

# MIMS – Research Area

## Macro Research Team

Report – December 2022

### Do sanctions work? A theoretical and empirical approach to analyze the effectiveness of sanctions against Russia.

After the shocking Russian invasion of Ukraine on February 24th, most of the western world reacted by imposing heavy sanctions on the aggressors. This report aims at analyzing, six months later, sanctions effectiveness both from a theoretical and empirical point of view. In this regard, we present an updated summary of the sanctions implemented, a theoretical framework to understand the sanctions' effect, and a final data-based assessment of the macroeconomic scenario.

#### November update on current sanctions

Giving a theoretical definition of the sanction itself, it can be generally defined as an action taken by one or more countries to limit their economic relations with a target country, to persuade them to change its policies.

To classify the different types of sanctions we can base them on the generality or particularity of their objective: in this sense, sanctions can vary from limited measures to complete embargoes, and, referring to the number of people affected by them, a distinction can be made between comprehensive sanctions (which involve country-wide measures, to restrict all economic relations between the sender country and the target one) and targeted sanctions (applied to particular individuals to mainly restrict their assets and finances).

#### Sanctions against Oligarchs

Let's focus first on sanctions against oligarchs; on March 17th, EU Commissioner for Justice, Didier Reynders, said: "This coordination will make the prosecution of the listed Russian and Belarussian oligarchs in the Union a concrete possibility. Such initiatives are vital to achieving the rapid freezing and confiscation of the assets owned by individuals and entities targeted by the sanctions. We must, therefore, continue to step up our work together to identify oligarchs who help finance or organize actions in Ukraine, or who pursue illegal activities on the territory of the Union." Since 2014, the EU extended restrictions to 1236 people and 115 entities. Regarding sanctions against individual people, restrictions consist of travel bans and freezing of assets. The first ones prevent people targeted from entering the EU. Freezing assets means, instead, that all the bank



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accounts and properties of oligarchs registered in the EU banks are frozen and, hence, unusable. This implies that, directly or indirectly, it is forbidden to give them funds or assets, thereby guaranteeing that their assets cannot be used to support the Russian regime. In response to the sanctions, the targeted oligarchs started to hide their wealth in an attempt to prevent Western nations from freezing their assets.

#### Sanctions on transport

The EU has prohibited Russian and Belarussian road transport operators from entering the EU, including for goods in transit. This sanction aims to restrict the Russian industry's capacity to acquire key goods and to disrupt road trade both to and from Russia. However, EU countries can grant derogations for: the transport of energy, the transport of pharmaceutical, medical, agricultural, and food products, humanitarian aid purposes, and transport related to the functioning of diplomatic and consular representations of the EU.

The ban does not affect mail services and goods in transit between the Kaliningrad Oblast and Russia. In February 2022, the EU refused access to EU airports for Russian carriers of all kinds and banned them from overflying EU airspace. This means that airplanes registered in Russia or elsewhere and leased or rented to a Russian citizen or entity cannot land at any EU airports and cannot fly over EU countries. Private aircraft, e.g. private business jets, are included in the ban. Insurance services, maintenance services, and technical assistance related to these goods and technology are also prohibited. The United States, Canada, and the United Kingdom imposed similar restrictions. The EU has also closed its ports to Russia's entire merchant fleet. However, the measure does not affect vessels carrying: energy, pharmaceutical, medical, agricultural, and food products, humanitarian aid, nuclear fuel, and other goods necessary for the functioning of civil nuclear capabilities and coal. Furthermore, EU should put in place a price cap related to the maritime transport to third countries of crude oil and petroleum products coming from Russia.

### New export restrictions

The list of sanctioned products includes among others:

- Cutting-edge technology (e.g. quantum computers and advanced semiconductors, high-end electronics and software);
- Certain types of machinery and transportation equipment;
- Specific goods and technology for oil refining;
- Several dual-use goods (i.e., products that could be used for both civil and military purposes), such as drones and software for drones or encryption devices;
- Luxury goods (e.g. luxury cars, watches, jewelry);
- Civilian firearms and army materiel.

Additional export restrictions have been introduced, aiming to reduce Russia's access to military, industrial and technological items, as well as its ability to develop its defense and security sector. This includes the banning of the export of coal, including coking coal (used in Russian industrial plants), specific electronic components (found in Russian weapons), technical items (adopted in the aviation sector), as well as certain chemicals.

### Sanctions on Oil

One of the main fields targeted by sanctions is commodities, especially because of the European dependence on Russian energy and gas. Initially, the EU didn't stop the gas exchange with Russia but Russia itself decided to cut progressively the amount of gas traded with Europe. The most concrete one is on the oil, with the institution of a progressive stop. Moreover, Russia is cutting most of its gas furniture through "Nordstream" 1 and 2, pipelines fundamentals for the Europe supply (both pipelines haul 55 B cubic meters, 27.5 each).

Within the Union, Germany is the most affected country in Europe because of its strong dependence on Russian gas. The Italian situation is less worrying now because storages are almost full (90% in October), sufficient to deal with the "cold winter" announced by Russia and published also with a Gazprom intimidating spot.

### Oil price cap

The most recent pack of sanctions was announced by Ursula von der Leyen on September 28th, which included the intention to introduce a price cap on Russian oil. Its objective is to reduce the earnings with which the Kremlin finances the war against Ukraine, without strangling the world oil supply to maintain the price relatively low. Nowadays the price is not fixed yet by Washington, but despite this, the price should be fixed between the marginal cost of production of Russian oil and the oil prices before the pandemic: in this way, Moscow keeps producing but with lower profits. According to estimates, this price will be between 48 and 55 Dollars per barrel. On the other hand, the price cap should not be valid for G7 countries which will use a total embargo. According to a Financial Times study, this will produce savings of 160 B Dollars for the first 50 economies in the world. Russia's seaborne crude exports are expected to be predominantly rerouted from the EU to Asia. As a result, there shouldn't be too much of an immediate impact on prices when sanctions on Russia kick in.

To sum up, there are uncertainties in this operation because Russia has already announced it will not sell oil if a price cap was imposed. China, India, and Turkey are not going to join the project (they are the principal buyers). Moreover, countries that will not accept the price cap will use this situation as a negotiating leverage to obtain higher discounts or payment extensions. For instance, Hungary has obtained a payment extension from Gazprom and Turkey has asked to pay for gas in 2024. A temporary exception is foreseen for imports of crude oil by pipeline into those EU member states that, due to their geographic situation, suffer from a specific dependence on Russian supplies and have no viable alternative options. Moreover, Bulgaria and Croatia will benefit from temporary derogations concerning the import of Russian seaborne crude oil and vacuum gas oil, respectively.

In conclusion, the Russian prime minister has confirmed the extension of the agreement for wheat export through the Black Sea for 120 days starting from November 18, without any particular changes. This was announced by the ministry in a statement, adding that Moscow assumes that Russia's interests in obtaining more favorable conditions for its grain and fertilizer exports will be fully taken into account in the coming period.

### Targeted financial sanctions

The western response to the Russian invasion of Ukraine aims at damaging the Russian government in two ways. On one hand, it attacks the political leadership by sanctioning individuals and firms that are connected with those directly responsible for the invasion; on the other, it hinders the country's ability to carry on the war. This latter objective is achieved by reducing trade and through financial sanctions. As discussed in the previous report by our Macro Analysts, one of the central measures has been the ban of Russian institutions from the international financial messaging system SWIFT.



This decision was driven by the European need for Russian fossil fuels but was later repealed in May, as the invasion showed no signs of slowing down. Most western countries also imposed bans preventing their own financial institutions to provide loans to Russian ones. Albeit this measure was in place since 2014, it has been significantly strengthened over the last year. In particular, it is not possible to provide loans to any institution (independently of its incorporation location) that is owned or controlled – directly or indirectly – by a company or individual subject to sanctions. As this measure significantly limited the access to foreign capital for Russian businesses, the Russian government responded by imposing strict capital controls, which limited the ability of Russian citizens to export capital from Russia in order to prevent a credit crunch.

Russian Central Banks' internationally held reserves (amounting to about half of total Russian reserves) have been frozen, as those of the EU, the US, the UK, Canada, and other countries. Likewise, any "sale, supply, transfer and export of Euro-denominated banknotes" has been prohibited by the EU, thus strongly restricting the country's access to Euros. In principle, lacking access to foreign currency reserves tends to make it more complex to stabilize the value of the Rubles. Indeed, neither can the CB purchase domestic currency when it becomes too weak, nor can it sell it if it becomes too strong. Another implication of this restriction is that the CB cannot infuse foreign currencies into domestic financial institutions. In fact, they might need it to satisfy foreign obligations that, if not met, might trigger a default. Once again, Russia reacted by focusing on the foreign currency immediately available within the country's borders and limiting the city's ability to withdraw their deposits in US Dollars and Euros.

This reality materialized on June 22nd, 2022, as the Russian government was unable to provide the payment on a USD 100mln coupon. As the asset freeze rendered it impossible to meet payments in foreign currency, the payment was made in rubles. Since 2018, the Russian Federation has issued specific bonds that included the possibility of repayments in rubles, at the Bank of Russia's exchange rate, if "for reasons beyond its control" the government does not have access to the currency in which the bond is denominated. Bonds with this clause are now trading at a premium over bonds without it. This can be taken as a proxy for creditors' preferences: they prefer being paid in rubles on a Russian account than not being paid. This dynamic weakens the effect of sanctions since destroying the reputation of Russia as a debtor was a central objective of the western response to the invasion.

Besides financial sanctions formally imposed by sovereign countries, an important dimension of economic sanctions concerns individual firms' decisions. They might consider the reputational liability of operating in the sanctioned country too high, or they might be induced to leave the target market not because they are legally required to do so, but because they deem the economic environment too hostile.

During the last year, a large number of western companies either left or committed not to expanding their operations in Russia. An exhaustive list of companies who decided to do so is tracked by Reuters, and can be found at this address: <https://graphics.reuters.com/UKRAINE-CRISIS/SANCTIONS/byvrjenzmve/>

Despite all these measures, strong energy prices made it possible for Russia to register, as of this year, a huge current account surplus. According to Bruegel estimates, it is expected to improve by USD 120 B from last year, to touch USD 200 B. This estimate is based on the current price level and volumes of trade. However, it is to be noted that since a large share of this increase is due to energy commodities (whose contracts often have a long term) this increase is likely to be overestimated.

This is not to say that financial sanctions are ineffective: Russia is getting more and more isolated on financial markets and raising capital from foreign investors is extremely difficult and expensive (even investors in countries that allow them to lend in Russia are reluctant to do so), and every international transaction with the country becomes complex and costly. Furthermore, output growth for the country has been significantly revised downwards by the IMF, which now expects the Russian GDP to shrink by 3.9%.

## Sanction Success: a theoretical framework

### Sanctions as coercion tool

The imposition of sanctions almost always follows the same pattern. It all starts with simple threats from a "sender" country to a "target" one, with deterrence purposes. In many cases, the mere threats work effectively, deterring the country from acting. Other times, however, simple threats do not produce the desired effects, within the failure of the deter. In these cases, the sender will implement the sanction, exercising a coercive action to achieve its goals (the so-called "principle of coercion").

This is a key concept: the behavior and policy of the target can be changed by actual coercion and by a mere threat as well. The first case characterizes "harder" targets, which take the calculated risk of facing the threatening country. This marks the shift from the conception of sanction as a mere punitive weapon to a sort of haggling model, following the "bargaining theory".

Sanctions threats are considered very powerful deterrents for targets within the so-called bargaining theory or even, in some cases, "states can be deterred even before an explicitly targeted threat", as Miller (2014) observes. So, in most cases, when a country imposes sanctions on another one, it means that this latter believes to have the probability of winning the confrontation: in this sense, it should be considered a "harder target", otherwise it gave up earlier, before the actual coercion. Another positive effect of a credible threat is to deter other countries from starting activities already sanctioned within the target countries.

Relating to the most recent news about the 2022 situation, US sanctions' threat have zapped Russia's homegrown MIR cards in setback, and it also seemed to be an efficient deterrent for many Russia's allies, which gave up using it. In fact, for example, leery of incurring international sanctions, many banks in Kyrgyzstan, Kazakhstan, Uzbekistan and Tajikistan, have stopped accepting a once-popular Russian payment card, due to a wide and effective fear of new sanctions.

However, the target country can endure, bear the higher costs involved and try to win the confrontation, aware that the issuance of a sanction represents a cost for the sender too. In fact, as D. Griswold (2000), points out referring to the more than 40 US trade sanctions in the period 1993-2000, "*sanctions have, however, deprived American companies of international business opportunities, punished domestic consumers, and hurt the poor and most vulnerable in the target countries*".

### Main factors affecting sanctions effectiveness

#### Sanctions goals: economic pain vs political gain

Hufbauer, Schott and Elliott, in their landmark study "Economic sanctions reconsidered" (1985), dwell at length on the goals pursued by the sender country and classify them into 5 categories, based on the foreign policy objective.

In any case identified, there is a direct effect that can almost always be detected after the issuance of a sanction: the creation of economic pain. In other words, a sanction, in almost every case, is able to hurt the target's economy.

The evidence reported by M. Neuenkirch et al. (2015) is that, analyzing sanctions imposed by the US and UN upon 68 countries over the period 1976-2012, "*on average, the imposition of UN sanctions decreases the target state's real per capita GDP growth rate by 2.3-3.5 percentage points (pp) [...] for a period of 10 years.*"

This effect in some cases can also be empirically observed simply focusing on GDP. For instance, looking at Libya's GDP for the period after 1992 (when UN imposed the first sanctions) it can be seen that, from the value of 33.8 B in 1992, it fell for the following 3 years (25.54 B in 1995) and then reached the lowest point in 2002 (20.48 B).

Looking at the current situation in Russia, its GDP growth rate is expected by the central bank to contract 3%-3.5% for the full 2022, while the Ministry of Economic Development projects the GDP to fall by 2.9%. However, it must be specified that, especially in such a complex scenario, the variables affecting GDP go far beyond the only sanctions.

However, this is not enough for a sanction to be said to be effective, in accordance with the objectives identified by Hufbauer et al. (1985): the main final goal consists of convincing the target country to change its behavior, achieving this way a political gain. Causing economic pain does not always produce political gain, so it's crucial for the sender country to study a plan of action that can prove successful.

As K. Kavakli et al. (2015) highlight, "*a sanction crisis begins with a threat by a group of one or more sanctioning states (the "senders") to limit economic interaction with a target unless it changes a particular policy*". Therefore, if the target does not give in, the sender will issue the sanction, generating economic pain and, if sanctions are too costly for the target, political gain as well.

#### Financial Targeted vs Comprehensive Sanctions

As can be seen from the chart below (Figure 1), the latter type (targeted financial sanctions) is the most widely used by the US during the last 30 years. Referring to the relation with Russia, examples are the quite recent case of sanctions toward 7 Russian officials accused to be responsible for the poisoning of Alexei Navalny and the "Magnitsky laws" adopted by the European Union, establishing a global human right sanctions regime.

Within this framework, D. Drezner (2015) observes that "*the trouble with targeted sanctions is that they are less successful at generating policy concessions than comprehensive embargoes because they simply do not impose significant costs on the target economy*"

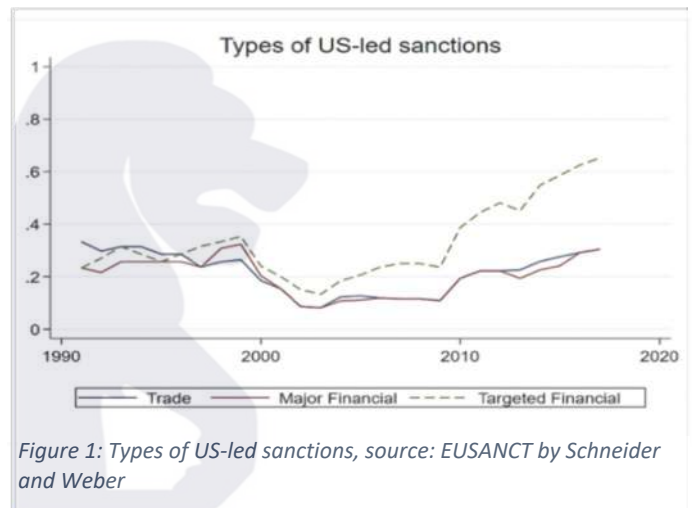


Figure 1: Types of US-led sanctions, source: EUSANCT by Schneider and Weber

#### Volume of trade

For economic sanctions to work, pre-sanction volume of trade should be high. Sanctions can only be "successful" in the sense that they impose change or limit targets if trade between the sanction imposer and the target is of value to the target. Biersteker et al. (2015), suggest that higher the level of pre-sanction trade, the lower the probability of failure, and the boycotts and embargoes of not easily replaceable, resalable, or "re-sourceable" goods have higher impact. The widely used Peterson Institute for International Economics sanctions database covers almost 200 cases. Figure 2 shows the relationship between the expected result of a sanction (success or failure) and the amount of bilateral trade between sender and target as a percentage of the target's GDP measured in the year before the sanction is imposed). It is evident that there is a positive correlation between trade linkage and number of successes. Once proportional trade linkage is above 10%, the rate of success is almost 50%, a strong improvement of the 33% success rate observed for all sanctions.

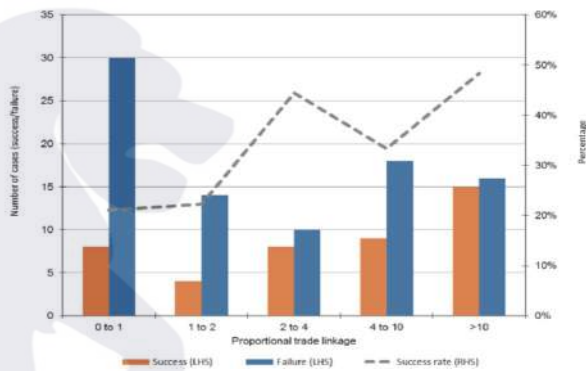


Figure 2: Trade linkages and sanctions success, source: Peterson Institute for International Economics

The pre-sanction volume of trade between the sanction imposer and the target is not the only aspect when it comes to considering the volume of trade. Kavakli et al. (2020) suggest that sender market power increases sanction success, while target market power and portfolio diversity decrease the success probability of a sanction. Hence, it can be concluded that the higher volumes a target trades, the lower the likelihood of success of a sanction being imposed on it. The results of the paper suggest that using smart sanctions may be more efficient against advanced economies because the targets can find other export markets and change domestic industries to adjust to banned imports relatively easily. In addition, when designing sanctions, primary sanctioners should strategically select their coalition partners to maximize their comparative advantage in the traded goods which involve not only considering the target's current trade partners but looking at whom the target can turn to and blocking those channels of external substitution.

The effects of sanctions on Russia have been slow. By late 2022, Russian revenues have not suffered as much as the West intended. The EU's energy strategy of sequencing (trying to meet their energy needs by themselves and then sanctioning) entails continuous revenue streams for Russia. Since Russia is an advanced economy with very high volumes of trade, the conclusions stated above holds. Although there is still high volumes of trade between many EU countries and Russia, in the medium-to-long run this can change with EU's eventual energy decoupling and Russia being unable to find alternative markets.

### Primary vs Secondary Sanctions

Regular, or "primary" sanctions prohibit citizens and firms from doing business with certain companies or individuals. Whereas "secondary" sanctions ban citizens from doing business not only with sanctioned companies and individuals but also with any third parties doing business with them. Secondary sanctions give policymakers a far longer reach than they would otherwise enjoy.

The conventional view states that secondary sanctions are ineffective and unethical. In a paper by A. Meyer (2009) it is suggested that although secondary sanctions have proven to be highly controversial due to them being illegally extraterritorial in purpose and effect, they may sometimes be a wise choice. It is proposed that a wide range of secondary sanction measures can be accepted if

designed to manage solely on "territorial" grounds on the consolidated basis of territorial and nationality jurisdiction. Although secondary sanctions can seldom be a rational policy matter, if primary sanctions fail, secondary sanctions can be used as a last resort instead of using military force.

Moon (2022) suggests a contrary opinion by examining the case of US secondary sanctions against North Korea (2001–2020) empirically. It proposed that secondary sanctions have not been effective, and UN sanctions are still a useful tool. Secondary sanctions are being discussed in 2022 because of the heavy sanctions being imposed on Russia by the US, EU, and UK. Although the present sanctions have caused Russian inflation to rise and the collapse of many major Russian banks, Russia's access to sell oil and gas to the rest of Europe has decreased the effectiveness of current trade sanctions and even improved slightly the value of the Ruble. Ukraine has asked US and its allies to consider the imposition of secondary sanctions on Russia. In September, Democratic and Republican senators suggested that Biden's administration to use secondary sanctions on international banks to strengthen a price cap G7 countries plan to execute on Russian oil.

### Sanctions of Coalitions, Unilateral vs Multi-lateral

The incumbent economic literature on sanctions of coalitions confirms that multi-lateral sanctions are more successful than unilateral sanctions in causing economic harm and subsequently inciting political change by the target country.

Following Kaempfer et al (1999), collaboration across nations should worsen the terms of trade and have more dire economic consequences on the target nation. However, it is important to unravel exactly why the two different types of sanctions administer varying levels of economic harm to the target country.

In the case of a unilateral sanction, the target country, depending on the parameters of the sanction, is forced to abstain from a significant amount of economic activity with the "sender" country. While trade is undoubtedly impacted by these sanctions, it is unlikely that the exporters in the target country will not be able to find alternative buyers and importers, alternative suppliers. It follows that in most cases, unilateral sanctions do not completely cripple trade in the targeted country, and alternatives are often found with relative ease. It is important to bear in mind that the trade interdependence, as well as the nature of the traded good, have profound effects in determining the difficulty of finding alternative trading partners for the target.

For example, "the effects of the ban on the export to South Africa of U.S.-produced computers, imposed in the 1980s, might have been significant because there were relatively few producers of computers worldwide" Kaempfer et al. (1999). On the other hand, if the sanctioned good was readily supplied internationally, South Africa would not have encountered significant difficulty in finding new partners.

Target countries seldom have the same experience with multi-lateral sanctions. As more countries partake in the sanctions, the potential external substitutes for replacing the lost trade activity diminish, causing inefficiencies and decreased economic value. On the import side, as more suppliers move out of the market, firms are left scrambling for alternative and more expensive foreign suppliers or looking to inefficient local suppliers.

Moreover, if the imposed sanctions devalue the local currency, the firm may incur additional harm through ongoing imports which become relatively more costly. However, Kaempfer (1999) confirms that unless the target country is forced to enter near-autarkic circumstances, they are usually able to find at least one other trade partners.

The effect of multi-lateral sanctions is more apparent when examining the consequences on exporting firms. While it was previously claimed that alternative suppliers with a comparative advantage will begin supplying importing firms, it is much more difficult to create demand for exports in markets where it simply does not exist. Thus, exporters are forced to accept prices well below pre-sanction levels in order to avoid bankruptcy, and, consequently, the balance of payments in the target country suffers.

As for Russia, similar themes have arisen in the past year, though they have been able to manage their exports reasonably well. As a result of the oil ban, Russia has had to find new demand for its natural resources by looking to other countries such as China and Saudi Arabia. However, as mentioned in the theory, Russia has had to take unfavorable terms to facilitate such deals, for example, selling heavily discounted refined fuel to Saudi. Consequently, Saudi Arabia has been able to sell more of its crude oil at elevated prices. Overall, though certain solutions have been found, Russia's economy is still suffering and the sanctions can be deemed somewhat successful on the economic front. Still, following Bonetti (1997) multi-lateral sanctions might fail in achieving a political change.

#### Target willingness to resist and internal consensus

It is possible to consider a completely different system based on "*target willingness to resist*" to assess the political success of a sanction that foregoes economic effects altogether. Indeed, the willingness of a target country to endure sanctions is entirely dependent on the government's ability to appease key players in the state, suppress the opposition, and rally nationwide support for its controversial policies.

Governments often use various similar strategies to compensate for the citizens' lost economic utility with reputational utility in society by using different forms of social engineering, such as control over information. Therefore, the success of sanctions or synonymously the failure of target countries to endure sanctions is often a result of the domestic political sphere rather than the harm caused by economic sanctions.

In this regard, multilateral sanctions are often less effective than unilateral sanctions because they are generally less successful in strengthening the domestic

opposition, lead to increased government control in markets, and pose incentives for participating countries to engage in "sanction-busting."

One of the most determinant factors for the success of sanctions is the galvanization of domestic opposition groups. Opposition groups are significantly strengthened when said sanctions are able to create a cultural statement toward the current government regime. Consequently, because culture and history are not pervasive, such symbolic statements can only be made by culturally similar countries through unilateral sanctions. In other words, because sanctions are stronger when they have cultural implications, multilateral sanctions are less effective as their effect is diminished by their very multilateralism. Moreover, the antagonizing nature of multilateral sanctions makes it easy for target governments to villainize the sanctions and assume greater control over society.

Increased control over society is possibly the greatest intrinsic flaw of multilateral sanctions. As trade restrictions force the target country towards autarky, there is a necessary turn towards the domestic market for internal substitutes. However, due to the extenuating circumstances, the government can often justify taking extensive control over domestic markets. Subsequently, the government is able to contract the private firms that they wish to, offer anti-competitive subsidies to markets, and establish new companies to produce domestically. All of the aforementioned power of governments during autarkic times allows them to strategically ameliorate certain parties and punish others, thereby solidifying their control.

#### Sender Coalitions

Finally, due to the heterogeneous alliance required to implement multilateral sanctions, there are varying levels of commitment from different countries under the alliance. There may be less incentive for certain countries to get involved as the protested policy may be irrelevant to these countries and cause unnecessary economic harm. Another incentive to deter from sanctions is the potentially increased market power that countries that forego sanctions would enjoy.

According to game theory, these incentives may cause the coalitions to break down and undermine the integrity of the sanctions. Moreover, an inability to present a united front by international institutions in sanction setting only strengthens the target government by giving it and the citizens confidence in the regime. It is argued that to ensure collaboration throughout the coalition, there must be a dominant party whose economic power is substantial and on whom the other smaller parties are partially dependent. In such instances, the smaller parties are much less likely to practice sanction-busting for individual interests as they could incur significant punishments from the dominant party.

## Sanctions on Key financial variables

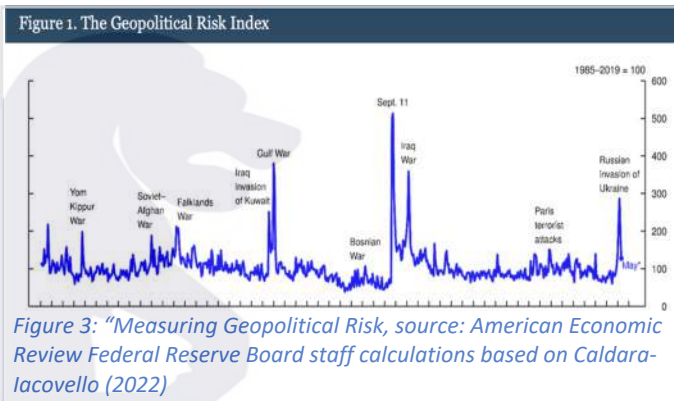
### GDP and Growth

Sanctions have played a role in affecting key macro variables such as growth, inflation, unemployment, and financial variables.

Firstly, there's no doubt that Russian invasion of Ukraine has contributed to the rise in geopolitical risk, pushing up inflation and increasing uncertainty. Furthermore, as it is reasonable to expect, from the very beginning of the conflict, financial markets have been volatile showing that participants started to have concerns about what is going to happen. Before focusing on the effects of sanctions, it might be interesting to understand the role of geopolitical risk in influencing the economic activity in 2022 and beyond.

It is well known that the drivers of growth in the long run are different from those in the short run. In the last few decades, it is a common observed trend the one of economies that are growing over time even if along this long trend path there are fluctuations given by business cycles. Thus, it is very important to distinguish those events that may affect the long run behavior of an economy from those that instead might just cause a fluctuation along the path.

Here, we start by focusing on the effects in the short run by referring to the FEDS Notes (Caldara et al, 2022). In their work, they show that, as opposed to a no-war counterfactual, there is going to be a fall in global GDP of 1.5% coupled with a rise in global inflation of 1.3%. It's worth to note that one of the key issues of their model is linked to the measurement of the geopolitical risk; they have used the Caldara-Iacoviello geopolitical risk index. Not surprisingly, the index (Figure 3) shows a significant increase at the beginning of the conflict. Generally, the rise in geopolitical risk is coupled with negative effects on global economic activity. This is what is also happening in the current economic environment, where war and sanctions have disrupted supply chains, thus pushing up inflation and down private consumption. Indeed, as already noted above, the VAR model applied by the authors predicts a slowdown in economic activity and a rise in inflation (Figure 4 below).



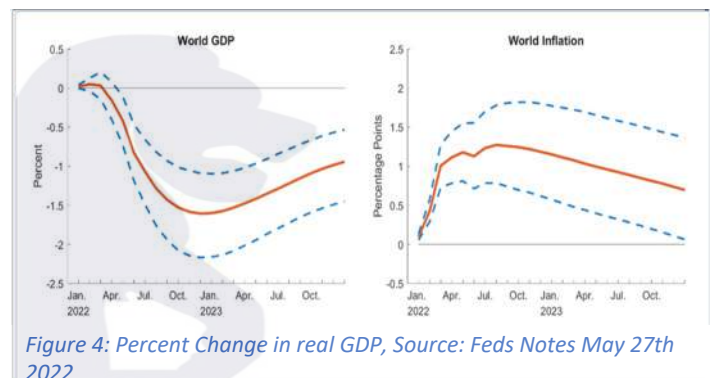
Having understood the global scenario of uncertainty that is strictly linked to the war, we now provide some estimates about what is expected to happen to Russian economy taken from the article by Mahlstein et al.

Before all else, it is expected that the real GDP would decrease by 14.80% as a consequence of an Allied trade embargo. The authors then provide a decomposition of the main effects contributing to the reduction of the GDP. Results show that the major part (12.53%) of the expected GDP losses is due to the withdrawal of foreign direct investment (FDI), thus providing concrete evidence of a growing distrust in the Russian economy. Moreover, as it is reasonable to expect, the increase in the trade costs with non-Allies is also contributing to the reduction of the GDP by 0.93%. With respect to the Allies countries, the effect on GDP is considerably lower, so much so that it is negligible. All the previous results are summarized in figure 5 below.

Estimates about the effects of sanctions on growth are presented also by Pestova A., Manovov M., and Ongena S. In their work, they provide a distinction in the effects of current sanctions on Russia between financial and demand-side effects or supply-side effects. Moreover, they stress that the model they are using is capable of capturing just the demand-side effects. Indeed, the supply-side effects are in general much more related to the disruption of supply chains as well as to technological bans. Thus, it turns out that they are not fully understandable, as of now.

To get the forecasts they decided to apply a VAR model in which, as a proxy for capturing the severity of sanctions, they have used the sovereign international bond spread. The predictions they have found show how the industrial production (IP) is expected to drop by 21-27% per annum by the end of 2022. Clearly, industrial production can be used to get the estimate of the GDP fall; the authors have implemented an elasticity of GDP to IP of 0.67, thus obtaining that the GDP is expected to decline by 12.5 – 16.5% per annum. Moreover, they also get some estimates with respect to private consumption, which is expected to decline by 11 – 15%.

Therefore, regardless of which estimates we believe is more affordable, all of them provide evidence of a strong reduction in the real GDP in Russia coupled with a global slowdown in the economic activity and an increase in inflation



Percent change in real GDP	Main scenario				
	(1) Total effect	(2) Allied import embargo	(3) Allied export embargo	(4) Trade costs increases	(5) Withdrawal of Allied FDI
Russia	-14.80	-0.42	-0.92	-0.93	-12.53
Belarus	-1.23	-1.18	0.10	-0.56	0.41
<b>Allies</b>					
USA	-0.11	-0.05	-0.06	0.00	0.00
Canada	-0.07	-0.02	-0.05	0.01	0.00
Germany	-1.20	-0.76	-0.44	0.00	0.00
France	-0.53	-0.30	-0.22	0.00	-0.01
Italy	-0.82	-0.53	-0.27	-0.01	-0.01
Netherlands	-1.57	-1.16	-0.37	-0.03	-0.01
Rest of EU	-1.42	-0.87	-0.53	0.00	-0.02

*Figure 5: Effects of the recent increase in geopolitical risk, source: Federal Reserve Board staff calculations*

To conclude, it's worth noticing that, whether we will be forced to face stagflation, is probably depending on how inflation is going to evolve as well as on the ability of central bankers to control it. Indeed, monetary authorities follow to say that the increase in inflation is just temporary and won't be long-lasting; however the only certainty so far is that the Euro Area has experienced low economic growth in all the quarters of 2022 (Q1-0.6%; Q2-0.8%; Q3-0.2%).

### Inflation and labor market

The severity of the disruptions in commodity markets and to global supply chains will weigh heavily on the outlook for inflation, the global economy, and possibly macro-financial stability.

Inflation pressure related to surging commodity prices has worsened the policy trade-off faced by central banks, raising concerns among investors about the readiness of central banks to backstop financial markets in the event of sharp declines in asset prices. Moreover, a sudden repricing of risk resulting from an intensification of the war, including a widening of the war beyond Ukraine and Russia, and an associated escalation of sanctions, may expose, and interact with, some of the vulnerabilities that have built up during the pandemic and lead to a sharp decline in asset prices.

A prolonged war, an escalation of sanctions, higher commodity prices, and increased investor risk aversion could further worsen the corporate outlook. Energy and agricultural product importers in emerging markets and countries with strong trade links with Russia and Ukraine have already seen a more adverse market reaction compared to their peers, based on equity indices and credit spreads.

More broadly, increased and lingering uncertainty associated with the war and elevated geopolitical risks are detrimental to corporate investment at a time when it is most needed for the transition to a post-pandemic and greener economy. The economic impact of underinvestment could be especially detrimental for vulnerable firms that have already built up debt in the last two years. In addition, higher inflation because of rising commodity prices, wage pressures in some regions, tighter financial conditions, and a more cautious lending posture by banks may substantially affect firms' revenues and exacerbate funding challenges for vulnerable businesses, including small and medium-sized firms.

### Consumer price inflation in the Euro area and US remains elevated

In the Euro area, annual HICP inflation picked up to 9.9% in September. Energy prices continued to make the largest contribution to headline inflation, as in the UK. European gas spot prices picked up sharply in August but have since fallen back markedly. This was partly driven by the build-up of gas stocks in many European countries ahead of the winter. Gas futures prices remain elevated though. This reflects the ongoing impact of Russia's restriction of gas supplies to Europe. As in the UK, measures announced by some European countries to limit the pass-through of higher wholesale gas prices into retail energy prices are expected to reduce the near-term path of inflation compared to projections in August.

Headline inflation is expected to remain above the ECB's target of 2% in 2024. This is due to lagged effects from high energy prices on the non-energy components of inflation, the recent depreciation of the Euro, dovish monetary policies to counter the pandemic and robust labour markets.

In the United States, annual headline CPI inflation was 8.2% in September, having fallen from its recent high of 9.1% in June. In the UK, CPI inflation has been above the 2% target since May 2021 and averaged 10% in 2022 Q3. Annual headline PCE inflation, the FOMC's target variable, was 6.2% in September. That is lower than its recent peak in June, largely due to a fall in fuel prices. Services inflation has been higher in the US and UK than in the Euro area, which in part is likely to reflect greater labour market tightness.

On the supply side, inflation is mainly influenced by three types of shocks: production capacity shocks, arising from lockdowns and social distancing, which had a particularly large impact on labour supply, leading to changes in the number of hours worked by sector over time; International trade cost shocks and commodity price changes for energy and food. However, the inflation experienced in recent years has different drivers depending on the area concerned





The supply-side shock has heavily affected the Euro area (particularly under the weight of a sanctions crisis), as well as the U.S. (most affected by the disruption of imports from Asian countries and bottlenecks formed at U.S. ports). In addition to a supply shock, however, the U.S. is also affected by a demand-side shock because of direct state intervention in subsidies and fiscal policy support.

In recent months, we are seeing an improvement in the fundamentals that led to such a sudden rise in inflation: global bottlenecks have finally eased as supply conditions have improved and global demand has slowed, global shipping costs have fallen from their peaks earlier in the year and other indicators of supply constraints point to an easing of pressures in the past few months. In the medium-to-long term, it will be difficult for policy makers and central banks to cool the long-lasting rise in prices, whose decline (by its nature) is much slower than its sudden rise. Beware: it is difficult to de-anchor expectations.

#### **Labour Market:**

In the UK, as a result of the slowdown in demand and the weak economic outlook, some firms may be adjusting their hiring plans. While vacancies rose sharply after the pandemic, reflecting increased demand for labour and recruitment difficulties, some indicators suggest they have fallen since the start of the year. This could also reflect hiring constraints. Surveys suggest employment growth remains in positive territory. The unemployment rate fell to 3.5% in the three months to August, its lowest level since 1974. Pay growth has continued to strengthen, and by more than expected in August. Whole economy's total pay growth rose to 6.0% in the three months to August, and private sector regular pay growth picked up to 6.2%.

In the EU, while the labour market is projected to weaken in the wake of the expected slowdown in economic activity, it is seen to remain resilient overall, with some of the adjustment assumed to take place via fewer hours worked per person employed, and only to some extent via an increase in unemployment. Growth in unit labour costs is expected to significantly contribute to domestic inflation in 2023, but less so in 2024 owing to both the moderation in wage growth and the pick-up in productivity growth. Under some scenarios, the influx of Ukrainian nationals could contribute to addressing gaps in the European labour market. As a result, the OECD estimates that by the end of 2022, the European labour force will increase by 0.5%, with more pronounced increases in some countries. The overall estimated impact on the labour force is about twice as large as that of the 2014-17 inflow of refugees to the European Union. Most of it will be observed in a few countries (in relative terms, Czech Republic, Poland, and Estonia). The main parameter that may work against a relatively favourable context and may hinder the employment prospects of Ukrainian refugees is the fact that many of them are mothers with children.

For those accompanied by babies and children below school age, care work will seriously hinder their ability to enter the labour market, at least while they have not found and procured adequate childcare services. In addition, in the wake of the recall of more than 300,000 reservists by the Russian army, Ukrainian call-ups and thus the enlistment of able-bodied adult males increased, even among those who had been permanently residing in Europe for years, reducing the number of workers who had settled permanently in the emigration community. In addition, in the wake of the recall of more than 300,000 reservists by the Russian army, Ukrainian recalls and enlistment of able-bodied adult males increased, even among those who had been permanently residing in Europe for years, reducing the number of workers who had settled permanently in the European labour market.

In the US, tiny cracks are beginning to emerge in the US labour market's resilience to higher interest rates and surging prices, but plenty of strength remains to keep Federal Reserve officials focused on stamping out inflation. Businesses boosted hiring in October by 261,000, which was more than expected, and average hourly earnings accelerated from September, according to the Labour Department. However, the jobless rate rose to 3.7% from a more than five-decade low, the gain in payrolls was the smallest since the end of 2020, and the annual advance in earnings dipped below 5% for the first time since last year.

Consistent with earlier empirical and theoretical literature, the analysis suggests that rises in inflation expectations and productivity growth are associated with increases in nominal wage growth, while increases in labour market slack (captured by the unemployment rate and its change) are correlated with a slowdown in wage growth. These relationships are statistically significant in both the advanced and emerging market economy groups.

As shown, under the impetus of a rapidly changing macroeconomic environment driven by hawkish monetary policy choices and a push by firms to restructure to cope with soaring cost increases, the labour market is pushing toward its slow cooling.

A critical role is played by expectations formation in shaping wage and price prospects. When wage and price expectations are more backward-looking, monetary policy actions need to be more front-loaded to minimize the risks of inflation de-anchoring. As monetary policy tightens more aggressively and the decline in real wages helps reduce price pressures the risk of a persistent wage-price spiral emerging in the current episode is contained on average, assuming no more persistent inflationary shocks or structural changes in wage and price-setting processes.

Amid tight labor markets and still robust demand, there is a risk that wage and price increases may become entrenched.

### Key Financial Variables

Following the Russian invasion of Ukraine, different parts of the world have been hit differently. Due to the unpredictable nature of a war, it is not a wonder that investors pull back from risk taking behaviors, increasing volatility in the market. Figure 6 shows the equity option-implied volatility. It jumped dramatically following the event, with the European market leading the way. However, this disruption did not last long: the same measure plummeted after a few months, even to levels not very different from the pre-war times.

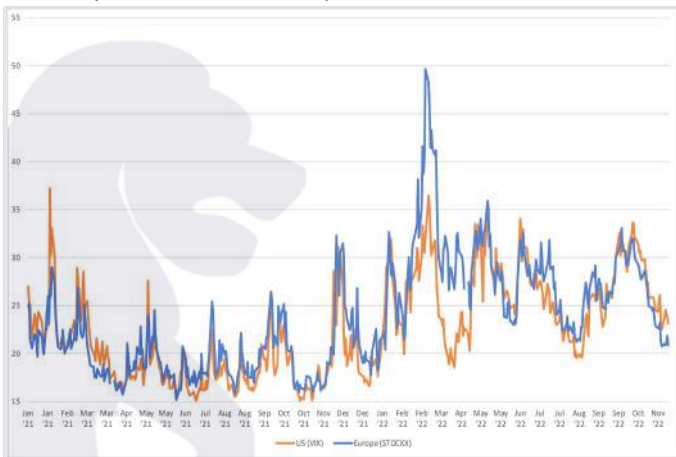


Figure 6: Equity Option-implied Market Volatility in the US and Europe, source: Refinitiv

**Russia:** Clearly, the Russian economy has been affected the most by sanctions. Stock trading on the Moscow Exchange stopped on February 25th and reopened only on March 24th with restrictions on trading. Valuation on Russian securities plummeted with low equity prices and high credit spreads, and consequently Russian securities virtually got excluded from indexes, raising concerns about capital inflow. Figure 7 indicates the trend of prices of Russian assets. Gazprom in blue is a state-owned energy company, while Sberbank in gray is a majority state-owned financial service provider. Their stock prices dropped dramatically following the event and have not yet recovered to the levels seen before the war. MOEX is a major Ruble-denominated benchmark for the Russian stock market, whose prices are expressed in the secondary vertical axis. They all follow a similar pattern, but it is interesting to note that the energy company Gazprom is faring quite well in comparison with the market benchmark and even more with respect to Sberbank in the financial sector. As for the Russian currency, the Ruble lost more than 80% of its value against the US Dollars within just about two weeks immediately after the incident. Median weight of Russian securities across major indices dropped from about 10% during the global financial crisis, to about 3% before the Russian invasion of Ukraine (following invasion of Crimea), and less than 1% immediately thereafter.

From the fact that the weight remained at a low level since the invasion of Crimea, we can expect this trend of Russian exclusion to continue into the near future. We believe so especially because of the heightened reputational cost, which is unlikely to decrease any time soon.



Figure 7: Prices in Rubles of Russian Assets, source: Refinitiv

**Europe:** Russian impact on European economic outlook has been a big concern mainly due to its proximity to Russia along with a high level of commodity exposure. In this section, we mainly focus on exposure of European banks to Russia. One event study using STOXX Europe 600 data found  $-0.41\%$  abnormal average return. More interestingly, by looking at different sectors, we can see financials had the biggest short-term shock with approximately  $-5\%$  CAR, while energy sector CAR was hit by a positive shock of about  $4\%$ . It makes sense considering that  $\$70$  B out of  $\$120$  B claims on foreign banks by Russian residents are on European banks. In fact, an index of European bank equity prices dropped over 20% after February 24, when prices of similar index for US banks fell only about 8%. However, overall, the market seems to be optimistic about banking exposure, with credit default swap (CDS) spreads at a modest level. One thing to note is that indirect exposure through banking activities (such as investment banking and wealth management) is not made public and hard to quantify. However, once revealed, it could have a big impact on the risk premium of the bank with a close tie to Russia.

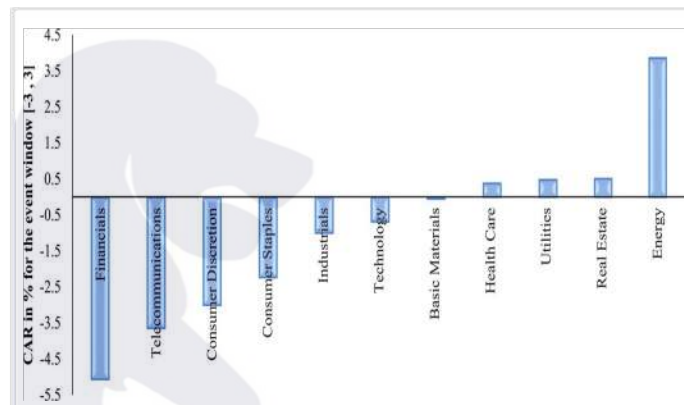


Figure 8: CAR in the Short-Run for Different Sectors, source: Ahmed et Al. (2022)

**Emerging Markets:** While not very much talked about in usual Minerva reports, the impact on the emerging markets is interesting to pay attention to. The Russian invasion of Ukraine was overall a negative hit to the emerging economies, which had already been struggling from a surge in borrowing cost. This had come from the monetary policy normalization in the US and emerging countries with poorer credits must pay a risk premium added to the already-high interest rate of the safest sovereign bond. In fact, the number of distressed emerging economies has shot up following the event to a level as high as 2009.

However, the story is not all the same for all emerging economies. For example, looking at the performances of each currency, we notice commodity exporters such as Brazil are performing well compared to eastern European countries with close ties with Russia and oil importers in Asia. Overall, risk aversion of investors amid global economic uncertainty led to preference toward higher-rated commodity exporters, and, therefore, outperformance of those countries.

### A new global order

As final remark, we would like to drive your attention on the new geopolitical order that this crisis may have created. Following Ottaviano (2022), the risk of a selective re-globalization is increasing daily. Indeed, the world economies are not ready to renounce to the gains from globalization (lower prices, global value chain, larger markets) but integration only among allied is much more likely. In the postwar world, we might find countries bundling under two opposing spheres of influence, one led by the US and the other by China. If during the cold war political strength was based on military power, in the new world FDI, patents and exclusive trade channel might be guaranteed by political affiliation. This new political framework will see the comeback of international relations as primary tool of communication between “blocks”, and a reshaping of International Organizations as we know them today. Therefore, we suggest investors to be forward-looking in moving capital, anticipating possible barriers.

This crisis will definitely be game-changer also in the European Continent. Europeans are in the first place suffering from the war, and the EU will face the ukrainian reconstruction bill, once the war is over, as the Union stability is under threat, and its future affiliation is not taken for granted. On the one hand, the war made the NATO central again (after the Afghan disaster); on the other, Chinese investments in pivotal infrastructures (the silk road) cannot be ignored.

Hence, this war is a turning point for at least the next decade, affecting how current worldwide challenges will be dealt by political, economic and financial players.

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