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Sanctions and the Exchange Rate

A record number of economic sanctions have been imposed on the Russian economy since the invasion of Ukraine in February 2022. Given that it might take months and even years for these restrictions to take a toll on the economy, many commentators and policymakers attempt to infer the effects of sanctions from the short-term dynamics of the rouble exchange rate. In the immediate aftermath of the invasion and the imposition of sanctions, the Russian rouble quickly lost nearly half of its value (Figure 1). However, a few weeks later, the value of the rouble started to appreciate and, at the beginning of May, was higher than before the war.

These puzzling dynamics lead to several contradictory and misleading interpretations. Some commentators conclude that the imposed sanctions are not working. Similarly, state media in Russia uses the reversion of the exchange rate as an indicator of the resilience of the economy and the short-lived effects of sanctions. Other commentators went to a different extreme suggesting that given all the policy measures and restrictions imposed to stabilise the exchange rate, it has lost its relevance as an allocative price and has become inconsequential from the perspective of welfare.

Swings in the exchange rate

What explains the puzzling swings in the exchange rate over the last months? To answer this question, we first note that the value of the rouble is determined on the Moscow Exchange, which has become largely disconnected from international financial markets since the beginning of the war. Western sanctions constrain foreign banks from trading roubles, and Russian capital controls limit access of Russian residents to foreign markets. As a result, the local supply of foreign currency comes from export revenues and government reserves, while local demand is shaped by import expenditure, foreign liabilities of Russian firms (to the limited extent they exist despite the 2014 sanctions) and the use of foreign currency as a store of value. The equilibrium exchange rate equilibrates the local supply and demand of currency and also shifts together with monetary inflation.

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In Itskhoki and Mukhin (2022b), we show that a simple equilibrium model of exchange rate determination explains well the rouble dynamics from Figure 1. The overnight freeze of a significant fraction of government foreign reserves, the exclusion of major banks and corporations from international borrowing markets, and a threat of blocking commodity exports led to a sharp depreciation of the rouble on impact. Foreign investors exited the Russian market selling assets and expatriating proceeds, which resulted in capital outflows and an associated steep demand for currency. These factors were exacerbated by a sharp increase in the home precautionary demand for foreign currency driven by a collapse in the supply of alternative vehicles for savings. Indeed, demand for home-currency deposits went down due to rising inflationary expectations and the risks in the banking system. Similarly, the increased uncertainty and the risk of sanctions made local stocks and bonds highly unattractive, resulting in a prolonged closure of the Russian financial market.

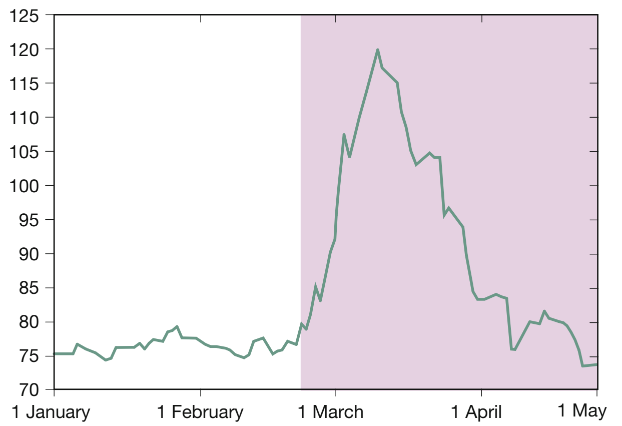
The exchange rate appreciation

The exchange rate reversed in mid-March and appreciated gradually over the next month to the pre-war level.

First, tougher sanctions on Russia's imports than on its exports over this period led to a sizable current account surplus and an inflow of foreign currency into the economy. This created a force for the rouble appreciation to bring the currency market in equilibrium. Similarly, from the perspective of the goods market equilibrium, this appreciation force allowed for expenditure reallocation towards varieties of imported goods that were not sanctioned but were not demanded unless home currency appreciation brought down their relative prices (see also Lorenzoni and Werning, 2022).

Although no official data on country's trade balance in this period is available yet, the anecdotal evidence suggests that the fall in imports was dramatic, with some estimates exceeding 50%. The direct restrictions on imports were amplified by difficulties with cross-border payments and

Figure 1
Daily rouble exchange rate (per US dollar) in 2022



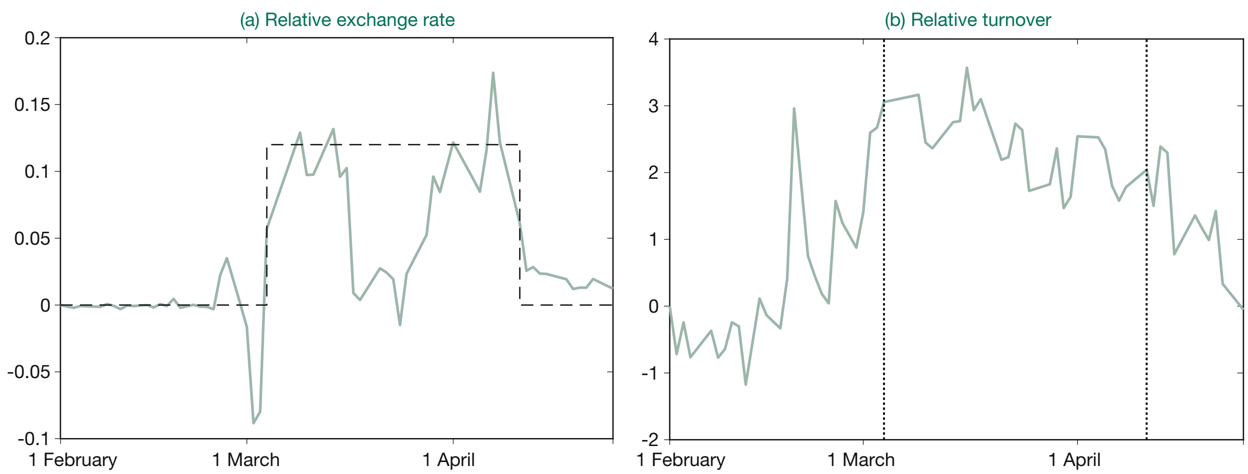
Source: Authors' calculations based on the data from the Moscow Exchange.

shipments of foreign goods. At the same time, the inventories of foreign durables used in production and sold to final consumers allowed for a gradual adjustment in the Russian market. With the benefit of hindsight, it is clear that the fall in imports is a large enough force for the rouble appreciation even after other factors described below fade away, as Russia is likely to "enjoy" a persistent trade surplus as the result of the current mix of sanctions.

Second, with limited access to foreign reserves, the central bank used extensive financial repression, which included strict limits on foreign currency deposit withdrawals, capital outflows, and a tax on local currency conversion to dollars and euros. This severely constrained the domestic demand for foreign currency deposits as well as eliminated the effective ability to access existing currency deposits and send the stock of foreign currency savings abroad. This largely offset the initial shock of the freeze of Russian foreign reserves, which constituted the main instrument used by the Central Bank of Russia to smooth exchange rate fluctuations before the war. The aggressive use of financial repression, along with a steep increase in the home currency interest rate, proved to be an effective substitute under sanctions from the point of view of exchange rate stabilisation.

The relevance of the financial repression policy can be clearly seen in Figure 2, which exploits the heterogeneous treatment of different currencies. Specifically, on 4 March, a 12% tax was introduced on purchases of US dollars, euros and UK pounds, but not other currencies. This tax was eliminated on 11 April. For concreteness, we compare the behaviour of the US dollar exchange rate with that of the Swiss frank, which was not subject to the tax, yet is presumably as safe and therefore offers a close substitute to the dollar. In the left panel of Figure 2, we plot the US dollar exchange rate against the Swiss frank at the Moscow Exchange relative to its international value, which was identically zero before the war, and comoved closely with the tax thereafter. Indeed, the Swiss frank appreciated sharply on the Moscow Exchange (and not

Figure 2
Swiss franc vs US dollar: Exchange rate and turnover, 2022
in logs



Notes: Panel (a) plots the tax on purchasing dollars as dashed line and the (log) dollar exchange rate against the Swiss franc at the Moscow Exchange relative to its international value. Panel (b) shows the (log) turnover of the Swiss franc relative to the dollar turnover at the Moscow Exchange. The values on 1 February are normalised to zero.

Source: Authors' calculations based on the data from the Moscow Exchange.

internationally) after the 12% tax was imposed on the dollar on 4 March and then depreciated back after the tax was eliminated on 11 April, resulting again in the convergence of the Moscow Exchange's rate to its international value. The right panel of Figure 2 additionally shows that the turnover of Swiss francs on the Moscow Exchange increased dramatically relative to that of the dollar during the same period.

Third, the record-high commodity export revenues in the first half of 2022 allowed the Russian government to enjoy a considerable fiscal surplus, thus far avoiding the need to monetise its fiscal obligations and to induce a monetary-driven depreciation. In contrast, the steep appreciation of the rouble since mid-March now puts pressure on the government fiscal balance, as revenues are tied to foreign currency exports, while liabilities are in roubles. As a result, in late April and May, the Russian government has relaxed a number of financial repression measures on foreign currency savings and transfers to avoid excessive appreciation of the rouble.

The three factors outlined above are arguably more important in stabilising the exchange rate than conventional monetary tools such as the hike in the policy rate to 20%, which was mostly aimed at stopping a bank run on the rouble deposits and at preventing monetary inflation. Nonetheless, going forward, the prospect of export sanctions and fiscal problems driven by a domestic recession can result in both inflation and devaluation, but these prospects appear to be pushed forward at least towards the end of 2022.

Paying for exports in roubles

Another policy that attracted much attention was Putin's decree that "unfriendly nations" pay for Russian energy exports in roubles rather than in euros or dollars. This demand faced a backlash in Europe with some countries eventually switching to the rouble and others refusing to change the settlement currency. In response, Russia halted gas exports to Poland, Bulgaria and Finland.

While the motivation for this request has never been publicly laid out, it is unlikely to be directly related to the exchange rate. Of course, as a monopolist, the Russian government could potentially sell roubles to other nations at any exchange rate. However, because oil and gas contracts specify prices in euros or dollars, the rouble exchange rate would not change the total inflows of foreign currency. Given that most import prices are also invoiced in euros and dollars (Amiti et al., 2022), the volume of imports would not change either. Thus, a change in the settlement currency would have no real effects. Instead, it is more likely that the request to use the rouble in international transactions is aimed at loosening the stance of the financial sanctions on the economy.

Sanctions did bite

The appreciation of the rouble to the pre-war level has been widely interpreted as a sign that so far sanctions have had a limited effect on the Russian economy. As mentioned above, this argument misses the fact that most restrictions were imposed on Russia's imports, which lowered demand for foreign currency, thus creating a force for the rouble appreciation. This appreciation, however, cannot offset the increase in the effective costs of imports, particularly in view of their limited availability, or compensate the associated welfare losses and increased real costs of living.

More generally, there is no one-to-one relationship between the exchange rate and welfare, and hence the effectiveness of sanctions cannot be inferred from the exchange rate. On the one hand, sanctions on imports and exports are equivalent in terms of their effect on the consumption of foreign goods – the former increase their relative prices, while the latter lower the amount of resources available to purchase foreign goods – and thus have the same welfare implications. On the other hand, the effect on the exchange rate goes in opposite directions in the two cases – import sanctions decrease the *demand* for dollars and appreciate the rouble, while export sanctions lower the *supply* of dollars and depreciate the rouble.

Importantly, the equivalence extends to fiscal revenues: Although import restrictions have no direct effect on government income, the associated change in the exchange rate lowers nominal and real fiscal revenues in the same way as export restrictions (see Amiti et al., 2017). The fact that exports constitute an important source of government revenues does not change the result and thus cannot be used as an argument in favour of export over import sanctions. Instead, the use of export restrictions can be justified if import sanctions are considered insufficient, are limited by the trade share of sanctioning countries or minimise the costs to sanctioning countries (see Sturm, 2022).

The exchange rate still matters

Equally misleading is the common view that the policy restrictions make the exchange rate irrelevant for the economy. Despite the large interventions of the government in the foreign exchange market, including multiple restrictions on purchasing and managing foreign currency, the value of the rouble affects the economy via two channels. First, the appreciation of the exchange rate increases the purchasing power of households and boosts consumption of foreign goods mitigating the negative effects of import sanctions. Importantly, this comes at the expense of the households that want to hold foreign currency as a safe asset and thus are subject to the measures of financial repression that are used to strengthen the rouble. In other words, the policy of financial repression creates redistributive effects from savers (who tend to be richer households) to consumers of foreign goods (many of whom are poorer "hand-to-mouth" households).

Second, the nominal exchange rate is a signal about monetary policy, which is especially valuable in an environment with high uncertainty and low trust in policymakers. Budget deficit pushes the government to monetise its nominal liabilities. Even before this happens, uncertainty about the monetary policy can lower demand for local currency deposits, leading to higher inflation and a run on the banks. To regain credibility, anchor inflation expectations and stabilise the financial system, the central bank can adopt a nominal peg to communicate its policy priorities (Athey et al., 2005; Itskhoki and Mukhin, 2022a).

Future dynamics

Although exchange rates are notoriously difficult to forecast – even more so given the current extreme levels of uncertainty – there are good reasons to believe that the rouble will most likely depreciate in 2022-23. First, the fiscal considerations put a floor on how much the exchange rate can appreciate without causing significant tightening of the budget, as discussed above.

Second, given that there remain few restrictions on Russian imports that could be further imposed by Western countries, it is likely that further rounds of sanctions would be imposed on export. European countries are now planning to gradually move away from Russian gas and oil, which will eventually bring down the inflow of foreign currency into the Russian economy even if exports are partially rerouted to other destinations. Furthermore, as soon as European countries do not need to purchase Russian commodities, they are able to impose even stricter financial sanctions completely freezing foreign assets of Russian banks and firms. This, in turn, lowers the supply of dollars and euros, depreciating the rouble exchange rate and putting the banking system at risk of a bank run on foreign currency deposits.

Third, as the inventories of foreign intermediate and final goods are running low, the Russian economy would seek alternative foreign suppliers and switch to parallel imports. This increases the demand for foreign currency and depreciates the rouble. Finally, there is an increasing risk of "monetary depreciation" driven by loose monetary policy. Although as mentioned above, the central bank has put much effort into maintaining its credibility, a fall in export revenues and increasing expenses to support the economy can push the government to monetise its liabilities, which ultimately leads to inflation and depreciation of the nominal exchange rate.

Paradoxically, even a ceasefire resulting in a remote possibility of certain sanctions being lifted will likely depreciate the rouble. While lowering the probability of monetary inflation, this will increase imports and will make it easier to transfer money abroad, putting pressure on the rouble exchange rate.

To conclude, a strong appreciation of the rouble over the past two months was driven by import sanctions and financial repression, both of which lowered demand for foreign currency. This does not mean that the sanctions are not working – in fact, there is an important equivalence between import and export restrictions in terms of welfare effects and government fiscal losses. Stabilising the exchange rate allows the Russian government to anchor inflation expectations and support consumption but comes at the cost of the financial repression of domestic savers. In the medium run, the rouble is likely to depreciate due to falling demand for Russian exports, increasing demand for foreign goods and loosening of monetary policy to finance government expenditures.

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