expenditures declined by nearly 2%.

## Fiscal Deficit: National Welfare Fund to the Rescue

Deficit financing is hardly a problem either, at least for the time being: 90% of the federal budget deficit last year was covered from the sovereign National Wealth Fund (NWF). Specifically, in December EUR 537 million, CNY 115 billion and 233 tons of gold were sold from the NWF for this purpose.<sup>10</sup> Because of this, and despite the fact that the NWF recorded a net inflow of funds in line with the ‘budget rule’ (for more details on that, see Box 1), in the course of 2023 it declined by 10% in USD terms (Figure 1); its liquid part, which consists of foreign exchange and gold, plunged by 36%.

**Figure 1 / National Welfare Fund in 2021-2023, end of the month**



As of 1 January 2024, the NWF stood at USD 133.4 billion (8% of estimated 2023 GDP), of which the liquid part was USD 55.9 billion (3.3% of GDP).<sup>11</sup> The liquid part is currently held entirely in Chinese renminbi and gold; the last US dollar assets were sold back in July 2021, assets in British pounds and Japanese yen in December 2022, and euro assets in December 2023. Thus, the current composition of the NWF is much less diversified than before the war. This reduces the vulnerability of the Russian government to Western financial pressure, but it also bears risks of its own, making the fund’s assets highly dependent on the renminbi exchange rate. The remaining (non-liquid) assets of the NWF are held in equity and bonds of Russian companies, notably Sberbank. Since the beginning of the war, the NWF has also been used on multiple occasions for financing various infrastructure projects (e.g., the construction of highways), the purchase of

<sup>10</sup> [https://minfin.gov.ru/ru/document?id\\_4=305805-informatsionnoe\\_soobshchenie\\_o\\_rezulatakh\\_razmeshcheniya\\_sredstv\\_fonda\\_natsionalnogo\\_blagosostoyaniya](https://minfin.gov.ru/ru/document?id_4=305805-informatsionnoe_soobshchenie_o_rezulatakh_razmeshcheniya_sredstv_fonda_natsionalnogo_blagosostoyaniya)

<sup>11</sup> [https://minfin.gov.ru/ru/document?id\\_4=305805-informatsionnoe\\_soobshchenie\\_o\\_rezulatakh\\_razmeshcheniya\\_sredstv\\_fonda\\_natsionalnogo\\_blagosostoyaniya](https://minfin.gov.ru/ru/document?id_4=305805-informatsionnoe_soobshchenie_o_rezulatakh_razmeshcheniya_sredstv_fonda_natsionalnogo_blagosostoyaniya)

foreign-owned air fleet by Russian airlines (following the termination of lease contracts by foreign providers immediately after the start of the war),<sup>12</sup> and the recapitalisation of large state-owned banks and corporations, such as Aeroflot, Russian Railways and VTB.<sup>13</sup>

#### **BOX 1 / ‘BUDGET RULE’ AS A TOOL OF MACROECONOMIC STABILISATION**

The ‘budget rule’ and the sovereign fund(s) have been in place in Russia for nearly two decades now and broadly replicate the institutional design in many other commodity-exporting economies, including e.g. Saudi Arabia, Norway and Kazakhstan, which are highly dependent on volatile oil prices. The basic idea behind is to save extra budget revenues in times of high oil prices in the sovereign fund, which can be then tapped in times of low oil prices and low budget revenues.<sup>14</sup>

Before the war, the budget rule in Russia envisaged an oil price of USD 45 per barrel as a cut-off threshold: extra government revenues derived from the oil price exceeding this threshold were accumulated in the National Welfare Fund (NWF), which was tapped when the oil price fell below the threshold. However, because of the Western sanctions and the resulting unpredictability of energy export volumes, the budget rule has been changed and adapted to the new conditions. Its version which was in place in 2023 envisaged, instead of an oil price, a certain amount of government energy revenues (RUB 8 trillion per year, or some EUR 80 billion at the current exchange rate) as the cut-off threshold. As long as energy revenues of the government stayed below the threshold (as was the case between January and August 2023), the missing volumes were taken from the NWF. Higher oil prices in the remainder of the year and the corresponding improvement of energy revenues of the government allowed to replenish the NWF in December; the net inflow of funds to the NWF for 2023 as a whole was positive.

Starting from 2024, the budget rule has been modified once again and oil price has been re-instated as the cut-off benchmark, albeit at a higher level (USD 60 per barrel) than before the war, reflecting sharply increased military spending and the overall deterioration in Russia’s fiscal situation. Formally, with the current price of Russian oil comfortably above USD 60 per barrel, the budget rule should force the central bank to purchase foreign exchange for the purposes of NWF replenishment. However, this is not happening, with the authorities once again concerned about exchange rate stability – similarly to the situation in August-November last year (when the budget rule was temporarily suspended in the face of strong depreciation pressures on the rouble, c.f. our November 2023 report for details). Central bank president Elvira Nabiullina said in a recent interview that the NWF would be only replenished if the Brent oil price exceeds the levels of USD 88-90 per barrel<sup>15</sup> (which is in clear violation of the current budget rule); at the time of writing, the Brent price was lower than that.<sup>16</sup>

<sup>12</sup> [https://www.kommersant.ru/doc/6425766?from=glavnoe\\_4](https://www.kommersant.ru/doc/6425766?from=glavnoe_4)

<sup>13</sup> <https://meduza.io/feature/2024/01/23/za-dva-goda-voyny-rossiya-potratila-polovinu-deneg-iz-glavnay-kubyshki-fonda-natsionalnogo-blagosostoyaniya-u-strany-chto-skoro-zakonchatsya-resursy-na-chernyy-den>

<sup>14</sup> For more on that, see e.g. Astrov (2007) and Kochnev (2019).

<sup>15</sup> <https://www.rbc.ru/finances/25/12/2023/6586b40d9a79470829d2ff9b>

<sup>16</sup> On 26 January, Brent oil cost USD 80.7 per barrel.

## Western Energy Sanctions Start Biting Again

Under the assumptions that (i) federal budget deficits in 2024-2025 reach similar magnitude as over the past two years, and (ii) the NWF is not replenished under the budget rule even if the oil price levels would allow this (see Box 1), the liquid part of the NWF may be fully depleted already by the end of next year. This does not mean however that the government will run out of funds and will no longer be able to wage the war in Ukraine (assuming the latter lasts beyond 2025). It will still have the option of borrowing domestically – as it has been already doing to refinance the public debt stock. In 2023, a total of RUB 2.5 trillion in government bonds was placed for this purpose. For 2024, the current government plan is to borrow a total of RUB 4.1 trillion, of which RUB 1.5 trillion is to be used for debt repayment.<sup>17</sup>

### 3 Western Energy Sanctions Start Biting Again

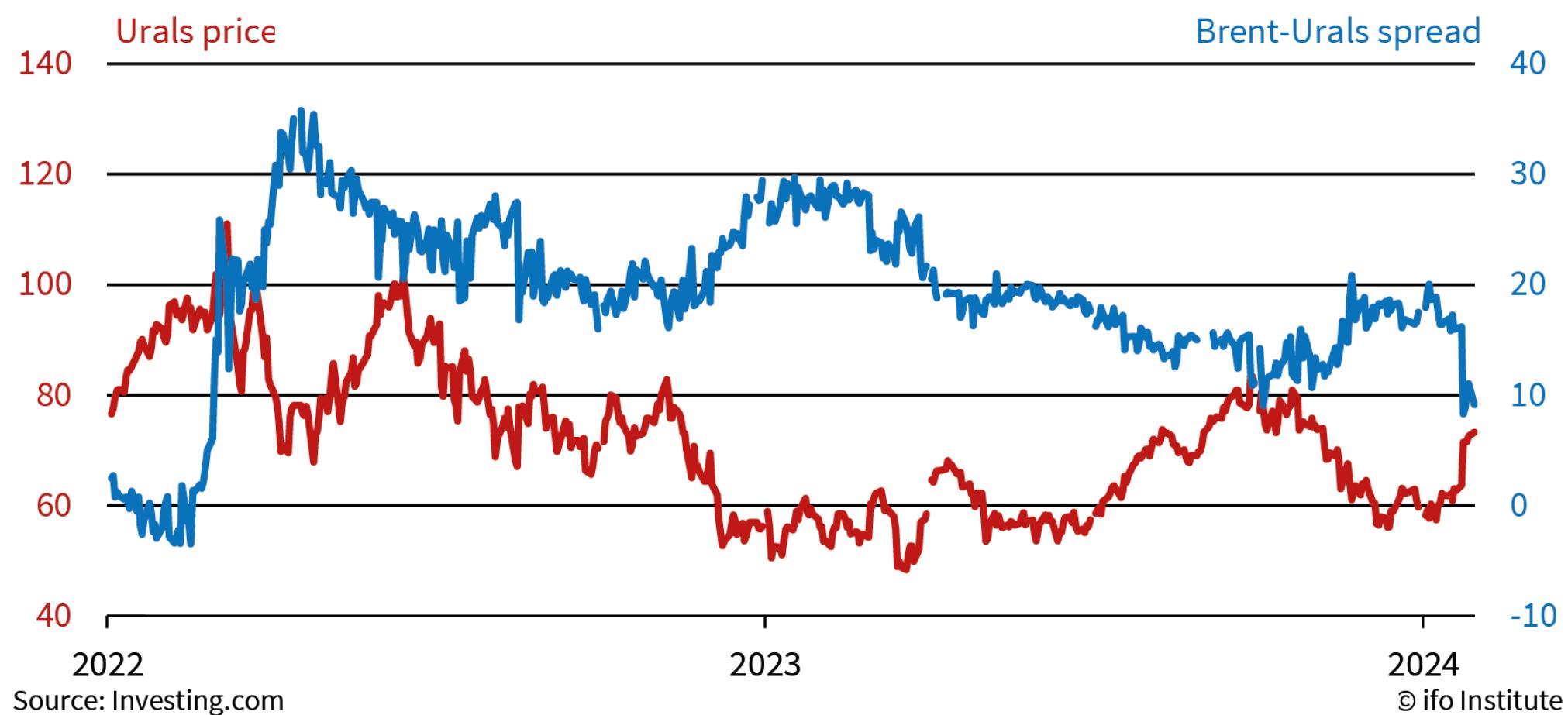
According to preliminary estimates by the central bank, last year closed with a current account surplus of a mere USD 50.2 billion – less than a quarter of the 2022 value (USD 238 bn). Relative to GDP, this corresponds to a decline from 10.5% to an estimated 2.8%, respectively. As already mentioned in the October 2023 report, the main reason for the shrinking external surplus has been unfavourable trends in foreign trade: falling exports and rising imports. In US dollar terms, goods exports fell by 28.6% yoy, while goods imports, on the contrary, picked up by 10.1% yoy, resulting in the trade surplus in goods falling by 62%. In services trade, the trends were similar, with exports down by 16.7% and imports up by 4.5%, the latter partly on account of the modest recovery in the number of Russians travelling abroad. As a result, the trade deficit in services increased markedly, although this was over-compensated by the improved income balance, with foreign incomes from Russia declining much more strongly (-26.5%, mostly on account of lower dividends) than Russian incomes from abroad (-14.4%).

The recent trade data also shed light on Russia's revenues from energy exports and the effectiveness of Western energy sanctions. In our October 2023 report, we highlighted the high impact of sanctions on the price of Russian oil during the first few months after their entry into force, which gradually diminished over time. However, most recent developments suggest a reversal of the earlier trend. After hitting the low of just USD 9 per barrel in early October, the price spread between Russia's Urals and the benchmark Brent started rising again, reaching up to USD 20 per barrel by early January (although it has been declining again since then,

<sup>17</sup> <https://frankmedia.ru/150407>

). This development can be entirely attributed to increased scrutiny by the US Treasury in enforcing secondary sanctions on companies from third countries, which violate the USD 60 per barrel price cap set in December 2022 on Russian oil shipments to third countries.<sup>18</sup>

**Figure 2 Urals oil price and the spread to Brent, in USD per barrel, 2022-2024**



As a result of the increased discount (on top of decline in global oil prices), the average price of Russian oil plunged sharply in the last few months of 2023: from USD 80.2 per barrel in October to USD 71.4 in November and USD 64.1 in December.<sup>19</sup> In December, Russian oil export revenues dropped to a mere USD 14.4 bn, the lowest value in six months – despite a marked increase in shipped volumes. These developments confirm that energy sanctions, when they are supported by effective enforcement of secondary sanctions on third countries helping Russia to circumvent Western sanctions, have the potential to seriously undermine Russia's energy revenues and the fiscal situation in general.

<sup>18</sup> See e.g., <https://www.wsj.com/articles/u-s-sanctions-shipping-companies-for-allegedly-evading-russia-oil-price-cap-20c32434>. The most recent example of this have been sanctions imposed on 17 January on UAE-based Hennesea Holdings, which owns a fleet of 18 vessels transporting Russian oil, <https://www.kommersant.ru/doc/6456100>

<sup>19</sup> These figures correspond to the *average* price of Russian oil, which, apart from Urals, includes also other blends, notably ESPO. Therefore, they deviate from the Urals price presented in Fehler! Verweisquelle konnte nicht gefunden werden..

## 4 Little Change in Russian Import Patterns Recently

In this chapter, we cover the development of Russia's monthly imports (in real USD terms) across origin countries starting from January 2021.<sup>20</sup> As in the previous reports, we combine data from various sources: aggregated import flows are from the Russian National Bank, disaggregated trade statistics come from national sources (mirror statistics) and UN Comtrade data, which provide information for 67 countries (EU27 plus 40 other countries)<sup>21</sup> at the HS6 product-level that accounted for 83% of all Russian imports in 2019.<sup>22</sup> To determine the sanction status of all products, we leverage the ifo sanctions database.<sup>23</sup>

In general, the recent trends in Russian import patterns exhibit few novel developments compared to our previous reports. Total imports have rebounded, aligning closely with pre-war figures. While sanctioned products are barely exported, the export volumes of the EU27 are far from zero for unsanctioned goods: in November 2023, EU sales to Russia were equal to USD 2.7 billion. Notably, China has solidified its position as Russia's foremost supplier of goods, particularly those subject to sanctions by the West. The CIS countries and Türkiye have experienced a relative uptick in importance. However, for Armenia, Kyrgyzstan, Georgia, and Uzbekistan, we see noteworthy developments for sanctioned goods between July and September 2023 that we will describe in detail in the following.

The surge in Russian imports from **Armenia** in August 2023 can be entirely attributed to an increase in large airplanes (HS6 product: 880240), amounting to USD 12 million. Before the war, the EU27 and other sanctioning countries exclusively supplied this product to Russia. Since the start of the war, reports repeatedly highlighted challenges in Russia's aerospace industry, especially concerning the replacement of aging airplanes.<sup>24</sup> Interestingly, the sudden increase in Armenian exports in August 2023 marks the first significant import of this product by Russia observed in our database. Previously, we only observed negligibly small import vol-

<sup>20</sup> Russian imports were converted to USD and are adjusted for inflation (in constant 2018 US prices).

<sup>21</sup> National statistics: EU27, Kazakhstan, China (Jan-November 2023); UN Comtrade: Armenia, Australia, Azerbaijan, Barbados, Bosnia and Herzegovina, Brazil, Belize, Canada, China (Jan 2021-Dec 2022), Chile, Fiji, United Kingdom, Georgia, Guatemala, Guyana, Hong Kong, Iceland, India, Japan, Kyrgyzstan (no data for July 2023), Macao, Mauritius, Moldova, Mexico, North Macedonia, Mauritius, Malaysia, Norway, New Zealand, Panama, Philippines, Paraguay, El Salvador, Serbia, Switzerland, Togo, Türkiye, United States, Uzbekistan, and South Africa.

<sup>22</sup> To calculate the share, we used trade data prepared by CEpii, which are available here:  
[http://www.cepii.fr/CEPII/en/bdd\\_modele/bdd\\_modele\\_item.asp?id=37](http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37)

<sup>23</sup> For the analysis of aggregated country groups, the sanction status is defined by September 2023. For the analysis of individual countries, it is defined by the last period available.

<sup>24</sup> <https://www.reuters.com/business/aerospace-defense/exclusive-russia-starts-stripping-jetliners-parts-sanctions-bite-2022-08-08/>

umes from China (2022m8 and 2022m10: USD 7.8 thousand) and India (2022m11: USD 83 thousand) for this specific product. Although notable, in absolute terms the imports of airplanes from Armenia in August 2023 represent only 5% of the average monthly import volumes prior to the war from the EU27, indicating potential difficulties in supply.

The sudden increase in import volumes from **Kyrgyzstan** in June 2023 is solely attributable to a specific type of boring-milling machines (HS6 product: 845941). Interestingly, demand for this product has been, except for June 2023, low: over all other months in our sample, including the pre-war period, the average monthly Russian imports of this product amounted to USD 0.4 million, in contrast, the sales in June 2023 from Kyrgyzstan were 77 times larger (USD 29 million). This could be indicative of a profound shift in preferences due to the war or, alternatively, might be caused by misclassification, which would hint at illegal activities. The spike in the time series for **Georgia** in July 2023 is due to a sudden increase in imports of yachts (HS6 product: 890399); for **Uzbekistan** it is caused by higher imports of chlorates and electrical lighting in July 2023 (HS6 products: 550320 and 381512), and in September 2023, polyester staple fibres and supported catalysts (HS6 products: 282911 and 851220).

## 5 Direct EU Exports of Sanctioned EC Goods and CHP Items to Russia Virtually Stalled

In this part of the report, we focus on the development of Russia's imports since January 2021 of two types of goods, both sanctioned by the EU in response to the Russian invasion of Ukraine:

- › (i) **economically critical goods** (EC goods) that consist of 72 HS6 products for which the EU and her allies suspect potential sanction evasion through third countries,<sup>25</sup> and
- › (ii) **common high priority items (CHP items)** that include 41 items critical to Russian weapons systems and its military development.<sup>26</sup>

The two lists do not overlap and contain products from four sections, i.e., machinery and electric equipment (section 16), vehicles, aircraft, and vessels (section 17), precision instruments

<sup>25</sup> The list includes all products for which third countries suddenly start exporting at unprecedented rates. A trade flow is defined as anomalous if (i) third countries' exports to Russia exceed EUR 1 million over a 12-month period in 2022 and (ii) if these third countries increase their exports to Russia compared to the average of the three years preceding the Russian invasion by at least 100%. The list of products that have been classified as economically critical goods (as of October 2023) is available here [https://finance.ec.europa.eu/system/files/2023-10/list-economically-critical-goods\\_en.pdf](https://finance.ec.europa.eu/system/files/2023-10/list-economically-critical-goods_en.pdf). We convert the HS2022-product codes to HS2017 to make comparisons over time possible, leaving us with 72 HS6-products.

<sup>26</sup> The list of common high priority items (as of October 2023) is available here [https://finance.ec.europa.eu/document/download/5a2494db-d874-4e2b-bf2a-ec5a191d2dc0\\_en?filename=list-common-high-priority-items\\_en.pdf](https://finance.ec.europa.eu/document/download/5a2494db-d874-4e2b-bf2a-ec5a191d2dc0_en?filename=list-common-high-priority-items_en.pdf). We convert the HS2022-product codes to HS2017 to make comparisons over time possible, leaving us with 41 HS6 products.

## Direct EU Exports of Sanctioned EC Goods and CHP Items to Russia Virtually Stalled

(section 18) and chemical products (section 6). To make comparisons over time possible we convert the product codes into the HS2017 nomenclature.<sup>27</sup>

The EC goods comprise a relatively broad set of HS6 products. Parts of motor vehicles, laptops, trucks, shovel loaders as well as filtering and purifying machinery account for roughly two-thirds of total Russian imports of EC goods (both, before and after the beginning of the war). The CHP items can be divided into four tiers ranked according to their relative degree of criticality. Tier 1 (integrated circuits, i.e., semiconductors and chips) and Tier 2 (electronic components) contain particularly sensitive items of the highest concern for Russian weapons systems. Tier 3 is divided between electrical (Tier 3a) and mechanical (Tier 3b) components, and Tier 4 pertains to manufacturing, production, and quality testing equipment. Total imports of the CHP items are skewed towards a few products: the top three products (HS6 products 851762 (wireless transmission apparatuses: e.g., radios, transceivers), 847150 (processing units, input or output units for automatic data processing machines) and 850440 (static converters; e.g., rectifiers)) account for almost half of all Russian imports of CHP items.<sup>28</sup>

In 2021, Russia sourced 47% of its total imports of the CHP items from the EU27 and other G7 countries, 35% came from China, and 14% from Hong Kong. For the EC goods, the EU and the other sanctioning countries played an even more important role, as they accounted for 61% of total imports of EC goods, while 32% were provided by China. Interestingly, Germany used to be a very important source country of both types of products. For 44 of the 113 HS6 products on both lists combined, Germany was Russia's top supplier in 2021. However, some of these products are only exported at relatively low values, which explains why the German share of pre-war imports was a mere 14%, putting Germany at second position after China.

By September 2023, all the EC goods and CHP items were, at least partially, sanctioned. As discussed in detail in our October report, for some HS6 products, we cannot unambiguously determine the sanction status since the trade restrictions are only in force for a subsample of items instead of all items that belong to the same HS6 product group. For the CHP items, by March 2022, only 2% were fully sanctioned and 19% were partially sanctioned. In subsequent rounds policy makers widened the scope and, consequently, by September 2023 98% of the 41 CHP items were fully sanctioned and one HS6 product was partly sanctioned. Instead, all the EC goods were only partially sanctioned in March 2022. This changed drastically over time, and the share of fully sanctioned EC products increased to 82% by September 2023—the remaining 14 HS6 products were partly sanctioned.

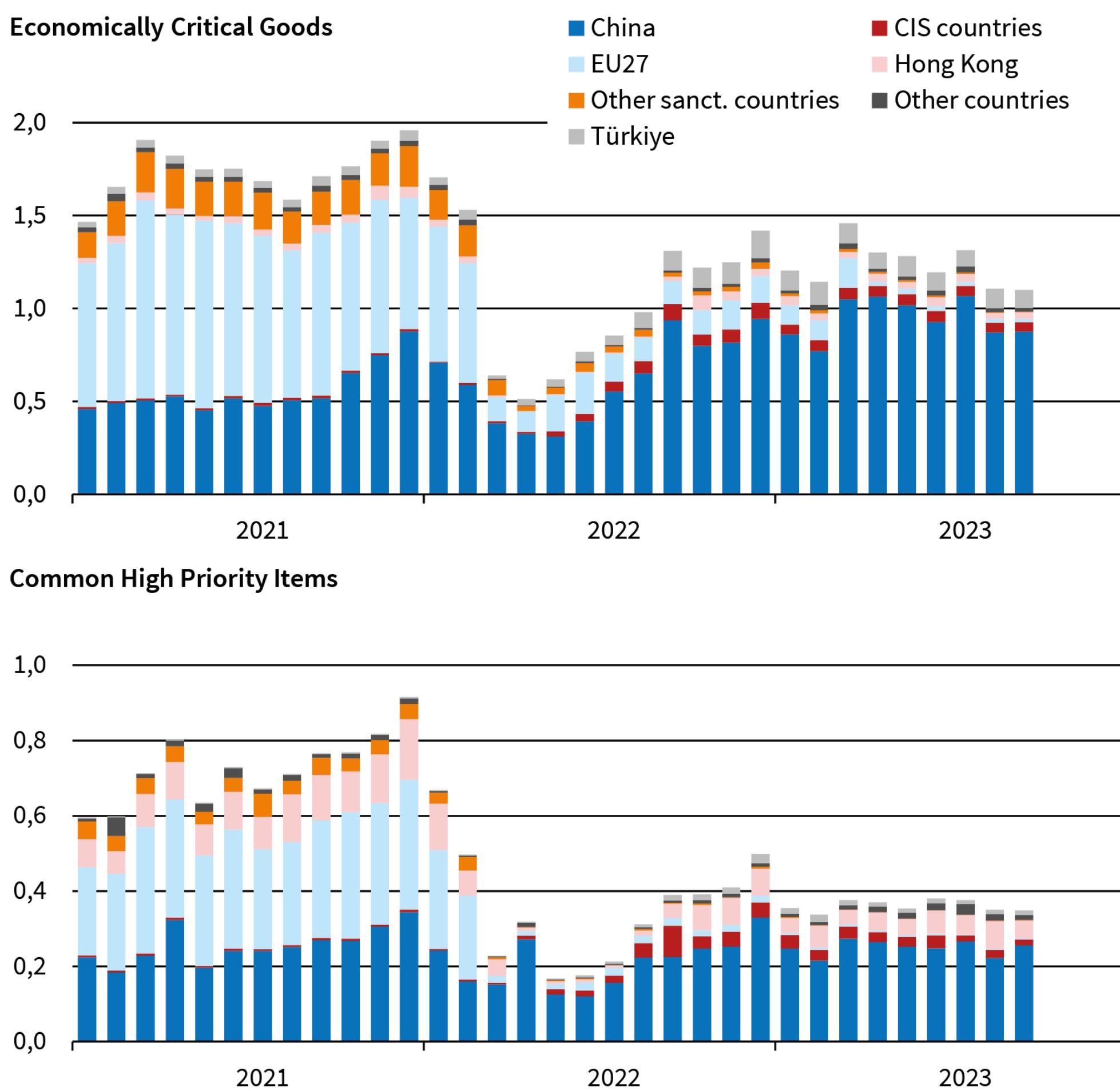
<sup>27</sup> Unfortunately, five HS6 products cannot be traced back to 2021 due to changes in the nomenclature. As no clean comparison is possible, we drop them from the analysis. The product codes (in HS2022) of the CHP items, for which analysis is not possible, are 854151, 854159, 854149, and 852589; 870121 is the only HS6 product that we have to drop from the list of EC goods.

<sup>28</sup> These patterns also hold when looking at quantities instead of values.

## Direct EU Exports of Sanctioned EC Goods and CHP Items to Russia Virtually Stalled

In line with the results from the October report, our data confirm that the sanctions effectively prevent direct exports: for EC goods as well as CHP items, Russian imports from the EU27 became negligible after a HS6 product had been completely sanctioned. The sizeable positive direct export flows of EU27 member states after March 2022 (Figure 3) are attributable to HS6 products that were not fully sanctioned at the time, the repeated drops in export volumes over time correspond to the more restrictive sanction regime stages of the EU27 that followed the initial round right after the Russian invasion of Ukraine in February 2022.

**Figure 3 / Russia's imports by country group, in USD billion (real, 2018)**



Note: We use the definition provided by the EU Commission for economically critical (EC) goods as of 18 October 2023 and for common high priority (CHP) items as of 24 October 2023. Trade data presented in the figure cover a large share of total Russian imports. CIS countries include Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova and Uzbekistan.

Source: UN Comtrade; national sources.

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## 6 Third Countries Increased Their Market Shares of EC Goods and CHP Items in Russia

Next, we look into the trade developments for all products, for which Russia was **particularly dependent on the EU27** in 2021, as the EU shares of Russian imports exceeded 75%. In total, we identify eleven products with high dependency: three of the CHP items and eight of the EC goods. First, missing imports of these products from the EU27 could not fully be substituted by other countries and total imports of these goods more than halved since the beginning of the war. Second, we see a substantial uptake in the import share for those goods by China (51%), Türkiye (25%), and Kazakhstan (8%) since March 2022.

For the Tier 1 and 2 products we see a strong decline of Russian imports from the EU27 with the onset of the war: while average monthly export volumes in 2021 were USD 117 million, they decreased to USD 3.7 million in March 2022, and from November 2022 onwards the absolute values ranged between USD 245 and 877 thousand. Overall, our data suggests that missing Tier 1 as well as Tier 2 products from the West are not fully substituted by other trade partners. For Tier 1, Hong Kong is the most important supplier and for Tier 2 China. For both types of products, the CIS countries and Türkiye increased their exports substantially in comparison to pre-war levels but in absolute terms they play a less important role. Imports from other countries are negligible. However, it is not possible to fully rule out complete substitution. As the sample does not include the universe of all Russian trade partners, it might be possible that other countries, for which we do not have data, serve now as suppliers. For example, Saudi Arabia has been repeatedly reported to be an important hub for sanction evasion and is unfortunately not included in our data.<sup>29</sup>

**China** deepened preexisting strong trade relations with Russia and became its main source for substitution of missing imports from the EU27 and other sanctioning countries for both CHP items as well as EC goods. Chinese exports of EC goods to Russia in 2021 were rather concentrated, as laptops accounted alone for almost one third of total imports from China of EC goods. The product scope changed over time, and imports of vehicles (in particular various types of trucks) and parts for vehicles gained in importance. In September 2023, Russia imported 1.6 times more EC goods from China than within an average month of the year 2021. Instead, in the aggregate, for CHP items Chinese imports did barely change compared to 2021, masking important heterogeneity across Tiers: while imports of Tier 1 and Tier 4 increased over time, with maximum levels (six times greater than the 2021 levels) recorded in December 2022, Tier 3b offset this development.

<sup>29</sup> [Wladimir Putin am Golf: Per Haftbefehl gesucht – und willkommen am Golf | ZEIT ONLINE](#) or [Türkiye's exports of military-linked goods to Russia soar \(ft.com\)](#)

### Third Countries Increased Their Market Shares of EC Goods and CHP Items in Russia

For supplying high-tech products to Russia such as semiconductors (Tier 1), it is **Hong Kong** that matters. Exports of Tier 1 from Hong Kong products increased by 14% on average compared to pre-war level. However, this increase was solely driven by the exports of electronic integrated circuits that increased by 48%, while the other Tier 1 products decreased (-3%).

**Türkiye** mostly provides EC goods to Russia. Since January 2023, Turkish exports of EC goods to Russia have been more than two times larger than its average of the year 2021. The Turkish import share for EC goods during the months after the Russian invasion equalled 8%, and 3% for CHP items. Türkiye matters particularly for the supply of hydrogen, mechanical and electrical machinery, and electrical and mechanical components to Russia.

The **CIS countries** have increased their exports of both CHP items as well as EC goods to Russia. Since March 2022, the CIS countries export to Russia all but one of the 113 HS6 products in the focus of our analysis. They are particularly important for CHP items, for which they supply 8% of all Russian imports since March 2023, which puts them right behind China and Hong Kong as most important partner. Instead, for EC goods, their share amounts to only 3%.

Within the CIS countries, **Kazakhstan** stands out as the leading exporting country to Russia for both types of products. For EC goods, it consistently accounts for around 70% on average of total CIS-countries' exports to Russia over time, for the CHP items this share amounts to 79%. For EC goods, 44 products have never been exported by Kazakhstan to Russia or exported only at very low levels (less than USD 100 thousand) prior to March 2022, and 19 products in the case of CHP items. Examples of products with spectacular and unprecedented export growth are automatic data processing machines (HS6 product 847130) as well as automatic data processing machines units (HS6 product 847150), although Russia imports a broad range of products from Kazakhstan.

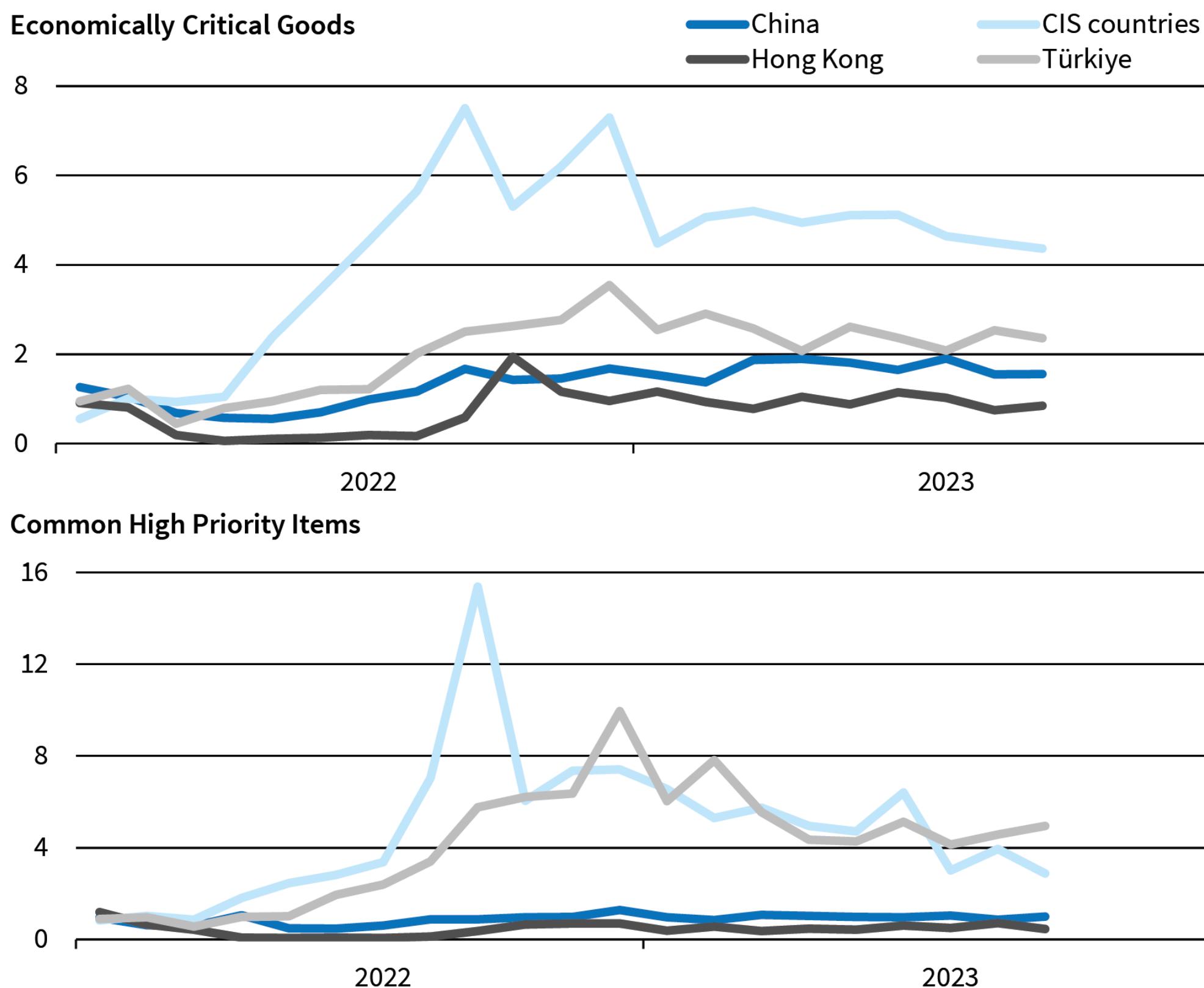
However, over the first six months after the beginning of the war, the dominance of Kazakhstan as the hub for re-exports of EC goods and CHP items to Russia somewhat decreased, and other CIS countries became important trade partners for Russia as well. This is most notable the case for **Armenia**, which considerably increased its exports to Russia, both in absolute terms and relative to other CIS countries. Armenia started to export 23 products from the list of CHP items to Russia, of which the largest export growth came from communication apparatus (HS6 product 851762), which by August 2023 reached 96% of total Armenian exports of CHP items to Russia. Armenia also matters for the exports of EC goods, for which 39 products have never been exported to Russia or only at very low levels (less than 100 thousand USD).

While other third countries on aggregate do not matter as suppliers of EC goods or CHP items to Russia, interesting patterns emerge for specific products. We will highlight one example thereof, namely, the development of ball and roller bearings, which used to be provided by the EU27 and the United States and are crucial parts and components of tanks and other military vehicles. Within Tier 3A of the CHP items (mechanical components), imports of ball and

### Third Countries Increased Their Market Shares of EC Goods and CHP Items in Russia

roller bearings account for 80% of total imports.<sup>30</sup> Even without the supply of the West, Russian imports of ball and roller bearings are at similar levels as before the war. Besides China, the CIS countries (mostly Kazakhstan) are important suppliers but also India, Malaysia and Serbia emerged as reliable partners. For **Serbia**, ball and roller bearings make up approximately 50% of the total exports of CHP products to Russia. Additionally, Serbia has also started to export to Russia 18 new EC goods after the beginning of the war, and five new products from the CHP list. **India** is another third country that pops up as an important source country for specific products, and often only in certain months (e.g., hydrogen, parts for airplanes and helicopters). Though the absolute numbers are currently modest, this trend warrants close observation in the coming months.

**Figure 4 / Russia's imports from most important third countries (average 2021 level = 1)**



Note: We use the definition provided by the EU Commission for economically critical (EC) goods as of 18 October 2023 and for common high priority (CHP) items as of 24 October 2023. CIS countries include Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova and Uzbekistan.

Source: UN Comtrade; national sources.

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<sup>30</sup> News article reported the central role of ball-bearings for Russia, <https://maintenanceworld.com/2023/05/10/russian-ball-bearing-shortage/#:~:text=The%20shortage%20has%20been%20attributed,Western%20manufacturers%20to%20supply%20bearings>.

## 7 Indications for Sanction Evasion

Lastly, we want to focus on sanction evasion, for which there is ample anecdotal evidence. To understand better how much of the surge in exports of third countries to Russia is most likely due to the circumvention of sanctions, we normalize for all CHP items and EC goods the total export value of each country to Russia in 2022 by its worldwide exports in 2019.<sup>31</sup> If a country accounts for a large share of the worldwide production of a particular HS6 product, it seems credible that the increase of exports to Russia is attributable to higher domestic production and this normalized share should be lower than one. To determine in how many cases and for which countries this measure might indicate sanction evasion in 2022, we count the number of products, for which exports to Russia in 2022 were more than 50 times larger than the exports of the same product to all destinations in 2019 (i.e., our approach to detect sanction evasion is very conservative).

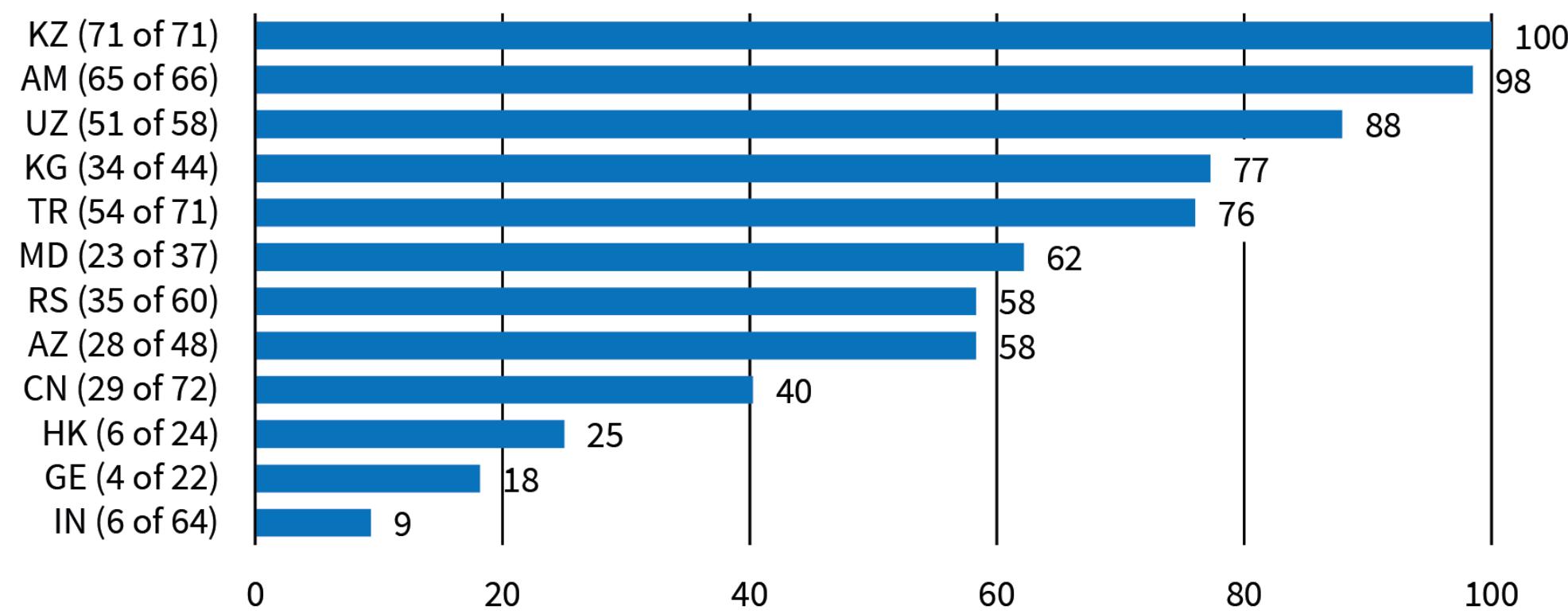
Figure 5 summarizes the findings and shows that, especially for the CIS countries, the data indicate a particularly high likelihood of sanction evasion: For Armenia, Kazakhstan, Uzbekistan, and Kyrgyzstan exports to Russia were at least 50 times larger than their exports to all destinations in 2021 for almost all exported goods, both for EC goods and CHP items. Our method also hints at sanction evasion for Türkiye and China, although it is less extreme than for the CIS countries. For India, sanction evasion seems less prevalent. For EC goods only six out of 64 products show anomalously high exports to Russia, for CHP items it is four out of 32. Of course, this finding could simply mean that India is, in fact, redirecting existing exports to other destinations to serve higher demand from Russia. Alternatively, it might be possible that transport routes for possible evasion are, as of now, not fully developed making it unprofitable to circumvent sanctions through India.

<sup>31</sup> Changes in 2023 are not reflected.

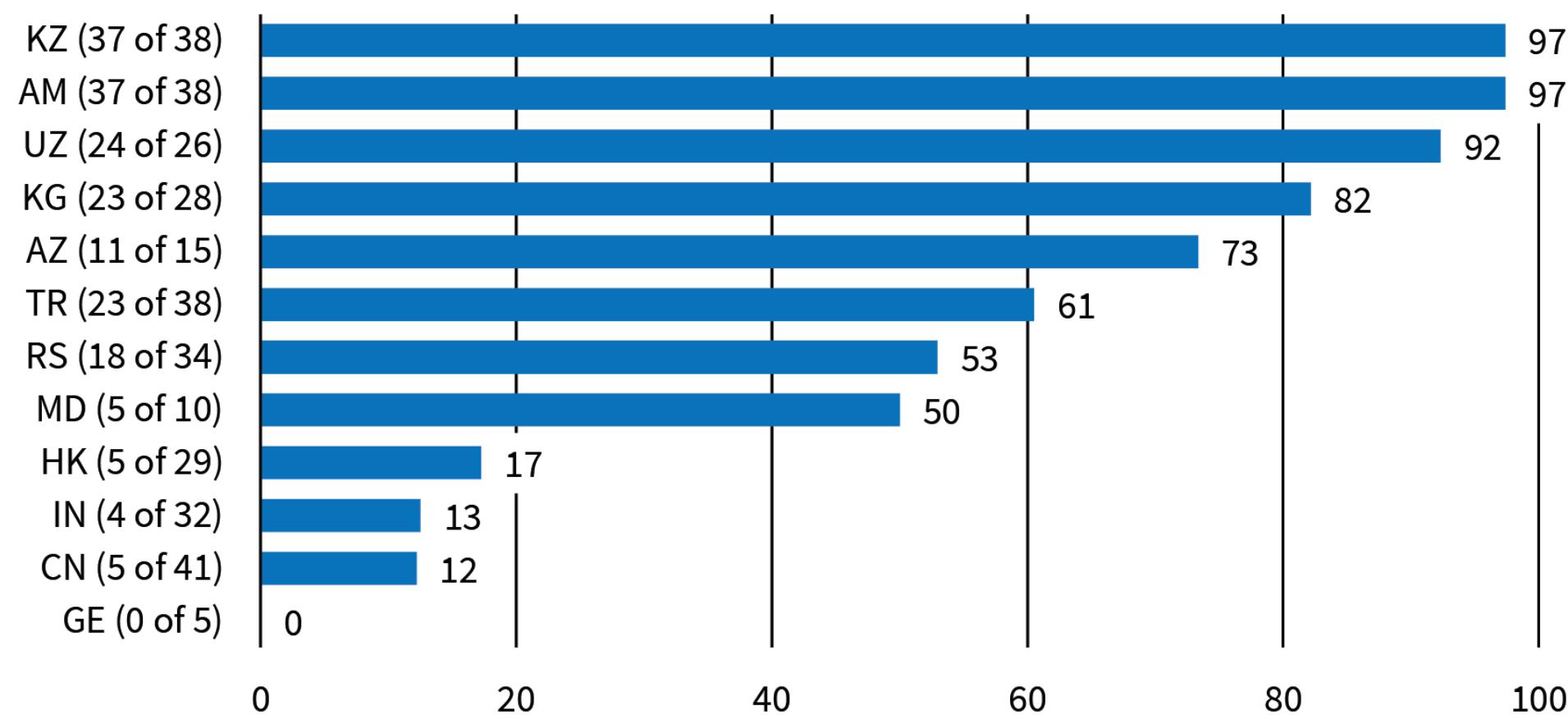
## Indications for Sanction Evasion

**Figure 5 / Share of HS6 products exported to Russia in 2022 with high likelihood of sanction evasion, in %**

### Economically Critical Goods



### Common High Priority Items



Note: The chart shows the share of products (in %) across origin countries in 2022, for which the respective country's yearly exports to Russia exceeded its exports to all destinations of 2019 by at least 50 times. The normalization measures the likelihood of sanction evasion. We use the definition provided by the EU Commission for economically critical (EC) goods as of 18 October 2023 and for common high priority (CHP) items as of 24 October 2023.

Source: Calculations by the authors'.

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Photo: Hans Schubert

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