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Issue Brief

Export Controls on Advanced Technology Trade and the Russia-Ukraine Conflict

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S*ummary*

Export controls or strategic trade technology control has been used as a significant tool to impose sanctions on Russia, for its military operations in Crimea and Ukraine. Apart from the United States and the European Union, other countries like South Korea and Japan have also tightened export control restrictions vis-à-vis Russia. While the general view is that export controls have adversely impacted Russia, reports have also highlighted how Russia could overcome problems relating to technology denial in specific sectors like the semi-conductor industry. It remains to be seen if Russia takes the help of countries like China or East European allies and grey markets to overcome the problems.

In the Russia-Ukraine conflict, Ukraine’s friends, if not allies, have used sanctions to impose penalties on Russia for its military operation. Export controls or strategic trade technology controls have been used as a significant tool as part of these sanctions. There is a distinct relationship between export controls and sanctions, which has evolved over the past decades. The export control regime has emerged as an integral component of the sanctions regime. Export control as a special technological fix is generally used against those countries, which may be decisively affected by restrictions or denial of strategic technology or goods. The Brief seeks to examine whether export controls as a tool of sanctions has been effective vis-à-vis Russia.

Comprehensive Sanctions

Russia has been facing sanctions-induced technology curbs ever since it annexed Crimea in 2014. But the 2022 version of sanctions is more comprehensive and rigorous than before. Sanctions relating to the 2022 conflict between Ukraine and Russia are being imposed in several phases. As a result, export control notifications, as part of the sanctions’ regime, have also been issued in phases. Strategic trade control is implemented through the orders and notifications by the appropriate organisations.

On 24 February 2022, the US Department of Commerce’s Bureau of Industry and Security (BIS) notified rules, which was published in its gazette, the Federal Register, on 3 March 2022. This notification was issued to implement sanctions against Russia under the Export Administration Regulations (EAR). In the US, the BIS is primarily responsible for regulating dual-use technology commerce. The Department of State and other agencies also take active part in not only sanctions but also in export control/strategic trade control. The US government has been expanding the scope, and adding different dimensions to Russia-specific strategic trade controls in subsequent notifications.

The notifications incorporated new ‘license requirements’ and ‘licensing policies’ for Russia. Interestingly, the Russia-specific notification were issued to ‘protect U.S. national security and foreign policy interests.’ In fact, notifications mention violation of international law and undermining of the world order as a result of Russian military action in Ukraine. The US also imposed sanctions and export controls curbs on Belarussia.

The European Union has also been issuing orders for sanctions and related export controls. In fact, after the Crimean annexation, the EU, too, had used export controls as a tool of sanctions. More recently, on 24 February 2022, in a special meeting, the

EU declared curbs on dual-use technology along with other items.¹ On 26 February 2022, the export controls on dual-use and other military-related items became fully operational under the EU notification. Like the US, the EU has also imposed sanctions on Belarussia.² Because of sanctions, strategic trade control has virtually become strategic trade prohibition.

Like the US, the EU, too, has kept sharpening curbs on transfers of specified items with additional notifications. On 9 March 2022, the EU issued a notification specifically mentioning restrictions on maritime navigation goods.³ On 15 March, the EU notified an expanded list of entities which may contribute to the Russian defence industrial base and extended restrictions on them.⁴ On 8 April 2022, it further imposed restrictions on military-related goods⁵ and other advanced technology items. Later, on 21 April 2022⁶, 3 June 2022⁷, 20 June 2022⁸ and 22 July 2022,⁹ notifications further consolidated the task of strategic trade control or export control.

To harmonise its efforts with the US and other like-minded countries, the EU also published the list of the entities which are to be put under sanctions. The list has several individuals such as Vladimir Valerievich Rashevsk and Tigran Oganessian and organisations such as JSC Rosobonexport and JSC NPO High Precision Systems.¹⁰ These entities are involved in developing machine tools to manufacturing chemicals and ballistic missiles. The list of restricted entities continued to increase almost every month.¹¹ As of 22 July 2022, 1212 individuals and 108 entities¹² were notified by the EU for the purpose of sanctions, including export controls.

¹ [‘European Council conclusions on Russia’s unprovoked and unjustified military aggression against Ukraine’](#), *European Council*, 24 February 2022.

² [‘Council Implementing Regulation \(EU\) 2022/353 of 2 March 2022’](#), Official Journal of the European Union.

³ [‘Official Journal of the European Union’](#), Volume 65, 9 March 2022.

⁴ [‘Council Regulation \(EU\) 2022/428 of 15 March 2022’](#), Official Journal of the European Union.

⁵ [‘Official Journal of the European Union’](#), Volume 65, 8 April 2022.

⁶ [‘Official Journal of the European Union’](#), Volume 65, 21 April 2022.

⁷ [‘Council Regulation \(EU\) 2022/879 of 3 June 2022’](#), Official Journal of the European Union.

⁸ [‘Crimea and the city of Sevastopol: EU extends sanctions over Russia's illegal annexation by one year’](#), *European Council*, 20 June 2022.

⁹ [‘Official Journal of the European Union’](#), Volume 65, 21 July 2022.

¹⁰ [‘Official Journal of the European Union’](#), Volume 65, 15 March 2022.

¹¹ [‘Council Regulation \(EU\) 2022/879 of 3 June 2022’](#).

¹² [‘Russia’s aggression against Ukraine: the EU targets additional 54 individuals and 10 entities’](#), *European Council*, 22 July 2022.

The US has also been publishing additional entities through the notifications in the Federal Register. Several entities did not figure on the general export control list but some of these will face technology restrictions because of their role in augmenting the Russian military sector or defence industry. Many of them are accused of funding the Russian war establishment with their profits. A consolidated list of entities prepared by the US is referred to by some of its friendly countries' licensing authorities.

A large number of technologies became the special focus for sanctions and relating export control after the 2022 military operation. Some of these items are explicitly mentioned but others are targeted indirectly through different provisions. Some of the items such as semiconductors, quantum computers, and other vanguard technologies, which may technologically enrich Russia's defence industry¹³, have been widely discussed in the specialised literature, and even in the popular media. Maritime navigation technology and goods related services were also brought under the control framework along with electronic communications networks, information security, sensors, lasers, telecommunications, aviation or the space industry.¹⁴ The basic purpose could be to target Russia's defence sector but several other sectors such as oil and telecommunications have also been under the shadow.

The 2022 round of sanctions, as mentioned, has retained all the cardinal principles of export controls and buttressed with other provisions or additionalities so that the effectiveness of export control is enhanced. The brokering control, third party transfer, re-export control, third party transfers control and so on are operational to restrict goods going to the Russian entities. The notifications have also dealt with financing of transactions for such goods. Assets of Russia's Promsvyazbank, which was found to be facilitating transactions of Russia's defence industry and overcoming sanctions imposed after Crimea's annexation, have been frozen to avoid repetition of such acts.

The US Foreign Direct Product (FDP) Rules have also been restructured to include two new rules for Russia and Russian military end users. This is generally known as the extra-territorial power of the US. Earlier there were four rules: i. National Security; ii. 9x515; iii. “600” series; iv. Entity List FDP rules. The rules require that if any product or its producing facility is created because of the American technology or software or major component, it will have to take into account licensing requirements, review or exceptions, according to the American rules, which are basically EAR. The items may be classified under the US control list. The EU has the similar provision known as the principal element rules. The catchall related control is also applicable to FDP control.

¹³ [‘Russia’s military aggression against Ukraine: EU imposes sanctions against President Putin and Foreign Minister Lavrov and adopts wide ranging individual and economic sanctions’](#), European Council, 25 February 2022.

¹⁴ [‘Export-related restrictions’](#), European Commission, 9 June 2022.

Other countries, notably, Australia,¹⁵ Canada,¹⁶ Japan¹⁷, South Korea¹⁸, United Kingdom¹⁹ also imposed sanctions, including military-related and dual-use goods restrictions. Taiwan, the largest manufacturer of semiconductor, announced curbs on transfers of semiconductors. The official statements, releases and notifications of these countries by and large reflect the export controls details worked out by the US and the EU. These countries could also refer to the new and old lists consisting of organisations and individuals prepared by the US and EU. These countries have also focused on semiconductors, electronics, drilling technology for energy, etc.

However, the US and the EU both have provisions for giving exceptions in some cases. The humanitarian reason is considered the foremost reason for providing relaxations. In the current situation, too, this norm has been followed, though the very term—humanitarian—is quite broad and always a subject of interpretation. Public health emergency, urgent response for natural disaster, phytosanitary and veterinary programmes, intergovernmental cooperation in space programmes, the International Thermonuclear Experimental Reactor Agreement, special nuclear energy, medicine, decommissioning and waste disposal programmes find the exceptional clause in the new wave of restrictions, especially in the EU notifications. Diplomatic activities and people-to-people contacts have also found exceptions in the EU curbs. The EU has listed more than 15 exemptions and derogations.

The US, too, in its 3 March 2022 notification, mentioned license exceptions on case-to-case basis. Some of the areas mentioned in the notifications are: Safety of flight, maritime safety, humanitarian needs, government space cooperation, specified Western subsidiaries and joint ventures, civil telecommunication infrastructure in certain countries and so on. The policy of denial is expected to give some relief to Russia because of these exceptions. The idea is to minimise ‘unintended consequences’.

Implications

Generally, Western media and scholars are of the view that export control as part of sanctions have adversely impacted Russia. Considering the global dominance of advanced Western technology, merit in this analysis cannot be completely ruled out.

¹⁵ [‘Russia sanctions regime’](#), Department of Foreign Affairs and Trade, Australian Government.

¹⁶ [‘Canadian sanctions related to Russia’](#), Government of Canada.

¹⁷ [‘Press Conference by Foreign Minister Hayashi Yoshimasa’](#), Ministry of Foreign Affairs of Japan, 25 February 2022; [‘Sanction Measures following the launch of military actions by Russia in Ukraine \(Statement by Foreign Minister Hayashi Yoshimasa\)’](#), Ministry of Foreign Affairs of Japan, 25 February 2022.

¹⁸ [‘MOFA Spokesperson’s Statement on Korean Government’s Decision on Export Control Measures on Belarus’](#), Ministry of Foreign Affairs, Republic of Korea, 6 March 2022.

¹⁹ [‘The Russia \(Sanctions\) \(EU Exit\) Regulations 2019’](#)

In fact, several media reports highlighted a drone that was shot down fitted with Western technology and components.²⁰ Undoubtedly, Russia and the West increased their interdependence after the end of the Cold War. Russia once not only partnered with the NATO but also was on the verge of joining it. All the Russian oligarchs have made meticulous forays into the Western countries, including their commercial establishments.

Will the sanctions imposed on Russia bring an end to the post-Cold War interdependence and globalisation? To an extent, it has impacted global trade. The Western companies may take uncertainty into account regarding doing business with those countries which are prone to Western sanctions. One very obvious implication of the technology control will be for the global supply chain, which was already under stress because of the China-US trade war. ‘Friend shoring’²¹ is the new phenomenon in the world. This phenomenon indicates that the Western companies are planning to either shift their business back to their own countries or to friendly countries. However, it is too early to predict the upheaval in the global economic framework. The new incentives may draw the Western companies back to these countries, especially China.

Moreover, in an interdependent world, Russia has also emerged as an important actor servicing the high technology needs of the world. The conflict has already disrupted the supply chain for several items, including semiconductors. Ukraine and Russia supply some of the key gases such as xenon, krypton, and neon which are required for chip making.²² The technology denial may at least, to some extent, adversely affect the making of some items, which in turn are supplied to the world.

The oft-quoted industry is the chip sector, which halted business ties with Russia. The export curbs not only came from the US but also from the UK, other European and some Asian countries which have advanced technology bases. Major companies operating in the semiconductor industry—Intel, Samsung, TSMC, Qualcomm and others, are shifting their business away from Russia. A report speculates that the problem of availability of chips may in turn adversely affect automobiles, household appliances/consumer electronics, smartphones, networking kits, data servers, IT hardware, and so on. It is speculated that the problem with networking kits and other electronic gadgets may have a serious impact on the operation of Russian

²⁰ Jeanne Whelan, [‘Western electronics found in Russian drones shot down over Ukraine’](#), *The Washington Post*, 11 February 2022.

²¹ Atlantic Council, “Transcript: US Treasury Secretary Janet Allen on the Next Steps for Russia Sanctions and ‘Friend Shoring’ Supply Chains”, 13 April 2022, <https://www.atlanticcouncil.org/news/transcripts/transcript-us-treasury-secretary-janet-yellen-on-the-next-steps-for-russia-sanctions-and-friend-shoring-supply-chains/>; Bryce Baschuk, “What ‘Friend-Shoring’ Means for Trade in a Less-Friendly World”, *The Washington Post*, 23 June 2022.

²² Per K. Hong, Erik Peterson, Bharat Kapoor, and Drew DeLong, [‘The Crisis in Ukraine Spells More Trouble for Semiconductor Supply’](#), *MIT Sloan Management Review*, May 10, 2022.

banks. As observed in a report, Russia is “unable to export much of its raw materials, import critical goods or access global financial markets” and notes that “economists expect Russia’s gross domestic product to contract by as much as 15 per cent this year.”²³

However, the same report notes that sanctions on the semiconductor industry will not have much impact on Russia because of various factors. First, Russia consumes only one percent of the global semiconductor production or business. Second, it procures its required chips mainly from the Asian countries, and except a couple of the Asian countries, others have desisted from imposing sanctions or curbs on Russia. Third, Russia, which is understood to lack advanced technology, has developed some microchip companies like JSC Mikron. Admittedly, some of the companies had relied on the foundries of those companies which are either reluctant to supply required raw materials or participated in sanctions on Russia. Fourth, it is suspected that Russia has access to grey market. It may get some of the required technology and materials from its East European or Central Asian allies. Fifth, as reported, it “introduced an import scheme whereby companies are allowed to ‘parallel import’ hardware — including servers, cars, phones and semiconductors — from a long list of companies without the consent of the trademark or copyright holder.”²⁴

Will China fish in the troubled waters and help Russia? This cannot be completely overlooked. Although China is treading a cautious path in the Russian-Ukraine conflict, yet for any procurement from the grey market, China is considered the primary destination. The much talked about International Data Corporation report calculated that denial of items like Intel’s X86 micro-processor may affect many Russian sectors, not merely defence. The banking and many other sectors are also projected as the targets of the sanctions and even curbs. In fact, Huawei has been in search of market for its products based on X86 processors. Technology curbs may come as a boon for the Chinese companies.

FDP Rules may for sure create problems for the companies or manufacturers based outside the US who use US products for manufacturing and creating of any item or goods. This extraterritorial aspect of the American rules has been a contentious issue for a long period. Some of the Russian airlines such as Aeroflot, Azur Air and Utair were denied access to acquire spare parts or services for their aircraft if these items are of US-origin. The Non-US companies outside the US may face penalty and/or punishment.

In the past, the EU and the US had acrimonious exchanges on different dimensions of export controls, especially on developing a policy on AI and other high-tech goods. In 2022, harmonization for export controls in particular and sanctions in general vis-

²³ [“Everything is gone”: Russian business hit hard by tech sanctions](#), *Financial Times*, 2 June 2022.

²⁴ Ibid.

à-vis Russia was appreciated in the Western policy circles and media. Trade and Technology Council (TTC) meetings apparently contributed to facilitating consultations and cooperation between the US and EU on these issues. The Council is also in touch with India. Will it herald an emergence of an institution like TTC in export controls? Will it become part of the global export control regime, including multilateral export control regimes and the universal forums such as Arms Trade Treaty secretariat and UNSC 1540 committee? The answer to these questions may emerge only after a couple of years of operation of the TTC.

Conclusion

The current phase of sanctions and associated export controls or strategic trade control is a continuation of sanctions imposed since Russia's Crimea operation. As the intensity and extent of military operation in February 2022 increased exponentially, the measures for sanctions have also been increased accordingly. Both sides have learned lessons. The West and its allies have their own lessons learned from Crimea-related sanctions and advanced technology control, and the Russians have also learned the lessons about bearing the curbs.

Interestingly, a higher degree of transatlantic unity has been witnessed in the swift implementation of sanctions, including advanced technology curbs through export controls or strategic trade control. Of course, the US leadership is continuing, and the US is more willing to implement technology denial measures. So far, other allies of the US are also demonstrating their solidarity against Russia, though it is difficult to predict how long this durability will last. The serious economic plight and hardships of European countries may strain the unity.

The nature of strategic trade control curbs is highly dynamic. Although the US and the EU started announcing sanctions, including technology curbs, ever since the beginning of the current round of conflict starting from 24 February 2022, both entities have amended and refined sanctions and export control several times. Existing export control practices have been buttressed with new tools and additions. The participants in sanctions and technology are drawn from a narrow base of technologically dominant countries. Yet the prediction of effectiveness of sanctions and strategic trade control may not be precise. The conflict and sanctions both seem to be testing each other.

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